**Intimate partner violence in orthopaedic trauma patients**

Sprague, S.A.

*Citation for published version (APA):*
Sprague, S. A. (2013). Intimate partner violence in orthopaedic trauma patients.

**General rights**
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

**Disclaimer/Complaints regulations**
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: https://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
Sheila Ann Sprague

Intimate Partner Violence in Orthopaedic Trauma Patients

Uitnodiging

voor het bijwonen van de openbare verdediging van het proefschrift

Intimate Partner Violence in Orthopaedic Trauma Patients

door
Sheila Ann Sprague

Op maandag 28 oktober 2013 om 16.00 uur in de Agnietenkapel
Oudezijds Voorburgwal 229-231 1012 EZ Amsterdam

Receptie ter plaatse
Na afloop van de promotie

Paranimfven:
Vanessa Scholtes en Paula McKay

Sheila Sprague
sprags@mcmaster.ca
Intimate Partner Violence in Orthopaedic Trauma Patients

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad van doctor
aan de Universiteit van Amsterdam op gezag van
de Rector Magnificus
prof. dr. D.C. van den Boom
ten overstaan van een door het college voor promoties ingestelde commissie,
in het openbaar te verdedigen in de Agnietenkapel op
maandag 28 oktober 2013, te 16.00 uur

door

Sheila Ann Sprague
geboren te Hamilton, Ontario, Canada
Promotiecommissie

Promotor: Prof. dr. J.C. Goslings

Copromotores: Dr. R.W. Poolman
Prof. dr. M. Bhandari

Overige leden: Prof. dr. M. Olff
Prof. dr. C.N. van Dijk
Prof. dr. M. Wieringa-de Waard
Prof. dr. I.B. Schipper
Prof. dr. M.A. Ghert

Faculteit der Geneeskunde
Division of Orthopaedic Surgery
Department of Surgery
McMaster University
293 Wellington Street North, Suite 110
Hamilton, Ontario L8L 8E7 Canada

Trauma Unit, Department of Surgery
Academic Medical Center
University of Amsterdam
G4-182
PO Box 22660
1100 DD Amsterdam, The Netherlands

The research within this thesis was funded by grants from:
- Orthopaedic Trauma Association
- Canadian Orthopaedic Foundation
- McMaster University Surgical Associates
- TraumaNet AMC

Further financial support for the preparation of this thesis document was received from:
- Conmed Linvatec Canada
- Tribute Pharmaceuticals
- MacOrtho, Division of Orthopaedic Surgery, Department of Surgery, McMaster University
- Global Research Solutions Inc.

Cover artwork by Kim Madden.

ISBN: 978-94-6191-862-8
# Table of Contents

**Section I: General Introduction (Page 6)**

Chapter 1: Introduction and Outline (Page 7)

**Section II: Orthopaedic Surgeons' and Surgical Trainees' Perceptions about Intimate Partner Violence (Page 11)**

Chapter 2: (Mis)Perceptions About Intimate Partner Violence in Women Presenting for Orthopaedic Care: A Survey of Canadian Orthopaedic Surgeons (Page 12)

Chapter 3: Perceptions of Intimate Partner Violence: A Cross Sectional Survey of Surgical Residents and Medical Students (Page 26)

**Section III: Prevalence of Intimate Partner Violence in Orthopaedic Fracture Clinic Patients (Page 44)**

Chapter 4: Prevalence of Intimate Partner Violence Across Medical and Surgical Health Care Settings: A Systematic Review (Page 45)

Chapter 5: Prevalence of Abuse and Intimate Partner Violence Surgical Evaluation (PRAISE): Rationale and Design of a Multi-Center Cross-sectional Study (Page 65)

Chapter 6: The Prevalence of Intimate Partner Violence across Orthopaedic Fracture Clinics in Ontario (Page 79)

Chapter 7: Prevalence of Abuse and Intimate Partner Violence Surgical Evaluation (PRAISE) in Orthopaedic Fracture Clinics: A Multi-National Prevalence Study (Page 98)

**Section IV: Barriers to and Facilitators for Screening for Intimate Partner Violence in Orthopaedic Fracture Clinic Patients (Page 123)**

Chapter 8: Barriers to Screening for Intimate Partner Violence (Page 124)

Chapter 9: Barriers To and Facilitators for Screening Women for Intimate Partner Violence in Surgical Fracture Clinics: A Qualitative Descriptive Approach (Page 143)

Chapter 10: Patient Opinions of Screening for Intimate Partner Violence in a Fracture Clinic Setting (P.O.S.I.T.I.V.E.): A Multicenter Study (Page 160)
Section V: Moving Towards Developing a Screening Program for Intimate Partner Violence in the Orthopaedic Fracture Clinic (Page 179)

Chapter 11: Screening for Intimate Partner Violence in Orthopedic Patients: A Comparison of Three Screening Tools (Page 180)

Chapter 12: Intimate Partner Violence and Musculoskeletal Injury: Bridging the Knowledge Gap in Orthopaedic Fracture Clinics (Page 192)

Section VI: General Discussion (Page 208)

Chapter 13: Summary and General Discussion (Page 209)

Summary in Dutch / Nederlandse Samenvatting (Page 217)

Acknowledgements (Page 228)

Biography (Page 230)
Section I: General Introduction
Chapter 1

Introduction and Outline
Background and Current Knowledge

Intimate partner violence (IPV), also known as domestic violence, spouse abuse, battering, or partner violence is a serious problem that affects millions of people around the world. The Center for Disease Control defines the term "intimate partner violence" as physical, sexual, or psychological harm by a current or former partner or spouse. This type of violence can occur among heterosexual or same-sex couples and does not require sexual intimacy. The American Medical Association defines IPV as a pattern of coercive behaviours that include repeated battering and injury, psychological abuse, sexual assault, progressive social isolation, deprivation, and intimidation. Intimate partner violence may vary in frequency and severity and it often occurs on a continuum, ranging from one hit that may or may not impact the victim to chronic or severe battering.

A recent study on women’s health and domestic violence published by the World Health Organization (WHO), estimated the extent of physical and sexual IPV against women in 15 sites in ten countries. This study found that the reported lifetime prevalence of physical or sexual abuse, or both, varied from 15 percent to 71 percent, with six of the 15 sites having reported rates between 50 percent and 75 percent. Between 1999 and 2004 approximately 653,000 women in Canada were either physically or sexually abused. Domestic violence is one of the most common reasons why police services are called. Forty to 60 percent of murders in North America are perpetrated by intimate partners and in less-industrialized countries rates may be even higher.

Intimate partner violence is a significant social determinant of morbidity and mortality. Consequences of IPV include health problems such as injury, chronic pain, gastrointestinal symptoms and illnesses (i.e. loss of appetite, eating disorders, irritable bowel syndrome), depression, gynaecological illnesses (i.e. urinary tract infections, pelvic pain), cardiac symptoms (hypertension and chest pain) and post-traumatic stress disorder. Previous research has found that abused women have more anxiety, insomnia, and social dysfunction than those who are not victims of IPV. Analyses of medical care use by women have found poorer overall mental and physical health, more injuries, resulting in a higher use of medical care including admissions to the hospital and prescription medications in IPV victims compared to women who have not been abused.

A recent report by Statistics Canada found that just under one-quarter (22 percent) of IPV victims receiving help stated that the incident came to the attention of the police, suggesting that the police are not able to detect and help a large proportion of IPV victims. Health care professionals and the health care system are an important gateway to care for IPV victims; however, without active screening, IPV victims may not be identified by health care professionals.

Many health care professionals believe that patients who are victims of IPV are identified and successfully assisted in the emergency room and consequently IPV is not their concern and is therefore out of their scope of practice. Unfortunately, the emergency room is often not the optimal setting for a woman to feel safe enough to disclose IPV. Disclosure of IPV in a health care setting may be influenced by multiple factors including the patient's physical and emotional readiness, the type of clinical setting, and a sense of trust in a particular caregiver. Victims of IPV may not be emotionally or physically ready to disclose when they are in an acute crisis, as they may be focused on receiving care for their injuries and they may be worried about their children being taken or hurt. Moreover, the interaction with the health care professionals in the emergency room may be too brief to form a bond of trust with the patient. Other health
care professionals frequently see victims of IPV for routine appointments that are either related 
to or unrelated to their IPV and they can consequently play a vital role in detecting IPV. For 
example, obstetrics and gynaecology specialists as well as family practitioners have successfully 
implemented screening programs for IPV\textsuperscript{13}. These health care professionals are well-suited to 
identify and assist women who are experiencing IPV as they are in an optimal position to gain 
comprehensive information on a patient’s history, including mental and physical health, and 
possibly link physical symptoms with abuse\textsuperscript{13}.

Many of the women who present to the emergency room are referred to other specialties 
for treatment of their injuries. Women with serious injuries, including dislocations and fractures, 
are almost always referred to a specialist, such as an orthopaedic surgeon. This referral offers a 
secondary opportunity for screening for IPV. Bhandari et al. recently conducted a study looking 
at the physical manifestations of IPV and found that musculoskeletal injuries are commonly seen 
in victims of IPV, with fractures and dislocations comprising the majority of these injuries\textsuperscript{14}. 
Orthopaedic surgeons traditionally do not actively screen their patients for IPV; however, they 
may be well positioned to help identify and manage victims of IPV in the fracture clinic setting.

Towards an Evidence-Based Approach to IPV in Trauma and Orthopaedics

Substantial research has been conducted on IPV over the past few decades, but very little 
research has focused on IPV in the field of orthopaedics. This thesis originates from the lack of 
an understanding of IPV in orthopaedic patients as well as the desire to further help victims of 
IPV. The overall long-term goal of our work is to develop a successful, evidence-based screening 
program, with appropriate treatment options, for IPV victims in fracture clinics across the globe. 
At the initiation of this thesis, a number of important questions were identified, including 
determining the prevalence of IPV in patients presenting to fracture clinics as opposed to other 
medical specialties, and assessing the role and willingness of orthopaedic surgeons in helping 
victims of IPV.

Issues to be Discussed in this Thesis

The overarching theme of this thesis is to conduct research to understand the 
opportunities and challenges facing orthopaedic surgeons in diagnosing and managing IPV in 
their practices. The specific aims of this thesis are fourfold: 1) to investigate orthopaedic 
surgeons’, surgical trainees’, and medical students’ perceptions about IPV, 2) to determine 
the prevalence of IPV in fracture clinic patients, 3) to assess the barriers to and facilitators for 
screening for IPV in orthopaedic settings, and 4) to discuss the development of a screening 
program for IPV in orthopaedic fracture clinics.

References

1. Saltzman LE, Fanslow JL, McMahon PM, Shelley GA. Intimate partner violence 
surveillance: uniform definitions and recommended data elements, version 1.0. Atlanta (GA): 
Centers for Disease Control and Prevention, National Center for Injury Prevention and 
Control; 2002.
2. American Medical Association. Diagnostic and Treatment Guidelines on Domestic Violence. 
Chicago, IL: American Medical Association, 1992.
3. Garcia-Moreno C, Jansen HAFM, Ellsberg M, Heise L, Watts CH; WHO Multi-country 
Study on Women’s Health and Domestic Violence against Women Study Team. Prevalence
of intimate partner violence: Findings from the WHO multi-country study on women’s health and domestic violence. Lancet. 2006;368:1260–9.
4. Statistics Canada. (2005). Family violence in Canada: A statistical profile. Canadian Center for Justice Statistics. Catalogue no. 85-224-XIE / ISSN 1480-7165.
5. Sampson R. Domestic violence. Problem-Oriented Guides for Police; Problem-Specific Guides Series 2007; no. 45.
6. Campbell JC. Health consequence of intimate partner violence. Lancet 2002;359:1331–6.
7. Golding JM. Intimate partner violence as a risk factor for mental disorders: A meta-analysis. J Fam Violence. 1999;14:99-132.
8. Statistics Canada. (2011). Family violence in Canada: A statistical profile. Canadian Center for Justice Statistics. Catalogue no. 85-224-XWE.
9. Pichta SB. Interactions between victims of intimate partner violence against women and the health care system: policy and practice implications. Trauma, Violence & Abuse. 2007;8:226-39.
10. Janssen P, Dascal-Weichhendler H, McGregor M. Assessment for intimate partner violence: Where do we stand. J Am Board Fam Med. 2006;19:412-5.
11. Hegarty KL, Taft AJ. Overcoming the barriers to disclosure and inquiry of partner abuse for women attending general practice. Aust N Z J Public Health. 2001;25:433-7.
12. Epstein E, Bell ME, Goodman LA. Transforming aggressive prosecution policies: Prioritizing victims’ long-term safety in the prosecution of domestic violence cases. Am Univ J Gend Soc Policy Law. 2003;11:465-498.
13. Naumann P, Langford D, Torres S, Jacquelyn Campbell J, Glass N. Women battering in primary care practice. Fam Pract. 1999;16:343-53.
14. Bhandari M, Dosanjh S, Tornetta P III, Matthews D; the Violence Against Women Health Research Collaborative. Musculoskeletal manifestations of physical abuse after intimate partner violence. J Trauma. 2006;61:1473-9.
Section II: Orthopaedic Surgeons’ and Surgical Trainees’ Perceptions about Intimate Partner Violence
Chapter 2

(Mis)Perceptions About Intimate Partner Violence in Women Presenting for Orthopaedic Care: A Survey of Canadian Orthopaedic Surgeons

M Bhandari, S Sprague, P Tornetta 3rd, V D'Aurora, E Schemitsch, H Shearer, O Brink, D Mathews, S Dosanjh

Published
Journal of Bone and Joint Surgery Am. 2008 Jul;90(7):1590-7.
Abstract

Background: Domestic violence is the most common cause of nonfatal injury to women in North America. In a review of 144 such injuries, the second most common manifestation of intimate partner violence was musculoskeletal injuries (28%). The American Academy of Orthopaedic Surgeons is explicit that orthopaedic surgeons should play a role in the screening and appropriate identification of victims. We aimed to identify the perceptions, attitudes, and knowledge of Canadian orthopaedic surgeons with regard to intimate partner violence.

Methods: We surveyed members of the Canadian Orthopaedic Association to identify attitudes toward intimate partner violence. With use of a systematic random sample, 362 surgeons were mailed questionnaires. The questionnaire consisted of three sections: (1) the general attitude of the orthopaedic surgeon toward intimate partner violence, (2) the attitude of the orthopaedic surgeon toward victims and batterers, and (3) the clinical relevance of intimate partner violence in orthopaedic surgery. Up to three follow-up mailings were performed to enhance response rates.

Results: A total of 186 orthopaedic surgeons responded (a response rate of 51%), and 167 (91%) of them were men. Most orthopaedic surgeons (95%) estimated that <10% of their patients were victims of intimate partner violence, and most respondents (80%) believed that it was exceedingly rare (a prevalence of <1%). The concept of mandatory screening for intimate partner violence was met with uncertainty by 116 surgeons (64%). Misconceptions were perpetuated by surgeons who believed that inquiring about intimate partner violence was an invasion of the victim’s privacy, that investigating intimate partner violence was not part of their duty, that victims choose to be a victim, and that victims play a proactive role in causing their abuse. By the completion of the survey, the majority of surgeons (91%) believed that knowledge about intimate partner violence was relevant to their surgical practice.

Conclusions: Discomfort with the issue and lack of education have led to misconceptions among Canadian orthopaedic surgeons about intimate partner violence. The relevance of intimate partner violence to surgical practice is well understood, but studies regarding its prevalence are needed as a first step to change the current paradigm in orthopaedic surgery.
Introduction

Injuries are the leading cause of death for females from one to thirty-four years old, and they are a major source of preventable morbidity and mortality in middle-aged and elderly women. Motor vehicle-related injuries, falls, and violence are the most serious injury problems for women. Although morbidity is far greater than mortality, access to information about nonfatal injuries is extremely limited. Domestic violence is the most common cause of nonfatal injury to women in North America. More than four in every ten women in North America are likely to have experienced one or more forms of violence, including child abuse (17.8%), physical assault (19.1%), rape (20.4%), and intimate partner violence (34.6%).

Intimate partner violence is a pattern of assaultive and coercive behaviors, including physical, sexual, and psychological attacks as well as economic coercion that men or women typically use against partners. In a review of women seen at a Minneapolis-based therapy and advocacy program for victims of intimate partner violence, investigators identified 144 injuries in 218 physically abused women. The most prevalent injuries resulting from intimate partner violence were head and neck injuries (40%), and the second most common manifestation was musculoskeletal injuries (28%). The spectrum of injuries included sprains (twenty-one injuries), fracture-dislocations (seventeen injuries), and foot injuries (two injuries)—all of which would have necessitated referral to an orthopaedic surgeon.

Women who are victims of intimate partner violence have been known to use health services at higher rates than women who have not been abused. Health-care providers of all specialties are in a unique position to identify and assist victims of intimate partner violence during routine or annual office visits. The prevalence of intimate partner violence in women presenting to emergency departments has been reported to range from 14% to 41%; however, only 12% to 17% of abused women have their experiences documented in a medical chart. Women who have experienced intimate partner violence are seldom identified by emergency department physicians. To our knowledge, there have been no reports on the incidence of intimate partner violence among women attending orthopaedic fracture and injury clinics.

Given the infrequent identification of intimate partner violence by emergency or primary care physicians, orthopaedic surgeons and orthopaedic clinic personnel have a second opportunity to identify and provide necessary referral to a local agency or hospital service. Several specialty associations, including the American Medical Association, the American College of Obstetricians and Gynecologists, the American Academy of Pediatrics, the American College of Emergency Physicians, and the U.S. Centers for Disease Control and Prevention, have advocated screening for intimate partner violence. The American Academy of Orthopaedic Surgeons (AAOS) has recommended that “orthopaedic surgeons should be aware of how harm from domestic violence and abuse may present to them.”

We aimed to identify the perceptions, attitudes, and knowledge of Canadian orthopaedic surgeons about intimate partner violence.

Survey Methodology

The purpose of the survey was to assess the perceptions and knowledge of practicing orthopaedic surgeons about intimate partner violence. We performed a pilot test of a survey designed by members of the Violence Against Women Health Research Collaborative. Our
sampling frame included the 764 members of the Canadian Orthopaedic Association (COA). A list of all practicing orthopaedic surgeons was obtained from the COA. With use of a one in two systematic sampling strategy, each name was entered into a database and assigned a corresponding numerical identity code. The inclusion criteria for the study were that participants had to be currently practicing orthopaedic surgeons in Canada and listed as members of the COA (current estimates suggest that >80% of practicing surgeons in Canada are members and that 91% are men).

Demographic and qualitative surveys were used to collect characteristic data about the surgeons and their practices, as well as to measure the participants’ attitudes toward intimate partner violence by identifying their beliefs regarding victims, batterers, and their own responsibilities as a firsthand orthopaedic practitioner. This survey had been previously used in a similar survey of chiropractors in the United States.13

The demographic survey was divided into two sections. Information regarding the age, sex, and race or ethnicity of the respondent and the prevalence of injured female patients seen in their practice was obtained from six questions. The following section of nine questions assessed the surgeon’s knowledge of intimate partner violence by identifying the rates of exposure to patients in orthopaedic clinics who had been victims of intimate partner violence. Further, participants were asked about their comfort level regarding their own preparedness to effectively manage patients who had been abused as well as about their level of interest in attending educational sessions for training in how to deal with intimate partner violence. These questions were developed with content experts and demonstrated both face and content validity.

Surgeons also completed a minimally modified thirty-nine-item provider survey, which had been previously validated.14 Permission was obtained from the survey developers to both use and modify the provider survey, and reporting of the validity and reliability of the survey was provided. Minimal descriptive modifications were made so that the analysis would be more applicable to the orthopaedic setting. The questionnaire consisted of three sections: (1) the general attitude of the orthopaedic surgeon toward intimate partner violence, (2) the attitude of the orthopaedic surgeon toward victims and batterers, and (3) the clinical relevance of intimate partner violence in orthopaedic surgery. The participant was asked to omit any questions not directly pertaining to his or her practice.

The first section of the questionnaire was designed to identify the perceptions of Canadian orthopaedic surgeons regarding their own responsibilities in identifying and treating patients who had been victims of intimate partner violence. The second section explored the perceptions of the surgeons about the characteristics of victims and batterers, factors that increase the likeliness of abuse, and screening for intimate partner violence. The final section of the survey was designed to determine the clinical presentations that encourage orthopaedic surgeons to inquire about potential abuse. In addition, the frequency of intimate partner violence in patients seen at orthopaedic clinics, as well as the necessity of establishing written guidelines for orthopaedic surgeons, was assessed.

All surgeons included in the COA were mailed a complete package consisting of a personalized introductory information letter, a cover page, the demographic data form, the modified provider survey, and a preaddressed return envelope. The introductory personalized letter included in the mailed package described the purpose and importance of the study, explained the procedures and confidentiality, and provided contact data to obtain further information. Passive consent was acknowledged on the basis of the returned completed surveys. Participants were also offered the option of omitting any questions that were outside their
knowledge or with which they felt uncomfortable. No incentives were provided to surgeons for survey completion. All contents of the mailed package were approved by our research ethics board. Up to three follow-up mailings were sent to enhance response rates.

Completed survey data were entered into a study-specific database, and descriptive analyses, including frequency counts and percentages, were performed for all collected data. We calculated 95% confidence intervals around proportions to provide estimates of precision. To ensure a sufficient number of responses for reporting, we determined that responses from 180 orthopaedic surgeons would provide adequate sample size to ensure that the 95% confidence intervals around our estimates of response would not exceed ±10%. Thus, if 60% of the surgeons responded to the question about having recognized intimate partner violence in patients in their practices, we could be assured that the true estimate in the population ranged from 50% to 70%. Given an expected response rate of 50% from our previous survey, we aimed to survey at least 360 surgeons to ensure 180 responses for analysis.

**Survey Results**

**Demographics**

In total, the survey package was sent to 362 Canadian orthopaedic surgeons. A total of 186 orthopaedic surgeons responded (a response rate of 51%), and 167 (91%) were men who were actively practicing at the time of the survey. All of the respondents were Canadian citizens, were currently practicing in Canada, and were typically between forty-one and fifty years of age (sixty-three respondents; 34%).

Most survey respondents (105; 56%) reported that they had previously recognized victims of intimate partner violence in their practice. However, 111 participants (60%) had never identified the batterers of patients who had been victims of intimate partner violence. According to 135 surgeons (73%), written guidelines for the detection and management of intimate partner violence were not established in their clinics. Additionally, 101 participants (54%) had not identified a single patient who had been a victim of intimate partner violence in the past year.

**Perceptions about the Prevalence of Intimate Partner Violence, Surgeons’ Comfort with the Issue, and Screening (Table 1)**

Most Canadian orthopaedic surgeons (170 respondents) estimated that <10% of the women in their communities were victims of intimate partner violence, and the majority (148 respondents) believed it was exceedingly rare (a prevalence of <1%) to have female victims of intimate partner violence in their care. Despite the perceived rarity of treating such victims, more than one-half (58%) of the surgeons denied having any personal discomfort with the issue of intimate partner violence. However, a lack of training in the most appropriate response to injured, abused women was identified by 47% of respondents. The appropriateness of mandatory screening for intimate partner violence was met with uncertainty by 116 surgeons (64%) and was encouraged by some surgeons (29; 16%).

**Attitudes Toward Victims (Table 2)**

The majority (72%) of Canadian surgeons believed that victims were likely to leave an abusive relationship. Some surgeons (9%) believed that inquiring about intimate partner violence was an invasion of the victim’s privacy; 14%, that victims ‘‘get something’’ from the abusive relationship; 5%, that victims choose to be a victim; 5%, that both the victim and the batterer are
responsible for the abuse; and 20%, that victims have personalities (passive and/or dependent) that predispose them to abuse. Surgeons remained uncertain about whether some patients may get angry if asked about intimate partner violence in the clinic (especially if they were not being abused); about whether patients who do not openly tell their surgeon do not believe that it is the surgeon’s business to know; and about whether it was their role as a health-care provider to interfere with the personal conflicts of a patient.

Attitudes Toward Batterers (Table 3)

Many Canadian surgeons (30%) were concerned about their personal safety when confronting a batterer in the clinic. In general, we identified considerable variability and a lack of consensus in responses (agree, disagree, and unsure) with regard to fear of placing the victim in greater danger by inquiring about abuse in front the batterer, the use of strategies to assist batterers with seeking help, and fear of retaliation by the batterer toward the health-care staff.

Table 1. Attitudes of Orthopedic Surgeons Toward Issues Relating to Intimate Partner Violence in Patients Seen in Medical Practice

| Issue                                                                 | No. (%) of Respondents |
|----------------------------------------------------------------------|------------------------|
| Intimate partner violence prevalence in my practice (n = 171)        |                        |
| Rare (<1%)                                                           | 148 (87)               |
| Fairly common (5% to 10%)                                           | 22 (13)                |
| Very common (>15%)                                                  | 1 (<1)                 |
| Intimate partner violence prevalence in my community (n = 165)       |                        |
| Rare (<1%)                                                           | 50 (26.9)              |
| Fairly common (5% to 10%)                                           | 108 (58.1)             |
| Very common (>15%)                                                  | 7 (4.2)                |
| Personal discomfort with issue of intimate partner violence (n = 180)|                        |
| Agree                                                                | 53 (29)                |
| Unsure                                                               | 23 (13)                |
| Disagree                                                             | 104 (58)               |
| Lack of knowledge of appropriate response (n = 181)                  |                        |
| Agree                                                                | 85 (47)                |
| Unsure                                                               | 25 (14)                |
| Disagree                                                             | 71 (39)                |
| Lack of knowledge of appropriate resources (n = 180)                 |                        |
| Agree                                                                | 95 (52.8)              |
| Unsure                                                               | 19 (10.6)              |
| Disagree                                                             | 66 (36.7)              |
| Mandatory screening for intimate partner violence (n = 181)          |                        |
| Yes                                                                  | 29 (16)                |
| No                                                                   | 36 (20)                |
| Unsure                                                               | 110 (64)               |

*The total number of respondents who answered the question is given in parentheses.
### Table 2. Attitudes of Orthopaedic Surgeons Towards Victims

| Issue                                                                 | No. (%) of Respondents |
|----------------------------------------------------------------------|-------------------------|
| Victim gets something from abusive relationship (n = 175)            |                         |
| Agree                                                                | 24 (14)                 |
| Neutral                                                              | 38 (22)                 |
| Disagree                                                             | 113 (65)                |
| Victim unlikely to leave relationship (n = 174)                       |                         |
| Agree†                                                               | 13 (7)                  |
| Neutral                                                              | 36 (21)                 |
| Disagree                                                             | 125 (72)                |
| Not my role as health-care provider to interfere with personal conflicts (n = 175) |                         |
| Agree                                                                | 19 (11)                 |
| Neutral                                                              | 38 (22)                 |
| Disagree                                                             | 118 (67)                |
| Inquiring about intimate partner violence is an invasion of privacy (n = 174) |                         |
| Agree†                                                               | 15 (9)                  |
| Neutral                                                              | 24 (14)                 |
| Disagree                                                             | 135 (78)                |
| Investigating the cause of a patient’s injury is not part of medical care (n = 175) |                         |
| Agree                                                                | 4 (2)                   |
| Neutral                                                              | 12 (7)                  |
| Disagree†                                                            | 159 (91)                |
| If patients do not openly reveal abuse, they feel it is none of my business (n = 175) |                         |
| Agree                                                                | 25 (14)                 |
| Neutral                                                              | 43 (25)                 |
| Disagree†                                                            | 107 (61)                |
| Demeaning to ask patients about abuse (n = 174)                       |                         |
| Agree                                                                | 16 (9)                  |
| Neutral                                                              | 38 (22)                 |
| Disagree†                                                            | 120 (69)                |
| Risk of patients getting angry if they were not abused (n = 174)      |                         |
| Agree                                                                | 33 (19)                 |
| Neutral                                                              | 45 (26)                 |
| Disagree†                                                            | 96 (55)                 |
| People only become victims if they choose to be (n = 173)             |                         |
| Agree                                                                | 9 (5)                   |
| Neutral                                                              | 15 (9)                  |
| Disagree†                                                            | 149 (86)                |
| Both the victim and the batterer are responsible for intimate partner violence (n = 174) |                         |
| Agree                                                                | 9 (5)                   |
| Neutral                                                              | 25 (14)                 |
| Disagree†                                                            | 140 (80)                |
| Patients are predisposed to intimate partner violence because of their personalities (passive and/or dependent nature) (n = 174) |                         |
| Agree                                                                | 35 (20)                 |
| Neutral                                                              | 51 (29)                 |
| Disagree†                                                            | 88 (51)                 |
### Table 2. Attitudes of Orthopaedic Surgeons Towards Victims (Continued)

| Issue* | No. (%) of Respondents |
|--------|------------------------|
| Majority of victims are women challenging their traditional roles (n = 173) | |
| Agree | 1 (1) |
| Neutral | 15 (9) |
| Disagree† | 157 (91) |
| Victims often have proactive role in causing the abuse to occur (n = 174) | |
| Agree | 5 (3) |
| Neutral | 27 (16) |
| Disagree† | 142 (82) |

*The total number of respondents who answered the question is given in parentheses.
†Preferred response where applicable

### Table 3. Attitudes of Orthopaedic Surgeons Towards Batterers Involved in Intimate Partner Violence

| Issue* | No. (%) of Respondents |
|--------|------------------------|
| Reluctance to question batterers out of concern for personal safety (n = 169) | |
| Agree | 51 (30) |
| Neutral | 47 (28) |
| Disagree | 71 (42) |
| Not enough security to have discussion safely with batterers (n = 169) | |
| Agree | 58 (34) |
| Neutral | 50 (30) |
| Disagree | 61 (36) |
| Afraid of offending patient if asking about abusive behavior (n = 168) | |
| Agree† | 55 (33) |
| Neutral | 41 (24) |
| Disagree | 72 (43) |
| Fear that questioning batterer will place victim in greater danger (n = 169) | |
| Agree† | 62 (37) |
| Neutral | 63 (37) |
| Disagree | 44 (26) |
| When challenged, batterers direct anger toward health-care workers (n = 169) | |
| Agree | 34 (20) |
| Neutral | 81 (48) |
| Disagree† | 54 (32) |
| Intimate partner violence would stop if batterer quit abusing alcohol (N = 169) | |
| Agree | 72 (43) |
| Neutral | 59 (35) |
| Disagree† | 38 (22) |
| Have developed ways of asking about intimate partner violence without putting myself at risk (n = 168) | |
| Agree | 100 (60) |
| Neutral | 55 (33) |
| Disagree | 13 (8) |
Table 3. Attitudes of Orthopaedic Surgeons Towards Batterers Involved in Intimate Partner Violence (Continued)

| Issue* | No. (%) of Respondents |
|--------|------------------------|
| Can effectively discuss issues of abuse with batterer (n = 169) | |
| Agree | 26 (15) |
| Neutral | 69 (41) |
| Disagree | 74 (44) |
| Can use strategies to encourage batterers to seek help (n = 169) | |
| Agree | 65 (38) |
| Neutral | 83 (49) |
| Disagree | 21 (12) |
| There are ways to ask batterers about intimate partner violence that minimize risk to victim (n = 169) | |
| Agree | 71 (42) |
| Neutral | 79 (47) |
| Disagree | 19 (11) |

*The total number of respondents who answered the question is given in parentheses.
†Preferred response where applicable†.

Roles and Need for Training

By the completion of the survey, the majority (91%) of Canadian surgeons believed that knowledge about intimate partner violence was relevant to their surgical practice. Only 9% of the respondents reported some training in intimate partner violence-related issues and 30% supported educational programs for orthopaedic surgeons.

Discussion

In this survey of 186 Canadian orthopaedic surgeons, our findings suggested that (1) surgeons believe that the victims of intimate partner violence are rarely seen (a prevalence of <1%) in their practice setting, (2) surgeons continue to have misperceptions about victims and batterers, and (3) surgeons believe that intimate partner violence is relevant to their field, but only one in three support formal educational programs for orthopaedic surgeons.

Contrary to the perception of the surgeons that intimate partner violence is rare, several investigations have shown an alarmingly high incidence in the community. In Canada, an estimated 653,000 women are involved in an abusive relationship yearly. Among the women who reported such abuse, 54% stated that the violence was not an isolated incident but rather a recurring event in their lives. Women in Canada are also more likely to report severe injuries, such as fractures, than are male victims of domestic violence (20% and 0%, respectively). Estimates have ranged from 960,000 incidents of violence against a current or former spouse, boyfriend, or girlfriend per year to 3.9 million incidents of rape and/or physical assault on women by an intimate partner annually. Nearly one third of American women (31%) have reported being physically or sexually abused by a husband or boyfriend at some point in their lives, according to a 1998 Commonwealth Fund survey. Women are less likely than men to be victims of violent crimes overall, women are five to eight times more likely than men to be victimized by an intimate partner. In one report, domestic violence often resulted in severe injury; 28% of the women interviewed required hospitalization for injuries, 13% required major surgical treatment, and about 40% had previously required medical care for abuse. From 1987...
to 1990, crime cost Americans $450 billion a year, and 15% ($67 billion) of that was from
domestic violence on adult victims.19

Orthopaedic surgeons are not unique in their perceptions and attitudes about intimate
partner violence in their practices. Roelens et al., in a survey of 249 obstetrician-gynecologists in
Flanders, Belgium, found that gynecologists proved rather unfamiliar with intimate partner
violence and largely underestimated the extent of the problem.20 Only 6.8% (seventeen) of the
249 respondents ever received or pursued any kind of education on intimate partner violence.
Similar to orthopaedic surgeons, gynecologists feared offending or insulting patients by
questioning them about intimate partner violence. Lack of knowledge, personal discomfort, and
time constraints were all cited as barriers to screening for intimate partner violence in a survey of
ninety three chiropractors who also underestimated the prevalence of intimate partner violence in
the community by indicating that it affected 5% of women.13

In another study, McCloskey et al. surveyed 2495 women about their experiences with
screening for intimate partner violence across five medical specialty areas (an obstetrician
gynecologist office, the emergency department, a primary care office, pediatricians’ offices, and
an addiction recovery program)21. The highest rates of recent intimate partner violence were
disclosed in the hospital-based addiction recovery unit (36%) and in emergency departments
(17%).

Surgeons in our survey were generally unenthusiastic, or unsure, about mandatory
reporting of intimate partner violence in the same manner as child abuse. Approximately 16% of
the respondents supported a policy of mandatory reporting. In Canada, some abusive actions
(i.e., physical and sexual violence) are defined as crimes; however, there are currently no laws
mandating reporting of suspected intimate partner violence. In the United States, most states
have laws that require health professionals to report domestic violence to the police or other state
agencies. These usually take the form of laws that mandate reporting of injuries due to certain
weapons or criminal acts. Since domestic violence is a crime in all fifty states, injuries resulting
from domestic violence are reportable. Some states, for example, California, Kentucky, New
Hampshire, New Mexico, and Mississippi, have laws that explicitly mandate reporting of injuries
or physical conditions known or suspected to be due to domestic violence. Arguments against a
policy of mandatory reporting are numerous.15,16,19 Batterers often escalate the violence when
their partners attempt to seek help or try to leave them15,16,19. The most dangerous time for
victims and their families is when she or he tries to leave with or without the aid of the criminal
or civil justice system.15 Unfortunately, most local law enforcement agencies and judicial
systems are unable to guarantee safety for victims; in fact, there are numerous reports of victims
killed or injured in or near the courthouses where they were seeking protection from their
batterers.15 Mandatory reporting may cause some victims to avoid seeking health care. As noted
above, this may occur because they fear retaliation and know from prior experience that the
criminal justice system cannot guarantee safety.

Our findings support the need for educational initiatives in Canadian orthopaedics.
Among gynecologists, physician education was found to be the strongest predictor of a positive
attitude toward screening and of the establishment of current screening practices. Narayan et al.
surveyed the chief residents of all 203 pediatric residency programs accredited by the
Accreditation Council for Graduate Medical Education in the United States from 2004 to 2005.22
They aimed to identify levels of preparedness of residents on graduation to address child abuse,
domestic violence, and neglect. For the 71% who responded, the authors found that previous
didactic education and mandatory rotations were significantly associated with greater levels of
preparedness to deal with child abuse and domestic violence \( (p = 0.001)^{22} \). Roelens et al. suggested that physician training on intimate partner violence is an important step toward successful implementation of screening guidelines for intimate partner violence\(^{20}\). Surgeons’ lack of knowledge may, in part, be related to lack of exposure during early training. Frank et al. surveyed sixteen medical school classes at three different times during their education\(^{23}\). Among 2316 medical students, only one in three senior students thought intimate partner violence would be highly relevant to their own practice.

Our findings are strengthened by the use of a survey that has previously been well described, with additional pilot testing for clarity and comprehensiveness among the Violence Against Women Health Research Collaborative members. One may view our survey response rate as a strength or a weakness. Most surveys of surgeons achieve low response rates, but even a response rate of \( >50\% \) risks non-responder bias. Our response rate is consistent with that of other surveys of intimate partner violence, which have ranged from 14\% to 83\% (mean, 57\%; 95\% confidence interval, 43\% to 71\%)\(^{13,21,23-34}\).

Our study has some limitations. Our survey was restricted to only Canadian orthopaedic surgeons who were currently practicing and listed with the COA and for whom valid mailing addresses were obtained. It remains unclear whether our findings are generalizable to other countries or other relevant subspecialty areas. For example, in Florida, education on domestic violence is mandatory for all physicians as a condition of licensure\(^{35}\). In order to renew the license, a physician must take and pass an examination on domestic violence. In the survey, we did not provide all of the consequences of mandatory screening. We simply asked surgeons whether they supported mandatory screening of all women presenting to orthopaedic clinics. The responses were mixed and may, in part, have been related to a lack of knowledge about the consequences of such screening.

**Relevance**

There is a strong rationale for addressing intimate partner violence as an issue that is relevant to the field of orthopaedic surgery just as it has been shown to be relevant to primary care, emergency medicine, and obstetrics and gynecology. While no position statement exists in the COA, the AAOS’ position statement on intimate partner violence\(^{12}\) explicitly states the following about the role of orthopaedic surgeons:

- Be knowledgeable about various forms of domestic and family violence and how it may present to them in their practices.
- Appropriately screen for problems of domestic violence and document them in the medical record.
- Assess and assure the safety of the victim.
- Appropriately treat victims.
- Take steps to prevent further harm.
- Be familiar with the applicable laws and resources for reporting and referring suspected cases of violence and abuse.
- Comply with all mandatory reporting laws.

Although there are no data that suggest that this position on domestic violence has improved awareness of the issue among surgeons in the United States, it is an important leadership initiative that may provide a basis for educational programs.

Our findings of several misconceptions among orthopaedic surgeons support the need for educational programs. While Canadian orthopaedic surgeons believe that victims of intimate
partner violence are not likely to be seen in their practices, they are likely grossly underestimating the number of victims who are treated in their orthopaedic injury and fracture clinics each year. Unfortunately, until a large prospective cohort study provides estimates of the true prevalence of intimate partner violence specifically in the orthopaedic setting, surgeons will remain unconvinced regarding the need for, and will be unlikely to support, widespread education and the adoption of appropriate referral practices to trained advocates, such as social workers, psychologists, and sociologists, to improve the lives of these victims.

In conclusion, discomfort with the issue and lack of education have led to misconceptions among Canadian orthopaedic surgeons about intimate partner violence. The relevance of intimate partner violence to surgical practice is well understood, but studies to determine its prevalence are needed as a first step to change the current paradigm in orthopaedic surgery.

References

1. Kyriacou DN, Anglin D, Taliaferro E, Stone S, Tubb T, Linden JA, Muelleman R, Barton E, Kraus JF. Risk factors for injury to women from domestic violence against women. N Engl J Med. 1999;341:1892-8.
2. Dannenberg AL, Baker SP, Li G. Intentional and unintentional injuries in women. An overview. Ann Epidemiol. 1994;4:133-9.
3. Plichta SB, Falik M. Prevalence of violence and its implications for women’s health. Womens Health Issues. 2001;11:244-58.
4. Bhandari M, Dosanjh S, Tornetta P 3rd, Matthews D; Violence Against Women Health Research Collaborative. Musculoskeletal manifestations of physical abuse after intimate partner violence. J Trauma. 2006;61:1473-9.
5. Hazen AL, Connelly CD, Kelleher K, Landsverk J, Barth R. Intimate partner violence among female caregivers of children reported for child maltreatment. Child Abuse Negl. 2004;28:301-19.
6. Roberts GL, O’Toole BI, Raphael B, Lawrence JM, Ashby R. Prevalence study of domestic violence victims in an emergency department. Ann Emerg Med. 1996;27:741-53.
7. Bradley F, Smith M, Long J, O’Dowd T. Reported frequency of domestic violence: cross sectional survey of women attending general practice. BMJ. 2002;324:271.
8. Richardson J, Coid J, Petrukevitch A, Chung WS, Moorey S, Feder G. Identifying domestic violence: cross sectional study in primary care. BMJ. 2002;324:274.
9. Wilt S, Olson S. Prevalence of domestic violence in the United States. J Am Med Womens Assoc. 1996;51:77-82.
10. Roberts GL, O’Toole BI, Lawrence JM, Raphael B. Domestic violence victims in a hospital emergency department. Med J Aust. 1993;159:307-10.
11. Abbott J, Johnson R, Koziol-McLain J, Lowenstein SR. Domestic violence against women. Incidence and prevalence in an emergency department population. JAMA. 1995;273:1763-7.
12. American Academy of Orthopaedic Surgeons. Advisory statement. Domestic and family violence and abuse: the orthopaedic surgeon’s responsibilities. Document 1030. http://www.aaos.org/about/papers/advisstmt/1030.asp. Accessed 2007 Dec.
13. Shearer HM, Forte ML, Dosanjh S, Mathews DJ, Bhandari M. Chiropractors’ perceptions about intimate partner violence: a cross-sectional survey. J Manipulative Physiol Ther. 2006;29:386-92.
14. Maiuro RD, Vitaliano PP, Sugg NK, Thompson DC, Rivara FP, Thompson RS. Development of a health care provider survey for domestic violence: psychometric properties. Am J Prev Med. 2000;19:245-52.

15. AuCoin K, editor. Family violence in Canada: a statistical profile, 2005. Ottawa, ON: Minister of Industry; 2005.

16. Greenfield LA, Rand MR, Craven D, Klaus PA, Perkins CA, Ringel C, Warchol G, Maston C, Fox JA; U.S. Department of Justice. Violence by intimates: analysis of data on crimes by current or former spouses, boyfriends, and girlfriends. 1998 Mar; updated 1998 May 29. http://www.ojp.usdoj.gov/bjs/pub/pdf/vi.pdf. Accessed 2007 Dec.

17. The Commonwealth Fund. First comprehensive national health survey of American women. New York: The Commonwealth Fund; 1993.

18. The Commonwealth Fund. Health concerns across a woman’s lifespan: The Commonwealth Fund 1998 survey of women’s health. New York: The Commonwealth Fund; 1999.

19. Miller TR, Cohen MA, Wiersema B; National Institute of Justice. Victim costs and consequences: a new look. 1996 Jan. http://www.ncjrs.gov/pdf/2007dec.pdf. Accessed 2007 Dec.

20. Roelens K, Verstraelen H, Van Egmond K, Temmerman M. A knowledge, attitudes, and practice survey among obstetrician-gynaecologists on intimate partner violence in Flanders, Belgium. BMC Public Health. 2006;6:238.

21. McCloskey LA, Lichter E, Ganz ML, Williams CM, Gerber MR, Sege R, Stair T, Herbert B. Intimate partner violence and patient screening across medical specialties. Acad Emerg Med. 2005;12:712-22.

22. Narayan AP, Socolar RR, St Claire K. Pediatric residency training in child abuse and neglect in the United States. Pediatrics. 2006;117:2215-21.

23. Frank E, Elion L, Saltzman LE, Houry D, McMahon P, Doyle J. Clinical and personal intimate partner violence training experiences of U.S. medical students. J Womens Health (Larchmt). 2006;15:1071-9.

24. Gutmanis I, Beynon C, Tutt Y, Wathen CN, MacMillan HL. Factors influencing identification of and response to intimate partner violence: a survey of physicians and nurses. BMC Public Health. 2007;7:12.

25. Rodriguez MA, Bauer HM, McLaughlin E, Grumbach K. Screening and intervention for intimate partner abuse: practices and attitudes of primary care physicians. JAMA. 1999;282:468-74.

26. Jaffee KD, Epling JW, Grant W, Ghandour RM, Callendar E. Physician-identified barriers to intimate partner violence screening. J Womens Health (Larchmt). 2005;14:713-20.

27. Chamberlain L, Perham-Hester KA. The impact of perceived barriers on primary care physicians’ screening practices for female partner abuse. Women Health. 2002;35:55-69.

28. Waalen J, Goodwin MM, Spitz AM, Petersen R, Saltzman LE. Screening for intimate partner violence by health care providers. Barriers and interventions. Am J Prev Med. 2000;19:230-7.

29. Gerber MR, Leiter KS, Hermann RC, Bor DH. How and why community hospital clinicians document a positive screen for intimate partner violence: a cross-sectional study. BMC Fam Pract. 2005; 6:48.

30. Horan DL, Chapin J, Klein L, Schmidt LA, Schulkin J. Domestic violence screening practices of obstetrician-gynecologists. Obstet Gynecol. 1998;92:785-9.
31. Garimella RN, Plichta SB, Houseman C, Garzon L. How physicians feel about assisting female victims of intimate-partner violence. Acad Med. 2002;77(12 Pt 1):1262-5.
32. Chambliss LR, Bay RC, Jones RF 3rd. Domestic violence: an educational imperative? Am J Obstet Gynecol. 1995;172:1035-8.
33. Parsons LH, Zaccaro D, Wells B, Stovall TG. Methods of and attitudes toward screening obstetrics and gynecology patients for domestic violence. Am J Obstet Gynecol. 1995;173:381-7.
34. Weinsheimer RL, Schermer CR, Malcoe LH, Balduf LM, Bloomfield LA. Severe intimate partner violence and alcohol use among female trauma patients. J Trauma. 2005;58:22-9.
35. Hyman A, Schillinger D, Lo B. Laws mandating reporting of domestic violence. Do they promote patient well-being? JAMA. 1995;273:1781-7.
Chapter 3

Perceptions of Intimate Partner Violence: A Cross Sectional Survey of Surgical Residents and Medical Students

S Sprague, R Kaloty, K Madden, S Donsajh, DJ Mathews, M Bhandari

Published
Journal of Injury and Violence Research. 2013 Jan;5(1):1-10.
Abstract

Introduction: Intimate partner violence (IPV) is an important health issue. Many medical students and residents have received training relating to IPV, but previous studies show that many students feel that their training has been inadequate. Our objective was to assess the knowledge, attitudes and perceptions about IPV among university medical students and surgical residents.

Methods: We administered an online survey to a sample of Ontario medical students and surgical residents. The survey instrument was a modified version of the Provider Survey.

Results: Two hundred medical students and surgical residents participated in the survey (response rate: 29%). Misperceptions about IPV among respondents included the following: 1) victims must get something from the abusive relationships (18.2%), 2) physicians should not interfere with a couple’s conflicts (21%), 3) asking about IPV risks offending patients (45%), 4) Victims choose to be victims (11.1%), 5) it usually takes ‘two to tango’ (18.3%), and 6) some patients’ personalities cause them to be abused (41.1%). The majority of respondents (75.0%) believed identifying IPV was very relevant to clinical practice. The majority of medical students (91.2%) and surgical residents (96.9%) estimated the IPV prevalence in their intended practice to be 10% or less. Most of the medical students (84%) and surgical residents (60%) felt that their level of training on IPV was inadequate and over three quarters of respondents (77.2%) expressed a desire to receive additional education and training on IPV.

Conclusions: There are misconceptions among Canadian medical students and surgical residents about intimate partner violence. These misconceptions may stem from lack of education and personal discomfort with the issue or from other factors such as gender. Curricula in medical schools and surgical training programs should appropriately emphasize educational opportunities in the area of IPV.

Keywords: intimate partner violence; violence prevention; cross-sectional survey; medical education
Introduction

Intimate partner violence (IPV) is a serious public health concern that is receiving increasing attention in medical research. The definition includes physical, sexual and/or psychological/emotional forms of abuse between past or present heterosexual or homosexual partners. Intimate partner violence occurs across all racial, ethnic, regional, and socioeconomic boundaries. Women are more likely than men to be victims of IPV, and it is estimated that one in four American women have been victims of IPV in their lifetime. Richardson et al. found that only 17% of physical abuse victims have ever had it documented in a general practice medical chart, highlighting the serious problem of underreporting of IPV in healthcare.

Intimate partner violence victimization has been reported to impact health and lead to increased use of healthcare services. Intimate partner violence has been linked to mental health disorders such as depression, suicide, and post-traumatic stress disorder. In a large multinational study by the World Health Organization (WHO), 24,000 women in 10 countries were interviewed about their experiences and beliefs surrounding IPV. The study found that for all settings combined, women who reported physical violence at least once in their lifetime reported significantly more emotional distress, suicidal thoughts, and suicide attempts than non-abused women. Victims of IPV have a 50 to 70% higher chance of having gynaecological, central nervous system, and stress-related health problems. Bonomi et al. found that currently or recently physically abused women have higher total annual health care costs and use more emergency, hospital outpatient, primary care, pharmacy, and specialty services than non-abused women. Mental health service utilization was found to be higher among women abused both physically and non-physically. It is evident that the identification and treatment of IPV victims is highly relevant to healthcare, in which physicians have a key role to play.

A national survey of US medical students identified, 91% of senior students as having had training on IPV, but only one third feeling highly confident in having discussions about IPV with patients. We conducted a survey with the primary aim of determining medical students’ and surgical residents’ attitudes, beliefs, and perceptions regarding IPV screening, victims, and perpetrators. Secondary aims include examining the level of IPV education/training medical students and surgical residents have received, and exploring how gender and level of education (resident vs. medical student) are related to perceptions of IPV.

Methods

Survey Instrument

Due to the lack of literature on the views and/or knowledge of medical students and surgical residents regarding IPV, we chose to use a modified version of the Provider Survey for our study. The Provider Survey is an instrument intended to measure healthcare providers' attitudes, beliefs, and self-reported behaviours related to the identification and management of IPV. The Provider Survey is reliable and has been proven valid. Wording modifications were made to the survey to make the questions applicable to medical students and surgical residents. Two versions of the survey were developed; one for medical students and the other for surgical residents. In addition to the Provider Survey, participants were asked to complete questions on their demographics as well as their current perceptions, knowledge and education on IPV. These questions were modified from ones used in recent IPV surveys of medical students, Canadian Orthopaedic Association members and chiropractors.
There were 23 items in the medical student version of the survey, and 30 items in the surgical resident version. The residents’ survey included questions relevant to their current and previous practice. The medical students’ survey did not include these questions due to their lack of clinical practice experience. Questions were primarily either multiple choice or presented as a series of statements with an associated Likert Scale ranging from strongly disagree to strongly agree. Items were grouped into three categories: 1) demographic information, 2) attitudes, knowledge and education, and 3) clinical relevance of IPV.

**Sampling Frame**

The sampling frame included all medical students and surgical residents currently enrolled at McMaster University, Hamilton, Ontario. We chose to include surgical residents because of our interest in promoting IPV screening in surgical programs. We are unaware of any literature evaluating the attitudes of surgical residents toward IPV. We chose to exclude attending surgeons in our study because the attitudes of attending surgeons have been previously documented\(^{13}\). E-mail lists of McMaster University medical students and surgical residents from all years of study were obtained with permission from McMaster University’s Undergraduate Medical Program Office and contacts in the Department of Surgery Residency Programs. Surveys were not sent to students or residents studying outside of McMaster University.

**Survey Administration**

We used SurveyMonkey, online survey software, to administer the survey and its cover letter in electronic form. We chose SurveyMonkey because it is easy to use for both administrators and participants. Following the initial emailing, three rounds of follow-up emails were sent out to the students. Participants were provided with the opportunity to withdraw at any time.

**Statistical Analysis**

For statistical significance to be reached, 193 trainees were needed for the study sample size. This was based on a population of approximately 700 medical students and surgical trainees at McMaster University, with an error level of 6% and a 95% confidence interval (http://www.custominsight.com/articles/random-sample-calculator.asp). Survey data were analyzed using PASW version 18.0 (Chicago, IL). Descriptive analyses, including frequency counts and percentages, were performed for all collected data. We conducted Chi-squared tests to determine if there were differences in responses between the surgical residents and medical students using the Contingency Table Calculator\(^{15}\). We also conducted a subgroup analysis looking at differences in responses between males and females using chi-squared tests. Surveys with missing data were included in the analysis.

**Results**

**Response Rate**

Two hundred trainees responded (29%), meeting the sample size requirements for this study. The response rate for medical students was 23% (127/542) and 49% (73/150) for surgical residents. No information was available about non-respondents, so we are unable to evaluate differences between those who did and did not participate. The survey was administered in the winter term. The lower medical student response rate may be due to possible interference with
exam time. Fifteen medical students and eleven surgical residents started the survey but did not complete it. All data collected from incomplete surveys was used in the analysis. There were no withdrawals from the study.

**Respondent Characteristics**

Respondents ranged in age from 20 to 45 years (mean age = 26 ± 4.5 years). The majority of the respondents were female (58.3%), which is approximately representative of the population of medical students and surgical residents at McMaster University, and 5% reported a history of IPV (personal history or family history). The top intended specialties for medical students were family medicine (30.8%) and surgery (12.3%). Over two thirds of the surgical residents were specializing in orthopaedics (41.1%) or general surgery (27.1%) (Table 1).

**Table 1: Respondent Demographics**

| Demographic | Overall N (%) | Medical Students N (%) | Surgical Residents N (%) |
|-------------|---------------|------------------------|--------------------------|
| **Mean Age ± Standard Deviation** | 26.5±4.5 | 24.5±3.2 | 30.2±4.2 |
| **Gender** | | | |
| Male | 82 (41.4%) | 33 (26.2%) | 49 (68.1%) |
| Female | 115 (58.1%) | 92 (73.0%) | 23 (31.9%) |
| Transgender | 1 (0.5%) | 1 (0.8%) | 0 (0%) |
| **Year** | | | |
| 1 | 74 (37.9%) | 56 (44.1%) | 18 (26.5%) |
| 2 | 60 (30.8%) | 47 (37.0%) | 13 (19.1%) |
| 3 | 39 (20.0%) | 24 (18.9%) | 15 (22.1%) |
| 4 | 12 (6.2%) | N/A | 12 (17.6%) |
| 5 | 10 (5.1%) | N/A | 10 (14.7%) |
| **Intended Medical Specialty for Medical Students** | | | |
| Family Medicine | 40 (30.8%) | | |
| Surgery | 16 (12.3%) | | |
| Internal Medicine | 13 (10.0%) | | |
| Obstetrics/Gynaecology | 8 (6.2%) | | |
| Pediatrics | 7 (5.4%) | | |
| Psychiatry | 6 (4.6%) | | |
| Emergency Medicine | 6 (4.6%) | | |
| Anaesthesiology | 3 (2.3%) | | |
| Neurology | 2 (1.5%) | | |
| Unsure | 14 (10.8%) | | |
| Other | 15 (11.5%) | | |
| **Surgical Specialty for Surgical Residents** | | | |
| Orthopaedics | 29 (41.4%) | | |
| General Surgery | 19 (27.1%) | | |
| Plastic Surgery | 7 (10.0%) | | |
| Ophthalmology | 4 (5.7%) | | |
| Urology | 4 (5.7%) | | |
| Neurosurgery | 3 (4.3%) | | |
| Paediatric General Surgery | 2 (2.9%) | | |
| Cardiac Surgery | 1 (1.4%) | | |
| Otolaryngology/Head/Neck Surgery | 1 (1.4%) | | |

Totals may not add to 200 participants due to missing data.
Misperceptions about IPV

Most respondents (91.2% of medical students and 96.9% of surgical residents) estimated the IPV prevalence in their intended practice to be 10% or less (Figure 1). Respondents held misperceptions about the following issues: 1) victims must get something from the abusive relationships (18.2%), 2) physicians should not interfere with a couple’s conflicts (21%), 3) asking about IPV risk offending patients (45%), 4) victims choose to be victims (11.1%), 5) it usually takes ‘two to tango’ (18.3%), and 6) some patients’ personalities cause them to be abused (41.1%) (Appendix A).

Surgical residents were significantly more likely to hold misperceptions about a victim’s role in their abuse (‘it takes two to tango’) compared to medical students (28.2% vs. 12.9%, p=0.038) (Table 2). Males were significantly less likely to disagree with victim-blaming statements than females, such as “People are only victims if they choose to be” (77.8% vs. 96.2% strongly disagree/disagree, p=0.001) and “Women who choose to step out of traditional roles are a major cause of IPV” (75.3% vs. 93.4% strongly disagree/disagree, p=0.001) (Table 3). Many respondents were concerned for their personal safety when asking a patient battering (32.6% strongly agree/agree), and nearly one quarter of respondents fear that they will offend patients if they ask about IPV (22.8% strongly agree/agree) (Table 2). Many respondents have misconceptions about batterers, for example, the abuse would stop if the batterer stopped using alcohol (34.9% agree/strongly agree) (Appendix B).

Figure 1: Medical Students’ and Surgical Residents’ Estimated Prevalence of IPV in their Practice
Table 2: General Knowledge, Personal Comfort and Attitudes

| | Overall | Medical Students | Surgical Residents | P Value* |
|---|---|---|---|---|
| I am (or would be) afraid of offending the patient if I ask about IPV | | | | 0.082 |
| Strongly agree/ agree | 41 (22.8%) | 32 (27.6%) | 9 (14%) | |
| Neutral | 40 (22.2%) | 22 (19%) | 18 (28.1%) | |
| Disagree/ Strongly Disagree | 99 (55%) | 62 (53.5%) | 37 (57.8%) | |
| I don’t know how to ask about the possibility of IPV | | | | <0.001** |
| Strongly agree/ agree | 7 (3.9%) | 3 (2.6%) | 4 (6.3%) | |
| Neutral | 26 (14.4%) | 12 (10.3%) | 14 (21.9%) | |
| Disagree/ Strongly Disagree | 148 (81.8%) | 45 (40.2%) | 46 (71.9%) | |
| When it comes to domestic violence, it usually “takes two to tango” | | | | 0.033** |
| Strongly agree/ agree | 7 (3.9%) | 59 (52.7%) | 19 (30.1%) | |
| Neutral | 37 (21.1%) | 22 (19.6%) | 15 (23.8%) | |
| Disagree/ Strongly Disagree | 108 (61.7%) | 31 (27.7%) | 29 (46.1%) | |
| I am (or would be) reluctant to ask batterers about their abusive behaviour out of concern for my personal safety | | | | 0.497 |
| Strongly agree/ agree | 57 (32.6%) | 38 (34.0%) | 19 (30.2%) | |
| Neutral | 42 (24%) | 29 (25.9%) | 13 (20.6%) | |
| Disagree/ Strongly Disagree | 76 (43.8%) | 45 (40.2%) | 31 (49.2%) | |
| I am afraid of offending patients if I ask about their abusive behavior | | | | 0.009 |
| Strongly agree/ agree | 107 (60.1%) | 78 (69.6%) | 29 (46.1%) | |
| Neutral | 44 (25.1%) | 22 (19.6%) | 22 (34.9%) | |
| Disagree/ Strongly Disagree | 24 (13.7%) | 12 (10.7%) | 12 (19.1%) | |
| I feel I can effectively discuss issues of battering and abuse with a battering patient | | | | 0.016 |
| Strongly agree/ agree | 19 (10.9%) | 10 (8.9%) | 9 (14.3%) | |
| Neutral | 48 (27.4%) | 24 (21.4%) | 24 (38.1%) | |
| Disagree/ Strongly Disagree | 108 (61.7%) | 78 (69.6%) | 30 (47.6%) | |
| Time constraints | | | | 0.004 |
| Strongly agree/ agree | 160 (82.9%) | 111 (89.5%) | 49 (71.9%) | |
| Neutral | 16 (8.3%) | 7 (5.6%) | 9 (13%) | |
| Disagree/ Strongly Disagree | 17 (8.5%) | 6 (4.8%) | 11 (15.9%) | |
| Lack of knowledge of what to ask | | | | 0.010 |
| Strongly agree/ agree | 129 (66.8%) | 91 (73.4%) | 38 (55.1%) | |
| Neutral | 29 (15%) | 18 (14.5%) | 11 (15.9%) | |
| Disagree/ Strongly Disagree | 35 (18.1%) | 15 (12.1%) | 20 (28.9%) | |
| Lack of knowledge of what to do if patient says “yes” to inquiry | | | | <0.001 |
| Strongly agree/ agree | 121 (62.7%) | 90 (72.5%) | 31 (44.9%) | |
| Neutral | 26 (13.5%) | 17 (13.7%) | 9 (13.5%) | |
| Disagree/ Strongly Disagree | 35 (18.1%) | 17 (13.7%) | 29 (42%) | |
| Personal discomfort with the issue | | | | 0.003 |
| Strongly agree/ agree | 102 (52.8%) | 77 (62.1%) | 25 (36.2%) | |
| Neutral | 37 (19.2%) | 19 (15.3%) | 18 (26.1%) | |
| Disagree/ Strongly Disagree | 54 (28%) | 28 (22.6%) | 26 (37.6%) | |
| Lack of knowledge of community resources | | | | 0.754 |
| Strongly agree/ agree | 135 (69.9%) | 88 (71.6%) | 47 (68.1%) | |
| Neutral | 32 (16.4%) | 21 (16.9%) | 11 (15.9%) | |
| Disagree/ Strongly Disagree | 26 (13.5%) | 15 (12.5%) | 11 (15.9%) | |

* Chi-Squared test; ** Fisher’s Exact test (Has an expected value of less than 5); Totals may not add to 200 participants due to missing data.
Table 3: Responses of Male versus Female Respondents

| Question                                                                 | Males | Females | P Value* |
|--------------------------------------------------------------------------|-------|---------|----------|
| History of IPV                                                           |       |         |          |
| Personal                                                                 | 0 (0%)| 5 (62.5%)|          |
| Family                                                                   | 2 (100%)| 3 (37.5%)|          |
| Amount of IPV training/education received                                |       |         |          |
| None                                                                     | 28 (34.6%)| 54 (49.1%)| 0.045    |
| Any                                                                      | 53 (65.4%)| 56 (50.9%)|          |
| It is demeaning to patients to question them about abuse                 |       |         |          |
| Strongly agree/ agree                                                    | 3 (4.2%)| 2 (1.9%)| 0.051**  |
| Neutral                                                                  | 15 (20.5%)| 10 (9.4%)|          |
| Disagree/Strongly Disagree                                               | 54 (75.0%)| 94 (88.7%)|          |
| People are only victims if they choose to be                             |       |         |          |
| Strongly agree/ agree                                                    | 6 (8.3%)| 0 (0%)| <0.001** |
| Neutral                                                                  | 10 (13.9%)| 4 (3.8%)|          |
| Disagree/Strongly Disagree                                               | 56 (77.8%)| 102 (96.2%)|          |
| Women who choose to step out of traditional roles are a major cause of IPV|       |         |          |
| Strongly agree/ agree                                                    | 1 (4.2%)| 0 (0%)| <0.001** |
| Neutral                                                                  | 15 (20.5%)| 7 (6.6%)|          |
| Disagree/Strongly Disagree                                               | 54 (75.3%)| 99 (93.4%)|          |

* Chi-Squared test  
**Has an expected value of less than 5  
Totals may not add to 200 participants due to missing data

Barriers to Assessment of IPV

Key barriers to IPV assessment perceived by respondents included lack of time (82.9%), lack of knowledge of what to ask (66.8%), lack of knowledge of community resources (69.9%), and personal discomfort (52.8%) (Table 2). Medical students were significantly more likely to have issues with lack of time (89.5% vs. 71.0%, p=0.004), lack of knowledge of what to say (73.4% vs. 55.1%, p=0.010), lack of knowledge of what to do if a patient is abused (72.5% vs. 44.9%, p=0.001), and personal discomfort (62.1% vs. 36.2%, p=0.003) when compared to surgical residents (Table 2). 42% of respondents reported that the main barrier to screening for IPV is a lack of training (Appendix C).

Need for Education and Training

Most respondents identified IPV identification as relevant in their practice (89%) but many were unsure or incorrect about legal reporting requirements (20.0% unsure, 12.1% incorrect) (Table 4). Almost all respondents had little or no previous IPV training (99%), yet only 75% believed their education was inadequate. Most trainees supported additional training and educational initiatives in IPV (77.2%), and 42% cited their lack of education and training as the primary barrier to routine assessment (Table 4). Medical students were significantly more likely to report a lack of training (83.9% vs. 60.3%, p=0.001) and desire for increased IPV education (87.9% vs. 58.0%, p=0.062).
Table 4: Relevance and Education

| Relevance of identifying IPV victims in practice | Overall N (%) | Medical Students N (%) | Surgical Residents N (%) | P Value* |
|-----------------------------------------------|--------------|------------------------|--------------------------|----------|
| Not at all relevant                           | 2 (1.0%)     | 1 (0.8%)               | 1 (1.5%)                 | NA       |
| Possibly relevant                             | 15 (7.8%)    | 11 (8.9%)              | 9 (13.2%)                | 0.023**  |
| Somewhat relevant                             | 27 (14.0%)   | 18 (14.5%)             | 9 (13.2%)                |          |
| Very relevant                                 | 144 (75.0%)  | 94 (75.8%)             | 50 (75.5%)               |          |
| Depends on Specialty                          | 4 (2.1%)     | 4 (2.1%)               | 4 (5.9%)                 |          |

| Level of comfort asking a woman about abuse   | Overall N (%) | Medical Students N (%) | Surgical Residents N (%) | P Value* |
|-----------------------------------------------|--------------|------------------------|--------------------------|----------|
| Very uncomfortable                           | 4 (2.1%)     | 2 (0.8%)               | 7 (10.1%)                | 0.023**  |
| Uncomfortable                                | 31 (16.1%)   | 14 (6.5%)              | 17 (24.6%)               |          |
| Somewhat comfortable                         | 91 (47.2%)   | 46 (21.6%)             | 45 (68.2%)               |          |
| Comfortable                                  | 57 (29.5%)   | 29 (14.0%)             | 28 (40.6%)               |          |
| Very comfortable                             | 10 (5.2%)    | 6 (3.1%)               | 4 (5.8%)                 |          |

| Is health care provider reporting of intimate partner violence mandatory in Canada? | Overall N (%) | Medical Students N (%) | Surgical Residents N (%) | P Value* |
|---------------------------------------------------------------------------------|--------------|------------------------|--------------------------|----------|
| Yes                                                                               | 23 (12.1%)   | 16 (12.9%)             | 7 (10.6%)                | 0.877    |
| No                                                                                | 129 (67.9%)  | 84 (46.4%)             | 45 (68.2%)               |          |
| Unsure                                                                            | 38 (20.0%)   | 24 (12.9%)             | 14 (21.2%)               |          |

| Amount of IPV education/training received | Overall N (%) | Medical Students N (%) | Surgical Residents N (%) | P Value* |
|------------------------------------------|--------------|------------------------|--------------------------|----------|
| None                                     | 83 (43.0%)   | 66 (35.2%)             | 17 (24.6%)               | <0.001** |
| Some                                     | 108 (56.0%)  | 56 (45.2%)             | 52 (75.4%)               |          |
| Extensive                                | 2 (1.0%)     | 2 (1.6%)               | 0 (0.0%)                 |          |

| Adequate amount of IPV training received thus far | Overall N (%) | Medical Students N (%) | Surgical Residents N (%) | P Value* |
|--------------------------------------------------|--------------|------------------------|--------------------------|----------|
| Yes                                               | 21 (10.9%)   | 8 (6.5%)               | 13 (19.1%)               | 0.001    |
| No                                                | 145 (75.5%)  | 104 (63.9%)            | 41 (60.3%)               |          |
| Unsure                                             | 26 (13.5%)   | 12 (9.7%)              | 14 (20.0%)               |          |

| Desire for additional training on the assessment and treatment of IPV | Overall N (%) | Medical Students N (%) | Surgical Residents N (%) | P Value* |
|---------------------------------------------------------------------|--------------|------------------------|--------------------------|----------|
| Yes                                                                 | 149 (77.2%)  | 109 (87.9%)            | 40 (58.0%)               | <0.001** |
| No                                                                  | 46 (22.8%)   | 37 (32.1%)             | 30 (42.0%)               |          |
| Not relevant to my intended practice                               | 6 (3.1%)     | 5 (2.2%)               | 1 (1.5%)                 |          |

| Providing medical students with more education/training on intimate partner violence would help increase the number of physicians that screen for it | Overall N (%) | Medical Students N (%) | Surgical Residents N (%) | P Value* |
|---------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------|--------------------------|----------|
| Strongly agree                                                                                                                  | 47 (24.4%)   | 28 (22.6%)             | 19 (27.5%)               | 0.032**  |
| Agree                                                                | 110 (57.0%)  | 79 (63.7%)             | 31 (44.9%)               |          |
| Unsure                                                               | 26 (13.5%)   | 11 (8.9%)              | 15 (21.7%)               |          |
| Disagree                                                            | 10 (5.2%)    | 6 (4.8%)               | 4 (5.8%)                 |          |
| Strongly Disagree                                                   | 0 (0.0%)     | 0 (0.0%)               | 0 (0.0%)                 |          |

* Chi-Squared test
** Has an expected value of less than 5
Totals may not add to 200 participants due to missing data.

Clinical Assessment of IPV

When considering the last few months of clinical practice, trainees reported seldom or rarely asking patients about IPV with injuries (66.1%), pelvic pain (33.8%), irritable bowel syndrome (45.1%), headaches (46.8%), depression/anxiety (33.9%), or high blood pressure (59%) (Appendix D).

Many surgical residents (48.4%) reported that they had identified a victim of IPV and 27.4% of residents reported that they had identified a batterer. Only 9.7% of surgical residents reported that their clinical setting has guidelines for detecting and managing IPV, and over one quarter (25.8%) were unsure if there are guidelines in their clinical setting (Appendix D).
Discussion

In this survey of 200 Canadian medical students and surgical residents, our findings suggest that medical students and surgical residents have multiple misperceptions about IPV and have not received adequate training on the identification and treatment of IPV. Most respondents underestimated the IPV prevalence in their intended practice. Despite having misconceptions about IPV and underestimating its prevalence, the majority of respondents believed identifying IPV was very relevant to clinical practice. In addition, most of the respondents acknowledged that their level of training on IPV was inadequate and over three quarters of respondents would like to receive additional education and training on IPV.

Medical student and surgical trainees incorrectly believed that the prevalence of IPV is 10% or less. These results are similar to the findings of two previous surveys of health care practitioners. In a recent survey of orthopaedic surgeons, most respondents indicated that the prevalence of IPV in their practice was rare (<1%)\(^{13}\). In a similar study of Ontario chiropractors, the majority of respondents indicated that the prevalence of IPV in their practice was between 0.1% and 1%\(^{14}\). In contrast to the survey findings, multiple prevalence studies have shown that the lifetime prevalence of IPV is much higher. For example, several American, Australian, and Canadian studies have found that IPV prevalence is well over 10% in both emergency medicine\(^{16-20}\) and family medicine\(^{21-25}\). In addition, the PRAISE Investigators\(^{26}\) recently found that the 12 month prevalence of IPV in orthopaedic fracture clinics, one of the most common specialties among our respondents, was over 30%.

Almost half of the respondents held the misconception that patients would be offended if they were asked about IPV. This finding is similar to a survey of Ontario chiropractors, which shows that almost half of chiropractors were afraid of offending patients when asking about IPV\(^{14}\). This finding contradicts other research by Hurley et al\(^{27}\) who found that 86% of men and women presenting to Canadian emergency departments agreed that health care providers should screen for IPV. Similarly, Caralis et al\(^{28}\) established that the majority of American survey respondents believe doctors should screen for abuse in their practices. In addition, Feder et al.\(^{29}\) conducted a meta-analysis that showed women who have been abused support screening programs for IPV in a health care setting. Dispelling the misconception that women do not wish to be screened for IPV and providing additional education on IPV could help ensure additional screening for IPV among future health care practitioners.

Education in IPV was valued among respondents; however, most reported feeling that they have received an inadequate level of education and training on IPV and have a desire to receive additional training on the assessment and treatment of IPV. Both of these results were higher for medical students, which we speculate is attributed to their shorter time in the medical curriculum. These results are similar to a survey of American medical students that concluded that despite national interest in IPV issues, efforts in U.S. medical schools to increase IPV screening and prevention have not achieved saturation\(^{11}\). Similarly, a recent report from the Association of American Medical Colleges found that 20% of U.S. graduating physicians in 2004 believed that the curriculum time dedicated to IPV was inadequate\(^{30}\). Hamberger\(^{31}\) has suggested that, although most medical schools educate students on IPV in some form, the teaching is mainly done in a basic science module as opposed to in a clinical setting. Edwardsen et al\(^{32}\) have showed that a structured IPV training program with use of mnemonics and clinical role-playing can help medical students to ask their patients questions about their history of IPV. In addition, Chapin et al revealed that emergency medical personnel who received IPV training...
from a domestic violence center were better informed about IPV services and the obstacles faced by victims. One clinic-based IPV education program for pediatric residents has increased IPV screening from less than 1% to over 30% 8 months after program completion. We suggest that IPV education be included in both medical and residency training and that it should focus on clinic-based practical exercises.

Nearly one third of respondents were either incorrect or unsure when asked if health care provider reporting of IPV is mandatory in Canada. Reporting of IPV is not mandatory in Canada, but it is mandatory in some American states. Most surgical residents reported screening for IPV only seldom or never, which is consistent with the findings of a recent survey of orthopaedic surgeons and of U.S. medical residents. In addition, it was very uncommon for surgical residents to screen patients with illnesses linked to IPV such as hypertension/coronary artery disease, irritable bowel syndrome, or headaches, indicating a need for additional education on the identification and screening of IPV. The survey found that residents were more likely to screen patients with injuries for IPV. This is consistent with a study of U.S. residents and of primary care physicians.

Medical students were more likely to report that they felt time constraints, lack of knowledge, and personal discomfort compared to residents. Residents may have had more opportunities to come across abused women due to increased time in clinical settings compared to medical students. Perhaps some of the residents’ knowledge comes not from formal academic training, as in medical school, but from experiential learning in a clinical setting.

In previous studies, IPV training has been proven successful in raising awareness as well as improving the ability of healthcare professionals to detect IPV. Warburton et al. reported that a brief IPV educational program improved dental hospital staff’s attitudes and knowledge about IPV. As well, an educational program for internal medicine residents was both well received and effective at improving detection of IPV victims. Three key questions aimed at raising suspicion of IPV were included in a questionnaire; 54% of the intervention group were able to answer at least two out of three questions correctly compared to 20% of the control group.

This study has provided valuable insight into the knowledge, education, attitudes and perceptions of medical students and surgical residents regarding the topic of IPV. One of the strengths of the study is the survey instrument, which was created by domestic violence experts and validated in IPV surveys of health care providers. It has met basic face and basic content validity, although we did use a slightly modified version of the Provider Survey for students and residents which has not been validated. The survey also had an adequate sample size. However, the study also had some limitations. Our survey had a relatively low response rate, which may be a potential source of bias. It is possible that responders differed in some characteristics compared to non-responders. For example, non-responders could be more likely than responders to have experienced IPV, which would influence many of the results. Our survey was restricted to only medical students and surgical residents from McMaster University who could be contacted via email. It remains unclear whether our findings are generalizable to other universities and jurisdictions. This study was a descriptive, cross-sectional study that can only be used to identify perceptions and barriers regarding IPV inquiry. Causal inferences about specific variables and outcomes cannot be made.
Conclusion

Misconceptions exist among one Canadian medical school’s medical students and surgical residents about IPV and may be related to lack of education and low self-efficacy, or possibly to other factors such as gender. Curricula in medical schools and surgical training programs should appropriately emphasize educational opportunities in the area of IPV. Future research should explore the most optimal methods of disseminating IPV information among students and health care providers in order to increase awareness of IPV and reduce these misconceptions. It is anticipated that increased awareness of IPV among health care providers will motivate them to seek additional IPV knowledge and training, and ultimately increase screening and care of patients experiencing IPV in their practice.

References

1. McClennan S, Worster A, MacMillan H. Caring for victims of intimate partner violence: A survey of Canadian emergency departments. Canadian Journal of Emergency Medicine 2008 July;10(4):325-328.
2. Zolotor AJ, Denham AC, Weil A. Intimate Partner Violence. Primary Care - Clinics in Office Practice 2009 March;36(1):167-179.
3. Gunter J. Intimate Partner Violence. Obstet.Gynecol.Clin.North Am. 2007 Sep;34(Obstetric and Gynecologic Emergencies):367-388.
4. Roberts GL, O'Toole BI, Raphael B, Lawrence JM, Ashby R. Prevalence Study of Domestic Violence Victims in an Emergency Department. Ann.Emerg.Med. 1996;27(6):741-753.
5. Tjaden P, Thoennes P. Extent, Nature, and Consequences of Intimate Partner Violence: Findings from the National Violence Against Women Survey. 2000.
6. Richardson J, Coid J, Petrucevitch A, Wai SC, Moorey S, Feder G. Identifying domestic violence: Cross sectional study in primary care. Br.Med.J. 2002 02 Feb;324(7332):274-277.
7. Bonomi AE, Anderson ML, Rivara FP, Thompson RS. Health Care Utilization and Costs Associated with Physical and Nonphysical-Only Intimate Partner Violence. Health Serv.Res. 2009 June 2009;44(3):1052-1067.
8. Golding JM. Intimate Partner Violence as a Risk Factor for Mental Disorders: A Meta-Analysis. J.Fam.Violence 1999;14(2):99-132.
9. Ellsberg M, Jansen HA, Heise L, Watts CH, Garcia-Moreno C, WHO Multi-country Study on Women's Health and Domestic Violence against Women Study Team. Intimate partner violence and women's physical and mental health in the WHO multi-country study on women's health and domestic violence: an observational study. Lancet 2008 Apr 5;371(9619):1165-1172.
10. Campbell J, Jones AS, Dienenmann J, Kub J, Schollenberger J, O'Campo P, et al. Intimate Partner Violence and Physical Health Consequences. Arch.Intern.Med. 2002 May 27;162(10):1157-1163.
11. Frank E, Elon L, Saltzman LE, Houry D, McMahon P, Doyle J. Clinical and personal intimate partner violence training experiences of US medical students. J.Womens Health 2006 NOV;15(9):1071-1079.
12. Maiuro RD, Vitaliano PP, Sugg NK, Thompson DC, Rivara FP, Thompson RS. Development of a health care provider survey for domestic violence: Psychometric properties. Am.J.Prev.Med. 2000;19(4):245-252.
13. Bhandari M, Sprague S, Tornetta III P, D'Aurora V, Schemitsch E, Shearer H, et al. (Mis)perceptions about intimate partner violence in women presenting for orthopaedic care: A survey of Canadian orthopaedic surgeons. Journal of Bone and Joint Surgery - Series A 2008 July;90(7):1590-1597.

14. Shearer HM, Forte ML, Dosanjh S, Mathews DJ, Bhandari M. Chiropractors' Perceptions About Intimate Partner Violence: A Cross-Sectional Survey. J.Manipulative Physiol.Ther. 2006 6;29(5):386-392.

15. Kirkman, T.W. (1996) Statistics to Use. http://www.physics.csbsju.edu/stats/ (August 10, 2010)

16. Abbott J, Johnson R, Koziol-McLain J, Lowenstein SR. Domestic violence against women: incidence and prevalence in an emergency department population. JAMA. 1995 Jun 14;273(22):1763-7.

17. Cox J, Bota GW, Carter M, Bretzlaflf-Michaud JA, Sahai V, Rowe BH. Domestic violence. Incidence and prevalence in a northern emergency department. Can Fam Physician. 2004;50:90-7.

18. El-Bassel N, Gilbert L, Wu E, Chang M, Gomes C, Vincour D, Snavick T. Intimate partner violence prevalence and HIV risks among women receiving care in emergency departments: implications for IPV and HIV screening. Emerg Med J 2007;24:255-9.

19. McLaughlin SA, Crandall CS, Fullerton L, Brokaw J, Olson LM, Sklar DP. Comparison of intimate partner violence reporting between an emergency department and a clinic setting. Acad Emerg Med. 1999 Dec;6(12):1292-5.

20. Roche M, Moracco KE, Dixon KS, Stern EA, Bowling JM. Correlates of intimate partner violence among female patients at a north carolina emergency department. N C Med J. 2007 Mar-Apr;68(2):89-94.

21. Elliott BA, Johnson MM. Domestic violence in a primary care setting. patterns and prevalence. Arch Fam Med. 1995 Feb;4(2):113-9.

22. Hegarty KL, Bush R. Prevalence and associations of partner abuse in women attending general practice: A cross-sectional survey. Aust N Z J Public Health. 2002 Oct;26(5):437-42.

23. Johnson M, Elliott BA. Domestic violence among family practice patients in midsized and rural communities. J Fam Pract. 1997 Apr;44(4):391-400.

24. Ruiz-Perez I, Plazasola-Castano I, Alvarez-Kindelan M, Palomo-Pinto M, Arnalte-Barrera M, Bonet-Pla A, et al. Sociodemographic associations of physical, emotional, and sexual intimate partner violence in spanish women. Ann Epidemiol. 2006 May;16(5):357-63.

25. Wagner PJ, Mongan P, Hamrick D, Hendrick LK. Experience of abuse in primary care patients. racial and rural differences. Arch Fam Med. 1995 Nov;4(11):956-62.

26. PRAISE Investigators. The Prevalence of Intimate Partner Violence Across Orthopaedic Fracture Clinics In Ontario. J Bone Joint Surg. 2014; 93(2):132-141

27. Hurley KF, Brown-Maher T, Campbell SG, Wallace T, Venugopal R, Bagg D. Emergency department patients' opinions of screening for intimate partner violence among women. Emerg Med J 2005 Feb;22(2):97-8.

28. Caralis PV, Musialowski R. Women’s experiences with domestic violence and their attitudes and expectations regarding medical care of abuse victims. South Med J. 1997 Nov;90(11):1075-80.

29. Feder GS, Hutson M, Ramsay J, Taket AR. Women exposed to intimate partner violence: expectations and experiences when they encounter health care professionals: a meta-analysis of qualitative studies. Arch Intern Med. 2006 Jan 9;166(1):22-37.
30. Medical school questionnaire. All school report. Association of American Medical Colleges. Available at www.aamc.org/data/pg/allschoolreports/2004.pdf. Accessed September 30, 2010.

31. Hamberger LK. Preparing the next generation of physicians: medical school and residency-based intimate partner violence curriculum and evaluation. Trauma Violence Abuse. 2007 Apr;8(2):214-25.

32. Edwardsen EA; Morse DS; Frankel RM. Structured Practice Opportunities With a Mnemonic Affect Medical Student Interviewing Skills for Intimate Partner Violence. Teaching and Learning in Medicine, 18:1,62-68

33. Chapin JR, Coleman G, Varner E. Yes we can! Improving medical screening for intimate partner violence through self-efficacy. J Inj Violence Res. 2011 Jan;3(1):19-23.

34. McColgan M, Cruz M, McKee J, Dempsey SH, Davis MB, Barry P, Yoder AL, Giardino AP. Results of a multifaceted Intimate Partner Violence training program for pediatric residents. Child Abuse & Neglect 34 (2010) 275–283.

35. Rodriguez MA, McLoughlin E, Nah G, Campbell JC. Mandatory Reporting of Domestic Violence Injuries to the Police. JAMA. 2001;286:580-583.

36. Jonassen, Julie A.; Mazor, Kathleen M. Identification of Physician and Patient Attributes That Influence the Likelihood of Screening for Intimate Partner Violence. Academic Medicine. 8(10) Supplement, October 2003, pp S20-S23

37. Rodriguez MA, Bauer HM, McLoughlin S, Grumbach K. Screening and intervention for intimate partner abuse. Practices and attitudes of primary care physicians. JAMA. 1999;282:468–74.

38. Warburton AL, Hanif B, Roswell C, Coulethard P. Changes in levels of knowledge and attitude of dental hospital staff about domestic violence following attendance at an awareness raising seminar. British Dental Journal. 2006 Nov 25; 201(10): 653-59.

39. Korenstein D, Thomas DC, Foldes C, Ross J, Halm E, McGinn T. An evidence-based domestic violence education program for internal medicine residents. Teaching and Learning in Medicine. 2003; 15(4): 262-66.
Appendix A: General Knowledge, Personal Comfort and Attitudes

|                                                                 | Overall N (%) | Medical Students N (%) | Surgical Residents N (%) | P Value* |
|------------------------------------------------------------------|---------------|------------------------|--------------------------|----------|
| Intimate partner violence tends to become more frequent and severe over time. | 152 (84.4%) | 96 (82.8%) | 56 (87.5%) | 0.352** |
| Treatment programs for batterers just aren't effective when it comes to stopping physical abuse. | 32 (18.1%) | 18 (15.9%) | 14 (21.9%) | 0.593 |
| The role of the healthcare provider is limited in being able to help victims of IPV. | 57 (31.5%) | 36 (30.8%) | 21 (32.8%) | 0.728 |
| A victim must be getting something out of the abusive relationship, or else he/she would leave. | 10 (5.5%) | 5 (4.3%) | 5 (7.8%) | 0.214** |
| It is not the physician’s place to interfere with how a couple chooses to resolve conflicts. | 14 (7.7%) | 7 (6.0%) | 7 (11%) | 0.416** |
| I don’t think I will have time to ask about IPV in my intended practice. | 32 (17.8%) | 20 (17.1%) | 12 (19.1%) | 0.023 |
| I am (or would be) afraid of offending the patient if I ask about IPV. | 41 (22.8%) | 22 (19.0%) | 9 (14%) | 0.082 |
| If during my practice I see a patient who is a victim, I won’t know what to do. | 64 (35.6%) | 48 (41.4%) | 16 (25.0%) | 0.087 |
| There is nothing a healthcare provider can do to help the victim because he/she is unlikely to leave the relationship. | 7 (3.9%) | 3 (2.6%) | 4 (6.3%) | 0.337** |
###Appendix A: General Knowledge, Personal Comfort and Attitudes (Continued)

| S. No. | Question                                                                 | Overall N (%) | Medical Students N (%) | Surgical Residents N (%) | P Value* |
|--------|---------------------------------------------------------------------------|---------------|------------------------|--------------------------|----------|
| 1      | Asking patients about IPV is an invasion of their privacy.                |               |                        |                          |          |
|        | Strongly agree/agree Neutral Disagree/Strongly Disagree                  | 7 (3.9%)      | 5 (4.3%)               | 2 (3.2%)                 | 0.251**  |
|        |                                                                          | 10 (5.5%)     | 4 (3.4%)               | 6 (9.4%)                 |          |
|        |                                                                          | 164 (90.6%)   | 108 (92.3%)            | 56 (87.5%)               |          |
| 2      | I think that investigating the underlying cause of a patient’s injury is not part of medical care. |               |                        |                          |          |
|        | Strongly agree/agree Neutral Disagree/Strongly Disagree                  | 21 (1.1%)     | 0 (0.0%)               | 21 (3.2%)                | 0.008**  |
|        |                                                                          | 10 (5.6%)     | 5 (4.3%)               | 5 (7.9%)                 |          |
|        |                                                                          | 168 (93.3%)   | 112 (95.7%)            | 56 (88.9%)               |          |
| 3      | If patients do not reveal abuse to health care providers, then they feel it is none of their business. |               |                        |                          |          |
|        | Strongly agree/agree Neutral Disagree/Strongly Disagree                  | 11 (6.1%)     | 7 (6.1%)               | 4 (6.3%)                 |          |
|        |                                                                          | 35 (19.4%)    | 20 (17.2%)             | 15 (23.4%)               |          |
|        |                                                                          | 134 (74.4%)   | 89 (76.8%)             | 45 (70.4%)               |          |
| 4      | It is demeaning to patients to question them about abuse.                 |               |                        |                          |          |
|        | Strongly agree/agree Neutral Disagree/Strongly Disagree                  | 5 (2.8%)      | 4 (3.4%)               | 1 (1.0%)                 |          |
|        |                                                                          | 25 (13.9%)    | 13 (11.1%)             | 12 (19.0%)               |          |
|        |                                                                          | 150 (83.3%)   | 100 (85.4%)            | 50 (79.4%)               |          |
| 5      | If I ask non-abused patients about IPV, they will get very angry.        |               |                        |                          |          |
|        | Strongly agree/agree Neutral Disagree/Strongly Disagree                  | 18 (9.9%)     | 10 (8.0%)              | 8 (12.5%)                |          |
|        |                                                                          | 42 (23.2%)    | 28 (23.9%)             | 14 (21.9%)               |          |
|        |                                                                          | 121 (66.9%)   | 79 (67.5%)             | 42 (65.7%)               |          |
| 6      | People are only victims if they choose to be.                            |               |                        |                          |          |
|        | Strongly agree/agree Neutral Disagree/Strongly Disagree                  | 6 (3.3%)      | 3 (2.6%)               | 3 (4.7%)                 | 0.330**  |
|        |                                                                          | 14 (7.8%)     | 7 (6.0%)               | 7 (10.9%)                |          |
|        |                                                                          | 160 (88.9%)   | 106 (91.4%)            | 54 (84.4%)               |          |
| 7      | When it comes to domestic violence, it usually “takes two to tango.”    |               |                        |                          |          |
|        | Strongly agree/agree Neutral Disagree/Strongly Disagree                  | 7 (3.9%)      | 3 (2.6%)               | 4 (6.3%)                 |          |
|        |                                                                          | 26 (14.4%)    | 12 (10.3%)             | 14 (21.9%)               |          |
|        |                                                                          | 148 (81.8%)   | 102 (87.2%)            | 46 (71.9%)               |          |
| 8      | I have seen patients whose personalities cause them to be abused.        |               |                        |                          |          |
|        | Strongly agree/agree Neutral Disagree/Strongly Disagree                  | 23 (12.8%)    | 13 (11.2%)             | 10 (15.9%)               |          |
|        |                                                                          | 51 (28.3%)    | 33 (28.2%)             | 18 (28.6%)               |          |
|        |                                                                          | 106 (58.9%)   | 71 (60.7%)             | 35 (55.6%)               |          |
| 9      | Women who choose to step out of traditional roles are a major cause of IPV. |               |                        |                          |          |
|        | Strongly agree/agree Neutral Disagree/Strongly Disagree                  | 3 (1.7%)      | 2 (1.7%)               | 1 (1.0%)                 | 0.835**  |
|        |                                                                          | 22 (12.2%)    | 13 (11.1%)             | 9 (14.3%)                |          |
|        |                                                                          | 155 (86.1%)   | 102 (87.2%)            | 53 (84.1%)               |          |
| 10     | I don’t know how to ask about the possibility of IPV.                    |               |                        |                          |          |
|        | Strongly agree/agree Neutral Disagree/Strongly Disagree                  | 50 (27.8%)    | 44 (37.6%)             | 6 (9.3%)                 | <0.001** |
|        |                                                                          | 42 (23.3%)    | 25 (21.4%)             | 17 (27.0%)               |          |
|        |                                                                          | 88 (48.9%)    | 48 (41%)               | 40 (63.8%)               |          |
| 11     | The victim’s passive-dependent personality often leads to abuse.        |               |                        |                          | 0.758    |
|        | Strongly agree/agree Neutral Disagree/Strongly Disagree                  | 19 (10.7%)    | 11 (9.7%)              | 8 (12.7%)                |          |
|        |                                                                          | 57 (32.2%)    | 36 (31.6%)             | 21 (33.3%)               |          |
|        |                                                                          | 101 (57.1%)   | 67 (58.8%)             | 34 (54%)                 |          |
| 12     | The victim has often done something to bring about violence in the relationship. |           |                        |                          | 0.384    |
|        | Strongly agree/agree Neutral Disagree/Strongly Disagree                  | 1 (0.6%)      | 0 (0.0%)               | 1 (1.0%)                 |          |
|        |                                                                          | 19 (10.6%)    | 12 (10.3%)             | 7 (11.1%)                |          |
|        |                                                                          | 160 (88.9%)   | 105 (89.7%)            | 55 (87.3%)               |          |

* Chi-Squared test; **Fisher’s Exact test (Has an expected value of less than 5); Totals may not add to 200 participants due to missing data.
## Appendix B: General Knowledge, Personal Comfort and Attitudes with Respect to Batterers

|                                                                 | Overall N (%) | Medical Students N (%) | Surgical Residents N (%) | P Value* |
|-----------------------------------------------------------------|---------------|------------------------|--------------------------|----------|
| I am (or would be) reluctant to ask batterers about their abusive behaviour out of concern for my personal safety. | Strongly agree Disagree/Strongly Disagree | 57 (32.6%) 42 (24.0%) | 38 (34.0%) 29 (25.9%) | 0.497    |
| I am (or would be) afraid of offending patients if I ask about their abusive behaviour. | Strongly agree Disagree/Strongly Disagree | 78 (44.6%) 37 (21.1%) | 59 (52.7%) 22 (19.6%) | 0.012    |
| There is no way to ask batterers about their behaviours without putting the victim in more danger. | Strongly agree Disagree/Strongly Disagree | 29 (16.7%) 55 (31.6%) | 20 (17.9%) 51 (27.7%) | 0.323    |
| When challenged, batterers frequently direct their anger toward health care providers. | Strongly agree Disagree/Strongly Disagree | 35 (20.0%) 76 (43.4%) | 20 (17.9%) 61 (54.4%) | 0.597    |
| I am afraid that talking to the batterer will increase risk for the victim. | Strongly agree Disagree/Strongly Disagree | 107 (61.1%) 44 (25.3%) | 78 (69.6%) 22 (19.6%) | 0.009    |
| In many cases, the battering would stop if the batterer would quit abusing alcohol. | Strongly agree Disagree/Strongly Disagree | 61 (34.9%) 63 (36.0%) | 57 (53.3%) 40 (55.7%) | 0.678    |
| I feel there are ways of asking a battering behaviour without placing myself at risk. | Strongly agree Disagree/Strongly Disagree | 136 (77.7%) 35 (20.1%) | 87 (78.4%) 2 (1.8%) | 0.294**  |
| I feel I can effectively discuss issues of battering and abuse with a battering patient. | Strongly agree Disagree/Strongly Disagree | 19 (10.9%) 108 (61.7%) | 10 (9.9%) 78 (69.7%) | 0.816    |
| There are strategies that can be used to encourage batterers to seek help. | Strongly agree Disagree/Strongly Disagree | 136 (77.7%) 34 (19.4%) | 90 (80.3%) 20 (19.7%) | 0.369**  |
| There are ways healthcare providers can ask batterers about their behaviour that will minimize risk to the potential victim. | Strongly agree Disagree/Strongly Disagree | 124 (71.3%) 6 (3.4%) | 89 (72.1%) 2 (1.8%) | 0.321**  |

* Chi-Squared test
**Has an expected value of less than 5
Totals may not add to 200 participants due to missing data.
## Appendix C: Additional Relevance and Education Items

| Relevance of identifying IPV victims to intended specialty | Overall N (%) | Medical Students N (%) | Surgical Residents N (%) | P Value* |
|----------------------------------------------------------|---------------|------------------------|--------------------------|----------|
| Not at all relevant                                      | 10 (5.2%)     | 7 (5.6%)               | 3 (4.3%)                 | NA       |
| Possibly relevant                                       | 27 (14.0%)    | 13 (10.5%)             | 14 (20.3%)               |          |
| Somewhat relevant                                       | 43 (22.3%)    | 18 (14.5%)             | 25 (36.2%)               |          |
| Very relevant                                            | 100 (51.8%)   | 73 (58.9%)             | 27 (39.1%)               |          |
| Depends on specialty                                     | 13 (6.7%)     | 13 (10.5%)             | ---***                   |          |

* Chi-Squared test
**Has an expected value of less than 5
Totals may not add to 200 participants due to missing data.

## Do you feel that a lack of education/training is the main barrier to physician screening for intimate partner violence?

| Response | Overall N (%) | Medical Students N (%) | Surgical Residents N (%) | P Value* |
|----------|---------------|------------------------|--------------------------|----------|
| Yes      | 81 (42.0%)    | 54 (43.5%)             | 27 (39.1%)               | 0.062    |
| No       | 62 (32.1%)    | 33 (26.6%)             | 29 (42.0%)               |          |
| Unsure   | 50 (25.9%)    | 37 (29.8%)             | 13 (18.8%)               |          |

Totals may not add to 200 participants due to missing data.

## Appendix D: Clinical Exposure to IPV Patients/Batterers

| Question                                                                 | Never | Seldom | Sometimes | Always | Not Applicable |
|--------------------------------------------------------------------------|-------|--------|-----------|--------|----------------|
| In the past 3 months, when seeing someone with the following conditions, how often have you asked the patients about the possibility of intimate partner violence? |       |        |           |        |                |
| Injuries (bruises, lacerations, etc.)                                    | 22 (35.5%) | 19 (30.6%) | 8 (12.9%) | 5 (8.1%) | 8 (12.9%)      |
| Chronic pelvic pain                                                     | 18 (29.0%) | 3 (4.8%) | 3 (4.8%) | 2 (3.2%) | 36 (58.1%)     |
| Irritable bowel syndrome                                                | 25 (40.3%) | 3 (4.8%) | 3 (4.8%) | 1 (1.6%) | 30 (48.4%)     |
| Headaches                                                               | 14 (22.6%) | 7 (11.3%) | 5 (8.1%) | 1 (1.6%) | 27 (43.5%)     |
| Depression/anxiety                                                      | 31 (50.8%) | 5 (8.2%) | 1 (1.6%) | 1 (1.6%) | 23 (37.7%)     |
| Hypertension/ coronary artery disease                                   |       |        |           |        |                |

Totals may not add to 200 participants due to missing data.

| Question                                                                 | Response | Number (%) |
|--------------------------------------------------------------------------|----------|------------|
| Ever identified a patient who was a victim of IPV                        | Yes      | 30 (48.4%) |
|                                                                           | No       | 27 (43.5%) |
|                                                                           | Unsure   | 5 (8.1%)   |
| Ever identified a patient who physically abused their spouse or partner  | Yes      | 17 (27.4%) |
|                                                                           | No       | 43 (69.4%) |
|                                                                           | Unsure   | 2 (3.2%)   |
| Does your clinical setting provide any guidelines for the detection/ management of IPV? | Yes | 6 (9.7%) |
|                                                                           | No       | 40 (64.5%) |
|                                                                           | Unsure   | 16 (25.8%) |

Totals may not add to 200 participants due to missing data.
Section III: Prevalence of Intimate Partner Violence in Orthopaedic Fracture Clinic Patients
Chapter 4

Prevalence of Intimate Partner Violence across Medical and Surgical Health Care Settings: A Systematic Review

S Sprague, JC Goslings, C Hogentoren, S de Milliano, N Simunovic, K Madden, M Bhandari

In Press in Violence Against Women
Abstract
Intimate partner violence (IPV) is a serious health problem and a leading cause of non-fatal injury in North American females. Prevalence of IPV has ranged from less than 20% to over 50% across primary care, emergency medicine, and family medicine. We conducted a systematic review and meta-analysis of the literature to examine best estimates of IPV prevalence as opportunities for targeted interventions in health care specialties. We included 37 articles in this study. Based on our pooled data, best estimates of the lifetime prevalence of any type of IPV was 38% in family medicine and 40% in emergency medicine.
Introduction

Intimate partner violence (IPV) against women has been identified as a serious health problem and is a leading cause of non-fatal injury in females in North America (Kyriacou et al, 1999; Daunenberg et al, 1994). Intimate partner violence is described by the American Medical Association as “a pattern of coercive behaviours that may include repeated battering and injury, psychological abuse, sexual assault, progressive social isolation, deprivation, and intimidation” (McCloskey et al, 2007). These behaviours are perpetrated by someone who is in a private and personal relationship with another individual, such as a victim’s spouse, common-law partner, sexual partner, or dating partner.

Some studies have reported that as high as 54 percent of all women have experienced some form of IPV during the course of their life (Reisenhofer et al, 2007). Women who are victims of IPV have been known to utilize health care services at higher rates than women who have not been abused (Bhandari et al, 2006; Hazen et al, 2004). They may present to a number of different medical specialists including emergency room physicians, orthopaedic or trauma surgeons, family physicians, and specialists in obstetrics and gynecology during routine appointments or for appointments specific to their injuries. Researchers and advocates have argued that health care providers can play a vital role in detecting IPV (Davidson et al, 2001).

Despite these recommendations for universal screening, the response from the medical community to address the issue of domestic violence has been characterized as “slow and inconsistent” (Davis, 2008). Intimate partner violence is an under-recognized, recurrent part of trauma, present in at least one in five women who present to the Emergency Department, and physicians frequently fail to make this diagnosis (Davis, 2008). The failure to detect IPV contributes to recidivism and long-term health problems (Glass et al, 2001). In addition, when injuries resulting from IPV are not recorded in medical records, abused women are denied documentation of their injuries for future references in court cases (Glass et al, 2001). Additionally, opportunities to provide education about prevention, lethality assessment, safety planning, and options for escaping an abusive situation and referrals to resources within the community may also be missed (Glass et al, 2001).

The reported rates of IPV vary across different subspecialties and may be underreported. While several studies have reported the prevalence rates of IPV in the health care setting, these estimates vary substantially. Best estimates of rates across various subspecialties are lacking. We therefore undertook a systematic review and meta-analysis of the published literature to determine the prevalence rates of IPV reported to different medical subspecialties including family medicine, emergency medicine, obstetrics and gynaecology, internal medicine, addiction recovery clinics, and adults with children patients in paediatric clinics. The study has important implications for healthcare professionals in various settings. It will direct attention to medical practitioners in subspecialties where IPV is overlooked and will impact their interaction with and treatment of IPV victims as well as victims’ willingness to disclose. Also, identification of health care settings with the highest prevalence rates will allow targeted research and focus towards improvement of the quality of life of IPV victims.

Methods

This systematic review adheres to the reporting guidelines of the Meta-analysis Of Observational Studies in Epidemiology (MOOSE) Statement (Stroup et al, 2000).
Eligibility Criteria
We identified articles in all languages that met the following eligibility criteria: 1) the study was published between January 1995 and July 2009, 2) the target population consisted of adult women between the ages of 16 and 65 years presenting to physicians of any medical specialty, and 3) the primary objective of the study was to determine the prevalence rates of IPV. We included all study designs including cross-sectional designs, surveys, and chart or medical record reviews. We excluded studies focusing on children, males, and special populations such as pregnant women, elderly patients, and patients suffering from a specific illness (i.e. depression, chronic gastrolo-enterological disease). We also excluded review articles, letters, comments, case reports, and guidelines.

Identification of Studies
Two reviewers (C.H., S. dM.) independently conducted a search of the electronic database PubMed for relevant articles published from 1995 to July 2009 in all languages with the help of a professional librarian. Additional strategies used to identify studies included consultation with experts, a review of reference lists from articles that fulfilled our eligibility criteria, and use of the “related articles” feature in PubMed for all studies meeting our entry criteria.

Assessment of Study Eligibility
Two of the authors (C.H. S. dM.) independently assessed all studies identified for full evaluation and resolved disagreements through discussion towards consensus. The eligibility was verified by two additional authors (S.S., N.S.). Agreement between observers for study eligibility with regard to abstract and full text review was examined using the $\kappa$ (kappa) statistic. The inter-observer agreement in methodological quality scores was evaluated using the intraclass correlation coefficient. We chose an a priori criterion of $\kappa \geq 0.65$ for adequate agreement. The 95% confidence intervals were calculated using the generic formula: Estimate $\pm 1.96 \times$ (Standard Error).

Assessment of Methodological Quality
Two reviewers (N.S., S.S.), both with methodological expertise and one with content expertise (S.S.) independently graded the methodological quality of each included study using questions adapted from the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement designed for cross-sectional studies (von Elm et al, 2008). The STROBE statement is a checklist of 22 items that are considered for good reporting of observational studies (von Elm et al, 2008). The STROBE statement was developed to assist authors when writing analytic observational studies, to support editors and reviewers when considering such articles for publication, and to help readers critically appraise published research (von Elm et al, 2008).

The original authors emphasized that the STROBE statement was not developed as a tool for assessing the quality of published observational research (von Elm et al, 2008). Unfortunately very few checklists exist for critically appraising cross-sectional studies (Katrak et al, 2004; Sanderson et al, 2007; Kelley et al, 2003) and we did not find that any of the previously developed checklists were appropriate for this study. Therefore, we adapted the STROBE statement to assess study quality. A priori we determined that studies that met at least 10 of the
13 reporting criteria within our modified STROBE criteria would be considered high quality, studies that met seven to nine reporting criteria would be considered medium quality, and studies that met six or fewer criteria would be classified as low quality.

Data Extraction
A structured data extraction form was developed and relevant data was extracted from each eligible study in duplicate (S.S., N.S.) to ensure accuracy. Pertinent data included study characteristics (year and location), patient characteristics (age), type of medical sub-speciality (emergency medicine, family medicine, obstetrics and gynaecology, internal medicine, addiction recovery, pediatrics, and public health), method of data collection (survey, interview, chart review, and other design), timeframe (lifetime, one-years, two-years, and other), sample size, and response rate. We documented how the authors defined IPV, physical, emotional, and sexual abuse. Finally, we recorded the reported rates of IPV, physical abuse, emotional, and sexual abuse as reported by the authors.

Data Analysis
We provide pooled rates of lifetime and one year physical abuse, emotional abuse, and sexual abuse for emergency medicine, family medicine, and other specialties. Analyses were performed with Predictive Analytics SoftWare (PASW) Statistics version 18.0 (SPSS Inc. Chicago, IL, USA).

Evaluation of Heterogeneity
Before analyzing the data, we hypothesized that there would be a large degree of heterogeneity between the studies. Differences such as study methodology (e.g. survey versus interview versus other study designs), timelines of reported IPV (e.g. lifetime versus one-year), differences in screening tools used (e.g. AAS, CTS, PVS etc.), variability within and between populations (e.g. socioeconomic status, age, jurisdiction), differences in the definition of IPV perpetrator (e.g. male perpetrator versus perpetrator of any gender, or spouse versus any intimate partner), or variable study quality could contribute to the heterogeneity.

Results
Study Identification
Our literature search identified 894 potentially relevant citations, of which 32 were considered for inclusion after full text review (Figure 1). Eighteen of these 32 studies were excluded after verification by additional reviewers (NS and SS) because of insufficient data on IPV prevalence, or they did not meet the eligibility criteria. Of 80 studies considered for inclusion based on review of bibliographies, 20 were included in this study. Three studies were identified and included after consultation with a content expert. In total, 37 studies were included in this review. The weighted kappa on overall agreement between reviewers when choosing articles for the full text review was 0.70 (95% confidence interval, 0.59 to 0.82), and for final study inclusion there was only one disagreement.
Figure 1: Flow Chart of Study Process (adapted from Guyatt et al, 2007)
Study Characteristics
Details of the selected studies are shown in Table 1. The mean age of participants in the included studies was between 28 and 65 years, with 17 studies not reporting mean age. Response rates ranged from 9% to 100% with most studies (24/37 64.9%) reporting a response rate of 70% or greater. Twenty-five studies (67.6%) took place in the United States, three studies took place in each of Australia and the United Kingdom, and other locations (Canada, Spain, Iran, Israel, South Africa, and China) each have one study. Most studies took place in family medicine clinics (15/37, 40.5%) and emergency departments (12/37, 32.4%). Of the remaining studies, three took place in obstetrics and gynecology clinics, three took place in internal medicine clinics, and four studies had more than one specialty. Nineteen studies (51.4%) used written questionnaires to assess rates of IPV, fourteen studies (37.8%) used an in-person interview, one study (2.7%) used a telephone survey, one study (2.7%) used a computer-based survey, and two studies (5.4%) used more than one method.

Study Quality
We judged 26 studies to be of high methodological quality, 10 studies to be of moderate quality, and the remaining 1 study to be of low quality (Table 1). The reviewers of methodological quality achieved moderate agreement (intraclass correlation coefficient, 0.65; 95% confidence interval, 0.57 to 0.71.

Definition of Intimate Partner Violence
The definition of intimate partner violence varied greatly between studies. The two most commonly used screening tools among included studies were the Abuse Assessment Screen (13 studies, 35.1%) and the Conflict Tactics Scale (5 studies, 13.5%), or modified versions of these tools. Many studies used gender-neutral language, such as “partner”, but others specified that the abuser must be male (8 studies, 21.6%). Most studies included only female victims, but a small number (3 studies, 8.1%) also included male victims.

Intimate Partner Violence Prevalence
Twenty-nine of the included studies (78.4%) presented an overall rate of IPV. Overall pooled lifetime prevalence rates were similar across family medicine and emergency medicine (38% and 40%, respectively). Rates reported for other specialties, however, were considerably higher (59%). Prevalence rates of intimate partner violence in the past year were also similar across studies in family practice and emergency clinics (19.9% versus 19.5%, respectively) (Tables 2 and 3). Between 2% and 4.3% of female patients presenting to emergency departments were reported to have injuries caused by a current or former intimate partner (Table 2). Based on a single study in each of pediatric emergency medicine and public health clinics, these specialties have lower rates of physical IPV than other specialties in the reviewed articles (Table 4). Please see Figure 2 for pooled prevalence rates of IPV across specialties.
### Table 1: Characteristics of Included Studies

| Study   | Year | Location     | Medical Specialty | Population | Mean Age of Participants (years) | Sample Size | Method of Data Collection | Timelines Presented | Response Rate (%) | Quality Score* |
|---------|------|--------------|-------------------|------------|---------------------------------|-------------|--------------------------|--------------------|------------------|-----------------|
| Abbott  | 1995 | United States | Emergency         | English, Spanish, 18-86, 7% pregnant | 34.0         | 648          | Written survey           | Lifetime, One Year, Acute, One month | 77.8            | High            |
| Bauer   | 2000 | United States | Family, ObGyn, Internal | 18-46, 31% African-American, 36% Latina, 31% white | 33.5 (7.5)   | 734          | Phone interview          | Lifetime, One Year | 74.0            | High            |
| Caralis | 1997 | United States | Internal          | Female veteran patients, English speaking | 50.4 ± 16    | 406          | In-person interview      | Lifetime, One Year, Current       | 78.7            | High            |
| Cleary  | 2008 | United States | Internal          | 18-60, not pregnant, English/Spanish speaking | History of IPV: 44.0 ± 10  
No history of IPV: 45.0 ± 12 | 72          | Written survey   | Lifetime, One Year, Current, Most recent relationship, Past relationship | 92.3            | High            |
| Coker   | 2000 | United States | Family            | 18-65, insured, in relationship for at least 6 months | 37.6         | 1401         | In-person interview      | Lifetime, One Year, Current, Past 5 years | 87.3            | High            |
| Coker   | 2007 | United States | Family            | Lower income women in rural clinics | 39.5 ± 12.6  | 3664         | In-person interview      | Lifetime, One Year, Current, Acute   | 74.1            | High            |
| Cox     | 2004 | Canada       | Emergency         | 16+, English or French speaking, able to communicate | 41.0          | 983          | Written survey           | Lifetime, One Year, Current, Acute     | 80.4            | High            |
| Dearwater | 1998 | United States | Emergency         | 18+, English and Spanish speaking, able to communicate | Pennsylvania: 48  
California: 41 | 3455         | In-person interview | Lifetime, One Year, Acute            | 74.4            | High            |
| Study     | Year | Location | Medical Specialty  | Population | Mean Age of Participants (years) | Sample Size | Method of Data Collection | Timelines Presented | Response Rate (%) | Quality Score* |
|-----------|------|----------|---------------------|------------|----------------------------------|-------------|--------------------------|---------------------|------------------|-----------------|
| El-Bassel | 2007 | United States | Emergency        | 18+        | 37.1                             | 799         | In-person interview      | Lifetime            | 63.9             | High            |
| Elliott   | 1995 | United States | Family            | 18-65, English-speaking | NR        | 42                       | In-person interview | Lifetime, Past relationship | 65.6             | Moderate       |
| Ernst     | 1997 | United States | Emergency         | 18+, inner city, English-speaking, excluded if they never had a partner, men and women | 35.0 ± 13 | 207                     | Written survey      | Current, Past relationship | NR               | High            |
| Faramarzi | 2005 | Iran      | ObGyn              | Iranian women, married | 28.2 (6.6) | 2400                    | In-person interview | One Year            | NR               | Moderate       |
| Glass     | 2001 | United States | Emergency         | 18-65 English/Spanish speaking | NR        | 3455                    | In-person interview, Chart review, Written survey | Lifetime, One Year | 73.7             | High            |
| Gryobaum  | 2001 | Israel    | Family             | Hebrew and Russian speaking, 18-60 years | 39.2      | 133                     | Written survey      | Lifetime, One Year | 95.7             | Moderate       |
| Hegarty   | 2002 | Australia | Family             | 16+, English-speaking, women presenting with child patients also included | NR        | 1836                    | Written survey      | Lifetime, One Year, 5 years | 78.5             | High            |
| Houry     | 2006 | United States | Emergency         | African American, 18-55, spoke English at grade 5 level | 32.4      | 461                     | Computer survey     | One Year            | 75.8             | High            |
### Table 1: Characteristics of Included Studies (Continued)

| Study   | Year | Location         | Medical Specialty | Population                                      | Mean Age of Participants (years) | Sample Size | Method of Data Collection | Timelines Presented              | Response Rate (%) | Quality Score* |
|---------|------|------------------|-------------------|------------------------------------------------|---------------------------------|-------------|---------------------------|-------------------------------|-------------------|----------------|
| John    | 2004 | United Kingdom   | ObGyn             | All women                                      | NR                              | 825         | Written survey            | Lifetime, One Year          | 89.7              | Moderate       |
| Johnson D| 1997 | United States    | Family            | 18-94 years, rural                             | NR                              | 280         | Written survey            | Lifetime, One Year, Current | NR                | Moderate       |
| Johnson M| 1997 | United States    | Family            | 18+, English speaking, no dementia             | 65.0                            | 127         | In-person interview       | Lifetime, Current, Past relationship | NR                | Moderate       |
| Kramer  | 2004 | United States    | Family, Emergency | 18+, English and Spanish speaking             | NR                              | 1268        | Written survey            | Lifetime, One Year          | NR                | Moderate       |
| Krishnan| 2001 | United States    | Emergency         | 18+, English and Spanish speaking             | NR                              | 87          | In-person interview       | Lifetime, Current           | NR                | Low            |
| Marais  | 1999 | South Africa     | Family            | 18+                                           | NR                              | 1050        | In-person interview       | Lifetime                  | 99                | Moderate       |
| Mazza   | 1998 | Australia        | Family            | 18+                                           | NR                              | 2181        | Written survey            | One Year                  | 72.1              | High           |
| McCauley| 1995 | United States    | Internal          | English-speaking adults, able to read, no mental diminishment, not acutely ill | NR                              | 1952        | Written survey            | Lifetime, One Year          | 81.6              | High           |
| McCluskey| 2001 | United States    | Family, Emergency, ObGyn, Pediatrics, Addictions | English, Spanish, Chinese or Russian speaking, 18+, some pregnant women | 35.0 ± 13.4                   | 2650        | Written survey            | Lifetime, One Year          | 62.4              | High           |
| McFarlane| 2005 | United States    | Family            | 18-44, African American, White and Hispanic (predominantly), English/Spanish speaking | NR                              | 7443        | In-person interview       | One Year                   | NR                | Moderate       |
| Study          | Year | Location  | Medical Specialty | Population | Mean Age of Participants (years) | Sample Size | Method of Data Collection | Timelines Presented | Response Rate (%) | Quality Score* |
|---------------|------|-----------|-------------------|------------|---------------------------------|-------------|--------------------------|---------------------|----------------|----------------|
| McLaughlin    | 1999 | United States | Emergency         | 18-50 years, English-speaking | NR          | 421                      | In-person interview | Lifetime, One Year | 100            | Moderate       |
| Muehlen       | 1998 | United States | Emergency         | 19-65 years, English-speaking | NR          | 4501                     | Written survey     | Lifetime, Current  | 73.3           | Moderate       |
| Newman        | 2005 | United States | Pediatric Emergency | English and Spanish-speaking women with children | 32.0 ± 10   | 451                      | Written survey     | One Year            | 97.8           | High           |
| Paul          | 2006 | Ireland    | Family             | 18-65, women and men          | NR          | 139                      | Written survey     | Lifetime            | 77.2           | High           |
| Peralta       | 2003 | United States | Family             | English-speaking, 18-36       | NR          | 399                      | Written survey     | Past three months  | NR             | High           |
| Richardson    | 2002 | United Kingdom | Family             | 16+, English, Turkish or Bengali speaking | NR          | 1207                     | Written survey     | Lifetime, One Year | 55.1           | High           |
| Roberts       | 1996 | Australia  | Emergency          | 16+, English-speaking, men and women | 45.1        | 533                      | Written survey     | Lifetime            | 67.7           | High           |
| Roche         | 2007 | United States | Emergency          | 18+, English/Spanish speaking, admitted to hospital | 37.0        | 321                      | Phone interview, Written survey | Lifetime            | 75.1           | High           |
| Ruiz-Perez    | 2006 | Spain      | Family             | 18-65, Spanish speaking, literate | 38.8 (11.2) | 1402                     | Written survey     | Lifetime            | 86.0           | High           |
| Wagner        | 1995 | United States | Family             | 18+, urban and rural setting, White and African-American | NR          | 407                      | In-person interview | Lifetime            | 86.2           | High           |
| Xu X          | 2005 | China      | ObGyn              | 18-60, Mandarin-speaking     | 31.3 (7.5)  | 600                      | In-person interview | Lifetime, One Year | 87.6           | High           |

*The quality score is based upon the STROBE Statement for cross-sectional studies. NR = not reported.
Table 2: Prevalence in Emergency Medicine

| Timeline        | Study       | Overall IPV Rate (%) | Physical IPV Rate (%) | Sexual IPV Rate (%) | Emotional IPV Rate (%) |
|-----------------|-------------|----------------------|-----------------------|---------------------|-----------------------|
| Lifetime        | Abbott, 1995| 27.7 (23.4-32.2)     | 23.1                  | NR                  | NR                    |
|                 | Roberts, 1996| 16.1                | NR                    | NR                  | NR                    |
|                 | Meuleman, 1998| NR                 | 37                    | NR                  | NR                    |
|                 | McLaughlin, 1999| 47.3              | NR                    | NR                  | NR                    |
|                 | Krishnan, 2001| NR                 | 20.7                  | 5.7                 | 23.0                  |
|                 | Cox, 2004    | 51 (49-53)          | NR                    | NR                  | NR                    |
|                 | Kramer, 2004 | NR                  | 58.1                  | 33.9                | 67.7                  |
|                 | McCloskey, 2005| 41*                | NR                    | NR                  | NR                    |
|                 | El-Bassel, 2007| 49.6               | 44.2                  | 24.9                | NR                    |
|                 | Roche, 2007  | 33.3                | 27.1                  | 5.6                 | NR                    |
| Past year       | Abbott, 1995| 15.3 (12.6-18.3)    | NR                    | NR                  | NR                    |
|                 | Dearwater, 1998| 34.4               | 12.6                  | 4.5 (3.8-5.2)       | NR                    |
|                 | McLaughlin, 1999| 12.1              | NR                    | NR                  | NR                    |
|                 | Cox, 2004    | 25 (23-39)          | NR                    | NR                  | NR                    |
|                 | Kramer, 2004 | NR                  | 20.4                  | 6.5                 | 37.8                  |
|                 | McCloskey, 2005| 16.5*              | NR                    | NR                  | NR                    |
|                 | Houry, 2006  | 36.0                | 22.0                  | 8.9                 | 32.1                  |
| Past 6 months   | El-Bassel, 2007| 11.8               | 8.9                   | 6.4                 | NR                    |
| Past month      | Abbott, 1995| 11.9 (9.5-14.6)     | 6.5                   | NR                  | NR                    |
| Current relationship | Ernst, 1997  | NR                  | 18.8                  | NR                  | 15.5                  |
|                 | Meuleman, 1998| NR                 | 5.9                   | NR                  | NR                    |
|                 | Krishnan, 2001| 18.2               | NR                    | NR                  | NR                    |
|                 | Cox, 2004    | 9 (7-12)            | NR                    | NR                  | NR                    |
| Most recent relationship | Krishnan, 2001| 32.3               | NR                    | NR                  | NR                    |
| Acute           | Abbott, 1995| NR                  | 2.2                   | NR                  | NR                    |
|                 | Dearwater, 1998| 2.2                | NR                    | NR                  | NR                    |
|                 | Glass, 2001  | 4.3                 | NR                    | NR                  | NR                    |
|                 | Cox, 2004    | 2                   | NR                    | NR                  | NR                    |
| Past Relationship | Ernst, 1997 | NR                  | 32.2                  | NR                  | 22.3                  |
| Cumulative      | Abbott, 1995| 54.2                | NR                    | NR                  | NR                    |

*Rates are adjusted
| Timeline             | Study             | Overall IPV Rate (%) | Physical IPV Rate (%) | Sexual IPV Rate (%) | Emotional IPV Rate (%) |
|---------------------|-------------------|----------------------|-----------------------|---------------------|------------------------|
| Lifetime            | Elliott, 1995     | 45                   | 31                    | 19                  | 31                     |
|                     | Wagner, 1995      | 66.1                 | 38.8                  | 24                  | 55                     |
|                     | D. Johnson, 1997  | NR                   | 13.9                  | 2.1                 | NR                     |
|                     | M. Johnson, 1997  | 44.9                 | 29.1                  | 15.0                | 29.1                   |
|                     | M. Johnson, 1999  | 21.5                 | 14.6                  | 1.6                 | NR                     |
|                     | Coker, 2000       | 55.1                 | 37.6                  | 23.1                | NR                     |
|                     | Gryllbaum, 2001   | 30.8                 | NR                    | NR                  | NR                     |
|                     | Richardson, 2002  | 27.7 (25-30)         | 41.1 (38-44)          | NR                  | NR                     |
|                     | Hegarty, 2004     | 37 (31-42)           | 23.3                  | 10.6                | 33.9                   |
|                     | Kramer, 2004      | NR                   | 53.8                  | 24.2                | 54.2                   |
|                     | Paul, 2006        | NR                   | 43.2                  | NR                  | 76                     |
|                     | Ruiz-Perez, 2006  | 31.7                 | 14.1                  | 8.8                 | 30.7                   |
| Past year           | D. Johnson, 1997  | NR                   | 8.2                   | NR                  | NR                     |
|                     | Mazza, 1998       | 28.9 (24-34)         | 22.4                  | NR                  | 20.1 (16-24)           |
|                     | Bauer, 2000       | 13                   | NR                    | NR                  | NR                     |
|                     | Gryllbaum, 2001   | NR                   | 9.8                   | NR                  | NR                     |
|                     | Hegarty, 2002     | 27.6                 | 9.0                   | 1.9                 | 7.6                    |
|                     | Richardson, 2002  | NR                   | 16.8 (14-19)          | NR                  | NR                     |
|                     | Kramer, 2004      | NR                   | 9.6                   | 3.7                 | 25.4                   |
|                     | McCloskey, 2005   | 8.6*                 | NR                    | NR                  | NR                     |
| Past 3 months       | Peralta, 2003     | 44.3                 | 10.3                  | NR                  | 40.6                   |
| Past 5 years        | Coker, 2007       | 25.6                 | 10.1                  | 24.3                | NR                     |
| Over 5 years ago    | Hegarty, 2002     | 41.5                 | NR                    | NR                  | NR                     |
| Current relationship| D. Johnson, 1997  | NR                   | NR                    | NR                  | 5.9                    |
|                     | M. Johnson, 1997  | 20.5                 | NR                    | NR                  | NR                     |
|                     | Coker, 2000       | 14.8                 | 14.8                  | 5.1                 | NR                     |
|                     | Coker, 2007       | 16.3                 | 16.3                  | 13.3                | NR                     |
| Most recent relationship | Coker, 2000 | 33.0                 | 18.9                  | 14.4                | NR                     |
| Past relationship   | M. Johnson, 1997  | 27.6                 | NR                    | NR                  | NR                     |
|                     | Coker, 2000       | 46.0                 | 32.0                  | 17.3                | 10.1                   |

*Rates are adjusted
### Table 4: Prevalence in Other Specialties

| Specialty                        | Timeline        | Study       | Overall IPV Rate (%) | Physical IPV Rate (%) | Sexual IPV Rate (%) | Emotional IPV Rate (%) |
|----------------------------------|-----------------|-------------|----------------------|-----------------------|---------------------|------------------------|
| Obstetrics/Gynecology            | Lifetime        | John, 2004  | NR                   | 20.7                  | NR                  | NR                     |
|                                  | Past year       | Xu, 2005    | 43                   | 38                    | 16                  | NR                     |
|                                  | Past year       | Binner, 2000| 15                   | NR                    | NR                  | NR                     |
|                                  | Past year       | John, 2004  | NR                   | 4.1                   | NR                  | 13.1                   |
|                                  | Past year       | Faramarzi, 2005 | NR          | 15.0                  | 42.4                | 81.5                   |
|                                  | Past year       | Xu, 2005    | 26                   | 21                    | 12                  | NR                     |
| Internal Medicine                | Lifetime        | Cleary, 2008| 61.1                 | NR                    | NR                  | NR                     |
|                                  | Past Year       | Cleary, 2008| 61.1                 | NR                    | NR                  | NR                     |
|                                  | Past Year       | Caralis, 1997| NR                   | 7                     | 3                   | NR                     |
|                                  | Past Year       | Hauer, 2000 | 14                   | NR                    | NR                  | NR                     |
|                                  | Past Year       | McCloskey, 2005 | NR              | 12.7*                 | NR                  | NR                     |
|                                  | Past Year       | Cleary, 2008| 22.2                 | NR                    | NR                  | NR                     |
|                                  | Current         | Caralis, 1997| 7                    | NR                    | NR                  | NR                     |
| Addiction Recovery               | Lifetime        | McCloskey, 2005 | NR              | 73*                   | NR                  | NR                     |
|                                  | Past year       | McCloskey, 2005 | NR              | 16.5*                 | NR                  | NR                     |
| Pediatrics (Adults Accompanying Pediatric Patients) | Past year | McCloskey, 2005 | NR              | 8.4*                  | NR                  | NR                     |
| Pediatric Emergency (Adults Accompanying Pediatric Patients) | Past year | Newman, 2005 | 11.1                 | 4.2                   | <0.001              | NR                     |
| Public Health                    | Past year       | McFarlane, 2005 | NR              | 4.1                   | <0.001              | NR                     |

*Rates are adjusted

Figure 2: Pooled Prevalence of IPV
Discussion

Our systematic review and meta-analysis found that the pooled prevalence rates of IPV in emergency medicine and family medicine are similar for both lifetime and one year timelines. Pediatric emergency medicine and public health clinics had lower rates of physical IPV than other specialties, although there were fewer studies in these specialties than others. Physical IPV was more commonly reported than both emotional IPV and sexual IPV, and the rates of sexual abuse tend to be lower than physical and emotional abuse, with emotional abuse being the most common type of IPV.

Several strengths contributed to the quality of this study. A comprehensive search of the literature as well as data abstraction from eligible studies was conducted by two independent reviewers to ensure accuracy, and the articles were screened thoroughly and systematically for inclusion criteria. There was a high degree of agreement between the two reviewers, and many studies of general high quality are included in the review. Also, the results can be highly generalized due to the broad eligibility criteria.

Despite these strengths, our study is limited by a large degree of heterogeneity across the included studies. Heterogeneity was likely a product of many factors including different methodology, populations, and definitions of IPV utilized across the eligible studies. The included studies had varying population characteristics and utilized a variety of different screening tools, which likely contributed to the wide variations in prevalence rates reported. Despite the large variations, our pooled data shows that the prevalence of IPV in emergency medicine and family medicine are similar. Another limitation is the moderately low intraclass correlation coefficient for agreement on methodological quality. This is likely due to the chance for greater variability with an extensive 13-item checklist.

The definition of IPV used is essential to compare studies of IPV prevalence. Differences in definitions include the timeline reported, screening tool used, type(s) of IPV included, and definition of perpetrator and victim. A total of nine different timelines were presented by included studies (lifetime, one year, acute, one month, three months, most recent relationship, current relationship, past relationship, and past five years). The included studies also used a variety of screening tools that have been validated to differing degrees, or adaptations of screening tools that have not undergone validation studies. Rabin et al (2009) reported that even the most commonly studied screening tools are only validated in a small number of studies. Since no “gold standard” exists to screen for IPV in a clinical setting, comparing results across screening tools is a challenge. These differences in definition make IPV a difficult subject to fully understand without some sort of standardization.

Despite similar definitions differences still occurred. There were three studies that used the AAS (the most common screening tool among included articles), similar definitions of physical IPV, and included a family medicine population (Kramer et al, 2004; Marais et al, 1999; Johnson D, 1997). All three studies had sample sizes of over 1,000 patients, used a lifetime timeline and were considered moderate or high quality studies. However, Kramer et al (2004) found that the prevalence of physical IPV was far greater than the other two studies (over 50% vs. 14.6% and 13.9%). The population may account for this variation. For example, Johnson (1997) described a rural US population, Kramer (2004) used a US English- and Spanish-speaking population, and Marais (1999) used a South African population. It is plausible that differing populations and regions experience different rates of IPV. For example, urban
populations experience higher rates of IPV than rural areas (Lanier et al, 2009; Kramer et al, 2004).

In addition, the studies included in this review employed a variety of methods of data collection. MacMillan et al (2006) found that the prevalence of IPV depends on the type of administration (written, verbal, or computer-based) and there was an interaction between method of administration and screening tool used. Some studies suggest that computer-based screening can increase disclosure (Turner et al, 1998), and others suggest that face-to-face interviews increase disclosure over written surveys (McFarlane et al, 1991). One of the included studies used computer-based screening, and obtained an overall prevalence of 36.0% in the past year in emergency medicine (Houry et al, 2006). This is the highest included prevalence for the one year timeline in emergency medicine. Results vary for written surveys versus in person interviews in this review.

We did not identify published studies on the prevalence of IPV across all subspecialties. There were no included studies in populations undergoing surgery, although surgeons likely encounter multiple patients who are victims of IPV. Orthopaedic and trauma surgeons, for example, may frequently treat victims of physical IPV in their practice (Bhandari, 2006), yet none of the included studies measured prevalence of IPV in orthopaedic clinics. A large multi-centre cross-sectional prevalence study is presently underway that will investigate the prevalence of IPV in patients presenting to orthopaedic fracture clinics (PRAISE Investigators, 2010). None of the included studies reported the prevalence of IPV among psychiatric patients, which could be another high-risk population. It may be important to study other medical specialties, even those expected to identify lower rates of IPV, because victims of IPV do not readily disclose their history of abuse to health care providers (Spangaro et al, 2010).

In conclusion, prevalence rates have been reported in the literature for various medical specialties including family medicine, emergency medicine, and others. However, the studies show a great degree of heterogeneity and are, therefore, difficult to compare. It would be easier to compare prevalence rates across studies if the definition of IPV remained constant. Based on our pooled data, best estimates of IPV prevalence in emergency medicine and family medicine appear to be similar. Future studies could investigate the prevalence of IPV in other specialties, and should use similar definitions of IPV.

References

1. Abbott, J., Johnson, R., Koziol-McLain, J., & Lowenstein, S.R. (1995). Domestic violence against women. incidence and prevalence in an emergency department population. Journal of the American Medical Association, 273(22),1763-1767.
2. Bauer, H.M., Rodriguez, M.A., & Perez-Stable, E.J. (2000). Prevalence and determinants of intimate partner abuse among public hospital primary care patients. Journal of General Internal Medicine, 15(11), 811-817.
3. Bhandari, M., Dosanjh, S., Tornetta, P. 3rd, Matthews, D., & Violence Against Women Health Research Collaborative. (2006). Musculoskeletal manifestations of physical abuse after intimate partner violence. Journal of Trauma, 61(6),1473-1479.
4. Bhandari, M., Sprague, S., Tornetta, P. 3rd, O’Aurora,V., Schenichts, E., Shearer, H., Brink, O., Matthews, D., & Dosanjh, S. (2008). (Mis)Perceptions about intimate partner violence among orthopedic surgeons. Journal of Bone and Joint Surgery, American Volume, 90, 1590-1597.
5. Caralis, P.V., & Musialowski, R. (1997). Women's experiences with domestic violence and their attitudes and expectations regarding medical care of abuse victims. *Southern Medical Journal, 90*(11), 1075-1080.

6. Cleary, B.S., Keniston, A., Havranek, E.P., & Albert, R.K. (2008). Intimate partner violence in women hospitalized on an internal medicine service: Prevalence and relationship to responses to the review of systems. *Journal of Hospital Medicine, 3*(4), 299-307.

7. Coker, A.L., Flerx, V.C., Smith, P.H., Whitaker, D.J., Fadden, M.K., & Williams, M. (2007). Partner violence screening in rural health care clinics. *American Journal of Public Health, 97*(7), 1319-1325.

8. Coker, A.L., Smith, P.H., McKeown, R.E., & King, M.J. (2000). Frequency and correlates of intimate partner violence by type: Physical, sexual, and psychological battering. *American Journal of Public Health, 90*(4), 553-559.

9. Cox, J., Bota, G.W., Carter, M., Breztlaff-Michaud, J.A., Sahai, V., & Rowe, B.H. (2004). Domestic violence. Incidence and prevalence in a northern emergency department. *Canadian Family Physician, 50*, 90-97.

10. Davidson, L.L., Grisso, J.A., Garcia-Moreno, C., Garcia, J., King, V.J., & Marchant, S. (2001). Training programs for health care professionals in domestic violence. *Journal of Women's Health, 10*, 953-969.

11. Davis, J.W. (2008). Domestic violence: the "rule of thumb": 2008 Western Trauma Association presidential address. *Journal of Trauma, 6*, 969-974.

12. Dearwater, S.R., Coben, J.H., Campbell, J.C., Nah, G., Glass, N., McLoughlin, E., & Bekemeier, B. (1998). Prevalence of intimate partner abuse in women treated at community hospital emergency departments. *Journal of the American Medical Association, 280*(5), 433-438.

13. El-Bassel, N., Gilbert, L., Wu, E., Chang, M., Gomes, C., Vincour, D., & Spevack, T. (2007). Intimate partner violence prevalence and HIV risks among women receiving care in emergency departments: implications for IPV and HIV screening. *Emergency Medicine Journal, 24*, 255-259.

14. Elliott, B.A., & Johnson, M.M. (1995). Domestic violence in a primary care setting. patterns and prevalence. *Archives of Family Medicine, 4*(2), 113-119.

15. Ernst, A.A., Nick, T.G., Weiss, S.J., Houry, D., & Mills, T. (1997). Domestic violence in an inner-city ED. *Annals of Emergency Medicine, 30*(2), 190-197.

16. Faramarzi, M., Esmailzadeh, S., & Mosavi, S. (2005). Prevalence and determinants of intimate partner violence in Babol city, Islamic republic of Iran. *Eastern Mediterranean Health Journal, 11*(5-6), 870-879.

17. Glass, N., Dearwater, S., & Campbell, J. (2001). Intimate partner violence screening and intervention: data from eleven Pennsylvania and California community hospital emergency departments. *Journal of Emergency Nursing, 27*, 141-149.

18. Grynbbaum, M., Biderman, A., Levy, A., & Petasne-Weinstock, S. (2001). Domestic violence: Prevalence among women in a primary care center--a pilot study. *Israel Medical Association Journal, 3*(12), 907-910.

19. Guyatt GH, Devereaux P, Lexchin J, Stone SB, Yahniryzan A, Himmelstein D, Woolhandler S, Zhou Q, Goldsmith LJ, Cook DJ, Haines T, Lacheppi C, Lavis JN, Sullivan T, Mills E, Kraus S, Bluhtanagar N. (2007) A systematic review of studies comparing health outcomes in Canada and the United States. *Open Med, 14*(1), e27-36.
20. Hegarty, K.L., & Bush, R. (2002). Prevalence and associations of partner abuse in women attending general practice: A cross-sectional survey. *Australian and New Zealand Journal of Public Health, 26*(5), 437-442.

21. Houry, D., Kemball, R., Rhodes, K.V., & Kaslow, N.J. (2006). Intimate partner violence and mental health symptoms in African American female ED patients. *American Journal of Emergency Medicine, 24*(4), 444-450.

22. John, R., Johnson, J.K., Kukreja, S., Found, M., & Lindow, S.W. (2004). Domestic violence: Prevalence and association with gynaecological symptoms. *BJOG: An International Journal of Obstetrics & Gynaecology, 111*(10),1128-1132.

23. Johnson, D., & Elliott, B. (1997). Screening for domestic violence in a rural family practice. *Minnesota Medicine, 80*(10), 43-45.

24. Johnson, M., & Elliott, B.A. (1997). Domestic violence among family practice patients in midsize and rural communities. *Journal of Family Practice, 44*(4), 391-400.

25. Kelley, K., Clark, B., Brown, V., & Sitzia, J. (2003). Good practice in the conduct and reporting of survey research. *The International Journal for Quality in Health Care, 15*, 261-266.

26. Kramer, A., Lorenzon, D., & Mueller, G. (2004). Prevalence of intimate partner violence and health implications for women using emergency departments and primary care clinics. *Women’s Health Issues, 14*(1), 19-29.

27. Kraus, S., & Bhatnagar, N. (2007). A systematic review of studies comparing health outcomes in Canada and the United States. *Open Medicine, 1*, E27-36.

28. Krishnan, S.P., Hilbert, J.C., & Pase, M. (2001). An examination of intimate partner violence in rural communities: results from a hospital emergency department study from Southwest United States. *Family & Community Health, 24*(1),1-14.

29. Kyriacou, D.N., Anglin, D., Taliaferro, E., Stone, S., Tubb, T., Linden, J.A., Muelleman, R., Barton, E., & Kraus, J.F. (1999). Risk factors for injury to women from domestic violence against women. *New England Journal of Medicine, 341*,1892-1898.

30. Lanier, C., & Maume, M.O. (2009). Intimate partner violence and social isolation across the rural/urban divide. *Violence Against Women, 15*(11), 1311-1330. Epub Sep 15.

31. MacMillan, H.L., Watthen, C.N., Jamieson, E., Boyle, M., McNutt, L.A., Worster, A., Lent, B., & Webb, M.; McMaster Violence Against Women Research Group. (2006). Approaches to screening for intimate partner violence in health care settings: a randomized trial. *Journal of the American Medical Association, 296*(5), 530-536.

32. Marais, A., de Villiers, P.J., Moller, A.T., & Stein, D.J. (1999). Domestic violence in patients visiting general practitioners--prevalence, phenomenology, and association with psychopathology. *South African Medical Journal, 89*(6), 635-640.

33. Mazza, D., Dennerstein, L., & Ryan, V. (1996). Physical, sexual and emotional violence against women: A general practice-based prevalence study. *Medical Journal of Australia, 164*(1),14-17.

34. McCauley, J., Kern, D.E., Kolodner, K., Dill, L., Schroeder, A.F., DeChant, H.K., Ryden, J., & Derogatis, L.R. (1995). The "battering syndrome": Prevalence and clinical characteristics of domestic violence in primary care internal medicine practices. *Annals of Internal Medicine, 123*(10),737-46.

35. McCloskey, L.A., Williams, C.M., Lichter, E., Gerber, M., Ganz, M.L., & Sege, R. (2007). Abused women disclose partner interference with health care: an unrecognized form of battering. *Journal of General Internal, 22*,1067-1072.
36. McCloskey, L.A., Lichter, E., Ganz, M.L., Williams, C.M., Gerber, M.R., Stair, T., & Herbert, B. (2005). Intimate partner violence and patient screening across medical specialties. *Academic Emergency Medicine, 12*(8), 712-722.

37. McFarlane, J.M., Groff, J.Y., O’Brien, J.A., & Watson, K. (2005). Prevalence of partner violence against 7,443 african american, white, and hispanic women receiving care at urban public primary care clinics. *Public Health Nursing, 22*(2), 98-107.

38. McFarlane, J., Christoffel, K., Bateman, L., Miller, V., & Bullock, L. (1991). Assessing for abuse: self-report versus nurse interview. *Public Health Nursing, 8*, 245-250

39. McLaughlin, S.A., Crandall, C.S., Fullerton, L., Brokaw, J., Olson, L.M., & Sklar, D.P. (1999). Comparison of intimate partner violence reporting between an emergency department and a clinic setting. *Academic Emergency Medicine, 6*(12), 1292-1295.

40. Muelleman, R.L., Lenaghan, P.A., & Pakieser, R.A. (1998). Nonbattering presentations to the ED of women in physically abusive relationships. *American Journal of Emergency Medicine, 16*(2), 128-131.

41. Newman, J.D., Sheehan, K.M., & Powell, E.C. (2005). Screening for intimate-partner violence in the pediatric emergency department. *Pediatric Emergency Care, 21*(2), 79-83.

42. Paul, G., Smith, S.M., & Long, J. (2006). Experience of intimate partner violence among women and men attending general practices in Dublin, Ireland: A cross-sectional survey. *European Journal of General Practice, 12*(2), 66-69.

43. Peralta, R.L., & Fleming, M.F. (2003). Screening for intimate partner violence in a primary care setting: The validity of "feeling safe at home" and prevalence results. *The Journal of the American Board of Family Medicine, 16*(6), 525-532.

44. PRAISE Investigators. (2010). PRevalence of Abuse and Intimate Partner Violence Surgical Evaluation (P.R.A.I.S.E.): rationale and design of a multi-center cross-sectional study. *BMC Musculoskeletal Disorders, 11*, 77.

45. Rabin, R.F., Jennings, J.M., Campbell, J.C., & Bair-Merritt, MH. (2009). Intimate partner violence screening tools: a systematic review. *American Journal of Preventive Medicine, 36*(5), 439-445.e4.

46. Reisenhofer, S., & Seibold, C. (2007). Emergency Department care of women experiencing intimate partner violence: Are we doing all we can? *Contemporary Nurse, 24*, 3-14.

47. Richardson, J., Coid, J., Petrucekivitch, A., Chung, W.S., Moorce, S., & Feder, G. (2002). Identifying domestic violence: Cross sectional study in primary care. *British Medical Journal, 324*(7332), 274.

48. Roberts, G.L., O’Toole, B.I., Raphael, B., Lawrence, J.M., & Ashby, R. (1996). Prevalence study of domestic violence victims in an emergency department. *Annals of Emergency Medicine, 27*(6), 741-753.

49. Roche, M., Moracco, K.E., Dixon, K.S., Stern, E.A., & Bowling, J.M. (2007). Correlates of intimate partner violence among female patients at a north carolina emergency department. *North Carolina Medical Journal, 68*(2), 89-94.

50. Ruiz-Perez, I., Plazaola-Castano, J., Alvarez-Kindelan, M., Palomo-Pinto, M., Amalte-Barrera, M., Bonet-Pla, A., et al. (2006). Sociodemographic associations of physical, emotional, and sexual intimate partner violence in spanish women. *Annals of Epidemiology, 16*(5), 357-363.

51. Sanderson, S., Tatt, I.D., & Higgins, J.P. (2007). Tools for assessing quality and susceptibility to bias in observational studies in epidemiology: a systematic review and annotated bibliography. *International Journal of Epidemiology, 36*, 666-676.
52. Spangaro, J.M., Zwi, A.B., Poulos, R.G., & Man, W.Y. (2010). Who tells and what happens: disclosure and health service responses to screening for intimate partner violence. *Health and Social Care in the Community*, Jul 19. [Epub ahead of print]

53. Stroup, D.F., Berlin, J.A., Morton, S.C., Olkin, I., Williamson, G.D., Rennie, D., Moher, D., Becker, B.J., Sipe, T.A., & Thacker, S.B. (2000). Meta-analysis of observational studies in epidemiology: a proposal for reporting. Meta-analysis Of Observational Studies in Epidemiology (MOOSE) group. *Journal of the American Medical Association, 283*(15), 2008-2012.

54. Turner, C.F., Ku, L., Rogers, S.M., Lindberg, L.D., Pleck, J.H., & Sonenstein, F.L. (1998). Adolescent sexual behavior, drug use, and violence: increased reporting with computer survey technology. *Science, 280*, 867-873.

55. von Elm, E., Altman, D.G., Egger, M., Pocock, S.J., Gotzsche, P.C., & Vandenbroucke, J.P.; STROBE Initiative. (2008). The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *Journal of Clinical Epidemiology, 61*, 344-349.

56. Wagner, P.J., Mongan, P., Hamrick, D., & Hendrick, L.K. (1995). Experience of abuse in primary care patients. racial and rural differences. *Archives of Family Medicine, 4*(11), 956-962.

57. Xu, X., Zhu, F., O’Campo, P., Koenig, M.A., Mock, V., & Campbell, J. (2005). Prevalence of and risk factors for intimate partner violence in china. *American Journal of Public Health, 95*(1), 78-85.
Chapter 5

PRevalence of Abuse and Intimate Partner Violence Surgical Evaluation (P.R.A.I.S.E.): Rationale and Design of a Multi-Center Cross-sectional Study

PRAISE Investigators
(Writing Committee: M Bhandari (Co-Chair), S Sprague (Co-Chair), S Dosanjh, V Wu, EH Schemitsch)

Published
BMC Musculoskeletal Disorders. 2010 Apr 23;11:77.
ABSTRACT

**Background:** Intimate partner violence (IPV) is described by the American Medical Association as "a pattern of coercive behaviors that may include repeated battering and injury, psychological abuse, sexual assault, progressive social isolation, deprivation, and intimidation." The long-term consequences of IPV include health risks, posttraumatic stress disorder, depression, and staggering economic costs for health care of victims. Intimate partner violence is often underreported among women who seek medical attention. The current study seeks to address the issue of possible underreporting of IPV in orthopaedic fracture clinics by establishing prevalence rates of IPV among women seeking treatment for musculoskeletal injuries.

**Methods/Design:** We propose a cross-sectional multicenter study wherein 3,600 women will complete a self-reported written questionnaire across clinical sites in North America, Europe, and Australia. Recruitment of participants will take place at orthopaedic fracture clinics at each clinical site. The questionnaire will contain a validated set of questions used to screen for IPV, as well as questions that pertain to the participant’s demographic, injury characteristics, and experiences with health care utilization. Female patients presenting to the orthopaedic fracture clinics will complete two validated self-reported written questionnaires (Woman Abuse Screening Tool (WAST) and the Partner Violence Screen (PVS)) to determine the prevalence of IPV in the past 12 months and in their lifetime. The two questionnaires were designed for rapid assessment of IPV status in emergency departments, family practice, and women’s health clinics that we believe are similar to our intended setting of an orthopaedic clinic.

**Discussion:** If the prevalence of IPV among women attending orthopaedic clinics is greater than the current perceptions of orthopaedic surgeons, this study will serve to advocate for the continued education of medical professionals to better recognize probable IPV cases and offer existing services to enhance the care of these patients.
Background

Intimate partner violence (IPV) is described by the American Medical Association as “a pattern of coercive behaviors that may include repeated battering and injury, psychological abuse, sexual assault, progressive social isolation, deprivation, and intimidation” [1]. The long-term consequences of IPV include health risks, posttraumatic stress disorder, depression, and staggering economic costs for health care of victims [2].

The cumulative lifetime prevalence of domestic violence for women admitted to the Emergency Department is approximately 54 percent [2]. However, IPV is underreported among women who seek medical attention [2-4]. The American College of Surgeons position statement on IPV states that surgeons have the responsibility to identify IPV and appropriately treat women at risk of further harm [5]. In July 2009, the Canadian Orthopaedic Association (COA) released a position on the role of the orthopaedic surgeon in the care of abused women. The statement affirms that the “COA recognizes that IPV is a significant social determinant of morbidity and mortality, and that orthopaedic surgeons are well positioned to identify patients living with IPV and initiate an intervention. Therefore, the COA encourages its members to educate themselves further about IPV and considers it good medical practice to take steps to identify and offer assistance to its victims” [6]. In accordance with this position statement, the COA is working towards raising awareness of domestic violence as well as educating orthopaedic surgeons over the next year. This shows the timeliness of the issue in orthopaedic surgery.

Despite these positive initiatives, there is currently no data in orthopaedic literature to support the hypothesis that the prevalence of IPV in orthopaedic trauma clinics warrants additional resources to identify and manage victims [7, 8]. The current study seeks to address the concern that IPV is underreported in orthopaedic fracture clinics by establishing prevalence rates of IPV among women seeking treatment for musculoskeletal injuries across multiple centers in different jurisdictions. This will be the first multi-center study to evaluate this critical issue in the field of orthopaedic trauma.

The proportion of women in Canada 15 years of age and older who have experienced physical or sexual violence in a marital or common-law union in the last 5 years is between 6 percent and 8 percent, affecting approximately 300,000 women in the province of Ontario [9]. This is likely an underreporting of the true rate since detection is hindered by the reluctance of respondents to talk openly about their IPV experience [10]. In documented cases of IPV in Canada, 25 percent of women reported that they were beaten, 20 percent reported choking, and 20 percent were sexually assaulted. Of the documented cases, 40 percent of women in Canada who have experienced IPV suffer a physical injury, and 15 percent of these cases are serious enough to warrant medical attention [10].

Several studies have found that IPV is underreported among women who seek medical attention [2, 3, 4]. Dearwater et al noted that women who were treated at 11 community hospital emergency departments secondary to IPV-related acute trauma were identified in only 44 percent of all cases presented [3]. Davis et al. reported that of the victims who presented to a level I trauma center because of confirmed or probable IPV, only 26 percent received referrals to social services and 63 percent were discharged without any investigation into their safety at home [11]. The investigators further note that the number of IPV victims was underestimated because of the propensity of conflicting information in the patients’ history, lack of information to adequately rule out IPV, and failing to actively screen for IPV among all cases who presented to their trauma service. Additionally, a recent study found that sprains, dislocations, fractures, and foot
injuries accounted for 28 percent of all clinical manifestations of IPV among women who were identified in a 2-year period by the Minnesota Domestic Abuse Program [12]. Despite these findings, IPV remains underemphasized in this medical field [7].

The majority of orthopaedic surgeons (87%), however, in a Canada-wide survey believed that female victims of IPV accounted for less than 1 percent of patients in their care [7]. The findings of this survey suggested a misperception between surgeons’ beliefs about the prevalence of IPV in their fracture clinics and reported rates of IPV in the community [7]. Current guidelines suggest that orthopaedic surgeons should play an active role in the identification of IPV victims and their timely referral to local agencies [7, 13, 14].

To explore prevalence rates of IPV in the fracture clinic setting, we conducted a pilot screening study of injured women across two trauma centers in Ontario. We found that one third of women have been victims of IPV (including physical, emotional, and sexual abuse) in the past 12 months. Furthermore, we found that 2.5 percent of women presented with injuries directly resulting from IPV [15]. While our findings were compelling, the generalizability between two level 1 trauma centers remained unknown. The current proposal aims to expand the generalizability and significantly increase the sample size to provide more precise estimates of IPV in the fracture clinic setting.

Research Objectives and Hypotheses

The primary objective of this observational study is to determine the proportion of women who have experienced IPV in the past 12-months among women who present to orthopaedic fracture clinics for treatment of orthopaedic injuries. We define IPV as physical, emotional, or sexual abuse that is caused by an intimate partner such as a victim’s spouse, common-law partner, or dating partner.

Secondary objectives include determining the proportion of women presenting to orthopaedic fracture clinics for the treatment of orthopaedic injuries who have experienced IPV in their lifetime; determining the proportion of women who present to orthopaedic clinics for treatment of orthopaedic injuries that present with an orthopaedic injury that was the direct result from IPV [15]. While our findings were compelling, the generalizability between two level 1 trauma centers remained unknown. The current proposal aims to expand the generalizability and significantly increase the sample size to provide more precise estimates of IPV in the fracture clinic setting.

Methods and Design

We propose a cross-sectional multi-center study wherein 3,600 women will complete a validated self-reported written questionnaire across ten clinical sites in North America, Europe, and Australia. Recruitment of participants will take place at the fracture clinic at each clinical site. The questionnaires will contain a validated set of questions used to screen for IPV, as well as questions that pertain to the participant’s demographic, fracture characteristics, and experiences with health care utilization. A flow diagram of the study is presented in Figure 1.
Rationale for an Observational Study Design

We explored the possibility of addressing our research questions by other less costly or less time-consuming study designs. Other methods considered were a retrospective cohort and a cross-sectional study using a self-reported written questionnaire sent by mail. The advantages and disadvantages of these study designs when compared to the proposed design are discussed below.

A retrospective cohort study would be less costly and time consuming than the prospective cohort study or case-control study proposed. A medical chart review can be undertaken at each participating clinic, where data collectors can review the charts for reported cases of IPV among patients who visited the clinic within a certain time period. Such a study would have a greater likelihood of undergoing an expedited ethics review than a study that requires active participation from the respondent. However, given that IPV is not properly recognized among health professionals [3, 4, 16], such a review would likely be unable to detect a significant proportion of IPV victims. Moreover, the non-standardization of the definition of IPV may also affect the internal validity of the study and result in an over reporting or underreporting of cases of IPV.

The use of a mailed questionnaire that can be completed and sent back by the participant is a potential strategy that would save costs over a study that requires the respondent to be present at the clinic to be enrolled. Female patients over the age of 18 years can be identified from the registries of the orthopaedic fracture and injury clinics and be mailed a written questionnaire and information letter about the study. Informed consent would be implied if the questionnaire is sent back to the study investigators. However, while such a study would be easier to implement than a prospective study, the administration of a mailed questionnaire has
been met with limited success. In their study of abuse prevalence among patients visiting gynaecology clinics, Wijma et al noted response rates as low as 67 percent among recruiting clinics that mailed questionnaires to eligible participants [4]. Campbell et al, in their attempt to assess the physical consequences of IPV with a questionnaire that was mailed, reported a response rate of only 12 percent [17].

In contrast to the use of mailed questionnaires, written self-reported surveys such as the questionnaire suggested in the proposed study design may have less likelihood of response bias. Use of such questionnaires has resulted in response rates between 62 percent and 95 percent among women who are invited into the study personally by research personnel and then administered the questionnaire if they chose to participate [1, 4, 18, 19].

**Inclusion and Exclusion Criteria**

All women who present to a recruiting orthopaedic or trauma clinic will be screened for eligibility. Our inclusion criteria for this observational study are: 1) The patient presents to the fracture clinic for her own appointment; 2) The patient is 16 or 18 years of age or older; 3) The patient is able to read and write well enough to complete the study questionnaires; 4) The patient is being seen at the fracture clinic for the treatment of an orthopaedic injury; and 5) The patient is able to separate herself from anyone who accompanied her to the fracture clinic to complete the questionnaire in privacy. Clinical sites may include patients who are over the age of 16 years in the study if it is permitted by their Research Ethics Board. Some sites may not allow patients under the age of 18 to participate. Lowering the age requirement to 16, where possible, will improve the generalizability of the study and will allow us to determine the rates of IPV in a younger demographic.

The exclusion criteria for this study are: 1) The patient is considered too ill or injured to participate in the study; and 2) The patient is cognitively impaired and unable to participate in the study. Similar inclusion and exclusion criteria have been used in other studies that sought women’s experience with IPV [1, 3, 8, 16]. Once a patient is deemed eligible, she will be invited to participate in the study by a female study coordinator. We will track the number of patients screened and their reasons for ineligibility.

**Primary and Secondary Outcome Measures**

To measure the prevalence of IPV, our questionnaire will ask patients if their intimate partner had abused them physically, emotionally, or sexually in the past 12 months and throughout their lifetime. We believe that it is important that our study attempt to quantify levels of emotional and sexual abuse among our intended study sample because the various forms of IPV – physical, emotional, and sexual abuse – are concomitant with each other, and orthopaedic surgeons may serve as a second line of detection of IPV if victims are undetected in healthcare settings antecedent to their presentation to the orthopaedic clinic, such as the emergency department. Moreover, we take the stance that orthopaedic surgeons should be concerned about the holistic care of the individual instead of only being concerned with what is immediately treatable in their area of expertise. Therefore, to estimate the overall prevalence of IPV, we will combine the positive answers to the questions on physical, emotional, or sexual abuse.

We will also ask participants to complete two validated questionnaires that were designed for rapid assessment of IPV status in emergency departments, family practice, and women’s health clinics that may be similar to our intended setting of an orthopaedic fracture clinic. We selected the Woman Abuse Screening Tool (WAST) and the Partner Violence Screen (PVS) for
their psychometric properties, reliability, and specificity in identifying partner abuse. Moreover, a study that was published in 2006 reported that 94 percent of women who were administered both the PVS and WAST concurrently, as written questionnaires, considered them “easy” to complete [18]. Both questionnaires are widely used in IPV screening studies [18, 20-26].

We chose to request that both questionnaires be administered to each participant to ensure that we are identifying all probable cases of IPV among women who attend orthopaedic clinics. In addition to the elucidation of physical abuse, the WAST contains questions that assess the levels of emotional and sexual abuse that we also feel are important to ascertain in our study, as mentioned previously.

Another research question that will be addressed in the study is what are patients’ previous experiences and perceptions about discussing IPV with health care professionals. To that end, the questionnaire will also query the participant about her age, income, education, race/ethnicity, marital status, sexual orientation, and length of relationship. Additionally, participants will be queried about perceptions and previous experiences with reporting IPV in health care settings.

The questionnaire will also ask participants to record the characteristics of the injury that they are being seen for in the fracture clinic including: type of injury, how the injury occurred, locations of injury, and date of injury.

Data Collection

The self-report component of the data collection will involve a written self-completed questionnaire. This method of data collection has been shown in a randomized trial to provide the least amount of missing data by the respondent and is generally favored over the use of a face-to-face interview or computer-based self-completed questionnaire [18].

A female study coordinator at each participating clinical site will approach all female patients who present to the fracture clinic for participation in this study. Due to the sensitive nature of the study, the informed consent process and completion of the questionnaire will take place in a private location by the female study coordinator. A screening form will be completed for all patients that will document their eligibility and whether they agree to participate in this study. After providing informed consent, the female study coordinator will provide the participant with the questionnaire to complete. When the participant has completed the questionnaire, she will place it in a sealed envelope and return it to the study coordinator. This process is described in Figure 2.
Step 1: Approaching Patients
The study coordinator will approach every female patient who presents to the fracture clinic at a participating centre for participation in the study. We suggest using the following wording when approaching a potential participant:

"Hello, I am the study coordinator working with Dr. XXX. I am helping to conduct a women’s health study of all women who attend fracture clinic. The study consists of completing a brief questionnaire that will take approximately 10 to 15 minutes of your time. Would you be interested in participating in the study?"

If a patient responds positively, the study coordinator will request that they go to a private location so that they can complete the questionnaires in private.

Step 2: Screening
Once at the private location, the study coordinator determines whether the patient is eligible for the study and then completes a screening form. If the patient is ineligible, the study coordinator records the reason for ineligibility on the screening form and thanks the patient for her time. If the patient is eligible, the study coordinator will explain the study to the patient and obtain informed consent. If the patient is not interested in participating at this time, the study coordinator completes a screening form, and will check off the appropriate box for the reason that she did not participate. A screening form needs to be completed for all female patients who present to the fracture clinic.

Step 3: Informed Consent
The study coordinator will provide the potential participant with a copy of the informed consent form to review. The study coordinator will discuss the study with the potential participant and address any questions the potential participant has. If the patient declines to participate, the study coordinator will record the reason on the screening form.

Step 4: Questionnaire Completion
The study coordinator will ensure that the participant completes the questionnaire in private. Once the participant has signed the consent form, the study coordinator provides her with the questionnaire and a pen as well as an envelope to place the completed questionnaire in. We suggest providing the following instructions:

"The questionnaire is anonymous. Once you have completed it please place it into the envelope provided and seal it. Please answer honestly. At the back of the questionnaire is an information sheet that you may take with you if you wish."

When the participant has completed the questionnaire, the study coordinator will instruct her that she should not reveal the topic of the study, due to its sensitive nature, to other patients within the fracture clinic. The study coordinator will also ask her to use discretion if she chooses to tell the person she came with about the questionnaire that she completed.

Figure 2: Participant Enrolment Procedures
Protecting Against Sources of Bias

A bias towards under-reporting IPV is our primary concern. Considerations with respect to confidentiality will be addressed during data collection to reduce bias when participants are completing the questionnaire. Participants will be approached by a female study coordinator, and the consent process and the completion of the questionnaire will take place alone in a private location so as to reduce influence from others. Additionally, participants will be told that the survey is anonymous and will be instructed to not discuss the nature of this study with other participants, so as to increase reporting of IPV, if it exists, when completing the survey (participants may answer the questionnaire differently if they knew that they would be identified as IPV victims or non-IPV victims by the individual administering the questionnaire). Questions pertaining to the participant’s demographics should be subject to minimal bias because the questions are categorical and are not intended to be subjective. An under-reporting bias is certainly possible; however, if our study finds an appreciable prevalence of IPV among respondents, we will have confidence that the likely “true” estimate is even higher.

Another source of potential bias in this study is that the questionnaire is self-administered as opposed to interview administered. This may result in some missing and inconsistent data. Due to the extremely sensitive and private information, as well as taking the women’s safety into consideration, we believe that an interview-administered questionnaire is not appropriate. Due to the sensitive content of the questionnaire, the study coordinator will not check it over following completion therefore she will not be able to ask the patient about missing questions or inconsistencies.

An inherent limitation of this study which may produce bias is that non-participants may differ from participants in terms of demographics and abuse prevalence. Patients may be less likely to participate if they are a victim of IPV, thus resulting in a lower IPV prevalence rate. Also, some patients may decline to participate because they are not victims of IPV and as such feel that the issue is not relevant to them. Another limitation which may lower the reported IPV prevalence is that we may miss women who are severely injured as a result of IPV because we will not approach women who are taken to the fracture clinic by Emergency Medical Services. However, we may approach these patients at subsequent follow-up visits.

Ontario PRAISE Pilot Study

In preparation for the multi-center definitive P.R.A.I.S.E. study, we successfully completed a pilot study in Ontario, Canada at two clinical sites (Hamilton Health Sciences – General Site, Hamilton and St. Michael’s Hospital, Toronto). The purpose of the pilot study was to provide estimates of patient enrollment, inform study logistics, and prove feasibility for the definitive study. The patients from the pilot study will not be included in the larger prospective study, as we have made multiple changes to the protocol and questionnaire based on our experience with the pilot study.

Our preliminary pilot work suggests that women presenting to the fracture clinics are experiencing IPV to much greater extents than previously recognized by orthopaedic surgeons. In a sample of 282 women at the two participating sites, we found that over the past 12 months 8.5% of women were physically abused, 30.5% were emotionally abused and 3.2% were sexually abused [15]. One third of women in the pilot study sample had experienced IPV (including physical, emotional and/or sexual abuse) in the past 12 months. Our pilot study also found that 2.5% of women presenting to the fracture clinics with orthopaedic injuries suffered these injuries as a direct result of IPV. The generalizability of our pilot study results to all North
American, Australian, and European centers requires confirmation from our proposed larger study.

**Feasibility of the Multicenter Definitive Study**

The pilot study helped to inform our enrollment rate as well as inform the study logistics. We enrolled 204 patients over five months at the site in Hamilton, which equates to approximately 40 patients per month. St. Michael’s Hospital enrolled 78 patients over 2.5 months, or approximately 30 patients per month. Therefore we believe that sites will enroll between 30 and 40 patients per month and that it will take approximately 10 months of enrollment at each site to complete the pilot study. Therefore, it is feasible to complete the definitive multi-center study within the allotted timeframe.

We also made multiple revisions to the protocol and questionnaire based on our experience with the pilot study. We believe these changes will make the questionnaire easier to complete for participants and also enhance the quality of the data obtained.

**Sample Size**

According to a recent survey of orthopaedic surgeons in Canada [7], 87 percent of all respondents believe that the prevalence of IPV within their practice is less than 1 percent, with almost all of the remaining respondents believing that the prevalence of IPV in their practice is between 5 percent and 10 percent. Using an estimated IPV prevalence of 5 percent within orthopaedic clinics and standard statistical formulae for estimating sample size of prevalence studies, we have calculated that a sample size of 278 women is necessary for our study to provide an estimate of IPV prevalence with a 95 percent confidence interval between 2.78 percent and 8.31 percent. If the point-estimate of IPV prevalence within orthopaedic clinics is higher than 5 percent, the proportion of the margin of error relative to the estimated prevalence will be lower. To be adequately powered within each region or demographic, each site will therefore recruit 300 participants. The total sample size for the study will be 3,600 participants across the 12 participating centers.

**Data Analysis**

Data will be analyzed using SPSS Version 17.0 [SPSS, Chicago, IL] and will be stratified according to clinical center, at which point descriptive statistics can be reported for each site and overall. Dichotomous data will be reported as number of participants and proportions, with corresponding confidence intervals to estimate precision. Continuous data will be presented as means and medians with standard deviations. We will provide descriptive statistics describing the patient demographics and injury characteristics across each clinical site. We will also report the results of the WAST and PVS across each clinical site for IPV prevalence in the past 12 months. These two screening tools will be scored according to the developers guidelines. Finally, we will report descriptive statistics, with 95% confidence intervals, across each clinical site on patient’s previous experiences, knowledge, and perceptions with regards to approaching health care professionals about IPV. We will use Chi-square tests (dichotomous variables) or t-tests (continuous data) to determine if there are differences in IPV prevalence across different clinical sites and jurisdictions.
Methods Center

The Project Manager at the McMaster University Methods Center will be responsible for the overall day to day coordination of the study. The Project Manager will be responsible for communicating with the clinical sites, providing the clinical sites with the necessary case report forms and validating the data. The Project Manager will also work with the Research Coordinators at the clinical sites to ensure that the protocol is followed and that 3,600 participants are recruited for this study in the allotted timeframe.

Participating Centers

The necessity of a multicenter study is twofold. First, as there are currently no prevalence reports of IPV in women who attend orthopaedic trauma clinics, a cross-sectional study will provide the first report of IPV prevalence in orthopaedic trauma clinics. Second, the collection of data from clinics across North America, Europe, and Australia will enhance the generalizability of our study. We will include clinical sites from a variety of trauma populations and settings (i.e. inner city versus suburban versus rural). Additional centers may be added to allow for further comparisons of the prevalence of IPV across different settings and to increase the generalizability of the findings.

Recruitment Rate

For the multi-center definitive P.R.A.I.S.E. study we aim to recruit 3,600 participants across 12 sites in North America, Europe, and Australia. The pilot study helped to inform our enrollment rate proving feasibility of the definitive trial whereby both clinical sites in the pilot study enrolled at least 30 patients per month (St. Michael’s Hospital with 30 participants per month and Hamilton Health Sciences – General Site with 40 participants per month). Consecutive patients will be recruited from fracture clinics across North America, Europe, and Australia and based on the results of our pilot study we anticipate that each site will be able to enroll 300 patients within ten months.

Discussion

If the prevalence of IPV among women attending orthopaedic clinics is greater than the current perceptions of orthopaedic surgeons, this study will serve to advocate for the continued education of medical professionals to better recognize probable IPV cases and offer existing services to enhance the care of these patients. This is especially important because healthcare providers who receive education on screening and ways to care for IPV victims detect them more readily [27]. Furthermore, this study may encourage more open communication between orthopaedic surgeons and their patients, as two major barriers to IPV detection are either the patient is never asked [28] or the healthcare provider is reluctant to inquire [7, 8, 16]. A positive study will also inform the Canadian Orthopaedic Association’s position statement on the role of the orthopaedic surgeon and domestic violence.

Abbreviations

Abbreviation and Meaning: COA - Canadian Orthopaedic Association; IPV - Intimate Partner Violence, PRAISE - Prevalence of Abuse and Intimate Partner Violence Surgical Evaluation; PVS - Partner Violence Screen; WAST - Woman Abuse Screening Tool
Acknowledgements

Writing Committee Information: Mohit Bhandari (co-chair), Sheila Sprague (co-chair) Sonia Dosanjh, Victor Wu, and Emil H. Schemitsch.

Steering Committee: Mohit Bhandari, Gregory J. Della Rocca, Sonia Dosanjh, Kyle Jeray, David Matthews, Bradley Petrisor, Rudolf W. Poolman, Emil H. Schemitsch, and Sheila Sprague.

Intimate Partner Violence Expertise: Sonia Dosanjh, Clare Freeman, David Matthews, Diana Tikasz, and Harjeet Badwall.

Methods Center: Mohit Bhandari, Sheila Sprague, Victor Wu, Sarah Resendes, Alicia Cameron, Ivanna Ramnath, and Kim Madden.

Participating Clinical Sites: Bradley Petrisor, Krishan Rajaratnam, Dale Williams, Brian Drew, Ivan Wong, Desmond Kwok, Matthew Denkers, Alicia Cameron, Sarah Resendes, Ivanna Ramnath, Kim Madden (Hamilton Health Sciences – General Site); Victoria Avram (Hamilton Health Sciences – Chedoke Site); Emil H. Schemitsch, Jeremy Hall, Michael McKee, James Waddell, Daniel Whelan, Timothy Daniels, Milena Vicente, Lisa Wild (St. Michael’s Hospital); David Puskas, Tina LeFrancois (Thunder Bay Regional Health Sciences Centre); Chad Coles, Kelly Trask, Gwendolyn Dobbin (Queen Elizabeth II Health Sciences Centre); Paul Duffy, Richard Buckley, Robert Korley, Shannon Pulaski, Kelly Johnston, Kimberly Carcary (Foothills Medical Centre); Ole Brink (Aarhus University Hospital); Rudolf W. Poolman, Vanessa Scholtes (OLVG & JvG); J. Carel Goslings, Suzan Beerekamp (Academic Medical Center); and Susan Liew, Adam Dowrick, Zoe Murdoch (The Alfred).

Disclaimer: The PRAISE study is funded by the Orthopaedic Trauma Association, the Canadian Orthopaedic Association, and the McMaster Surgical Associates. Dr. Bhandari is funded, in part, by a Canada Research Chair.

References

1. McCloskey LA, Williams CM, Lichter E, Gerber M, Ganz ML, Sege R. Abused women disclose partner interference with health care: an unrecognized form of battering. JGIM. 2007, 22:1067-72.
2. Davis JW. Domestic violence: the “rule of thumb”: 2008 Western trauma association presidential address. J Trauma. 2008, 65:969-74.
3. Dearwater SR, Cohen JH, Campbell JC, Nah G, Glass N, McLoughlin E, Bekemeir B. Prevalence of intimate partner abuse in women treated at community hospital emergency departments. JAMA. 1998, 280:433-8.
4. Wijma B, Schei B, Swahnberg K, Hilden M, Offerdal K, Pikarinen U, Sidenius K, Steingrimsdottir T, Stoum H, Halmesmaki E. Emotional, physical, and sexual abuse in patients visiting gynaecology clinics: a Nordic cross-sectional study. Lancet. 2003, 361:2107-13.
5. The American College of Surgeons. Statement on domestic violence. *Bull Am Coll Surg.* 2000, 85:26.
6. Canadian Orthopaedic Association (COA). (2009). Intimate Partner Violence; Position Statement. Retrieved online from: http://www.coa-aco.org/library/health-policy/intimate-partner-violence.html. Accessed July 21, 2009.
7. Bhandari M, Sprague S, Tornetta P 3rd, D'Aurora V, Schemitsch E, Shearer H, Brink O, Matthews D, Dosanjh S. (Mis)Perceptions about intimate partner violence among orthopedic surgeons. *J Bone Joint Surg Am.* 2008, 90:1590-97.
8. Ramsay J, Richardson J, Carter YH, Davidson LL, Feder G. Should health professionals screen women for domestic violence? Systematic Review. *BMJ.* 2002, 325:314-8.
9. AuCoin K, editor. Family violence in Canada: a statistical profile 2005. In: Canadian Center for Justice Statistics. Ottawa: Statistics Canada; 2005.
10. Cherniak D, Grant L, Mason R, Moore B, Pellizzari R. Intimate Partner Violence Consensus Statement. *JOGC.* 2005, 27:365-88.
11. Davis JW, Parks SN, Kaups KL, Bennink LD, Bilello JF. Victims of Domestic Violence on the Trauma Service: Unrecognized and Underreported. *J Trauma.* 2003, 54:352-355.
12. Bhandari M, Dosanjh S, Tornetta P 3rd, Matthews D; On behalf of the Violence Against Women Health Research Collaborative. Musculoskeletal manifestations of physical abuse after intimate partner violence. *J Trauma.* 2006, 61:1473-9.
13. Zillmer DA. Domestic Violence: The Role of the Orthopaedic Surgeon in Identification and Treatment. *J Am Acad Orthop Surg.* 2000, 8:91-6.
14. Taket A, Wathen CN, MacMillan H. Should Health Professionals Screen All Women for Domestic Violence?. PLoS Med. 2004, 1:7-10.
15. PRAISE Investigators. Prevalence of Abuse and Intimate Partner Violence Surgical Evaluation (P.R.A.I.S.E.): A Cross-Sectional Study at Two Fracture Clinics in Ontario. In Review, 2009.
16. Stinson CK, Robinson R. Intimate Partner Violence: Continuing education for registered nurses. *J Contin Educ Nurs.* 2006, 37:58-61.
17. Campbell J, Jones AS, Dienemann J, Kub J, Schollenberger J, O'Campo P, Gielen AC, Wynne C. Intimate partner violence and physical health consequences. *Arch Intern Med.* 2002, 162:1157-63.
18. MacMillan HL, Wathen CN, Jamieson E, Boyle M, McNutt L, Worster A, Lent B, Webb M. Approaches to screening for intimate partner violence in health care settings – A randomized trial. *JAMA.* 2006, 296:530-36.
19. Mazza D, Dennerstein L, Ryan V. Physical, sexual and emotional violence against women: a general practice-based prevalence study. *Med J Aust.* 1996, 164:14-7.
20. Brown JB, Lent B, Schmidt G, Sas G. Application of the Woman Abuse Screening Tool (WAST) and WAST-short in the family practice setting. *J Fam Pract.* 2000, 49:896-903.
21. Chen P, Rovi S, Washington J, Jacobs A, Vega M, Pan K, Johnson MS. Randomization comparison of 3 methods to screen for domestic violence in family practice. *Annals of Family Medicine.* 2007, 5:430-5.
22. Fogarty CT, Brown JB. Screening for abuse in Spanish-speaking women. *J Am Board Fam Pract.* 2002, 15:101-11.
23. Halpern LR, Susarla SM, Dodson TB. Injury location and screening questionnaires as markers for intimate partner violence. *J Oral Maxillofac Surg.* 2005, 63:1255-1261.
24. Houry D, Feldhaus K, Peery B, Abbott J, Lowenstein SR, al-Bataa-de-Montero S, Levine S. A positive domestic violence screen predicts future domestic violence. *Journal of Interpersonal Violence*. 2004, 19:955-66.

25. Rabin RF, Jennings JM, Campbell JC, Bair-Merritt MH. Intimate partner violence screening tools: a systematic review. *American Journal of Preventive Medicine*. 2009, 36:439-445.

26. Yut-Lin W, Othman S. Early detection and prevention of domestic violence using the Woman Abuse Screening Tool (WAST) in primary health care clinics in Malaysia. *Asia Pac J Public Health*. 2008, 20:102-9.

27. Yam M. Seen but not heard: battered women’s perceptions of the ED experience. *J Emerg Nurs*. 2002, 26:464-70.

28. Reisenhofer S, Seibold C. Emergency Department care of women experiencing intimate partner violence: Are we doing all we can? *Contemp Nurse*. 2007, 24:3-14.
Chapter 6

The Prevalence of Intimate Partner Violence Across Orthopaedic Fracture Clinics in Ontario

PRAISE Investigators
(Writing Committee: M Bhandari M (Co-Chair), S Sprague (Co-Chair), S Dosanjh, V Wu, EH Schemitsch)

Published
Journal of Bone and Joint Surgery Am. 2011 Jan 19;93(2):132-41.
Abstract

Background: From 1999 to 2004, an estimated 653,000 women in Canada were either physically or sexually abused by their current or previous intimate partners. We aimed to determine the proportion of women presenting to orthopaedic fracture clinics for the treatment of musculoskeletal injuries who had experienced intimate partner violence, defined as physical, sexual, or emotional abuse, within the past twelve months.

Methods: We completed a cross-sectional study of 282 injured women attending two Level I trauma centers in Canada. Female patients presenting to the orthopaedic fracture clinics anonymously completed two previously developed self-reported written questionnaires, the Woman Abuse Screening Tool (WAST) and the Partner Violence Screen (PVS), to determine the prevalence of intimate partner violence. The questionnaire also contained questions that pertain to the participant’s demographic characteristics, fracture characteristics, and experiences with health care utilization.

Results: The overall prevalence of IPV (emotional, physical and sexual abuse) within the last twelve months was 32% (95% confidence interval 26.4% to 37.2%). Twenty-four (8.5%) of injured women disclosed a history of physical abuse in the past year. Seven women indicated that the cause for their current visit was directly related to physical abuse. Ethnicity, socioeconomic status, and injury patterns were not associated with abuse. Of the twenty-four women who reported physical abuse, only four had been asked about intimate partner violence by a physician; none of these physicians were the treating orthopaedic surgeons.

Conclusions: Our study suggests a high prevalence of intimate partner violence among female patients with injuries who presented to two orthopaedic fracture clinics in Ontario. Surgeons and health-care personnel in fracture clinics should consider intimate partner violence when interacting with injured women.

Level of Evidence: Cross-sectional prevalence study
Introduction

Intimate partner violence (IPV) is described by the American Medical Association as “a pattern of coercive behaviors that may include repeated battering and injury, psychological abuse, sexual assault, progressive social isolation, deprivation, and intimidation.” \(^1\) From 1999 to 2004, an estimated 653,000 women in Canada were either physically or sexually abused by their current or previous intimate partner. \(^2\) Of those women who seek medical attention, only 24% disclose IPV in the emergency room. \(^3\)

Injuries associated with physical abuse often require referral to orthopaedic surgeons. A recent study reported that sprains, dislocations, fractures, and foot injuries accounted for 28% of all clinical manifestations of abuse among women who were identified over a two-year period by the Minnesota Domestic Abuse Program. \(^4\) The importance of orthopaedic surgeons’ roles in identifying IPV has recently been recognized by national organizations including the Canadian Orthopaedic Association. \(^5\)

Our primary objective was to estimate the prevalence of IPV within a twelve month period among women who attend orthopaedic fracture clinics for orthopaedic injuries, asking direct questions about physical, sexual, and emotional abuse. Secondary objectives were threefold: 1) to estimate the prevalence of IPV within a 12 month period among women who attend orthopaedic fracture clinics for the treatment of orthopaedic injuries with the use of two previously developed questionnaires, 2) to determine what proportion of women presented to orthopaedic clinics for the treatment of an injury that was the direct result from intimate partner violence from a current or previous relationship, and 3) to investigate patients’ previous experiences, knowledge, and perceptions with regards to approaching health care professionals about intimate partner violence.

Materials and Methods

We conducted a cross-sectional observational study at two Level 1 trauma centers in Ontario (Hamilton Health Sciences – General Site and St. Michael’s Hospital, Toronto). Approval was obtained from the local Research Ethic Boards (Hamilton Health Sciences / McMaster University Research Ethics Board #08-369 and St. Michael’s Hospital Research Ethics Board #09-047).

Participants

All women who presented to the two participating centers were screened for eligibility by a female study coordinator. Patients may have presented to the fracture clinic for immediate treatment of an injury (after being seen in the emergency department) or for follow-up of an injury. Our inclusion criteria included: (1) patients presenting to the fracture clinic for their own appointment; (2) had to be eighteen years of age or older; (3) had to be able to read, understand, and write in English; (4) had to be seen at the fracture clinic for the treatment of an orthopaedic injury, and (5) had to be able to separate themselves from anyone who accompanied them to the clinic to ensure that she could complete the questionnaire in privacy. We excluded patients who were too ill, injured, or cognitively impaired to participate, although we did interview some patients who sufficiently recovered and consented at the time of follow-up visits. We also excluded patients who presented to the clinics because of chronic pain, arthritis, or wear and tear issues. We recorded the number of patients who were screened and the reasons for ineligibility.
Once a patient was deemed eligible, the study coordinator obtained informed consent and provided the participant with the self-reported written questionnaire which was completed anonymously (Figure 1). The patient was provided with an intimate partner violence resource sheet for the local area if she chose to take it.

**Figure 1: Flow Diagram of Participant Screening and Enrolment**

**Primary Outcome Measure**

To measure the overall prevalence of IPV, our anonymous questionnaire directly asked each patient if her partner had abused her physically, emotionally, or sexually in the past twelve months. The three direct questions were taken from the Woman Abuse Screening Tool (WAST), developed by Brown et al. The questions “Have you been abused physically/emotionally/sexually by an intimate partner?” had possible responses of “Often”, “sometimes”, and “never.” Responses of “sometimes” or “often” constituted a positive screen on these questions. These direct questions have not been independently validated, but were chosen because they are intuitive and easy to understand.

**Secondary Outcome Measures**

We also asked all participants to anonymously complete two validated questionnaires that were designed for assessment of IPV status in health care settings. We selected the WAST and the Partner Violence Screen (PVS) for their psychometric properties, reliability, and specificity in identifying IPV.
The WAST consists of eight questions pertaining to a woman’s experience in her intimate relationship for the past twelve months (Table 1). We analyzed the WAST according to a 2008 revision of the original WAST, which was originally created and validated by Brown et al. MacMillan et al reported a sensitivity of 47% and a specificity of 96% when compared to the Composite Abuse Scale (CAS), which is commonly used to screen for IPV.

The PVS consists of three questions. The first question asks if the woman has been hit, kicked, punched, or otherwise hurt by someone in the past year and if so, by whom. The second two questions assess a woman’s perception of safety (Table 1). The PVS was scored according to the developers’ guidelines. The sensitivity of the PVS in detecting partner abuse was 64.5% and the specificity was 80.3% when compared with the Index of Spouse Abuse (ISA). When compared with the Conflict Tactics Scale (CTS), sensitivity of the PVS was 71.4% and the specificity was 84.4%.

Table 1: Questionnaires Administered in Present Study

| Questions | WAST* | PVS† |
|-----------|-------|------|
| 1. In general, how would you describe your relationship? | 1. Have you been hit, kicked, punched, or otherwise hurt by someone in the past year? If so, by whom? (person in a current intimate relationship, person in a previous intimate relationship, person who you have no intimate relationship with)? | **1. Have you been hit, kicked, punched, or otherwise hurt by someone in the past year? If so, by whom?** (person in a current intimate relationship, person in a previous intimate relationship, person who you have no intimate relationship with)? |
| 2. Do you and your partner work out arguments with great difficulty, some difficulty, no difficulty? | 2. Do you feel safe in your current relationship? | **2. Do you feel safe in your current relationship?** |
| 3. Do arguments ever result in you feeling put down or bad about yourself? | 3. Is there a partner from a previous relationship who is making you feel unsafe now? | **3. Is there a partner from a previous relationship who is making you feel unsafe now?** |
| 4. Do arguments ever result in hitting, kicking, or pushing? | | |
| 5. Do you ever feel frightened by what your partner says or does? | | |
| 6. Has your partner ever abused you physically? | | |
| 7. Has your partner ever abused you emotionally? | | |
| 8. Has your partner ever abused you sexually? | | |

* The present study involved the use of an adapted version of the WAST, as described in 2008 by Yut-Lin and Othman. The overall WAST score is derived by summing the responses of all eight WAST items. The scores on each question range from 1 to 3 (e.g., a lot of tension to no tension). The final score is derived by reversing the item score and summing all eight items. A score of ≤12 indicates a negative screen for abuse, and a score of ≥13 indicates a positive screen for abuse. Only women who responded to all eight questions were included in the WAST analysis.

† A positive response to any of the three PVS questions is indicative of a positive screen for partner violence. For Question 1, the perpetrator had to be a person in a current or previous intimate relationship in order for the response to be considered positive.

Demographics, Injury Characteristics, and Perceptions about IPV

The questionnaire included demographic questions and questions about the characteristics of the participants’ injury. The questionnaire also asked about patients’ previous experiences and perceptions about discussing and reporting IPV with health care professionals.

Sample Size

According to a recent survey of orthopaedic surgeons in Canada, 87% of all respondents believe that the prevalence of IPV within their practice was <1%, with almost all of the remaining respondents believing that the prevalence of IPV in their practice is between 5%
and 10%. Using an estimated IPV prevalence of 5% within orthopaedic clinics and standard statistical formulae for estimating sample size of prevalence studies, we have calculated that a sample size of 278 women would be necessary for our study to provide an estimate of IPV prevalence with a 95% confidence interval between 2.78% and 8.31%, an interval that should bolster support for a more comprehensive study. If the point-estimate of IPV prevalence within orthopaedic clinics is higher than 5%, the proportion of the margin of error relative to the estimated prevalence will be lower.

**Statistical Analysis**

Data are reported as number of participants and proportions, with corresponding confidence intervals to estimate precision. Continuous data are presented as means and medians. The answers and overall score for both the PVS and the WAST are presented using descriptive data. We conducted chi-squared tests to determine if there were any differences in reported outcomes between the two clinical sites. Patients who completed part of the questionnaire were included in our analyses. The PVS has a positive cutoff score of one and the WAST has a positive cutoff score of 13. If these cutoff scores were reached, the patient scored positive on that questionnaire regardless of whether she completed all questions on the questionnaire. No statistical extrapolation process was carried out for missing information.

**Results**

**Recruitment**

Six-hundred and ninety patients were screened for participation in this study and 295 patients were deemed ineligible. Of the 395 patients who met our eligibility criteria, 282 patients provided informed consent and completed all or part of the questionnaire (Figure 1).

**Characteristics of Included Women**

The majority of women in this study were Caucasian (85.1%; 240 of 282), over age 40 years (62.8%; 177 of 282), and had an annual income of less than $40,000 (59.6% 168 of 282) (Appendix). Demographic characteristics were similar across participating sites except for annual income (p<0.05), which was higher for the St. Michael’s Hospital site. We did not collect data on the characteristics of women who did not participate in this study.

**Injury Characteristics**

Fractures were the most common type of injury (73%; 206 of 282). The most common reported cause of injury was falls (47.9%; 79 of 165) and most injuries involved the lower extremity (59.6%; 168 of 282) (Appendix).

**Prevalence of Intimate Partner Violence in the Past 12 Months: Primary measure**

The overall prevalence of intimate partner violence (emotional, physical, and sexual abuse) on the basis of direct questions was 31.6% (eighty-nine of 282) (Table 2). Twenty-four women (8.5%) experienced physical abuse, eighty-six (30.5%) experienced sexual abuse. The eighty-nine women who screened positive for intimate partner violence when directly asked spanned different ages, ethnicities, income levels and education levels (Appendix). The lengths of their current relationships also varied from less than one year to more than forty years. No specific injury patterns were noted among women disclosing abusive relationships.
Table 2: Prevalence of Intimate Partner Violence Over the Past Twelve Months*

|                          | Prevalence of Intimate Partner Violence |
|--------------------------|----------------------------------------|
|                          | Hamilton Health Sciences-General Site (N=204) † | St. Michael’s Hospital (N=78) † | Total (N=282)‡ |
| Emotional Abuse          | 67 (32.8%) | 19 (24.4%) | 86 (30.5%) [25.4% to 36.1%] |
| Physical Abuse           | 17 (8.3%) | 7 (9.0%) | 24 (8.5%) [5.8% to 12.4%] |
| Sexual Abuse             | 8 (3.9%) | 1 (1.3%) | 9 (3.2%) [1.7% to 6.0%] |
| Prevalence of Intimate Partner Violence § | 69 (33.8%) | 20 (25.6%) | 89 (31.6%) [26.4% to 37.2%] |

*Chi-Squared tests were performed to see if differences existed between the two trauma centres. The level of significance was set at p<0.05. No significant differences were found.
† The values are given as the number of patients, with the percentages in parentheses.
‡ The values are given as the number of patients, with the percentages in parentheses and the 95% confidence intervals in brackets.
§ Defined as emotional, physical and/or sexual abuse. Women may experience multiple forms of abuse.

Prevalence of Intimate Partner Violence in the Past 12 Months: Secondary measures

Thirty-five women (15.4%) screened positive for intimate partner violence with the use of the WAST (Table 3). Twenty-six women (9.2%) screened positive for intimate partner violence with the use of the PVS tool (Table 4). Seven women (2.5%) indicated that the reason for their visit to the orthopaedic clinic was directly related to a physical injury caused by their intimate partner. Five of these women were being treated for a fracture, one was unsure about her diagnosis, and one was being treated for an unspecified injury. These women spanned all ages, ethnicities, and educational levels.
Table 3: Results of Woman Abuse Screening Tool (WAST)*†

| Item                                                                 | Hamilton Health Sciences – General Site ‡ | St. Michael’s Hospital ‡ | Total § |
|----------------------------------------------------------------------|------------------------------------------|--------------------------|---------|
| In general, how would you describe your current relationship?       |                                          |                          |         |
| N value                                                             | 172                                      | 62                       | 235     |
| A lot of tension                                                   | 13 (7.6%)                                | 4 (6.3%)                 | 17 (7.2%) [4.6% to 11.3%] |
| Some tension                                                       | 57 (33.1%)                               | 16 (25.4%)               | 73 (31.1%) [23.5% to 37.2%] |
| No tension                                                         | 102 (59.2%)                              | 43 (68.3%)               | 145 (61.7%) [55.3% to 67.7%] |
| Do you and your partner work out arguments with?                   |                                          |                          |         |
| N value                                                             | 171                                      | 62                       | 233     |
| Great difficulty                                                   | 11 (6.4%)                                | 3 (4.8%)                 | 12 (5.2%) [3.0% to 8.8%]  |
| Some difficulty                                                    | 61 (36.8%)                               | 25 (40.3%)               | 86 (37.3%) [31.8% to 44.1%] |
| No difficulty                                                      | 99 (58.8%)                               | 36 (58.3%)               | 135 (57.5%) [50.5% to 63.3%] |
| Do arguments ever result in you feeling put down or bad about yourself? |                                          |                          |         |
| N value                                                             | 171                                      | 62                       | 233     |
| Often                                                              | 15 (8.8%)                                | 4 (6.3%)                 | 19 (8.1%) [5.3% to 12.3%] |
| Sometimes                                                          | 66 (38.6%)                               | 28 (44.4%)               | 94 (40.2%) [34.1% to 46.6%] |
| Never                                                              | 90 (52.6%)                               | 31 (49.3%)               | 121 (52.7%) [45.3% to 58.0%] |
| Do arguments ever result in hitting, kicking or pushing?           |                                          |                          |         |
| N value                                                             | 171                                      | 62                       | 233     |
| Often                                                              | 4 (2.3%)                                 | 0 (0.0%)                 | 4 (1.7%) [0.7% to 4.3%]  |
| Sometimes                                                          | 17 (9.9%)                                | 7 (11.1%)                | 24 (10.2%) [7.0% to 14.7%] |
| Never                                                              | 150 (87.8%)                              | 56 (88.9%)               | 206 (88.1%) [83.3% to 91.6%] |
| Do you ever feel frightened by what your partner says or does?      |                                          |                          |         |
| N value                                                             | 171                                      | 61                       | 232     |
| Often                                                              | 5 (2.9%)                                 | 1 (1.6%)                 | 6 (2.6%) [1.2% to 5.5%]  |
| Sometimes                                                          | 13 (7.6%)                                | 1 (1.6%)                 | 14 (6.0%) [3.4% to 9.8%]  |
| Never                                                              | 153 (89.5%)                              | 59 (96.5%)               | 212 (91.9%) [85.1% to 92.9%] |
| Has your partner ever abused you physically?                       |                                          |                          |         |
| N value                                                             | 171                                      | 61                       | 232     |
| Often                                                              | 5 (2.9%)                                 | 1 (1.6%)                 | 6 (2.6%) [1.2% to 5.5%]  |
| Sometimes                                                          | 13 (7.6%)                                | 1 (1.6%)                 | 14 (6.0%) [3.4% to 9.8%]  |
| Never                                                              | 153 (89.5%)                              | 59 (96.5%)               | 212 (91.9%) [85.1% to 92.9%] |
| Has your partner ever abused you emotionally?                      |                                          |                          |         |
| N value                                                             | 171                                      | 61                       | 232     |
| Often                                                              | 5 (2.9%)                                 | 1 (1.6%)                 | 6 (2.6%) [1.2% to 5.5%]  |
| Sometimes                                                          | 13 (7.6%)                                | 1 (1.6%)                 | 14 (6.0%) [3.4% to 9.8%]  |
| Never                                                              | 153 (89.5%)                              | 59 (96.5%)               | 212 (91.9%) [85.1% to 92.9%] |
| Has your partner ever abused you sexually?                          |                                          |                          |         |
| N value                                                             | 171                                      | 61                       | 232     |
| Often                                                              | 5 (2.9%)                                 | 1 (1.6%)                 | 6 (2.6%) [1.2% to 5.5%]  |
| Sometimes                                                          | 13 (7.6%)                                | 1 (1.6%)                 | 14 (6.0%) [3.4% to 9.8%]  |
| Never                                                              | 153 (89.5%)                              | 59 (96.5%)               | 212 (91.9%) [85.1% to 92.9%] |
| WAST screen for intimate partner violence                           |                                          |                          |         |
| N value                                                             | 168                                      | 59                       | 227     |
| Negative (score, 8 to 12)                                          | 141 (83.9%)                              | 51 (84.8%)               | 192 (84.6%) |
| Positive (score, 13 to 24)                                         | 27 (16.1%)                               | 8 (15.2%)                | 35 (15.4%) |

* These data represented women in a relationship who responded to the questions. Approximately fifty women did not complete the WAST questionnaire. These women were likely not in a relationship, and the questionnaire was not applicable to them. † Chi-square tests were performed to see if differences existed between the two trauma centers. The level of significance was set at p <0.05. No significant differences found. ‡ The N values pertain to the number of patients who responded to each question. The data for the categories that follow the N values are given as the number of patients who provided each response, with the percentage in parentheses. § The N values pertain to the number of patients who provided each response, with the percentage in parentheses and with the 95% confidence interval in brackets (if applicable).
Table 4: Results of Partner Violence Screen (PVS)*

| Item | Hamilton Health Sciences – General Site † | St. Michael’s Hospital † | Total ‡ |
|------|-----------------------------------------|-------------------------|---------|
| Result of intimate partner violence screen | 21 (10.3%) | 5 (6.4%) | 26 (9.2%) [6.4% to 13.2%] |
| Have you been hit, kicked, punched or otherwise hurt by someone within the past year? Yes | 24 (11.8%) | 5 (6.4%) | 29 (10.4%) [7.3% to 14.5%] |
| No | 179 (87.7%) | 72 (92.3%) | 251 (86.9%) [82.4% to 90.3%] |
| Declined to answer | 1 (0.5%) | 1 (1.3%) | 2 (0.7%) |
| If “yes” Person in current relationship | 9 | 1 | 10 (34.5%) [19.9% to 52.7%] |
| Person the patient has no intimate relationship with | 10 | 2 | 12 (41.3%) [25.5% to 59.3%] |
| Do you feel safe in your current relationship? Yes | 164 (80.4%) | 57 (73.1%) | 221 (78.4%) [73.2% to 82.8%] |
| No | 4 (2.0%) | 2 (2.6%) | 6 (2.1%) [1.0% to 4.6%] |
| Declined to respond | 36 (17.6%) | 19 (24.4%) | 55 (19.5%) |
| Is there a partner from a previous relationship who is making you feel unsafe now? Yes | 10 (4.9%) | 2 (2.6%) | 12 (4.3%) [2.5% to 7.3%] |
| No | 184 (90.2%) | 72 (92.3%) | 256 (90.8%) [86.8% to 93.6%] |
| Declined to respond | 10 (4.9%) | 4 (5.1%) | 14 (5.0%) |

* Chi-square tests were performed to see if differences existed between the two trauma centers. The level of significance was set at p<0.05. No differences were found. † The values are given as the number of patients, with the percentages in parentheses. ‡ The values are given as the number of patients, with the percentage in parentheses and the 95% confidence interval in brackets. § These women responded positively to one or more of the PVS items pertaining to violence exhibited by an intimate partner. # These women did not respond positively to any of the PVS items pertaining to violence exhibited by an intimate partner.

**Previous Screening**

Twelve (7.6%) of 157 women responded that they had been previously screened by health-care professionals other than their treating surgeon. Of the twenty-four victims of intimate partner violence who had experienced physical abuse, four (16.7%) had been asked by another health-care professional about intimate partner violence. In addition, of the twenty-four women who had experienced physical abuse, nine (37.5%) indicated that they believed that health-care providers should ask about intimate partner violence. Of all women screened, 36.2% indicated that they believed that health-care providers should ask about intimate partner violence.
Discussion

Our principal findings suggest that 31.6% women who presented to fracture clinics had experienced some form of intimate partner violence within the last year, that 8.5% of women had experienced physical abuse in the last year, and that 2.5% of women reported that the reason for their fracture clinic visit was directly related to a serious injury caused by an intimate partner. We did not identify any patient characteristics unique to those women who had experienced intimate partner violence.

Strengths and Limitations

Our study has several important strengths including the use of previously developed screening questionnaires and direct questions, broad eligibility criteria, the use of female study coordinators in order to maximize enrolment, the completion of self-administered questionnaires in a private location, and the assurance of anonymity of the respondents. The use of multiple screening tools may help to identify patients who have experienced forms of abuse that may not be screened for with the use of only one tool. However, there is a possibility that broadening the definition of intimate partner violence creates a higher risk of false-positive results. Female study coordinators were used to recruit and survey the patients so that abused women would feel safer and more at ease. Many women have reported that it is difficult to talk to male health-care providers about their experiences with intimate partner violence.

The decision to use a self-administered questionnaire is supported by studies that have suggested improved acceptability by women. However, the use of a self-administered questionnaire led to some incomplete responses. For example, a large number of the women who had been hit, kicked, punched or otherwise hurt in the past year declined to indicate how their current injury was caused. Since the survey was anonymous, we were unable to link the surveys to a patient chart to obtain the missing information. This finding may indicate that intimate partner violence was underreported.

Despite our efforts to maximize enrolment, 113 women declined to participate in the study. It remains plausible that non-participants differed from participants in terms of the prevalence of abuse. Patients may have been less likely to participate if they were a victim of intimate partner violence, resulting in a lower prevalence of intimate partner violence in our study. Alternatively, some patients may have declined to participate because they were not victims of intimate partner violence and as such believed that the issue was not relevant to them.

In Ontario, in 2006, the median age was thirty-nine years, the median household income was $62,400, and 77.2% of the population was white. Our population was, on average, older than the general Ontario population and had a higher percentage of low-income and white individuals. The generalizability of our findings may be limited only to environments with similar processes inherent in the triage and referral of patients in our study. Level I trauma centres in other locations may have different referral procedures.

Relevant Literature

A recent survey of 186 Canadian orthopaedic surgeons suggested that 87% believed that the prevalence of intimate partner violence within their practice is <1%. Our findings support a much higher prevalence of intimate partner violence among women attending orthopaedic fracture clinics. The finding of most concern was the 2.5% prevalence of severe orthopaedic injuries, such as fractures, that were directly reported as the reason for the woman’s visit to the
surgical fracture clinic. Our findings support those of an American-based audit of musculoskeletal injuries sustained by women attending a domestic abuse treatment and counseling center, the Minneapolis Domestic Abuse Project. That study demonstrated that head and neck and musculoskeletal injuries were the most common manifestations of intimate partner violence and that the spectrum of musculoskeletal injuries included sprains, fractures, dislocations, and head injuries. Similarly, Spedding et al. reported that multiple injuries (especially those involving the head and neck), fractures, loss of consciousness, abdominal injuries, and injuries occurring on stairs were markers of domestic violence in women presenting to the emergency department.

Our overall estimate of intimate partner violence was higher than previously reported rates of intimate partner violence in other medical specialties, including emergency medicine, obstetrics and gynecology, primary care, internal medicine, and pediatrics (Figure 2). However, the reported prevalence of intimate partner violence in patients with musculoskeletal injuries was similar to the prevalence of intimate partner violence in a hospital-based addiction-recovery unit. The varying prevalences across medical disciplines may also reflect differing definitions of intimate partner violence. The high prevalence of intimate partner violence in orthopaedic fracture clinics as compared with other medical specialties confirms the need for orthopaedic surgeons to be aware of the issues related to intimate partner violence and to recognize opportunities to assist women experiencing intimate partner violence.

Figure 2: Prevalence of IPV Across Different Medical Subspecialties
Our study included women who varied in terms of age, marital status, annual income, and education level. There was an array of injury types, causes of injury, and locations of injury. Similar to previous research\textsuperscript{13,19,20}, our study demonstrated that women of all ages, ethnicities, socioeconomic status levels, and injury patterns may experience intimate partner violence. In a previous study, two of us (M.B. and S.D) and colleagues identified several risk factors associated with increased frequency of physical abuse, including young age; a shorter duration of the relationship; the coexistence of emotional, psychological, and/or sexual abuse; and drug or alcohol dependency\textsuperscript{4}.

Only one of seven women who indicated that the reason for the visit to the clinic was an injury directly resulting from intimate partner violence indicated that she had been previously asked about intimate partner violence by a health-care professional. These findings are consistent with those of other studies. A recent survey of >500 emergency department patients demonstrated that 86% of the patients believed that it is appropriate for all women to be asked if they had experienced violent or threatening behaviour from someone close to them\textsuperscript{13}. Similarly, Glass et al. found that the majority of both abused and non-abused women presenting to the emergency department supported routine screening for intimate partner violence\textsuperscript{16}. The same study also demonstrated that the screening rates for women who had reported abuse in the prior year was only 13\%\textsuperscript{16}.

The most common barriers to reporting intimate partner violence include a lack of awareness of intimate partner violence resources, a perception that the situation was not major enough to seek help, a fear of retaliation from the abusive partner, concerns regarding the custody of children, financial issues, lack of trust in the health-care provider, shame and embarrassment, concern that physicians cannot help, social and language barriers, and the reluctance to talk to a male doctor\textsuperscript{11}. A recent survey of Canadian orthopedic surgeons found that almost one-third of the orthopaedic surgeons who responded felt personal discomfort about intimate partner violence and that more than half of the respondents indicated that there was a lack of knowledge and education regarding intimate partner violence\textsuperscript{10}. In the same survey, 91\% of surgeons believed that knowledge about intimate partner violence was relevant to their surgical practice and 30\% supported educational programs for orthopaedic surgeons\textsuperscript{10}.

The surgeon’s role in identifying intimate partner violence has not gone unrecognized by national organizations. The American College of Surgeons position statement on intimate partner violence states that surgeons have the responsibility to identify intimate partner violence and to appropriately treat women who are at risk of further harm\textsuperscript{22}. The Canadian Orthopaedic Association takes a similar stance, and its position statement declares that “orthopaedic surgeons are well positioned to identify patients living with IPV and initiate an intervention.”\textsuperscript{5}

**Influence of Screening Tools on Prevalence of Intimate Partner Violence**

In the present study, we used three direct questions as our primary measure of prevalence of intimate partner violence. A substantially lower prevalence was obtained with the WAST and PVS as compared with the three direct questions. We believe that the difference in prevalence obtained with the use of the different tools can be accounted for by looking at which type of abuse each tool is screening for. The majority of the women who had a positive score for intimate partner violence on the direct questions had experienced emotional abuse. A common challenge faced with intimate partner violence research is that emotional abuse is difficult to define and experiences are often interpreted differently across patients. The PVS focuses primarily on experiences with physical violence and feelings of safety. Women who experienced
emotional or sexual abuse but not physical abuse may screen negatively on the PVS. Although the WAST asks about the three types of abuse, women who are experiencing only one type of abuse may answer the questions in such a way that they do not meet the positive cutoff score of 13. Given the limitations of the PVS and the WAST, we believe that our primary measure of directly asking about intimate partner violence provides the most accurate assessment of the prevalence of intimate partner violence.

Clinical Relevance

If our findings are generalizable to the practices of most general orthopaedic surgeons, the opportunities to identify and assist victims of IPV are numerous. Based on general clinic volumes, an orthopaedic surgeon sees approximately forty-five female patients per week (approximately 2,340 female patients per year), half of whom will be new patients (1170 new female patients per year). Our findings suggest that screening all women would result in ninety-nine women (8.5%) disclosing physical abuse within the 12 months of that year, and approximately twenty-nine women (2.5%) presenting to the orthopaedic surgeon’s clinic for the care of injuries directly resulting from intimate partner violence.

We support the idea that primary contact health care professionals should be suitably trained and aware of intimate partner violence to help women presenting to the emergency and urgent care clinics across North America. There has been considerable research and focus to understand how women presenting to the first contact health care professional can be identified and assisted. As we understand, several challenges have emerged with this approach. When patients present to the emergency room, they are often frightened and in a great deal of pain. Previous literature has shown that this is not the optimal time to ask about intimate partner violence. As orthopaedic surgeons see patients multiple times, can create trust, and are more likely to see a patient in a more calm state than emergency department staff, they are in a good position to identify victims of intimate partner violence. Our study shows that, in some cases, the first time a woman discloses intimate partner violence can be in orthopaedic fracture clinics. This provides an opportunity to integrate hospital resources to ensure that appropriate referral from an orthopaedic clinic is possible. While not directly related to the musculoskeletal complaint a woman may have when seeing her orthopaedic surgeon, her emotional well-being, compliance, and health will be impacted by intimate partner violence. The focus on quality of life in orthopaedic outcomes, and the common finding that psychological factors are important prognostic factors in recovery could have direct relevance to the outcome of orthopaedic care. Finally, if surgeons ask about abuse, it may potentially prevent the abuse from escalating to the point of physical violence in serious traumatic injury. This strategy would be relevant to the field for injury prevention.

Orthopaedic surgeons can help by having materials available on local shelters and toll-free help lines, screening patients for intimate partner violence in a private setting without the partner present, using direct questions to elicit a direct response and respecting a women’s choice to not disclose if she is not ready to do so. After a woman has disclosed abuse, orthopaedic surgeons should be non-judgmental and supportive, assess her safety, respect her decisions, take clear notes regarding the injury or injuries, and provide resources and referrals for help.

While recent reports question the utility of universal screening, no reports to date have demonstrated harm from a practice of universal screening of women. In addition, Davis notes that “the long-term sequelae [of intimate partner violence] include health risks, posttraumatic stress disorder, depression, and the economic costs for health care and the
economic loss to victims” and also that the failure to diagnose intimate partner violence and intervene may have a detrimental outcome as 44% of domestic violence related homicide victims had presented to an emergency department within 2 years of their deaths.28

Need for a Multinational Study
The current study was the first to look at prevalence rates of intimate partner violence in women presenting to orthopaedic fracture clinics in Ontario. This study included only two clinical centers in Ontario, both in urban settings, limiting the generalizability of our findings. To confirm local findings nationally and internationally a larger, multi-national study is required.

Given the high prevalence of intimate partner violence at two orthopaedic fracture clinics, these results have implications for implementing intimate partner violence screening and providing further education for medical professionals. McCloskey et al reported that screening or assessment for intimate partner violence prompted 3-fold more disclosure than might be volunteered spontaneously17. This study also found that abused women who were asked about partner violence by a provider, 32% received help contacting services compared to 5% who were not asked17. Contrary to these findings, MacMillan et al recently found that there continues to be a lack of evidence that universal screening alone improves health outcomes for survivors of intimate partner violence24. In an editorial in response to these findings, Moracco and Cole argue that universal screening with passive referrals to community services is an inadequate response to intimate partner violence29. They continue to stress that specific interventions to prevent the recurrence of abuse for women at risk of violence should be implemented and rigorously tested without further delay. This confirms the need for further studies on outcomes of screening for intimate partner violence.

In conclusion, our study confirms that there is a high prevalence of intimate partner violence among female patients with injuries who are seen at orthopedic clinics in Ontario. Similar to previous research, our study demonstrated that women of all ages, ethnicities, socioeconomic status levels, and injury patterns may experience intimate partner violence. Surgeons should consider screening all injured women for domestic violence in their clinics.

Acknowledgements

Writing Committee: Mohit Bhandari (Co-Chair), Sheila Sprague (Co-Chair), Sonia Dosanjh, Brad Petrisor, Sarah Resendes, Kim Madden, and Emil H. Schemitsch.

Steering Committee: Mohit Bhandari (Chair), Gregory J. Della Rocca, Sonia Dosanjh, Kyle Jeray, David Matthews, Bradley Petrisor, Rudolf Poolman, Emil H. Schemitsch, and Sheila Sprague.

Intimate Partner Violence Expertise: Sonia Dosanjh, Clare Freeman, David Matthews, Diana Tikasz, and Harjeet Badwall.

Methods Center: Mohit Bhandari, Sheila Sprague, Victor Wu, Sarah Resendes, Alicia Cameron, Ivanna Rammuth, and Kim Madden.

Participating Clinical Sites: Bradley Petrisor, Krishan Rajaratnam, Dale Williams, Brian Drew, Ivan Wong, Desmond Kwok, Matthew Denkers, Alicia Cameron, Sarah Resendes, Ivanna
References

1. McCloskey LA, Williams CM, Lichter E, Gerber M, Ganz ML, Sege R. Abused women disclose partner interference with health care: an unrecognized form of battering. JGIM. 2007;22(6):1067-72.

2. Mihorian K. Trends in self-reported spousal violence. In: AuCoin K, editor. Family violence in Canada: a statistical profile, 2005. Ottawa: Statistics Canada; 2005. Catalogue no. 85-244-XIE.

3. Hayden SR, Barton ED, Hayden M. Domestic violence in the emergency department: how do women prefer to disclose and discuss the issues. J Emerg Med. 1997;15:447-451.

4. Bhandari M, Dosanjh S, Tornetta P 3rd, Matthews D; On behalf of the Violence Against Women Health Research Collaborative. Musculoskeletal manifestations of physical abuse after intimate partner violence. J Trauma. 2006;61:1473-9.

5. Canadian Orthopaedic Association (COA). (2009). Intimate Partner Violence; Position Statement. Retrieved online from: http://www.coa-aco.org/library/health-policy/intimate-partnerviolence.html. Accessed July 21, 2009.

6. Brown JB, Lent B, Brett PJ, Sas G, Pederson LL. Development of the Woman Abuse Screening Tool for use in family practice. Fam Med. 1997;28(8):422-8.

7. Yut-Lin W, Othman S. Early detection and prevention of domestic violence using the Woman Abuse Screening Tool (WAST) in primary health care clinics in Malaysia. Asia-Pac J Public Health. 2008;20:102-116.

8. Feldhaus KM, Koziol-McLain J, Amsbury HL, Norton IM, Lowenstein SR, Abbott JT. Accuracy of 3 Brief Screening Questions for Detecting Partner Violence in the Emergency Department. JAMA. 1997;277:1357-1361.

9. MacMillan HL, Wathen CN, Jamieson E, Boyle M, McNutt L, Worster A, Lent B, Webb M. Approaches to screening for intimate partner violence in health care settings – A randomized trial. JAMA. 2006;296:530-36.

10. Bhandari M, Sprague S, Tornetta P 3rd, D’Aurora V, Schemitsch E, Shearer H, Brink O, Matthews D, Dosanjh S. (Mis)Perceptions about intimate partner violence among orthopedic surgeons. J Bone Joint Surg Am. 2008;90:1590-97.

11. Du Mont J, Forte T, Cohen MM, Hyman I, Romans S. Changing help-seeking rates for intimate partner violence in Canada Women Health. 2005;41(1):1-19...
12. Statistics Canada (2008). Income of Canadians. http://www.statcan.gc.ca/daily-quotidien/080505/dq080505a-eng.htm Accessed on May 10, 2009.
13. Ontario Ministry of Finance (2009). 2006 Census Highlights: Factsheet 4. http://www.fin.gov.on.ca/en/economy/demographics/census/cenhi06-4.html Accessed on May 10, 2010.
14. Statistics Canada (2009). Visible minority groups, percentage distribution, for Canada, provinces and territories. http://www12.statcan.ca/census-recensement/2006/dp-pd/hlt/97-562/pages/page.cfm?Lang=E&Geo=PR&Code=01&Table=1&Data=Dist&StartRec=1&Sort=&Display=Page&CSDFilter=5000 Accessed on May 10, 2010.
15. Spedding RL, McWilliams M, McNicholl BP, Dearden CH. Markers for domestic violence in women. J Accid Emerg Med. 1999;16:400-402.
16. Glass N, Dearwater S, Campbell J. Intimate partner violence screening and intervention: Data from eleven Pennsylvania and California community hospital emergency departments. J Emerg Nursing. 2001;27:141-9.
17. McCloskey LA, Lichter E, Ganz ML, Williams CM, Gerber MR, Sege R, Stair T, Herbert B. Intimate partner violence and patient screening across medical specialties. Acad Emerg Med. 2005 Aug;12:712-22.
18. Cleary BS, Keniston A, Havranek EP, Albert RK. Intimate partner violence in women hospitalized on an internal medicine service: Prevalence and relationship to responses to the review of systems. Soc Hosp Med. 2008;3:299-307.
19. Abott J, Johnson R, Koziol-McLain, Lowenstein SR. Domestic violence against women: Incidence and prevalence in an emergency department population. JAMA. 1995;273:1763-1767.
20. Zink T, Fisher BS, Regan Saundra, Pabst S. The prevalence and incidence of intimate partner violence in older women in primary care practices. J Gen Intern Med. 2005;20:884-888.
21. Hurley KT, Brown-Maher T, Campbell G, Wallace T, Venugopal R, Buggs D. Emergency department patients’ opinions of screening for intimate partner violence among women. Emerg Med J. 2005;22:97-98.
22. American College of Surgeons. (2000). Statement on Domestic Violence. Retrieved online from: http://www.facs.org/fellows_info/statements/st-32.html. Accessed October 26, 2009.
23. Wathen CN, MacMillian HL, Canadian Task Force on Preventive Health Care. Prevention of violence against women: recommendation statement from the Canadian Task Force on Preventive Health Care. CMAJ. 2003 Sep 16;169:582-4.
24. MacMillian HL, Wathen CN, Jamieson E et al. Screening of intimate partner violence in health care settings: A randomized trial. JAMA. 2009;302:493-501.
25. Nelson HD. Screening for domestic violence—bridging the evidence gaps. Lancet. 2004;364:122-3.
26. Wathen CN, MacMillian HL. Interventions for violence against women: scientific review. JAMA. 2003 Feb 5;289:589-600.
27. Ramsay J, Richardson J, Carter YH, Davidson LL, Feder J. Should health professionals screen women for domestic violence? Systematic Review. BMJ. 2002;325:314.
28. Davis JW. Domestic violence: the “rule of thumb”: 2008 Western trauma association presidential address. J Trauma. 2008;65:969-74.
29. Moracco KE, Cole TB. Preventing intimate partner violence: Screening is not enough. JAMA. 2009;302:566-570.
### APPENDIX

**TABLE E-1 Demographic Data Characteristics**

| Hamilton Health Sciences–General Site (N = 204)† | St. Michael’s Hospital (N = 78)† | Total (N = 282)† |
|---|---|---|
| **Age** | | | **Chi-square tests were performed to see if differences existed between the two trauma centers. The level of significance was set at p < 0.05. A significant difference was found in terms of annual income (p = 0.04).** |
| 18 to 23 yr | 28 (13.7%) | 8 (10.3%) | 36 (12.8%) |
| 24 to 29 yr | 23 (11.3%) | 5 (6.4%) | 28 (9.9%) |
| 30 to 34 yr | 15 (7.4%) | 6 (7.7%) | 21 (7.4%) |
| 35 to 39 yr | 11 (5.4%) | 8 (10.3%) | 19 (6.7%) |
| 40 to 49 yr | 41 (20.1%) | 9 (11.5%) | 50 (17.7%) |
| 50 to 59 yr | 42 (20.6%) | 23 (29.5%) | 65 (23.0%) |
| 60 yr and over | 44 (21.6%) | 18 (23.1%) | 62 (22.0%) |
| Declined to answer | 2 (1.0%) | 1 (1.3%) | 3 (1.1%) |
| **Annual income** | | | **The values are given as the number of patients, with the percentage in parentheses.** |
| Less than $20,000 | 64 (31.4%) | 23 (29.5%) | 87 (30.9%) |
| $20,000 to less than $40,000 | 67 (32.8%) | 14 (17.9%) | 81 (28.7%) |
| $40,000 to less than $60,000 | 36 (17.6%) | 19 (24.4%) | 55 (19.5%) |
| $60,000 to less than $80,000 | 12 (5.9%) | 10 (12.8%) | 22 (7.8%) |
| $80,000 to less than $100,000 | 9 (4.4%) | 5 (6.4%) | 14 (5.0%) |
| $100,000 or more | 7 (3.4%) | 6 (7.7%) | 13 (4.6%) |
| Declined to answer | 9 (4.4%) | 1 (1.3%) | 10 (3.5%) |
| **Level of education** | | | **The values are given as the number of patients, with the percentage in parentheses.** |
| No high school education | 2 (1.0%) | 2 (2.6%) | 4 (1.4%) |
| Some high school education | 29 (14.2%) | 3 (3.8%) | 32 (11.3%) |
| High school diploma | 65 (31.9%) | 39 (49.4%) | 83 (29.5%) |
| Graduated college | 69 (33.9%) | 26 (33.3%) | 95 (33.6%) |
| Bachelor’s degree | 35 (16.2%) | 18 (23.1%) | 53 (18.8%) |
| Master’s degree | 9 (4.4%) | 6 (7.7%) | 15 (5.3%) |
| Doctorate degree | 2 (1.0%) | 0 (0.0%) | 2 (0.7%) |
| Professional degree | 3 (1.5%) | 3 (3.8%) | 6 (2.1%) |
| Declined to answer | 1 (0.5%) | 1 (1.3%) | 2 (0.7%) |
| **Ethnicity** | | | **The values are given as the number of patients, with the percentage in parentheses.** |
| White | 180 (88.2%) | 60 (78.9%) | 240 (85.1%) |
| Asian | 5 (2.5%) | 5 (6.4%) | 10 (3.5%) |
| Native Canadian | 7 (3.4%) | 2 (2.6%) | 9 (3.2%) |
| African Canadian | 3 (1.5%) | 3 (3.8%) | 6 (2.1%) |
| Mixed | 3 (1.5%) | 3 (3.8%) | 6 (2.1%) |
| Hispanic-Latino | 3 (1.5%) | 2 (2.6%) | 5 (1.8%) |
| Middle Eastern | 1 (0.5%) | 1 (1.3%) | 2 (0.7%) |
| Southeast Asian | 1 (0.5%) | 1 (1.3%) | 2 (0.7%) |
| Declined to answer | 2 (1.0%) | 1 (1.3%) | 3 (1.1%) |
| **Marital status** | | | **The values are given as the number of patients, with the percentage in parentheses.** |
| Married | 74 (36.3%) | 29 (37.1%) | 103 (36.5%) |
| Single | 54 (26.5%) | 23 (29.5%) | 77 (27.0%) |
| Divorced or separated | 35 (16.2%) | 18 (23.1%) | 53 (18.8%) |
| Common law | 25 (12.2%) | 7 (9.0%) | 32 (11.3%) |
| Widowed | 15 (7.4%) | 3 (3.8%) | 18 (6.4%) |
| Declined to answer | 1 (0.5%) | 0 (0.0%) | 1 (0.4%) |
| Type of injury | Hamilton Health Sciences–General Site† | St. Michael’s Hospital† | Total† |
|---------------|------------------------------------------|------------------------|--------|
| N value       | 204                                      | 78                     | 282    |
| Fracture      | 141 (69.1%)                              | 65 (83.8%)             | 206 (73.0%) |
| Dislocation   | 9 (4.4%)                                 | 3 (3.8%)               | 12 (4.3%) |
| Sprain or strain | 11 (5.4%)                          | 5 (6.4%)               | 16 (5.7%) |
| Soft-tissue injury | 10 (4.9%)                      | 3 (3.8%)               | 13 (4.6%) |
| Other         | 28 (13.7%)                               | 1 (1.3%)               | 29 (10.3%) |
| Declined to answer | 0 (0.0%)                     | 1 (1.3%)               | 1 (0.4%) |

| Cause of injury | Hamilton Health Sciences–General Site† | St. Michael’s Hospital† | Total† |
|-----------------|------------------------------------------|------------------------|--------|
| N value         | 87                                       | 78                     | 165    |
| Fall            | 40 (46.0%)                               | 39 (50.0%)             | 79 (47.9%) |
| Sports          | 12 (13.8%)                               | 12 (15.4%)             | 24 (14.5%) |
| Other           | 8 (9.2%)                                 | 11 (14.1%)             | 19 (11.5%) |
| Motor-vehicle accident | 7 (8.0%)                        | 3 (3.8%)               | 10 (6.1%) |
| Work            | 8 (9.2%)                                 | 0 (0.0%)               | 8 (4.8%) |
| Pedestrian-motor vehicle accident | 4 (4.6%)                     | 1 (1.3%)               | 5 (3.0%) |
| Crush injury    | 1 (1.1%)                                 | 3 (3.8%)               | 4 (2.4%) |
| Intimate partner violence | 1 (1.1%)                        | 0 (0.0%)               | 1 (0.6%) |
| Declined to answer | 6 (6.9%)                     | 9 (11.5%)              | 15 (9.1%) |
| Not included in questionnaire | 117                                 | 0                      | 117    |

| Location of injury‡ | Hamilton Health Sciences–General Site† | St. Michael’s Hospital† | Total† |
|---------------------|------------------------------------------|------------------------|--------|
| N value             | 204                                      | 78                     | 282    |
| Lower extremity     | 120 (60.8%)                              | 42 (55.2%)             | 162 (57.4%) |
| Foot/ankle          | 67 (32.8%)                               | 19 (24.4%)             | 86 (30.5%) |
| Knee                | 24 (11.9%)                               | 10 (12.8%)             | 34 (12.1%) |
| Leg                 | 35 (17.4%)                               | 6 (7.7%)               | 41 (14.5%) |
| Pelvis              | 13 (6.4%)                                | 3 (3.8%)               | 16 (5.7%) |
| Hip                 | 7 (3.4%)                                 | 4 (5.1%)               | 11 (3.9%) |
| Upper extremity     | 39 (48.5%)                               | 55 (66.4%)             | 94 (33.2%) |
| Shoulder            | 34 (16.7%)                               | 16 (20.5%)             | 50 (17.7%) |
| Hand/wrist          | 33 (15.2%)                               | 19 (24.4%)             | 52 (18.5%) |
| Proximal part of arm | 18 (8.8%)                        | 7 (9.0%)               | 25 (8.9%) |
| Distal part of arm  | 15 (7.4%)                                | 3 (3.8%)               | 18 (6.4%) |
| Elbow               | 2 (1.0%)                                 | 6 (7.7%)               | 8 (2.8%) |
| Axial spine (spine/neck) | 18 (8.8%)                      | 1 (1.3%)               | 19 (6.8%) |
| Chest               | 11 (5.4%)                                | 5 (6.4%)               | 16 (5.7%) |
| Collar bone         | 7 (3.4%)                                 | 2 (2.6%)               | 9 (3.2%) |
| Back/shoulder       | 4 (2.0%)                                 | 3 (3.8%)               | 7 (2.5%) |
| Head and face       | 3 (1.5%)                                 | 3 (3.8%)               | 6 (2.1%) |
| Other/not specified | 5 (2.5%)                                 | 0 (0.0%)               | 5 (1.8%) |

*Chi-square tests were performed to see if differences existed between the two trauma centers. The level of significance was set at p < 0.05. A significant difference was found between the two clinic sites in terms of injury type (p = 0.048). †The N values pertain to the total number of patients for whom information was available. The values that follow each N value are given as the number of patients in each category, with the percentage in parentheses. ‡Patients may have had more than one injury, in multiple locations; therefore, percentages may not add to 100%.

TABLE E-2 Injury Characteristics* Characteristics

96
| Characteristic | Hamilton Health Sciences General (N = 69) | St. Michael’s Hospital (N = 20) | Total (N = 89) |
|---------------|------------------------------------------|--------------------------------|---------------|
| Age           |                                          |                                |               |
| 18 to 23 yr   | 11 (15.9%)                               | 2 (10.0%)                      | 13 (14.6%)    |
| 24 to 29 yr   | 8 (11.6%)                                | 2 (10.0%)                      | 10 (11.2%)    |
| 30 to 34 yr   | 5 (7.2%)                                 | 2 (10.0%)                      | 7 (7.9%)      |
| 35 to 39 yr   | 2 (2.9%)                                 | 4 (20.0%)                      | 6 (6.7%)      |
| 40 to 49 yr   | 15 (21.7%)                               | 1 (5.0%)                       | 16 (18.0%)    |
| 50 to 59 yr   | 17 (24.6%)                               | 3 (15.0%)                      | 20 (22.5%)    |
| $60,000 to 80,000 | 3 (4.3%)                                    | 1 (5.0%)                      | 4 (4.5%)      |
| Did not respond | 1 (1.4%)                                     | 0 (0.0%)                       | 1 (1.1%)      |
| Annual income |                                          |                                |               |
| <$20,000      | 23 (33.3%)                               | 6 (30.0%)                      | 29 (32.6%)    |
| $20,000 to 40,000 | 25 (36.2%)                                | 5 (25.0%)                      | 30 (33.7%)    |
| $40,000 to 60,000 | 8 (11.6%)                                | 5 (25.0%)                      | 13 (14.6%)    |
| $60,000 to 80,000 | 3 (4.3%)                                    | 1 (5.0%)                       | 4 (4.5%)      |
| Did not respond | 4 (5.8%)                                     | 0 (0.0%)                       | 4 (4.5%)      |
| Education level |                                          |                                |               |
| No high school | 2 (2.9%)                                     | 0 (0.0%)                       | 2 (2.2%)      |
| Some high school | 9 (13.1%)                                 | 0 (0.0%)                       | 9 (10.1%)    |
| High school diploma | 22 (31.9%)                                | 5 (25.0%)                      | 27 (30.3%)    |
| Bachelor’s degree | 1 (1.4%)                                     | 0 (0.0%)                       | 1 (1.1%)      |
| Master’s degree | 1 (1.4%)                                     | 0 (0.0%)                       | 1 (1.1%)      |
| Race/ethnicity |                                          |                                |               |
| White         | 62 (89.9%)                                | 16 (80.0%)                     | 78 (87.6%)    |
| African Canadian | 0 (0.0%)                                     | 1 (5.0%)                       | 1 (1.1%)      |
| Middle Eastern | 0 (0.0%)                                     | 1 (5.0%)                       | 1 (1.1%)      |
| African and white | 0 (0.0%)                                     | 1 (5.0%)                       | 1 (1.1%)      |
| Native Canadian and French | 0 (0.0%)                                     | 1 (5.0%)                       | 1 (1.1%)      |
| White and Native Canadian | 1 (1.4%)                                     | 0 (0.0%)                       | 1 (1.1%)      |
| Did not specify | 2 (2.9%)                                     | 0 (0.0%)                       | 2 (2.2%)      |
| Marital status |                                          |                                |               |
| Married       | 19 (27.3%)                                | 7 (35.0%)                      | 26 (29.2%)    |
| Divorced/separated | 13 (18.8%)                                | 6 (30.0%)                      | 19 (21.3%)    |
| Common law     | 12 (17.4%)                                | 3 (15.0%)                      | 15 (16.9%)    |
| Widowed        | 4 (5.8%)                                  | 0 (0.0%)                       | 4 (4.5%)      |
| Single         | 16 (23.2%)                                | 3 (15.0%)                      | 19 (21.3%)    |
| Other-dating   | 2 (2.9%)                                  | 1 (5.0%)                       | 3 (3.4%)      |
| Did not respond | 1 (1.4%)                                     | 0 (0.0%)                       | 1 (1.1%)      |

*Chi-square tests were performed to see if differences existed between the two trauma centers. The level of significance was set at p < 0.05. No significant differences were found. †The values are given as the number of patients, with the percentage in parentheses. ‡The values are given as the number of patients, with the percentage in parentheses and the 95% confidence interval in brackets.
Chapter 7

Prevalence of Abuse and Intimate Partner Violence Surgical Evaluation (PRAISE) in Orthopaedic Fracture Clinics: A Multi-National Prevalence Study

PRAISE Investigators
(Writing Committee: S. Sprague (Co-Chair), M. Bhandari (Co-Chair), G.J. Della Rocca, J.C. Goslings, R.W. Poolman, K. Madden, N. Simunovic, and E.H. Schemitsch)

Published
Lancet. 2013 Jun 11; 6736(13): 61205-2.
Abstract

Background: Intimate partner violence (IPV) is the leading cause of non-fatal injury to women worldwide. Musculoskeletal injuries, often seen by orthopaedic surgeons, are the second most common manifestation of IPV. We aimed to establish the 12-month and lifetime prevalence of IPV in women presenting to orthopaedic fracture clinics.

Methods: The PRAISE team of 80 investigators did a cross-sectional study of a consecutive sample of 2945 female participants at 12 orthopaedic fracture clinics in Canada, the USA, the Netherlands, Denmark, and India. Participants who met the eligibility criteria anonymously answered direct questions about physical, emotional, and sexual IPV and completed two previously developed questionnaires (Women Abuse Screening Tool [WAST] and Partner Violence Screen [PVS]). We did a multivariable logistic regression analysis to investigate the risk factors associated with IPV.

Findings: The overall response rate was 85% (2,344 of 2,759 patients provided informed consent). One in six women (455/2839, 16·0%, 95% CI: 14·7-17·4%) disclosed a history of IPV within the last year, and one in three women (882/2550, 34·6%, 95% CI: 32·8-36·5%) had experienced IPV during their lifetime. Forty-nine women (1·7%, 95% 1·3-2·2%) presented to their current clinic visit as a direct consequence of IPV. Of these women, only seven of whom (14%) had ever been asked about IPV within the health care setting. Women in short-term relationships (OR 0·584, 99% CI·396-0·860, p=0.0001) were at increased risk of IPV and physical abuse in the past 12 months in this study. Compared with women in Canada and the USA, those in the Netherlands and Denmark were at reduced risk of any abuse in the past 12 months, physical abuse in lifetime, and any abuse in lifetime (OR 0·595, 99% CI 0·427-0·830, p<0.0001; 0·630, 0·445-0·890, p=0.0001; and 0·464, 0·352-0·612, p<0.0001, respectively).

Interpretation: PRAISE is the largest prevalence study conducted to date in orthopaedics. Orthopaedic surgeons should be confident in the assumption that one in six women have a previous history of physical abuse, and that one in 50 injured women will present as a direct result of IPV. Our findings warrant serious consideration for optimizing fracture clinics to identify, respond to, and provide referral services for, victims of IPV.
Introduction

Intimate partner violence (IPV) – also known as domestic violence, spousal abuse, and battering – refers to physical, emotional, sexual, psychological or financial abuse between intimate partners.\textsuperscript{1,2} The list of short and long-term physical and psychological consequences of IPV is exhaustive and well established in the literature.\textsuperscript{3,4}

In a large-scale, multi-country study,\textsuperscript{5} WHO reported that the lifetime prevalence of IPV among women ranged from 15 to 71% and in a systematic review,\textsuperscript{6} investigators reported that the prevalence ranged from less than 20% to more than 50%. This review also emphasized the scarcity of studies in which the prevalence of IPV within orthopaedic fracture clinics was investigated.\textsuperscript{6} We have shown that the 12-month prevalence of IPV in fracture clinics at two trauma centers in Ontario, Canada was 32%, which was much higher than anticipated.\textsuperscript{7}

In the present multi-centre study, we aimed to establish the prevalence of IPV in the past year among women who present to orthopaedic trauma fracture clinics in different countries.

Methods

We did a cross-sectional multi-centre study at 12 orthopaedic trauma fracture clinics at medical centres in Canada (seven sites), the USA (one site), the Netherlands (two sites), Denmark (one site), and India (one site). We selected sites on the basis of feasibility for successful completion of the study (i.e. previous collaboration, interest in participation, and availability of research personnel) and to represent a range of geographic areas.

The Methods Centre received approval from the McMaster/Hamilton Health Sciences Research Ethics Board (REB #08-369), and from each local research ethics board. We will summarize only the methods used, since a full report of the methodology of the PRAISE study has already been published (reference 8, and appendix). Subsequent to the publication of the protocol, we added one site from India and removed our site in Australia to improve feasibility.

Study Design and Participants

Patients presenting at participating fracture clinics (for Canadian and American sites) or trauma clinics (for Dutch, Danish, and Indian sites), collectively known as injury clinics, were screened for participation in this study by a female study coordinator. Patients at these injury clinics are seen by an orthopaedic surgeon about an orthopaedic injury that needs either surgical or conservative management. Acute injuries are typically seen in emergency departments at our sites and are followed up over several months in the injury clinic, although some patients with acute injuries are first seen in the injury clinic.

To be included in the study, patients must have presented to the fracture clinic for their own appointments (i.e. they must not have accompanied someone else to the clinic for their appointment for a musculoskeletal injury); been at least 16 or 18 years of age (dependent on the site ethics policies); been able to read, understand, and write in English, Dutch, Danish, Hindi, or Marathi (dependent on the study site); been seen at the fracture clinic for treatment of an orthopaedic injury; and separated themselves from anyone who accompanied them to the fracture clinic in order to complete the questionnaire in private. We excluded patients who were judged too ill or injured to participate and those who were cognitively impaired and unable to participate. All patients provided written informed consent.
Objectives

The primary objective of this study was to establish the proportion of women who had been subjected to IPV in the past 12-months among those who presented to orthopaedic fracture clinics for treatment of orthopaedic injuries. We defined IPV as physical, emotional, or sexual abuse that is caused by an intimate partner and asked participants by direct questioning if they were subject to any abuse. We also asked patients to complete two validated questionnaires (Women Abuse Screening Tool [WAST] and the Partner Violence Screen [PVS]), which were designed for the assessment of IPV in health care settings.9,11

Secondary objectives were to determine the proportion of women who presented with an orthopaedic injury that was the direct result of IPV, assessment of which patient characteristics are associated with IPV, and investigation of patients’ previous experiences with, and perceptions of, being asked about IPV by health care professionals.

Outcome Measures and Survey Methods

The 12 month prevalence of IPV was assessed with three direct questions (taken from WAST) about patients’ experience of IPV in the past 12 months, PVS, and WAST. We used the three direct questions that were rephrased to assess lifetime IPV. These questions were: “Have you been physically abused?”; “Have you been emotionally abused?”; and “Have you been sexually abused?” with a preamble defining the time period of interest (i.e. “in the past 12 months” or “in your lifetime”). We chose to use more than one measure of IPV prevalence to minimize the number of missed cases. We chose to use the WAST and PVS because, according to a recent systematic review about IPV screening methods, these two devices are among the most widely used and well-validated IPV screening tools.

We translated the questionnaires into Dutch, Danish, Hindi, and Marathi with the assistance of clinicians who are fluent in English and the language of interest. In each case, the translations were back-translated into English and the study team compared the wording to the original English version and made any corrections if necessary.

Data Collection

After obtaining informed consent, a female study coordinator provided each participant with a questionnaire to complete independently in a private location. The questionnaire was comprised of 37 questions concerning the patient’s demographics and orthopaedic injury, direct questions about their experience with IPV in the past 12 months and over their lifetime, the WAST, the PVS, and several questions about their experiences and opinions on health care professionals asking about IPV. After completing the questionnaire, the participant returned it to the study coordinator in a sealed envelope.

Sample Size

We had initially aimed to include 300 women per site, across 12 sites, for a total sample size of 3,600 women. We used an estimated 12-month IPV prevalence of 25% within orthopaedic clinics and a standard statistical formula for estimating sample size of prevalence studies,11,13 for estimation of sample size of prevalence studies and calculated that a sample size of 288 (rounded to 300) women per site was necessary for our study to provide an estimate of IPV prevalence with a confidence level of 95%.

In September 2012, we performed an analysis of the 2,945 women included in this study and the primary outcome estimate to ensure that our sample size assumptions remained valid.
The 12-month prevalence of IPV among the recruited women in this study was 16%. Assuming a 5% margin of error, our sample size was readjusted to 206 women per site, for a total of 2,478 across 12 clinical sites. This readjustment was done because the sample size increases as the prevalence approaches 50% (highest variability). We also did a sensitivity analysis for clustered data by centre and found no difference in the primary outcome. Given that our recruitment had exceeded the revised estimate by over 450 women, and the low likelihood of recruiting an additional 600 women, with increased cost and delay to dissemination of key findings, the lead investigators agreed to stop enrolment.

Statistical Analysis
Surveys were entered into a study-specific database and descriptive analyses, including frequency counts and percentages, were calculated for all data collected. Continuous data are presented as means and standard deviations. We conducted Chi-squared tests, regression analyses, and a sensitivity analysis to determine if there were any differences in patients’ perceptions about IPV or cluster effects between sites located in Canada and the USA, Denmark and the Netherlands, and India. No statistical imputation process was carried out for missing information. Based on the previous literature, we performed a multivariable logistic regression analysis on the following demographic characteristics – age (continuous), ethnicity, sexual orientation, income level, education level, marital status, length of relationship, having children, type of injury, location of injury, and continent of residence – to establish whether any of these variables were independently associated with experience of IPV and physical abuse in the patient’s lifetime and the past 12 months. We added in the type and location of injury because these may be of particular interest to orthopaedic surgeons. All data analyses were performed using SPSS version 20.0 (SPSS, Inc., Chicago IL).

Results
Ten sites screened 3853 patients for inclusion and 1094 women were ineligible. Of the 2759 patients who met the eligibility criteria, 2344 provided informed consent and completed all or part of the study questionnaire. Two additional sites in Canada (Foothills Medical Centre, Calgary, and St. Michael’s Hospital, Toronto) included 601 patients but did not keep track of exclusions due to resource limitations and clinic structure; thus, a total of 2945 women from 12 centres were included in this study (Figure 1) and the response rate was 85·0% (range 73·3-99·3%) for the ten sites that kept screening records. Because of missing data, the sample size for the primary outcome was 2839.
Figure 1: Study Flow Diagram

Table 1 shows patient demographics, injury, and risk factors. Most women who participated in the study were of white ethnicity (>80%), older than 40 years (60%), married or in a common law relationship (>50%), had children (>60%), and had a college or university degree or diploma (two-thirds). The most frequently reported cause of injury was a fall (more than a third), and most injuries (>50%) affected the lower limb.
Table 1: Patient Demographics and Injury Characteristics and Risk Factors Associated with IPV in the Past 12 Months

| Characteristic                          | All Respondents N (%) | Respondents Who Did Not Experience IPV N (%) | Respondents Who Experienced IPV N (%) |
|----------------------------------------|------------------------|----------------------------------------------|----------------------------------------|
| N = 2,839                              | N = 2,384              | N = 455                                      |
| **Age (Range)**                         |                        |                                              |
| 16-29                                  | 695 (23)               | 595 (23)                                    | 100 (22)                               |
| 30-39                                  | 423 (15)               | 325 (13)                                    | 71 (16)                                |
| 40-49                                  | 495 (18)               | 396 (17)                                    | 97 (22)                                |
| 50-59                                  | 630 (23)               | 532 (23)                                    | 118 (26)                               |
| ≥60                                    | 531 (19)               | 468 (20)                                    | 63 (14)                                |
| Missing values*                        | 47 (2)                 | 41 (2)                                       | 6 (1)                                  |
| **Annual income, $**                   |                        |                                              |
| <$20,000                               | 790 (29)               | 643 (29)                                    | 147 (34)                               |
| 20,000 to less than 60,000             | 1,230 (46)             | 1,044 (46)                                  | 186 (43)                               |
| 60,000 to less than 100,000            | 507 (19)               | 426 (19)                                    | 81 (19)                                |
| ≥100,000                               | 161 (6)                | 140 (6)                                     | 21 (5)                                 |
| Missing values*                        | 151 (5)                | 131 (6)                                     | 20 (4)                                 |
| **Highest level of education completed/currently completing** |                     |                                              |
| No or some high school                 | 385 (14)               | 309 (13)                                    | 76 (17)                                |
| High-school diploma                    | 736 (26)               | 610 (26)                                    | 126 (28)                               |
| Post-secondary degree/ diploma or higher | 1,683 (60)         | 1,435 (61)                                  | 248 (55)                               |
| Missing values*                        | 35 (1)                 | 30 (1)                                       | 5 (1)                                  |
| **Ethnicity/race**                     |                        |                                              |
| Caucasian                              | 2,333 (83)             | 1,962 (83)                                  | 371 (82)                               |
| Asian                                  | 205 (7)                | 174 (7)                                     | 33 (7)                                 |
| Black                                  | 44 (2)                 | 39 (2)                                       | 5 (1)                                  |
| Other                                  | 226 (8)                | 170 (8)                                     | 47 (10)                                |
| Missing values*                        | 31 (1)                 | 30 (1)                                       | 1 (1)                                  |
| **Marital Status**                     |                        |                                              |
| Married                                | 1,162 (41)             | 954 (40)                                    | 208 (46)                               |
| Single                                 | 753 (27)               | 649 (27)                                    | 102 (22)                               |
| Divorced or separated                  | 360 (13)               | 299 (13)                                    | 61 (13)                                |
| Common law                            | 334 (12)               | 277 (12)                                    | 57 (13)                                |
| Widowed                                | 138 (5)                | 127 (5)                                     | 11 (2)                                 |
| In a relationship                      | 71 (3)                 | 56 (2)                                       | 15 (3)                                 |
| Other                                  | 12 (<1)                | 11 (<1)                                     | 1 (<1)                                 |
| Missing values*                        | 11 (<1)                | 11 (<1)                                     | 1 (<1)                                 |
| **Length of current relationship**     |                        |                                              |
| Not in relationship                    | 862 (32)               | 771 (34)                                    | 91 (21)                                |
| 6 years                                | 539 (19)               | 438 (19)                                    | 81 (19)                                |
| 6-19 years                             | 575 (21)               | 467 (20)                                    | 106 (25)                               |
| 20-39 years                            | 536 (20)               | 446 (20)                                    | 108 (25)                               |
| 40+ years                              | 264 (9)                | 164 (7)                                     | 40 (9)                                 |
| Missing values*                        | 124 (4)                | 95 (4)                                       | 29 (6)                                 |
| **Children**                           |                        |                                              |
| Yes                                    | 1,737 (62)             | 1,428 (60)                                  | 309 (68)                               |
| No                                     | 1,085 (38)             | 943 (40)                                    | 142 (32)                               |
| Missing values*                        | 17 (<1)                | 13 (<1)                                     | 4 (<1)                                 |
| **Sexual orientation**                 |                        |                                              |
| Heterosexual                           | 2,573 (96)             | 2,170 (96)                                  | 403 (93)                               |
| Non-Heterosexual                       | 116 (4)                | 84 (4)                                      | 32 (7)                                 |
| Missing values*                        | 150 (5)                | 130 (6)                                     | 20 (4)                                 |
| **Type of Injury**                     |                        |                                              |
| Fracture                               | 1,800 (65)             | 1,512 (65)                                  | 288 (64)                               |
| Sprain/Strain                          | 261 (9)                | 211 (9)                                     | 50 (7)                                 |
| Dislocation                            | 96 (3)                 | 78 (3)                                      | 18 (4)                                 |
| Patient was Unsure                     | 120 (4)                | 103 (4)                                     | 17 (4)                                 |
| Other                                  | 400 (14)               | 319 (14)                                    | 81 (18)                                |
| More than one                          | 111 (4)                | 94 (4)                                      | 17 (4)                                 |
| Missing values*                        | 51 (2)                 | 47 (2)                                      | 4 (<1)                                 |
Table 1: Patient Demographics and Injury Characteristics and Risk Factors Associated with IPV in the Past 12 Months (Continued)

| Characteristic                        | All Respondents N (%) | Respondents Who Did Not Experience IPV N (%) | Respondents Who Experienced IPV N (%) |
|---------------------------------------|------------------------|---------------------------------------------|---------------------------------------|
|                                       | N = 2,839              | N = 2,384                                   | N = 455                               |
| **Cause of Injury**                   |                        |                                             |                                       |
| Fall                                  | 1,034 (36)             | 863 (36)                                    | 171 (38)                              |
| Sports                                | 538 (19)               | 463 (19)                                    | 75 (16)                               |
| MVA                                   | 320 (11)               | 253 (11)                                    | 67 (15)                               |
| Unspecified/Other Twist               | 72 (3)                 | 61 (3)                                      | 11 (2)                                |
| Struck or Struck by Object            | 59 (2)                 | 52 (2)                                      | 7 (2)                                 |
| Work                                  | 36 (1)                 | 32 (1)                                      | 4 (<1)                                |
| Non-intimate Partner Violence         | 28 (<1)                | 18 (<1)                                     | 10 (2)                                |
| Other                                 | 262 (9)                | 222 (9)                                     | 40 (9)                                |
| **No Response**                       | 490 (17)               | 420 (18)                                    | 70 (15)                               |
| **Location of Injury**                |                        |                                             |                                       |
| Lower extremity                       | 1,271 (47)             | 1,081 (47)                                  | 190 (44)                              |
| Upper extremity                       | 796 (29)               | 683 (30)                                    | 113 (26)                              |
| Chest                                 | 245 (8)                | 209 (9)                                     | 36 (8)                                |
| Pelvis                                | 34 (<1)                | 30 (<1)                                     | 4 (<1)                                |
| Axial spine (spine/neck)              | 33 (<1)                | 27 (<1)                                     | 6 (<1)                                |
| Head & face                           | 15 (<1)                | 11 (<1)                                     | 4 (<1)                                |
| Other                                 | 22 (<1)                | 16 (<1)                                     | 6 (<1)                                |
| More than one                         | 501 (18)               | 400 (17)                                    | 101 (23)                              |
| **Missing values**                    | 112 (4)                | 91 (4)                                      | 21 (5)                                |
| **Location**                          |                        |                                             |                                       |
| Canada/US                             | 1,870 (66)             | 1,537 (65)                                  | 333 (73)                              |
| Denmark/Netherlands                   | 838 (30)               | 756 (32)                                    | 102 (22)                              |
| India                                 | 111 (4)                | 91 (4)                                      | 20 (4)                                |

IPV defined as physical, emotional, or sexual abuse.
*All reported incomes were converted to Canadian dollars.

Table 2 shows the overall prevalence of IPV in the past 12 months (about 16%) and during lifetime (about 35%) based on direct questioning. About 16% had experienced emotional abuse, 3% physical abuse, and 1% sexual abuse. The 12-month prevalence of IPV was higher in Canadian and US centers (18%) than in Dutch and Danish centers (12%, p<0.001), but was much the same as that for the centre in India (18%; p=0.35). No significant differences between continents were recorded for the prevalence of physical abuse in the past 12 months (p=0.87; Figure 2). Both PVS and WAST identified two-times fewer women who had experienced IPV within the past 12 months (7-1%, 95% CI 6-2-8-1% and 7-4%, 6-5-8-4% respectively) than with direct questioning (appendix). IPV prevalence for either PVS or WAST (p=0.244 and p=0.322, respectively) did not differ significantly when we omitted the two sites that did not record reasons for exclusions (16-7%, 5-0-18-0%), and no difference was noted in 12-month IPV prevalence when adjusted by site (16%, 13-18%).
Panel A: % Positive for IPV using Partner Violence Screen

Panel B: % Positive for IPV using WAST

Figure 2: Panel A) Percentage of respondents that screened positive for IPV using the Partner Violence Screen (PVS) at 12 months (95.8% response rate). Panel B) Percentage of respondents that screened positive for IPV using the Woman Abuse Screening Tool (WAST) at 12 months (95.8% response rate). Error bars are presented. There was no significant difference for screening positive for IPV using the PVS between continents (p=0.244) or using WAST between continents (p=0.322).
Table 2: Prevalence of Intimate Partner Violence Within the Past 12 Months and Lifetime

| Site                                                                 | Physical Abuse N (%) | Physical Abuse Lifetime N (%) | Emotional Abuse N (%) | Emotional Abuse Lifetime N (%) | Sexual Abuse N (%) | Sexual Abuse Lifetime N (%) | Overall Prevalence of IPV N (%) |
|----------------------------------------------------------------------|----------------------|--------------------------------|-----------------------|--------------------------------|-------------------|-----------------------------|-------------------------------|
|                                                                      | 12-Month             | Lifetime                       | 12-Month              | Lifetime                       | 12-Month          | Lifetime                    |                               |
| Foothills Medical Centre, Calgary, Alberta, Canada                   | 1/299                | (<1)                           | 7/296                 | 35/290                         | 44/296            | 10/290                      | 3/295                         | 31/290                         | 46/294                         | 110/289                        |
| Hamilton Health Sciences Centre – General Site, Hamilton, Ontario, Canada | 8/296                | (3)                            | 11/293                | 65/295                         | 62/292            | 11/286                      | 5/294                         | 33/284                         | 63/292                         | 120/284                        |
| Hamilton Health Sciences Centre – McMaster University/St. Boniface, Hamilton, Ontario, Canada | 2/100                | (<1)                           | 4/295                  | 35/290                         | 50/294            | 92/287                      | 3/296                         | 14/293                         | 57/295                         | 93/292                         |
| QE II Health Sciences Centre, Hamilton, Nova Scotia, Canada          | 6/295                | (2)                            | 12/299                | 63/294                         | 40/296            | 118/287                     | 3/298                         | 30/293                         | 53/298                         | 120/296                        |
| Royal Columbian Hospital, New Westminster, British Columbia, Canada   | 3/87                 | (3)                            | 7/85                   | 17/85                          | 11/85             | 3/82                        | 2/85                          | 19/82                          | 16/85                          | 36/82                          |
| St. Michael’s Hospital, Toronto, Ontario, Canada                     | 3/299                | (3)                            | 6/290                  | 56/287                         | 32/291            | 101/287                     | 0/292                         | 27/287                         | 32/291                         | 107/287                        |
| Thunder Bay Regional Health Sciences Centre, Thunder Bay Ontario      | 1/39                 | (2)                            | 2/36                   | 7/37                           | 4/36              | 1/37                        | 0/37                          | 1/37                           | 1/37                           | 1/37                           |
| University of Missouri Health Care, Columbia, Missouri, USA           | 5/296                | (3)                            | 14/290                | 50/166                         | 68/291            | 85/166                      | 8/290                         | 37/166                         | 68/288                         | 88/166                         |
| Canada/US Overall                                                    | 30/1904              | (2)                            | 63/1875               | 38/1728                        | 32/1818           | 64/1727                     | 24/1877                       | 186/1727                       | 333/1878                       | 608/1723                       |
| Aarhus University Hospital, Aarhus-Denmark                          | 9/304                | (3)                            | 7/299                  | 12/290                         | 45/298            | 25/290                      | 5/294                         | 15/290                         | 10/294                         | 20/290                         |
| Oost-Leeuwardem Gasthuis, Amsterdam, The Netherlands                 | 5/296                | (3)                            | 10/291                | 45/295                         | 26/296            | 72/296                      | 2/294                         | 16/296                         | 26/296                         | 102/296                        |
| Academic Medical Center, Amsterdam, The Netherlands                 | 2/382                | (<1)                           | 1/396                  | 42/391                         | 20/391            | 64/390                      | 4/396                         | 15/390                         | 10/390                         | 27/390                         |
| The Netherlands/Denmark Overall                                     | 12/384               | (2)                            | 31/362                 | 95/358                         | 96/357            | 16/351                      | 3/360                         | 40/356                         | 1/360                          | 173/355                        |
| Saanchi Institute (India)                                           | 9/113                | (3)                            | 3/111                  | 2/111                          | 19/110            | 2/109                       | 0/111                         | 0/112                          | 0/111                          | 0/112                          |
| Sanchi Institute (India)                                           | 9/113                | (3)                            | 3/111                  | 2/111                          | 19/110            | 2/109                       | 0/111                         | 0/112                          | 0/111                          | 0/112                          |
| ALL SITES                                                            | 49/311               | (3)                            | 29/311                 | 2/212                          | 19/211            | 2/212                       | 0/111                         | 0/112                          | 0/111                          | 0/112                          |

*Patients presenting to the orthopaedic clinic with injuries caused by an intimate partner.*
The overall lifetime prevalence of IPV based on direct questioning was about 35% (Table 2). A third of women had experienced emotional abuse, about 18% physical abuse, and just under 10% sexual abuse in their lifetime (Table 2). The prevalence of IPV was significantly higher in the North American centres (40%) than in the European centres (24%; p=0.001) or the Indian center (18%; p=0.016, Table 2). Women in Canada and the USA had a significantly higher rate of self-reported physical abuse in their lifetime (20%) compared to those in the Netherlands and Denmark (13%) and India (2%; p=0.004; Figure 3).

Figure 3: Prevalence of acute, lifetime, and past year physical intimate partner violence across continents. Error bars represent 95% CIs. Lifetime physical abuse differed significantly between continents (P<0.0001). There were no differences between continents for acute physical abuse (p=0.27) or physical abuse in the past 12 months (p=0.87).

Just under 2% of women presented to fracture clinics with injuries as a direct result of IPV (Table 2). 40 (80%) of the 49 women with acute injury due to IPV were treated for fractures. Most injuries were fractures of the foot or ankle (nine patients, 18%), hand or wrist (seven patients, 14%), or were at more than one location (nine patients, 18%). The proportion of women who presented as a direct result of IPV varied across the clinical sites, ranging from less than 1% to between 3 and 4% (Table 2). Of the women who presented because of an IPV injury, only seven (14%) had ever been asked by a health-care provider in the medical system whether they were subject to IPV.

Married women, women with children, women with injuries of the limbs, and women living in the Netherlands or Denmark were at a lower risk of IPV over their lifetime than those in the other groups. Women who were older, in a short term relationship (<10 years), and who lived in the Netherlands or Denmark, and those who had no children were at a significantly decreased risk of any abuse in the past 12 months than those in the other groups (Table 3).
| Characteristic                        | Any abuse in past 12 months | Physical abuse in lifetime | Any abuse in lifetime |
|--------------------------------------|-----------------------------|----------------------------|-----------------------|
|                                      | Odds Ratio (99% CI)        | p-value                    | Odds Ratio (99% CI)    | p-value | Odds Ratio (99% CI) | p-value |
| Older Age                            | 0.987 (0.976-0.997)        | 0.001                      | 0.999 (0.990-1.007)   | 0.046   | 1.000 (0.998-1.01)  | 0.075   |
| White ethnicity                      | 1.110 (0.738-1.639)        | 0.540                      | 1.093 (0.796-1.492)   | 0.562   | 1.112 (0.805-1.538) | 0.397   |
| Heterosexual                         | 0.715 (0.454-1.127)        | 0.058                      | 0.599 (0.388-0.946)   | 0.004   | 0.875 (0.582-1.315) | 0.398   |
| Annual income less than CAN $20,000 | 1.295 (0.934-1.790)        | 0.040                      | 1.352 (0.977-1.873)   | 0.017   | 1.277 (0.971-1.679) | 0.021   |
| No post-secondary education          | 1.104 (0.825-1.476)        | 0.383                      | 1.211 (0.894-1.639)   | 0.104   | 0.937 (0.746-1.226) | 0.645   |
| Married                              | 0.857 (0.584-1.281)        | 0.001                      | 0.677 (0.311-0.781)   | <0.0001 | 0.068 (0.049-0.947) | <0.0001 |
| In present relationship for <10 yrs  | 0.984 (0.376-0.800)        | 0.001                      | 1.065 (0.907-2.217)   | 0.015   | 1.024 (1.000-2.259) | <0.0001 |
| Have No Children                     | 0.637 (0.449-0.924)        | 0.002                      | 0.378 (0.242-0.579)   | <0.0001 | 0.526 (0.383-0.914) | <0.0001 |
| Fracture or dislocation              | 1.063 (0.786-1.454)        | 0.008                      | 0.934 (0.732-1.218)   | 0.958   | 1.000 (0.858-1.164) | 0.333   |
| Location of Injury                   |                            |                            |                       |         |                    |         |
| Upper limb                           | 0.729 (0.591-1.036)        | 0.020                      | 0.796 (0.480-0.773)   | <0.017  | 0.647 (0.429-0.960) | 0.0013  |
| Lower limb                           | 0.793 (0.557-1.101)        | 0.015                      | 0.818 (0.488-0.952)   | 0.003   | 0.720 (0.540-0.950) | 0.002   |
| Other**                              | 1.000                      |                            | 1.000                 | —       | 1.000               | —       |
| Location                             |                            |                            |                       |         |                    |         |
| Canada/USA                           | 1.000                      |                            | 1.000                 | —       | 1.000               | —       |
| Netherlands/Denmark                  | 0.959 (0.427-2.030)        | <0.0001                   | 0.630 (0.445-0.900)   | 0.001   | 0.446 (0.352-0.612) | <0.0001 |
| India                                | 1.329 (0.406-5.513)        | 0.352                      | 0.118 (0.016-0.760)   | 0.004   | 0.501 (0.229-1.050) | 0.016   |

*P<0.01 is considered significant. Bolded characteristics are statistically significant.

** “Other” injuries include head/neck/face, chest, spine, pelvis, more than one injury, and “unknown”.

Table 3: Multivariable Logistic Regression of Selected Demographic Characteristics
Only 6% of the study participants and none from India had ever been asked by another healthcare professional about IPV (Table 4). About 60% of participants were aware of specific resources for people who have been abused by an intimate partner; however, none at the site in India were aware of such resources. Almost three-quarters of participants believed that health-care providers should ask all women whether they are subject to IPV, and about 60% indicated that orthopaedic surgeons, in particular, should ask all women about IPV (Table 4). Significant differences were noted between respondents in Canada and the USA, the Netherlands and Denmark, and India about whether health-care providers and orthopaedic surgeons should ask all women about IPV – patients in Canada (81%) and the USA (66%) were more open to such questions than those in the Netherlands or Denmark (18%, p<0.0001).

### Table 4: Patients’ Experiences, Knowledge and Perceptions about intimate partner violence: participants’ answers to specific questions

| Question                                                                 | Canada/US (N=1,928) | The Netherlands/Denmark (N=904) | India (N=113) | All Respondents (N = 2,945) |
|--------------------------------------------------------------------------|----------------------|---------------------------------|---------------|-----------------------------|
| Been to this clinic or another for addressing injuries as a result of intimate partner violence | Yes                  | No                              | Declined to answer | Yes                  | No                              | Declined to answer |
| Yes                                                                      | 1,224 (64.0)         | 648 (33.6)                      | 46 (2.4)       | 855 (94.6)                  | 548 (60.6)                     | 313 (34.6)                  | 43 (4.8)            | 112 (99.1)                     | 90 (99.1) | 0 (0.0) | 1 (0.9) | 91 (3.1) | 2,810 (95.4) |
| No                                                                       | 694 (36.0)           | 1,277 (66.4)                    | 1,024 (45.6)   | 232 (25.7)                  | 232 (25.7)                     | 74 (8.2)                    | 74 (8.2)            | 1 (0.9)                  | 498 (16.9) |
| Declined to answer                                                       |                      |                                 |                |                            |                                |                              |                      |                          |                      |

### Discussion

The results of the PRAISE study show that one in six women presenting to orthopaedic clinics have a history of abuse in the past year, and that one in 50 attend their appointment as a direct consequence of IPV. These findings are similar to those of a recent meta-analysis of 37 studies in which the prevalence of IPV in patients presenting to different medical specialties was investigated, with the best estimates of the lifetime prevalence of any type of IPV being 46% in family medicine and 38% in emergency medicine (Figure 4). Arguably, the severity of physical abuse in women presenting to orthopaedic clinics is higher than in those presenting to other specialties, in view of the high proportion of fractures caused by IPV (eg, 80% in this study).
Figure 4: Prevalence of intimate partner violence in the past year and lifetime, by medical specialty.

Pooled prevalence of intimate partner violence. (B) Updated pooled prevalence of intimate partner violence including the results of the PRAISE study (orthopaedic data).
Characteristics of women who were positive for IPV included being in a relationship for a short period (<10 years), being unmarried, and having children. This profile is consistent with Capaldi and colleagues’ systematic review, in which they showed that high income is a protective factor, whereas the effect of marital status as a risk factor was unclear. Differences between the USA and Canada and the Netherlands and Denmark could be real and attributable to cultural and political divergence between the continents, or they might be due to differences in how the participants interpreted the survey questions because of variations in culture or language.

This study has multiple strengths, such as the inclusion of several clinical sites, the use of female study coordinators for patient comfort and safety, broad eligibility criteria, the use of previously developed screening questionnaires and direct questions, and the completion of self-administered questionnaires in a private location. Our broad eligibility criteria and large sample size ensured that women with a range of characteristics were eligible for participation.

The broad definition of IPV used is a limitation of the study and might have categorized some women as victims whereas, in reality, they were not. However, since there is no widely accepted gold standard for assessment of IPV, the patients’ answers to the direct questions about abuse were interpreted at face value. The use of several screening methods was helpful to maximize the number of cases of IPV detected; nevertheless, the prevalence of IPV was higher with the direct questions than with WAST or PVS. PVS contains questions that enable easy assessment of physical abuse, whereas the WAST contains questions that help detection of emotional and sexual abuse, which could help to explain some of the differences recorded. Another limitation is that WAST and PVS are validated only for English-speaking populations, which might limit the accuracy and external validity of the results across all continents because of differential interpretation of the questions among non-English-speaking participants.

Our response rate was high (85%) and is much the same as that in prevalence studies in other health-care settings. Despite efforts to maximize enrolment, 415 women refused to provide informed consent and participate in the study. The prevalence of IPV might differ between non-participants and participants, and the direction in which it could vary is unclear. Because of confidentiality and ethics requirements, we were unable to obtain information about patients who did not participate and those who were missed. Therefore, we cannot assess the effect of these patients on our data. Although sites aimed to include consecutive patients, this approach was not possible in a few cases because of logistics (ie, some clinics were missed because of research coordinator availability).

We used a self-administered questionnaire, which patients completed privately. The study coordinator was available to address any questions; however, to ensure patient privacy and confidentiality because of the sensitivity of the topic, the study coordinator did not review with the study participant the completed questionnaire for completeness or to ensure that the responses were logical and consistent. Consequently, several questionnaires had missing data. Other IPV prevalence studies faced similar challenges. In our analyses, we used all available data and we did not exclude questionnaires because of missing data.

Despite a focus on emergency departments as case-finding opportunities for IPV, we argue that women admitted to emergency departments with physical injuries,
such as fractures, often do not disclose IPV to their emergency physicians. Further, musculoskeletal injuries are the second most common type of injury incurred as a result of IPV and invariably lead to referrals to an orthopaedic surgeon. Additionally, healthcare professionals in injury clinics are well positioned to identify patients experiencing IPV, since they often develop long-term interactions with women during repeat clinic visits for follow-up of fractures and associated surgical procedures. This information, combined with our finding that the prevalence of IPV is high in orthopaedics, leads us to believe that the development, and assessment of an IPV identification and support programme in injury clinics is warranted. Although IPV screening has been controversial historically, the US Preventative Services Task Force has recently published a statement recommending that all clinicians screen women for IPV and provide referrals to appropriate support services. Additionally, Liebschutz and Rothman recommended that all primary care providers screen all women older than 12 years and suggest some simple steps for identification and referral.

The Canadian Orthopaedic Association and American Medical Association judge it as good medical practice to take steps to identify and offer assistance to IPV victims, but health-care providers have been consistently shown not to screen for IPV routinely – eg, in our study, only 6% of women had previously been asked about IPV by a health-care professional. Of the women who attended a fracture clinic with an injury resulting from IPV, only 14% had ever been asked about IPV by a health-care provider. Health-care professionals in injury clinics have an opportunity to identify the patients who were missed in the emergency department.

Almost two-thirds of the women in our study suggested that orthopaedic surgeons should ask all women presenting after trauma whether they are experiencing IPV, indicating that patients with injuries are generally supportive of this notion. Nonetheless, orthopaedic guidelines for management of IPV victims are new and are not implemented widely in orthopaedic practices. Consequently an intervention programme in orthopedic and trauma clinics is needed. Such a programme should be supported by an appropriate referral and support scheme and should also include professionals who are specifically trained to assist IPV victims.

A recent survey in India found that 31% of Indian women of childbearing age had been subject to physical domestic violence. The low prevalence recorded in our study could be related to differences in the way that we gathered data, the cultural acceptability of the questions asked, and the fact that participants form India tended to be young women who had never been in a relationship. Moreover, an earlier pilot screening study in India identified several key cultural issues that may account for the low reported prevalence. These issues were an inherent belief that for health-care providers to ask about IPV in a fracture clinic is not appropriate, the fact that Indian women were shy, patients might be offended and never return to the hospital, and domestic violence and abuse is often regarded as normal and women might not recognize that they are being abused or might perceive the behavior to be standard. Furthermore, the use of WAST and other checklists might not translate culturally in India. Twenty-two women from the site in India declined to participate after they learned that the topic of the study was IPV, suggesting that participation bias was probably a factor. Additionally, the youth and absence of an intimate relationship in the women from India probably explains the lower estimate of IPV prevalence that has been reported previously. Another explanation for the
under-reporting in India could stem from a pervasive attitude in men and women in that country who do not view IPV as a contributor to health issues. The results of our study and the lessons learned will help to inform our future planned initiative to further investigate the prevalence of IPV at clinical sites in that country.

Health-care professionals should be especially concerned about escalation of abuse to intentional physical injury with associated fractures, which suggests that victim identification and support to ensure their future safety should be a high priority. The escalation of physical violence is a key risk factor for intimate partner homicide and is the first question on the widely used danger assessment scale. Additionally, between 2002 and 2009, the top cause of death after domestic violence was trauma (42% of cases). Orthopaedic fracture clinics, as our results suggest, are key to the identification of women subjected to severe IPV who might be at increased risk of further injury and homicide.

Acknowledgements

Research grants were received from McMaster University Surgical Associates; Orthopaedic Trauma Association, and Canadian Orthopaedic Foundation. MB was also funded by a Canada Research Chair in Musculoskeletal Trauma (McMaster University, Hamilton, ON, Canada) which is unrelated to the present study.

Writing Committee: Sheila Sprague and Mohit Bhandari (joint leads) were involved in the protocol design, supervised data management at the central coordinating center (McMaster University), interpreted data, and wrote and edited the report. Gregory J. Della Rocca, J Carel Goslings, and Rudolf W Poolman provided input on the study protocol, reviewed and edited the report, and assisted with data interpretation. Kim Madden assisted with protocol preparation and study coordination, analyzed data, and drafted tables and figures. Nicole Simunovic analyzed data and drafted tables and figures. Sonia Dosanjh and Emil H Schemitsch provided input on the study protocol, reviewed and edited the report, and were content experts.

Steering Committee: Mohit Bhandari (Steering Committee Chair and Principal Investigator), Sheila Sprague (Project Officer), Gregory J. Della Rocca, Brad A. Petrisor, Rudolf W. Poolman, Sonia Dosanjh, Emil H. Schemitsch

Central Coordinating and Methods Center: Mohit Bhandari, Sheila Sprague, Kim Madden, Katelyn Godin, Nicole Simunovic, and Diane Heels-Ansdell, Sonia Dosanjh (IPV expertise), Clare Freeman (IPV expertise), David Mathews (IPV expertise), and Diana Tikasz (IPV expertise).

PRAISE Investigators:

Hamilton Health Sciences - General Hospital, Hamilton, ON, Canada: Brad A. Petrisor, Brian Drew, Krishan Rajaratnam, Dale Williams, Ivan Wong, Desmond Kwok, Matt Denkers, Alicia Cameron, Sarah Resendes, Ivanna Rammuth, Teresa Chien, Ngan K. Pham. Hamilton Health Sciences – McMaster Hospital and Henderson Hospital, Hamilton, ON, Canada: Victoria Avram, Olufemi R. Ayeni, Justin de Beer, Mitchell
Winemaker, Rick Ogilvie, Devin Peterson, Rukia Swaleh. St. Michael’s Hospital, Toronto, ON, Canada: Emil H. Schemitsch, Jeremy Hall, Michael McKee, James Waddell, Timothy Daniels, Daniel Whelan, Earl Bogoch, Aaron Nauth, Milena Vicente, Jennifer Hidy. Thunder Bay Regional Health Sciences Center, Thunder Bay, ON, Canada: David Puskas and Tina LeFrancois. QEII Health Sciences Center, Halifax, NS, Canada: Chad Coles, Mark Glazebrook, Ross Leighton, David Johnston, Gwen Dobbin, Kelly Trask, Shelley MacDonald, Jocelyn Stairs. Foothills Medical Centre, Calgary, AB, Canada: Paul Duffy, Richard Buckley, Robert Korley, Shannon Puloski, Kimberly Carcary, Jeanine McColl, Danica Brister. Royal Columbian Hospital, New Westminster, BC, Canada: H. Michael Lemke, Dory Boyer, Robert McCormack, Bertrand Perey, Farhad Moolia, Trevor Stone, Darius Viskontas, Kelly Apostle, Mauri Zomar, Amber Oatt, Karyn Moon. University of Missouri Health Care, Columbia, MO, USA: Gregory J. Della Rocca, Brett D. Crist, David A. Volgas, Linda K. Anderson, Jacqueline L. Beshears, Jessica L. Evans. Onze Lieve Vrouwe Gasthuis, Amsterdam, Netherlands: Rudolf W. Poolman, Vanessa Scholtes, Kim Opdam, Esri de Waal, Robert Haverlag. Academic Medical Center, Amsterdam, Netherlands: J.C. Goslings, M.S.H. Beerekamp. Aarhus University Hospital, Aarhus, Denmark: Ole Brink. Sanchetti Institute for Orthopaedics and rehabilitation, Pune, Maharashtra, India: Parag Sancheti, Steve Rocha, Mangesh Shende

References

1. Waalen J, Goodwin MM, Spitz AM, Petersen R, Saltzman LE. Screening for intimate partner violence by health care providers barriers and interventions. Am J Prev Med 2000; 19(4): 230–7.
2. Rodriguez M, Bauer H, McLoughlin E, Grumbach K. Screening and intervention for intimate partner abuse: practices and attitudes of primary care physicians. JAMA 1999; 282(5): 468–74.
3. Bonomi AE, Anderson ML, Rivara FP, Thompson RS. Health outcomes in women with physical and sexual intimate partner violence exposure. J Womens Health (Larchmt) 2007 Sep; 16(7): 987–97.
4. Rivara FP, Anderson ML, Fishman P, et al. Healthcare utilization and costs for women with a history of intimate partner violence. Am J Prev Med. 2007 Feb; 32(2): 89–96.
5. Garcia-Moreno C, Jansen HA, Ellisberg M, Heise L, Watts CH; on behalf of the WHO Multi-country Study on Women's Health and Domestic Violence against Women Study Team. Prevalence of intimate partner violence: findings from the WHO multi-country study on women's health and domestic violence. Lancet. 2006 Oct; 368(9543): 1260–69.
6. Sprague S, Goslings JC, Hogentoren C, et al. Prevalence of intimate partner violence across medical and surgical health care settings: A systematic review. Violence Against Women. [Accepted for publication Sept 2011].
7. Bhandari M, Sprague S, Dosanjh S, et al; on behalf of the P.R.A.I.S.E. Investigators. The prevalence of intimate partner violence across orthopaedic fracture clinics in Ontario. J Bone Joint Surg Am. 2011 Jan 19; 93(2): 132–41.

115
8. P.R.A.I.S.E. Investigators, Bhandari M, Sprague S, Dosanjh S, Wu V, Schemitsch EH. PRevalence of Abuse and Intimate Partner Violence Surgical Evaluation (P.R.A.I.S.E.): rationale and design of a multi-center cross-sectional study. BMC Musculoskelet Disord. 2010 Apr 23; 11.

9. Brown JB, Lent B, Brett PJ, Sas G, Pederson LL. Development of the Woman Abuse Screening Tool for use in family practice. Fam Med 1996;28: 422–810.

10. Yut-Lin W, Othman S. Early detection and prevention of domestic violence using the Women Abuse Screening Tool (WAST) in primary health care clinics in Malaysia. Asia Pac J Public Health 2008; 20: 102–16.

11. Feldhaus KM, Koziol-McLain J, Amsbury HL, Norton IM, Lowenstein SR, Abbott JT. Accuracy of 3 brief screening questions for detecting partner violence in the emergency department. JAMA 1997; 277: 1357–61.

12. Rabin RF, Jennings JM, Campbell JC, Bair-Merritt MH. Intimate partner violence screening tools: a systematic review. Am J Prev Med. 2009 May;36(5):439-445.e4.

13. Daniel WW (1999). Biostatistics: A Foundation for Analysis in the Health Sciences. 7th edition. New York: John Wiley & Sons.

14. Naing L, Winn T, Rusli BN. Practical Issues in Calculating the Sample Size for Prevalence Studies. Archives of Orofacial Sciences 2006; 1: 9-14.

15. McCauley J, Kern DE, Kolodner K, et al. The "battering syndrome": prevalence and clinical characteristics of domestic violence in primary care internal medicine practices. Ann Intern Med. 1995 Nov 15; 123(10): 737–46.

16. Richardson J, Coid J, Petrucekvitch A, Chung WS, Moorey S, Feder G. Identifying domestic violence: cross sectional study in primary care. BMJ 2002 Feb 2; 32(7332): 274.

17. Ontario Domestic Violence Death Review Committee 2011 Annual Report. Office of the Chief Coroner- Province of Ontario. Accessible from: http://www.mcses.ius.gov.on.ca/stellent/groups/public/@mcses/@www/@com/documents/webasset/ect160943.pdf. Accessed on: 14 Nov 2012.

18. Campbell JC, Webster DW, Glass N. The danger assessment: validation of a lethality risk assessment instrument for intimate partner femicide. J Interpers Violence. 2009 Apr; 24(4): 653–74. [Epub 2008 Jul 30].

19. Leppälänsi T, Paavilainen E. Interventions for women exposed to acute intimate partner violence: emergency professionals' perspective. J Clin Nurs. 2013 Jan 11. [Epub ahead of print].

20. Cox, J., Bota, G.W., Carter, M., Bretzlaff-Michaud, J.A., Sahai, V., & Rowe, B.H. (2004). Domestic violence. Incidence and prevalence in a northern emergency department. Canadian Family Physician. 50, 90-97.

21. Houry, D., Kembhall, R., Rhodes, K.V., & Kaslow, N.J. (2006). Intimate partner violence and mental health symptoms in african american female ED patients. American Journal of Emergency Medicine. 24(4), 444-450.

22. Bhandari M, Dosanjh S, Tornetta P 3rd, Matthews D. Violence Against Women Health Research Collaborative. Musculoskeletal manifestations of physical abuse after intimate partner violence. J Trauma 2006; 61: 1473–9.

23. Bhandari M, Sprague S, Dosanjh S, et al. The prevalence of intimate partner violence in orthopaedic fracture clinics across Ontario. JBJS 2011; 93:132–41.
24. Feder G, Ramsay J, Dunne D, Rose M, Arsene C, Norman R, Kuntze S, Spencer A, Bacchus L, Hague G, Warburton A, Taket A. How far does screening women for domestic (partner) violence in different health-care settings meet criteria for a screening programme? Systematic reviews of nine UK National Screening Committee criteria. Health Technol Assess. 2009 Mar;13(16) 1-113, 137-347.

25. Moyer VA, U.S. Preventive Services Task Force. Screening for Intimate Partner Violence and Abuse of Elderly and Vulnerable Adults: A U.S. Preventive Services Task Force Recommendation Statement.

26. Liebschutz JM, Rothman EF. Intimate-partner violence--what physicians can do. N Engl J Med. 2012 Nov 29;367(22):2071-3.

27. Intimate partner violence position statement. Canadian Orthopaedic Association (COA). 2009. Accessible from: http://www.coa-aco.org/library/health-policy/intimate-partner-violence.html. Accessed on: 14 Nov 2012.

28. Sohani Z, Shannon H, Busse JW, Tikacz D, Sancheti P, Shende M, Bhandari M. Feasibility of Screening for Intimate Partner Violence at Orthopedic Trauma Hospitals in India. J Interpers Violence 2012. [Epub ahead of print].

29. International Center for Research on Women. Domestic Violence in India: A Summary Report of Four Records Studies. http://www.icrw.org/files/publications/Domestic-Violence-in-India-2-A-Summary-Report-of-Four-Records-Studies.pdf. May 2000.

30. Capaldi DM, Knoble NB, Shortt JW, Kim HK. A Systematic Review of Risk Factors for Intimate Partner Violence. Partner Abuse 2012 April; 3(2): 231–28.

31. Abbott J, Johnson R, Koziol-McLain J, Lowenstein SR. Domestic violence against women. Incidence and prevalence in an emergency department population. JAMA 1995 Jun 14; 273(22): 1763-67.

32. Campbell JC, Webster DW, Glass N. The danger assessment: validation of a lethality risk assessment instrument for intimate partner femicide. J Interpers Violence 2009; 24: 653-74.
Appendix

Thank you for your interest in completing this questionnaire. We greatly value your willingness to review the questions below and your responses will help orthopedic surgeons and nurses better understand the issues of women’s health and intimate partner violence within orthopedics.

Some of the questions may be uncomfortable for you to answer, or you may be irritated if the question has no bearing on your life. However, we ask that you try your best in answering all of the questions. Your participation is important to us and for those whom would benefit from this research! Also, please feel free to keep the intimate partner violence resource page at the end of this survey should you feel that it would be of use to you.

1. What is your age in years? _____________ years

2. What is your annual income in Canadian dollars?
   - Less than $20 000
   - $20 000 to less than $40 000
   - $40 000 to less than $60 000
   - $60 000 to less than $80 000
   - $80 000 to less than $100 000
   - $100 000 or more

3. What is your highest education level obtained?
   - No high-school education
   - Some high-school education
   - High-school diploma
   - Graduated college
   - Bachelor’s degree
   - Master’s degree
   - Doctorate degree
   - Professional degree (MD, DDS)

4. What is your race/ethnicity?
   - Caucasian
   - African Canadian
   - Hispanic – Latino (specify):____________
   - South-East Asian
   - Middle-Eastern
   - Other (specify):____________
   - Asian
   - Native Canadian
   - Other (specify):____________
   - Mixed (specify):_____________

5. What is your marital status?
   - Married
   - Divorced or separated
   - Single
   - Widowed
   - Common law
   - Other (specify):_____________

6. How long have you been in your current relationship? _____________ years
   - N/A – Not currently in a relationship with an intimate partner.
7. Do you have children?
☐ Yes  ☐ No

8. What is your sexual orientation?
☐ Heterosexual  ☐ Lesbian  ☐ Transgendered  ☐ Bisexual

9. What type of injury are you being treated for at the fracture clinic today?
☐ Fracture  ☐ Sprain or Strain
☐ Dislocation  ☐ Other (specify): _____________
☐ Unsure

10. Please describe how your injury occurred.

11. What is the location(s) of your injury(ies)?
☐ Head/face  ☐ Shoulder  ☐ Collar bone  ☐ Pelvis
☐ Upper arm  ☐ Lower arm  ☐ Hand/wrist
☐ Ribs/chest  ☐ Spine/neck  ☐ Hip
☐ Upper leg  ☐ Knee  ☐ Lower leg
☐ Foot/ankle  ☐ Other (specify): _____________

12. When did your injury occur: _____________/_____________/_____________
Year                  Month             Day
Please note that an intimate partner is someone with whom you share a relationship as spouses, common-law partners, sexual partners, or dating partners.

13. Is the reason for your visit to the orthopedic clinic today because of an injury caused by your intimate partner in a previous or current relationship?

- [ ] Yes
- [ ] No
- [ ] N/A – I have never been in a relationship with an intimate partner

14. Have you been hit, kicked, punched, or otherwise hurt by someone within the past year?

- [ ] Yes
- [ ] No

If so, by whom? Please note that an intimate relationship is a relationship shared between you and your partner as spouses, common-law partners, sexual partners, or dating partners.

- [ ] Person in a current intimate relationship
- [ ] Person in a previous intimate relationship
- [ ] Person who you have no intimate relationship with

15. Do you feel safe in your current relationship?

- [ ] Yes
- [ ] No
- [ ] N/A – Not currently in a relationship with an intimate partner

16. Is there a partner from a previous relationship who is making you feel unsafe now?

- [ ] Yes
- [ ] No
- [ ] N/A – I have never been in a relationship with an intimate partner

The following questions refer to your current or previous relationship(s) with your spouse, common-law partner, or any sexual or dating partner within the last 12 months.

17. Have you been in a relationship with an intimate partner in the past 12 months?

- [ ] Yes (continue to question 18)
- [ ] No (skip to question 27)

18. In general how would you describe your relationship?

- [ ] A lot of tension
- [ ] Some tension
- [ ] No tension

19. Do you and your partner work out arguments with:

- [ ] Great difficulty
- [ ] Some difficulty
- [ ] No difficulty

20. Do arguments ever result in you feeling put down or bad about yourself?

- [ ] Often
- [ ] Sometimes
- [ ] Never

21. Do arguments ever result in hitting, kicking, or pushing?

- [ ] Often
- [ ] Sometimes
- [ ] Never
22. Do you ever feel frightened by what your partner says or does?
   - Often
   - Sometimes
   - Never

23. Has your partner ever abused you physically?
   - Often
   - Sometimes
   - Never

24. Has your partner ever abused you emotionally?
   - Often
   - Sometimes
   - Never

25. Has your intimate partner ever made you do something sexually that you did not want to do or made you feel uncomfortable?
   - Often
   - Sometimes
   - Never

26. Has your partner ever abused you sexually?
   - Often
   - Sometimes
   - Never

The following questions refer to your relationship(s) with your spouse, common-law partner, or any sexual or any dating partner throughout your lifetime.

27. Have you ever been in a relationship with an intimate partner?
   - Yes (continue to question 28)
   - No (skip to question 33)

28. Have arguments ever resulted in hitting, kicking, or pushing?
   - Often
   - Sometimes
   - Never

29. Have you ever been abused physically by an intimate partner?
   - Often
   - Sometimes
   - Never

30. Have you ever been abused emotionally by an intimate partner?
   - Often
   - Sometimes
   - Never

31. Has an intimate partner ever made you do something sexually that you did not want to do or made you feel uncomfortable?
   - Often
   - Sometimes
   - Never

32. Have you ever been abused sexually by an intimate partner?
   - Often
   - Sometimes
   - Never
The following questions ask about your experiences with health care utilization.

33. Have you ever been to this clinic or another for addressing injuries as a result of violence from an intimate partner?
   □ Yes  □ No
   If yes, please specify where: ________________________________
   If yes, please specify how many times: ________________________
   If yes, please specify when: ________________________________
   If yes, please describe your previous injury(s): _______________

34. Have you ever been asked by any other healthcare professional about your experience with intimate partner violence?
   □ Yes  □ No
   If yes, what was this experience like for you: _________________
   If yes, please describe the healthcare professional's response to your experience: __________________

35. Are you aware of specific resources for people who have been abused by an intimate partner?
    □ Yes  □ No

36. Do you believe that health care providers should ask all women whether they are experiencing intimate partner violence?
    □ Yes  □ No
    Why or why not? __________________________________________

37. Do you believe that orthopaedic surgeons, in particular, should ask all women whether they are experiencing intimate partner violence?
    □ Yes  □ No
    Why or why not? __________________________________________

Today’s Date: _____________/_____________/_____________
Section IV: Barriers to and Facilitators for Screening for Intimate Partner Violence in Orthopaedic Fracture Patients
Chapter 8

Barriers to Screening for Intimate Partner Violence

S Sprague, K Madden, N Simunovic, K Godin, NK Pham, M Bhandari, JC Goslings

Published
Women & Health. 2012 Aug;52(6):587-605.
Abstract

Background: Health care providers (HCPs) play a vital role in the detection of intimate partner violence (IPV) among their patients. Despite the recommendations for routine IPV screening in various medical settings, HCPs do not routinely screen for IPV. We wanted to identify barriers to IPV screening and to improve the understanding of IPV screening barriers among different HCPs.

Methods: We conducted a systematic review to examine HCP's perceived barriers to screening for IPV. By grouping the studies into two time periods, based on date of publication, we examined differences in the reported barriers to IPV screening over time.

Results: We included a total of 22 studies in this review from all examined sources. Five categories of IPV screening barriers were identified: personal barriers, resource barriers, perceptions and attitudes, fears, and patient-related barriers. The most frequently reported barriers included personal discomfort with the issue, lack of knowledge, and time constraints. Provider-related barriers were reported more often than patient-related barriers.

Conclusions: Barriers to screening for IPV are numerous among HCPs of various medical specialties. Increased education and training regarding IPV is necessary to address perceptions and attitudes to remove barriers that hinder IPV screening by HCPs.
Introduction

Intimate partner violence (IPV) against women has been reported to have a negative impact on both the physical and mental health of victims, which extends beyond the period of abuse (Zolotor, Denham, & Weil 2009). IPV has been defined by the American Medical Association as “a pattern of coercive behaviours that may include repeated battering and injury, psychological abuse, sexual assault, progressive social isolation, deprivation and intimidation” (McCloskey et al. 2007). These behaviors are directed toward a perpetrator’s spouse, common-law partner, sexual or dating partner. The long-term consequences of IPV include health risks, post-traumatic stress disorder, depression and staggering economic costs for the healthcare of victims (Davis 2008).

The lifetime prevalence of IPV has ranged from 20 to 40 percent among women in North America (Renker, 2008). In the documented cases of IPV in Canada alone, 40 percent of women who have experienced IPV suffered a physical injury, and 15 percent of these cases were serious enough to warrant medical attention (Cherniak et al., 2005). These women present to a wide variety of healthcare professionals including emergency room physicians, orthopedic or trauma surgeons, family physicians, and specialists in obstetrics and gynecology. These medical specialists play a vital role in the detection and treatment of IPV among their patients.

Despite this high prevalence and potentially serious consequences of IPV, screening for IPV is often contested in the literature, and several academics and organizations have expressed their lack of support for IPV screening in health care settings. Current guidelines from the U.S. Preventive Services Task Force (USPSTF) state that routine screening for IPV is not recommended (U.S. Preventive Services Task Force 2004). Following its release, the USPSTF’s statement and the methodology used were heavily criticized by medical associations, advocates, and in an Annals of Internal Medicine Editorial (Klevens & Saltzman 2009). Similarly, authors of a 2009 study published in the prestigious Journal of the American Medical Association reported that the results of their trial did not support IPV screening in health care settings (MacMillan et al. 2009). Critics commented on the questionable validity of the findings of this study (Moracco & Cole, 2009), which suffers from enormous loss to follow up, admits to “several methodological limitations” and was conducted under “carefully controlled conditions that may not reflect the reality of most clinical settings” (MacMillan et al. 2009). While some are opposed to IPV screening, several health professional organizations are strong proponents of this practice. The American Medical Association, the American College of Obstetrics and Gynaecology, the American Academy of Paediatrics, the American College of Emergency Physician and the US Centers for Disease Control and Prevention have advocated screening for IPV (Bhandari et al., 2009).

Despite recommendations for routine IPV screening in various medical settings, as well as the introduction of IPV screening and intervention protocols in emergency departments (Rhodes et al., 2011), healthcare workers do not routinely screen for IPV even when treating injuries (D’Avolio, 2011). Primary care and emergency room physicians screen about 1.5 to 13 percent of their patients while obstetricians, and gynaecologists screen about 10 percent of their patients for IPV (Waalen et al., 2000). Failure to diagnose IPV and intervene may have detrimental outcomes as 44 percent of
domestic violence related homicide victims had presented to an emergency department within 2 years of their deaths (Davis 2008). As a result of their relative inaction in identifying and providing support to women who experience IPV, health care providers have been criticized for letting these women fall through the cracks. According to Alpert (2007), “[t]he ability of most health professionals to effectively identify, assess, and respond to domestic violence has lagged far behind societal awareness and community responses”.

In response to the low IPV screening rates, a number of researchers have conducted studies to investigate barriers to IPV screening across various medical settings. The reported barriers include time constraints, unpreparedness to screen for IPV and discuss the issue comfortably and thoroughly, lack of clarity about implementation of screening and inadequate referral resources (Sormanti & Smith 2010; Colarossi, Breitbart, Betancourt 2010). Although barriers to screening for IPV are widely reported, a systematic review across studies with an emphasis on a quantitative approach, and informing opportunities for education and research has yet to be conducted. The current authors therefore undertook a systematic review of the published literature to identify frequently reported barriers to IPV screening across different medical sub-specialties to improve the understanding of IPV screening barriers among different health care professionals.

Methods

This systematic review adhered to the reporting guidelines of the Meta-analysis Of Observational Studies in Epidemiology (MOOSE) Statement (Stroup et al. 2008).

Eligibility Criteria

The authors identified articles in English that met the following eligibility criteria: 1) the study was published before May 2011 (when the literature search was performed), 2) the study reported HCP barriers to screening for IPV and 3) the study was identified in our search process (see next section). Studies were excluded for the following reasons: 1) the article was a review study, meeting abstract, commentary etc.; 2) the paper reported on a duplicate study population; 3) the study did not ask HCPs about barriers to screening for IPV; and 4) the article did not present any quantitative data on barriers to screening (e.g. stating the percentage or proportion of those who reported certain barriers to screening).

Identification of Studies

The authors conducted a search of MEDLINE for relevant articles published before May 2011 in all languages. They used the following key words in their search: (Spouse abuse (MeSH) OR Domestic violence (MeSH) OR Partner violence OR Wife abuse) AND (Challenge OR Challenges OR Barrier OR Barriers). To identify any studies that they did not capture with our MEDLINE search, they consulted with a content expert, and reviewed reference lists from articles that fulfilled our eligibility criteria.
Assessment of Study Eligibility

Two of the authors independently assessed the studies identified for full evaluation and resolved disagreements through discussion until consensus was reached. One author additionally verified inclusion of all studies.

Assessment of Methodological Quality

Four reviewers independently graded the methodological quality of included studies, with two reviewers grading each paper. At least one reviewer with methodological expertise and one reviewer with content expertise graded each study. Each of the methodological experts who were involved had a graduate degree in clinical research methods and a great deal of experience in conducting and reporting systematic reviews. The reviewers with content expertise each had an extensive background in IPV-related research through participation in both qualitative and quantitative studies for graduate theses.

Questions adapted from the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement designed for cross-sectional studies (von Elm et al. 2008) were used by reviewers to grade each study. This statement comprised 22 items considered for good reporting of observational studies (von Elm et al. 2008). The STROBE statement was developed to assist authors when writing analytic observational studies, to support editors and reviewers when considering such articles for publication, and to help readers critically appraise published research (von Elm et al. 2008). Although the STROBE statement was not developed as a tool for assessing the quality of published observational research (von Elm et al. 2008), very few checklists exist for critically appraising cross-sectional studies (Katrak et al. 2004; Sanderson, Tatt, & Higgins 2007; Kelley, Clark, Brown, & Sitzia 2003), and the current authors found that none of the previously developed checklists were appropriate for this study. Therefore, they adapted the STROBE statement to assess study quality (Appendix 1). A priori they determined that studies that met at least ten of the eleven reporting criteria within their modified STROBE criteria would be considered high quality, studies that met seven to nine reporting criteria would be considered moderate quality, and studies that met six or fewer criteria would be classified as low quality.

Data Extraction

Two authors developed a structured data extraction form, and four reviewers (two reviewers per study) extracted data from each eligible study. This structured form ensured that all data was being extracted and recorded consistently and completely by all reviewers. They extracted data on study characteristics, including location of study, type(s) of HCPs involved in the study, method of data collection etc. They extracted data on what HCPs perceived were barriers to screening for IPV, including what proportion of HCPs in the studies identified particular barriers.

Data Analysis

The authors produced an extensive list of barriers that HCPs in the included studies identified. They observed similarities between specific barriers and condensed the list by grouping the barriers based on their common themes. They proceeded to merge notably similar themes into fewer, more general themes. When there was disagreement
between reviewers regarding what the coding of a particular barrier, the reviewers would discuss their reasoning until consensus was reached. Afterward, they constructed a table to identify how many and which studies in particular reported each barrier. They grouped the barriers into five separate categories including personal barriers, resource barriers, attitudes and perceptions, fears, and patient-related barriers.

To identify any changes in the perceived barriers over time, they later grouped the studies by the time in which they were published into two ranges, 1995-2005 and 2006-2010. They analyzed the data from these groups to see any trends in the older versus more contemporary perceptions of barriers to screening for IPV.

**Evaluation of Heterogeneity**

Before analyzing the data, they hypothesized that a large degree of heterogeneity would be observed between the studies. Differences such as study methodology (e.g., mail survey versus in-person survey), HCPs surveyed (e.g., physicians versus nurses versus dentists), differences in survey tools used or questions asked, variability within and between populations (e.g., socioeconomic status, age, location), or variable study quality could contribute to the heterogeneity.

**Results**

**Study Identification**

The authors identified 496 articles through their MEDLINE search that were possibly relevant: 421 of which were excluded after review of titles, either because they were irrelevant to the subject matter or because they were not in English and thereby did not meet the inclusion criteria. An additional 43 studies were excluded after review of abstracts (Figure 1). Fourteen of the remaining (19) studies were excluded after full-text review. Nine of these studies were excluded because they did not include proportion data, four studies were excluded because they did not ask HCPs about barriers to screening for IPV, and one study was excluded due to its use of a duplicate study population, which left 18 articles included from the MEDLINE search (Figure 1). The authors also identified and included two studies after consultation with a content expert, and they included two studies after reviewing the references of other included studies. They thus included a total of 22 studies in this review from all examined sources.

**Study Characteristics**

Six of the included studies reported mean age of respondents, ranging from 38 to 46 years; nine studies reported a range of ages (Table 1). Overall ages of respondents ranged from 20 to over 80 years. The remaining seven studies did not report ages. The response rates varied widely from 14.6% to 98%, with two studies failing to report response rate and almost half of the studies (9/22, 40.9%) reporting a response rate, of 70% or greater. The percentage of female respondents in the included studies ranged from 9% to 100%. Most studies (17/22, 77.3%) were conducted in the United States.

Of the health care provider types reported, most were physicians (13/22, 59%) and nurses (10/22, 45.4%), followed by surgeons (2/22, 9.1%), chiropractors (2/22, 9.1%), and physician’s assistants (2/22, 9.1%). Twelve studies (54.5%) used a mail survey to identify barriers to screening for IPV, six studies (27.3%) used an in-person
survey, one study (4.5%) used a self-administered survey, one study (4.5%) used an email survey, one study (4.5%) failed to specify the type of survey used, and one study (4.5%) used more than one type of survey.

Most studies included health care providers who were specialized in obstetrics and gynaecology (9/22, 40.9%), family medicine (7/22, 31.8%), internal medicine (4/22, 18.2%), emergency medicine (4/22, 18.2%) and paediatrics (4/22, 18.2%). Other medical specialties included orthopaedics, primary care, oncology, and dentistry.

Figure 1: Flow Chart of Study Process (Adapted From Guyatt et al, 2007)
| Study       | Year | Location     | Health Care Provider Type | Medical Specialty | Females in Sample (%) | Mean Age of Participants (years) | Sample Size | Method of Data Collection | Response Rate (%) | Quality Score* |
|-------------|------|--------------|----------------------------|-------------------|-----------------------|----------------------------------|-------------|---------------------------|------------------|----------------|
| Bhandari    | 2008 | Canada       | Surgeons Orthopaedics      | NR                | 9                     | NR                               | 186         | Mail survey               | 51.4             | High           |
| CDC         | 1997 | United States| Physicians, Nurses, Physician's Assistants | Primary Care | 66                    | 40                              | 81          | In-person survey          | 76               | Low            |
| Chamberlain | 2000 | United States| Physicians Family, Internal, ObGyn | NR                | 33.8                  | 42.9                            | 297         | Mail survey               | 80               | High           |
| Elliot      | 2002 | United States| Physicians Family, Internal, ObGyn, Emergency | NR                | 25                    | 45 ± 14                         | 1075        | Mail survey               | 53               | Moderate        |
| Ellis       | 1999 | United States| Nurses NR                   | NR                | 92.5                  | 59                              | 40          | Mail survey               | 39.6             | Moderate        |
| Erickson    | 2001 | United States| Physicians Family, Pediatrics | NR                | 41.6                  | NR                              | 310         | Mail survey               | 57               | Moderate        |
| Fawole      | 2010 | Nigeria      | NR                          | NR                | 78.5                  | 38 ± 8.16                       | 298         | In-person survey          | 90.3             | Low            |
| Fikree      | 2004 | Pakistan     | Physicians ObGyn            | NR                | 95                    | NR                              | 100         | In-person survey          | 98               | High           |
| Furnes      | 2007 | United States| Nurses NR                   | NR                | NR                    | NR                              | 385         | Survey – type unclear     | NR               | Low            |
| Gerber      | 2005 | United States| Physicians, Nurse practitioners | NR                | NR                    | NR                              | 59          | Mail survey               | 84               | Low            |
| Study     | Year | Location          | Health Care Provider Type                  | Medical Specialty                  | Females in Sample (%) | Mean Age of Participants (years) | Sample Size | Method of Data Collection       | Response Rate (%) | Quality Score* |
|-----------|------|-------------------|--------------------------------------------|------------------------------------|-----------------------|---------------------------------|-------------|-------------------------------|-----------------|---------------|
| Klein     | 2008 | United States     | Physicians, Counsellors                    | Family, Internal, OB/Gyn, Pediatrics, Emergency | 38.4 (physicians) 87 (counsellors) | NR                               | 835         | Mail survey                    | 61 for physicians, 42.8 for counsellors | Low            |
| Lapidus   | 2002 | United States     | Physicians                                 | Family, Pediatrics                 | NR                    | NR                              | 438         | Mail survey                    | 49              | Moderate       |
| McGrath   | 1996 | United States     | Surgeons, Physicians, Nurses, Social workers, Midwives | OB/Gyn, Pediatrics, Emergency      | 69                   | NR                              | 207         | Self-administered survey      | 59              | Low            |
| Ortiz     | 2005 | United States     | Physicians, Nurses                         | Family, OB/Gyn                     | 40                   | NR                              | 74          | Mail survey, Survey – type unclear | 92              | Low            |
| Owen-Smith| 2008 | United States     | Nurses                                      | OB/Gyn, Oncology                   | 100                  | NR                              | 6           | Email survey                   | 85.7            | Moderate       |
| Parsons   | 1995 | United States     | Physicians                                 | OB/Gyn                            | 22.4                 | NR                              | 933         | Mail survey                    | 14.6            | High           |
| Rodriguez | 1999 | United States     | Physicians                                 | Internal, OB/Gyn                   | 42                   | 46 ± 10.4                       | 400         | Mail survey                    | 69              | Moderate       |
| Shearer   | 2008 | Canada            | Chiropractors                               |                                    | 24.6                 | NR                              | 297         | Mail survey                    | 61              | High           |
| Shearer   | 2006 | United States     | Chiropractors                               |                                    | 48                   | NR                              | 93          | In-person survey               | 34              | Moderate       |
Table 1. Characteristics of Included Studies (Continued)

| Study | Year | Location | Health Care Provider Type | Medical Specialty | Females in Sample (%) | Mean Age of Participants (years) | Sample Size | Method of Data Collection | Response Rate (%) | Quality Score* |
|-------|------|----------|---------------------------|-------------------|-----------------------|---------------------------------|-------------|--------------------------|-----------------|---------------|
| Sugg  | 1999 | United States | Physicians, Nurses, Physician’s assistants, Medical assistants | Family | 70 | NR | 206 | Mail survey | 86 | Moderate |
| Warburton | 2006 | United Kingdom | Dentists, Nurses, Clinical assistants, Dental hygienists | Dental and Unspecified | 64 | NR | 73 | In-person survey | 97 | Moderate |
| Yonaka | 2007 | United States | Nurses | Emergency | 87.9 | NR | 33 | In-person survey | NR | Low |

*The quality score is based upon the modified STROBE Statement for cross-sectional studies. NR = not reported.
Study Quality

Questions adapted from the STROBE statement for cross-sectional studies were used to evaluate the quality of the 22 selected studies. We categorized five studies as high quality, nine studies as moderate quality, and eight studies as low quality (Table 1).

Personal Barriers

In more than half of the included studies (12/22, 54.5%), HCPs reported personal discomfort with discussing the topic of IPV as a barrier (Figure 2). This was followed by concern for personal safety (5/22, 22.7%) and concern of misdiagnosis (3/22, 13.6%). Forgetting to ask about abuse, personal history of abuse, and lack of confidence to refer victims was each reported as a barrier to screening for IPV in two studies.

Resource Barriers

The most frequently reported resource barriers were time constraints (18/22, 81.8%), lack of knowledge, education, or training regarding screening of abuse (15/22, 68.2%), and inadequate follow-up resources and support staff to assist victims (14/22, 63.6%) (Figure 2). This was followed by the lack of an office protocol for addressing IPV (4/22, 18.2%) and inadequate procedures and locations for screening (2/22, 9.1%).

Attitudes and Perceptions

The most frequently reported perception was that it is not the HCP’s role to screen for IPV (10/22, 45.5%) followed by the perception that HCPs have more pressing issues to address (4/22, 18.2%), that abused women should be blamed for the abuse (4/22, 18.2%), and that abuse is rare (2/22, 9.1%) (Figure 2). In addition, the perception that battered patients do not want a referral and that what HCPs view as abuse, the patients view as normal, were each reported in one study.

Fears

Fear of invading the patient’s privacy and fear of offending patients who were not abused were each reported as barriers to screening in half of the included studies (11/22, 50%) (Figure 2). This was followed by fear of the partner’s reaction and making life more difficult for the victim (4/22, 18.2%). Fear of police involvement and fear that the patient will stop seeing the HCP if he or she asked about abuse were each reported in one study.

Patient-related Barriers

The most frequently reported patient-related barrier was that the patient’s language interfered with effective screening (3/22, 13.6%), followed by the perception that patients with psychosocial issues and/or difficult personalities were difficult to screen (2/22, 9.1%), and that the abused victim would stay with the abuser anyway (2/22, 9.1%) (Figure 2). The perception that patients would deny battering as a cause of injury, that patients feared repercussions of being identified, that patients would not mention abuse in their medical history, and that patients would not be aware of their rights were each reported in one study.
Changes in Perceived Barriers Over Time

Nine of the twenty-two studies included in our review were published between 2006-2010, while thirteen studies were published within the 1995-2005 range. Most of the perceived barriers were reported proportionately between studies from these ranges, including time constraints, lack of office protocol, the perception that it is not within a HCP’s role, language barriers, and the fear of making patients angry if they were not abused.

There were some discrepancies in the barriers that were reported between studies published in the earlier versus later range. Seven of the nine (87.5%) studies from the more recent range cited personal discomfort with the issue of IPV as a barrier to screening, as compared to five of the thirteen (38.5%) studies published between 1995-2005. Inadequate follow-up resources/support staff to assist in victim education, safety planning, legal advocacy, referral, and feelings that HCPs cannot help patients who are abused were cited as barriers in four of the nine (44.4%) studies published between 2006-2010 as compared to ten of the thirteen (76.9%) of the studies from the earlier range. Three of the nine (33.3%) of studies included from the 1995-2005 range indicated that the HCP’s fear of making the patients angry if they were not abused as a barrier to IPV screening, while six of the nine (66.7%) studies from 2006-2010.
Consistency of Barriers Across Specialties

Barriers reported by HCPs in the included studies were similar across various medical specialties, except that musculoskeletal- and dental-related specialties did not report any barriers characterized as patient-related. Each of the four following barriers was reported by all specialties: personal discomfort with the issue, lack of knowledge, time constraints, and fear of making patients angry if they were not abused.

Discussion

The authors’ systematic review found a wide range of barriers to screening for IPV perceived by HCPs in various medical subspecialties. The major barriers to screening for IPV reported by HCPs were attributable to a lack of resources. The most frequently reported resource barriers were time constraints; lack of knowledge, education, or training regarding screening of abuse; and inadequate follow-up resources and support staff to assist victims. Of the personal barriers, fears, and perceptions, the most frequently reported barriers to screening were personal discomfort with the issue of IPV, fear of invading the patient’s privacy or offending patients if they were not abused, and the belief that it is not the HCP’s role to screen, respectively. Patient-related barriers were much less often reported as barriers to screening for IPV than HCP-related barriers. The current findings are consistent with those of Waalen and colleagues in their 2000 review of 12 studies addressing barriers to screening for IPV by HCPs and interventions to increase HCP screening behaviors, in which they found that lack of provider education and lack of effective interventions were the most frequently reported barriers in both open-ended interviews and written surveys; limited time was most frequently reported in open-ended interviews, and fear of offending or endangering the patient was reported most frequently in written surveys (Waalen et al., 2000). The current review improves upon Waalen’s review by including more recent studies and by considering a greater number of studies. Furthermore, within the current review, authors examined the differences in reported barriers over time.

The current authors also found that the barriers reported by HCPs in the included studies were similar across various medical specialties. This is comparable to the findings of the same study by Waalen et al. in which the lists of barriers reported by health professionals were similar despite differences in methods and provider population (Waalen et al., 2000).

Although a number of studies have suggested that patients support IPV screening (Friedman et al. 1992; McCauley, Yurk, Jenckes, & Ford 1998), the current findings indicated that several attitudes and perceptions held by HCPs act as barriers to screening, which may be related to lack of education and personal discomfort with the issue. Education, and training for HCPs should address such perceptions in an attempt to remove these barriers (Elliott et al., 2002). In addition, these resources should clearly outline the role and responsibilities of HCPs in addressing IPV and highlight the importance of screening in their practice (Chamberlain & Perham-Hester 2000). According to Erickson, Hill and Siegel (2001), family practitioners who were more educated and experienced with the issue of domestic violence were less likely to report lack of time as a screening barrier. This suggests that the perceived lack of time to screen for IPV, which was the most frequently reported barrier in this review, may be a result of
lack of knowledge, and that with increased training and experience, time constraints may become less of an issue.

The 22 studies included within the review were published over the span of 1995-2010. Due to this considerable range, the authors expected to see some differences in the reported barriers to IPV screening in earlier versus later studies. They hypothesized that these differences might be attributed to system-level changes including policy physician training. The fact that a greater proportion of the more recent studies indicated that HCPs’ personal discomfort was a barrier in screening, as compared to earlier studies reflects a need for more training on the matter of IPV so that HCPs may feel more comfortable and confident in their ability to screen for it in their patients. Conversely, the authors also found that a lesser proportion of more contemporary studies cited inadequate follow-up resources/support staff to assist in victims and feelings that HCPs cannot help patients who are abused as barriers, which may reflect recent improvements in the area of physician education and resources in the area of IPV.

Three of the nine (33.3%) studies published within 2006-2010 demonstrated that HCPs’ perceptions that they had more pressing issues as a barrier, as compared to one of the thirteen (7.7%) studies from the earlier range. This could be because of increased workload demands on the contemporary HCP.

The results of this review were limited by several factors, one of which included small sample sizes and low response rates in some of the included studies. In addition, the heterogeneity across the included studies as a result of variations in study design, methodology, provider characteristics and specialties, limited the direct comparison of studies. Another limitation was the high number of low- and moderate-quality studies that were included in the review, and the inclusion of articles that were only published in English. The authors did not include grey literature in our review, which may introduce bias because published articles are more likely to show positive results.

Additionally, although most of the included studies reported demographic information on their respondents (e.g. age range, mean age, sex), the vast majority of studies pooled their data and did not report their findings by age and/or sex. This limited the authors’ ability to report any trends in perceived barriers in male versus female and younger versus older health care providers. This would be valuable information in developing strategies to engage a wide range of health care providers. Similarly, it would be beneficial to explore discrepancies in reported barriers to IPV screening based on the economy of the countries included in our review. However, only two of the studies included in the review took place in non-industrialized nations, while the remaining twenty took place in either Canada, the United Kingdom, or the United States (all industrialized nations). The authors feel that it would be biased to identify differences in reported barriers between non-industrialized versus industrialized nations with such a small sample of studies from non-industrialized nations. They would recommend that future reviews take into account potential variation in reported barriers to IPV screening between health care providers of different sex, age, as well as socioeconomic status. As the literature base on IPV screening grows, it would be also be valuable to learn of occupation-specific barriers to IPV screening which may indicate which health care providers are best suited to successfully identify and respond to cases of IPV. The authors recommend that this is examined in future reviews.
Some bias may have been introduced in grouping older versus more recent studies based solely on their date of publication. Frequently, results of a study are published several years after the study was initially conducted. Unfortunately, the authors were limited to the information that the studies reported with regards to the time frames of their study, from data collection to publication. Seven of the twenty two studies included in the review (31.1%) reported the time period that data was collected, making it impossible to compare differences in reported barriers over time based on grouping studies by the time they were conducted.

Despite these limitations, the review had several strengths, including a thorough and systematic search of the literature, followed by thorough and systematic screening of the studies for inclusion, and completion of data abstraction from the included studies by multiple independent reviewers. This review was also strengthened by its broad inclusion criteria. The results of this review indicated numerous barriers to IPV screening that need to be addressed to increase IPV screening by HCPs. This review has demonstrated that provider-related barriers were reported more often than patient-related barriers in the current literature. The authors feel that this finding is promising and that these barriers are easier to address and can be done so systematically through change in policy and education of health care providers. It serves to advocate for the continued training of medical professionals to recognize and treat IPV cases, which will ultimately increase the quality of life for victims. Education and training for HCPs should focus on increasing awareness and exploring perceptions on IPV screening to remove barriers. Future research should explore optimal methods of disseminating IPV information among HCPs and developing efficient methods of screening.

Acknowledgements

We would like to acknowledge Sarah Jiwa and Manraj Chahal for their assistance in the preparation of this manuscript.

List of Included Studies

1. Bhandari M, Sprague S, Tornetta P, D'Aurora V, Schemitsch E, Shearer H, et al. 2008. (Mis)perceptions about intimate partner violence in women presenting for orthopaedic care: a survey of Canadian orthopaedic surgeons. J Bone Joint Surg Am 90(7):1590-7.
2. Centers for Disease Control and Prevention (CDC). 1998. Rural health-care providers' attitudes, practices, and training experience regarding intimate partner violence--West Virginia, March 1997. MMWR - Morbidity & Mortality Weekly Report Aug 21;47(32).
3. Chamberlain L, and Perham-Hester KA. 2000. Physicians' screening practices for female partner abuse during prenatal visits. Maternal & Child Health Journal 4(2):141-8.
4. Elliott L, Nerney M, Jones T, and Friedmann PD. 2002. Barriers to screening for domestic violence. Journal of General Internal Medicine 17(2):112-6.
5. Ellis JM. 1999. Barriers to effective screening for domestic violence by registered nurses in the emergency department. Crit Care Nurs Q 22(1):27-41.
6. Erickson MJ, Hill TD, and Siegel RM. 2001. Barriers to domestic violence screening in the pediatric setting. *Pediatrics* 108(1):98-102.

7. Fawole OI, Yusuf BO, Dairo MD, and Fatiregun A. 2010. Intimate partner violence and primary health care workers: screening and management. *Niger Postgrad Med J* 17(2):138-46.

8. Fikree FF, Jafarey SN, Korejo R, Khan A, and Durocher JM. 2004. Pakistani obstetricians' recognition of and attitude towards domestic violence screening. *International Journal of Gynaecology & Obstetrics* 87(1):59-65.

9. Furniss K, McCaffrey M, Parnell V, and Rovi S. 2007. Nurses and barriers to screening for intimate partner violence. *American Journal of Maternal Child Nursing* 32(4):238-43.

10. Gerber MR, Leiter KS, Hermann RC, and Bor DH. 2005. How and why community hospital clinicians document a positive screen for intimate partner violence: a cross-sectional study. *BMC Family Practice* 6:48.

11. Klein SJ, Tesoriero JM, Leung SY, Heavner KK, and Birkhead GS. 2008. Screening persons newly diagnosed with HIV/AIDS for risk of intimate partner violence: Early progress in changing practice. *Journal of Public Health Management & Practice* 14(5).

12. Lapidus G, Cooke MB, Gelven E, Sherman K, Duncan M, and Banco L. 2002. A statewide survey of domestic violence screening behaviors among pediatricians and family physicians. *Arch Pediatr Adolesc Med* 156(4):332-6.

13. McGrath ME, Bettacchi A, Duffy SJ, Peipert JF, Becker BM, and St Angelo L. 1997. Violence against women: Provider barriers to intervention in emergency departments. *Acad Emerg Med* 4(4):297-300.

14. Ortiz JJ, and Ford LR. 2005. Existence of staff barriers to partner violence screening and screening practices in military prenatal settings. *JOGNN - Journal of Obstetric, Gynecologic, & Neonatal Nursing* 34(1):63-9.

15. Owen-Smith A, Hathaway J, Roche M, Gioiella ME, Whall-Stojwas D, and Silverman J. 2008. Screening for domestic violence in an oncology clinic: Barriers and potential solutions. *Oncol Nurs Forum* 35(4):625-33.

16. Parsons LH, Zaccaro D, Wells B, and Stovall TG. 1995. Methods of and attitudes toward screening obstetrics and gynecology patients for domestic violence. *American Journal of Obstetrics & Gynecology* 173(2):381-6.

17. Rodriguez MA, Bauer HM, McLoughlin E, and Grumbach K. 1999. Screening and intervention for intimate partner abuse: Practices and attitudes of primary care physicians. *JAMA* 282(5):468-74.

18. Shearer HM, and Bhandari M. 2008. Ontario chiropractors' knowledge, attitudes, and beliefs about intimate partner violence among their patients: A cross-sectional survey. *J Manipulative Physiol Ther* 31(6):424-33.

19. Shearer HM, Forte ML, Dosanjh S, Mathews DJ, and Bhandari M. 2006. Chiropractors' perceptions about intimate partner violence: A cross-sectional survey. *J Manipulative Physiol Ther* 29(5):386-92.

20. Sugg NK, Thompson RS, Thompson DC, Maiuro R, and Rivara FP. 1999. Domestic violence and primary care. Attitudes, practices, and beliefs. *Arch Fam Med* 8(4):301-6.

139
21. R. Warburton AL, Hanif B, Roswell C, and Coulthard P. 2006. Changes in the level of knowledge and attitudes of dental hospital staff about domestic violence following attendance at an awareness raising seminar. *British Dental Journal* 201(10) 653-9.

22. Yonaka L, Yoder MK, Darrow JB, and Sherck JP. 2007. Barriers to screening for domestic violence in the emergency department. *J Contin Educ Nurs* 38(1):37-45.

References

1. Alpert EJ. 2007. Addressing domestic violence: the (long) road ahead. *Ann Intern Med*, 147(9):666-667

2. Bhandari M, Petrisor P, Moro J, Rajaratnam K, and Schemitsch E. 2009. Intimate partner violence and the orthopaedic surgeon: A call for action. Canadian Orthopaedic Association 31 August. [http://www.coa-aco.org/coa-bulletin/issue-84/info-intimate-partner-violence-and-the-orthopaedic-surgeon.html](http://www.coa-aco.org/coa-bulletin/issue-84/info-intimate-partner-violence-and-the-orthopaedic-surgeon.html), accessed 16 January 2012.

3. Chamberlain L, and Perham-Hester KA. 2000. Physicians' screening practices for female partner abuse during prenatal visits. *Maternal & Child Health Journal* 4(2):141-8.

4. Cherniak D, Grant L, Mason R, Moore B, and Pellizzari R. 2005. Intimate partner violence consensus statement. *JOGC* 27:365-88.

5. Colarossi L, Breitbart V, and Betancourt G. 2010. Barriers to screening for intimate partner violence: A mixed-methods study of providers in family planning clinics. *Perspectives on Sexual and Reproductive Health* 42(4):236-43.

6. Davis JW. Domestic violence: 2008. The "rule of thumb": 2008 Western trauma association presidential address. *J Trauma* 65:969-74.

7. D'Avolio DA. 2011. System issues: Challenges to intimate partner violence screening and intervention. *Clinical Nursing Research* 20(1):64-80.

8. Elliott L, Nerney M, Jones T, and Friedmann PD. 2002. Barriers to screening for domestic violence. *Journal of General Internal Medicine* 17(2):112-6.

9. Friedman LS, Samet JH, Roberts MS, Hudlin M, and Hans P. 1992. Inquiry about victimization experiences. A survey of patient preferences and physician practices. *Arch Intern Med* 152:1186–90.

10. Katrak P, Bialocerkowski AE, Massy-Westropp N, Kumar S, and Grimmer KA. 2004. A systematic review of the content of critical appraisal tools. *BMC Med Res Methodol* 16(4), 22.

11. Kelley K, Clark B, Brown V, and Sitzia J. 2003. Good practice in the conduct and reporting of survey research. *Int J Qual Health Care* 15, 261-266.

12. Klevens J, Saltzman LE. 2009. The controversy on screening for intimate partner violence: A question of semantics? *J Women’s Health* 18(2): 143-45.

13. MacMillan H, Wathen C, Jamieson E, Boyle M, Shannon H, Ford-Gilboe M, Worster A, Lent B, Cohen J, Campbell J, McNutt L, and McMaster Violence Against Women Research Group. 2009. Screening for intimate partner violence in health care settings: A randomized trial. *JAMA* 302: 493-501.
14. McCauley J, Yurk RA, Jenckes M, and Ford DE. 1998. Inside “Pandora's box.” Abused women's experiences with clinicians and health services. *J Gen Intern Med* 13:549–55.
15. McCloskey LA, Williams CM, Lichter E, Gerber M, Ganz ML, and Sege R. 2007. Abused women disclose partner interference with health care: an unrecognized form of battering. *JGIM* 22:1067-72.
16. Moracco KE, and Cole TB. 2009. Preventing intimate partner violence: screening is not enough. *JAMA* 302: 568-70.
17. Renker PR. 2008. Breaking the barriers: The promise of computer-assisted screening for intimate partner violence. *Journal of Midwifery and Women’s Health* 53(6):496-503.
18. Rhodes KV, Kothari CI., Dichter M, Cerulli C, Wiley J, and Marcus S. 2011. Intimate partner violence identification and response: time for a change in strategy. *Journal of General Internal Medicine* 26(8): 894-99.
19. Sanderson S, Tatt ID, and Higgins JP. 2007. Tools for assessing quality and susceptibility to bias in observational studies in epidemiology: A systematic review and annotated bibliography. *Int J Epidemiol* 36, 666-676.
20. Sormani M, and Smith E. 2010. Intimate partner violence screening in the emergency department: US medical residents' perspective. *International Quarterly of Community Health Education* 30(1):21-40.
21. Stroup DF, Berlin JA, Morton SC, Olkin I, Williamson GD, Rennie D et al. 2000. Meta-analysis of observational studies in epidemiology: a proposal for reporting. *JAMA* 283(15):2008-12.
22. U.S. Preventive Services Task Force. 2004. Screening for family and intimate partner violence: Recommendation statement. *Ann Fam Med* 2(2):156-160.
23. von Elm E, Altman DG, Egger M, Pocock SJ, Gotzsche PC, Vandenhoucke JP; STROBE Initiative. 2008. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE)statement: Guidelines for reporting observational studies. *J Clin Epidemiol* 61, 344-349.
24. Waalen J, Goodwin MM, Spitz AM, Petersen R, and Saltzman LE. 2000. Screening for intimate partner violence by healthcare providers: Barriers and interventions. *American Journal of Preventive Medicine* 19(4):230-37.
25. Zolotor AJ, Denham AC, and Weil A. 2009. Intimate partner violence. *Prim Care Clin Office Pract* 36: 167-79.
## Appendix 1: Study Quality Checklist

| Question                                                                 | Yes | No | Unclear |
|-------------------------------------------------------------------------|-----|----|---------|
| Were the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection appropriate? |     |    |         |
| Were the eligibility criteria, the sources, and methods of selection of participants appropriate? |     |    |         |
| Were the outcome measures and potential confounders clearly described and appropriate? |     |    |         |
| For each variable of interest, did the authors provide sources of data and details of methods of assessment (measurement)? |     |    |         |
| Were any efforts to address potential sources of bias utilized?           |     |    |         |
| Did the authors provide an appropriate explanation of how the study size was arrived at? |     |    |         |
| Were appropriate statistical methods utilized?                           |     |    |         |
| Did the authors explain how missing data were handled?                   |     |    |         |
| Did the authors report numbers of individuals at each stage of study—e.g. numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, and analysed? |     |    |         |
| Did the authors provide characteristics of study participants (e.g. demographic, clinical, social) and information on potential confounders? |     |    |         |
| Did the authors report other analyses done—e.g. analyses of subgroups and interactions, and sensitivity analyses? |     |    |         |
Chapter 9

Barriers To and Facilitators for Screening Women for Intimate Partner Violence in Surgical Fracture Clinics: A Qualitative Descriptive Approach

S Sprague, M Swinton, K Madden, R Swaleh, JC Goslings, B Petrisor, M Bhandari

Published
BMC Musculoskeletal Disorders. 2013 Apr 5;14:122.
Abstract

Background: Intimate Partner Violence (IPV) is a major health issue that involves any physical, sexual or psychological harm inflicted by a current or former partner. Musculoskeletal injuries represent the second most prevalent clinical manifestation of IPV. Health care professionals, however, rarely screen women for IPV. Using qualitative methods, this study aimed to explore the perceived barriers to IPV screening and potential facilitators for overcoming these barriers among orthopaedic surgeons and surgical trainees.

Methods: We conducted three focus groups with orthopaedic surgeons, senior surgical trainees, and junior surgical trainees. A semi-structured focus group guide was used to structure the discussions. Transcripts and field notes from the focus groups were analyzed using the qualitative software program N’Vivo (version 10.0; QSR International, Melbourne, Australia). To further inform our focus group findings and discuss policy changes, we conducted interviews with two opinion leaders in the field of orthopaedics. Similar to the focus groups, the interviews were digitally recorded and transcribed, and then analyzed.

Results: In the analysis, four categories of barriers were identified: surgeon perception barriers; perceived patient barriers; fracture clinic barriers and orthopaedic health care professional barriers. Some of the facilitators identified included availability of a crisis team; development of a screening form; presence of IPV posters or buttons in the fracture clinic; and the need for established policy or government support for IPV screening. The interviewees identified the need for: the introduction of evidence-based policy aiming to increase awareness about IPV among health care professionals working within the fracture clinic setting, fostering local and national champions for IPV screening, and the need to generate change on a local level.

Conclusions: There are a number of perceived barriers to screening women in the fracture clinic for IPV, many of which can be addressed through increased education and training, and additional resources in the fracture clinic. Orthopaedic health care professionals were supportive of implementing an IPV screening program in the orthopaedic fracture clinic.

Keywords: Intimate Partner Violence (IPV); musculoskeletal injuries; barriers; screening
Background

Intimate Partner Violence (IPV) is described by the American Medical Association as “a pattern of coercive behaviors that may include repeated battering and injury, psychological abuse, sexual assault, progressive social isolation, deprivation and intimidation” [1]. Injuries associated with IPV often require treatment provided by orthopaedic surgeons [2]. Canadian orthopaedic surgeons may not recognize the extent that IPV affects the patients seen in their clinics; an overwhelming 87 percent who participated in a national study believed that female victims of IPV accounted for less than one percent of patients in their care [3]. A recent prevalence study found that one third of women attending two fracture clinics for an orthopaedic injury had experienced physical, emotional, and/or sexual abuse within the last 12 months [4]. This rate of IPV is much greater than the orthopaedic surgeons estimated [3], and provides a rationale for IPV screening and support programs in orthopaedic clinics.

To address the low rates of screening, previous studies have explored barriers to IPV screening among various health care professionals such as emergency department health care workers, obstetricians/gynecologists, family physicians, internists and health care staff in family planning organizations [5, 6, 7, 8]. A recent systematic review of 22 studies investigating barriers to IPV screening reported by health care professionals described five categories of barriers: 1) patient-related barriers; 2) health care provider fears; 3) lack of resources; 4) personal barriers; and 5) health care provider misconceptions [8]. Across the included studies, the most commonly cited barriers to screening for IPV were personal discomfort with the issue of IPV, lack of time, and lack of knowledge about IPV [8]. This review did not find any studies that comprehensively examined the perceived barriers to IPV screening among health care professionals who treat patients in the orthopaedic fracture clinic setting [8].

This research aimed to address this gap in the literature by exploring perceived barriers to IPV screening in the orthopaedic fracture clinic and by identifying potential facilitators for addressing these barriers among orthopaedic surgeons and surgical trainees (senior and junior orthopaedic residents).

Methods

Qualitative Method and Rationale

This research was conducted using the qualitative descriptive approach, a qualitative research method which aims to provide a descriptive summary of the research organized in a way that best reflects the data. This method is described by Sandelowski [9] as being valuable when straight descriptions are required to provide answers to questions of special relevance to practitioners and policy makers.

The authors are qualified to conduct this study because we have an interdisciplinary mix of expertise in qualitative methods, intimate partner violence, orthopaedic surgery, and trauma surgery. Some authors had preconceived ideas of what some of the barriers may be and others did not. The mixture of areas of expertise contributed to the multiple perspectives needed to effectively analyze the information of interest in an appropriate and holistic context.
Data Collection
Data were collected through focus groups comprised of orthopaedic surgeons and orthopaedic surgical trainees. Focus groups are generally recommended for qualitative descriptive studies as they typically provide a broad range of information about experiences [9]. The opportunity for interactive discussion during the focus groups enhanced the ability to collect in-depth data on the perceived barriers to and facilitators for screening for IPV in the orthopaedic fracture clinic. We conducted three separate focus groups – one with orthopaedic surgeons, one with senior surgical trainees, and one with junior surgical trainees. When transcribing data, we did not record the names of any participants to preserve their privacy and confidentiality. We assigned each participant a code, such as “Surgeon 1” or “Junior resident 2”. The codes were kept in a secure location and only one member of the team had access to the codes.

Sampling
Sampling for this study was purposeful with an emphasis on maximum variation sampling. The goal of purposeful sampling is to select participants who provide “information-rich” cases, that is, participants who provide data that will allow us to learn in-depth about the phenomenon of interest [10]. In this study, we purposefully sampled to include variation in health care professional type (i.e. surgeons and surgical trainees) because we believe that this variable has the potential to influence experiences with and perceptions about screening for IPV. The research coordinator (KM) emailed invitations to the individuals that were selected to participate until we reached our intended sample size.

To facilitate an open and comfortable environment for discussion, the focus groups themselves were homogeneous in terms of health care professional type. This approach allowed us to analyze our data within profession type (i.e. surgeon versus surgical trainee) and to compare our findings between the two groups. Any common themes that emerge from variation are particularly relevant to the research question [10].

Sample Size
We included six or seven participants in each focus group for a total sample size of 20 participants plus two interviewees. Our sample provided enough saturation [11] in the data to adequately describe the perceptions about barriers to and facilitators for IPV screening by orthopaedic surgeons and surgical trainees.

Recruitment
A recent prevalence study conducted at the Hamilton Health Sciences General Site found that the prevalence of IPV (physical, emotional, sexual) among female patients in orthopaedic fracture clinics during a period of 12 months was alarmingly high; 31.6% [4]. As a result, participants for this research were recruited from this fracture clinic, as well as two other fracture clinics in Hamilton, Ontario, all which are affiliated with an academic teaching institution. Individuals who agreed to participate in the focus groups were likely to have an interest in IPV and yield the “information-rich” cases that Patton describes as important for qualitative research [10]. Potential participants were sent an email invitation which briefly outlined the subject, purpose, agenda and expected outcomes of the focus group. Prior to proceeding with this study, ethics approval was
obtained from the local Research Ethics Board (Project Number: 11-491). We asked each participant to sign an informed consent form before proceeding with the focus group or interview. Participants were not financially compensated for participating in this study and they were assured that their participation or lack thereof would not impact their employment or residency status.

Focus Groups
We used a semi-structured focus group guide to structure the discussion about health care professionals’ experiences with and perceptions about screening women for IPV. This approach is useful as it provides participants with some guidance on what to discuss while also enabling exploration of issues that may not have been considered by the researchers [12]. Participants were also asked to complete a brief demographic questionnaire.

The focus groups were conducted in private location at a time convenient for participants and were facilitated by an experienced focus group facilitator (MS). The focus groups were digitally recorded and the recordings were transcribed verbatim.

Structured Interviews
To address institutional and personal barriers such as those identified by the focus group participants, we recognize that it is important to have institutional support and changes to policies at a level above the fracture clinic. We chose to interview two opinion leaders in the field of orthopaedic surgery, who are well-versed and active in health policy in the field of orthopaedic surgery. The purpose of the interviews were to help us to better understand the barriers at the policy level and to identify facilitators for making changes to policy to better assist IPV victims within the fracture clinic setting. The independent, semi-structured telephone interviews were conducted after the completion of the three focus groups which allowed for a more detailed exploration of the themes identified during the focus group discussion. A more experienced interviewer (MS) conducted the two interviews which were digitally recorded and transcribed verbatim.

Data Analysis
In qualitative research, data collection and data analysis usually occur simultaneously to allow for new themes in the early data to be incorporated into collection of later data. In this study, we used field notes from the focus groups to identify new themes to explore in future focus groups and we began coding after each focus group. As data collection proceeded, new data and new insights about the data were incorporated into the data analysis, making it reflexive and interactive.

Four investigators (SS, MS, RS, and KM) participated in the data coding and analysis of the focus groups and interviews. When all of the transcripts from the focus groups were coded, the four investigators met to organize the codes into meaningful clusters [13,14] and discussed potential relationships between the categories, a process known as axial coding [15]. The analysis resulted in an organized and comprehensive summary of orthopedic surgeons’ and surgical trainees’ experiences and perceptions related to IPV screening in orthopaedic fracture clinics. The transcripts from the two interviews were coded by the four investigators following the procedures described above.
Transcripts and field notes from the focus groups and interviews were analyzed using conventional qualitative content analysis, as recommended for qualitative descriptive studies [9]. In conventional qualitative data analysis the coding categories are derived directly from the data rather than using preconceived categories [13,14]. The qualitative software program N’Vivo (version 10.0; QSR International, Melbourne, Australia) was used for data management and analysis.

Rigor
The study’s credibility was ensured by documented evolution of coding and analysis as well as coding decisions [16]. Rigor was also achieved through the use of multiple coders, many with a strong knowledge of the IPV literature, and coding consensus meetings. All categories were firmly grounded in the data by identifying sections of the transcripts from which they originated [17] and quotes were used to illustrate the codes which further demonstrated a good fit between the data and the analytic results.

Results

Participants
We invited ten surgeons, ten junior residents, and ten senior residents to participate in the focus groups. Each of our three focus groups included six or seven participants, with a total of 20 surgeons or surgical trainees participating across the three focus groups. The mean age of the focus group participants was 33.9 ± 8.6 years and the majority of the focus group participants were male (75%) (Table 1). The mean length of time in practice for the orthopaedic surgeons was approximately ten years.

Table 1: Participant Demographics

| Item                                           | Number (%) |
|------------------------------------------------|------------|
| Age (Mean ± Standard Deviation)                | 33.9 ± 8.6 |
| Gender                                         |            |
| Male                                           | 15 (75%)   |
| Female                                         | 5 (25%)    |
| Ethnicity                                      |            |
| Caucasian                                      | 11 (55%)   |
| South-East Asian                               | 4 (20%)    |
| Asian                                          | 2 (10%)    |
| Native Canadian                                | 1 (5%)     |
| Middle-Eastern                                 | 1 (5%)     |
| Other                                          | 1 (5%)     |
| Occupation                                     |            |
| Orthopaedic Surgeon                            | 7 (35%)    |
| Surgical Trainee – Senior Orthopaedic Surgical trainee | 6 (30%) |
| Surgical Trainee – Junior Orthopaedic Surgical trainee | 7 (35%) |
| Length of Time in Practice (Orthopaedic Surgeons Only) (Mean ± Standard Deviation) | 9.4 ± 9.6 |
Themes

Four main themes were identified: contextual thoughts on IPV management, barriers to screening for IPV, facilitators for screening for IPV, and policy implementation for fracture clinics. Within the contextual thoughts on IPV, the following two subthemes were identified: perceptions and observations, and comparison to external models. The focus group discussions yielded additional subthemes that reflected barriers to screening for IPV including fracture clinic barriers, perceived barriers for patients, perceived barriers specific to surgical trainees, and perceived barriers for surgeons. The following subthemes under the overall category of facilitators for IPV screening were identified: system-level characteristics, fracture clinic processes, and personnel resources. The policy implementation theme emerged from the analysis of the two interview transcripts.

Contextual Thoughts about IPV Screening the Fracture Clinic Setting

The focus groups began by having participants share their initial thoughts on IPV and some of their personal experiences with IPV in the fracture clinic (Figure 1). One focus group began with the following example, “I have a face of intimate partner violence and murder… Two patients, one tried to have his wife killed. She became my patient because they were unsuccessful in killing her”. Most participants recognized and understood the importance of screening for IPV in the fracture clinic setting with one participant noting “I think the screening is hugely important because it probably opens up a door to a certain percentage of women that would then open up and tell you about it” and another describing “I think we are the first access point for those women.” The participants also discussed the need for caution when screening to ensure the safety of the patient.

Figure 1: Contextual Thoughts on IPV
When discussing perceptions about common presentations of IPV within the fracture clinic setting one participated noted, “…identification is key…that’s the part that I am most worried about is that I am missing people”; while another participant described: “…the biggest problem is picking it [intimate partner violence] up ‘cause I think so much of it is silent.” Another participant summarized current IPV screening practices: “It seems like if we are going on our intuition and our sense that something is wrong, we are doing a bad job with that from the evidence.”

Surgeons and surgical trainees agreed that they are more comfortable with screening for and caring for patients who are victims of child abuse as a result of policies being in place and having received appropriate training. One participant compared knowing the steps to take after screening for child abuse with not knowing the steps to take after screening for IPV: “With children we sort of know what to do, who to call. There’s like a social work team we call but, you know, if you screen and then they do sort of come forth with “yes it was intimate partner violence” I wouldn’t really know what to do next and so it’s a little intimidating”.

Participants also discussed selective screening for IPV (asking people about IPV based on pre-determined risk factors) versus universal screening for IPV (asking everyone in the fracture clinic about IPV) within the fracture clinic setting. For example, one participant said: “I think it’s more ideal for screening everybody…because if not we are gonna screen people based on our assumptions and I don’t think that’s appropriate.”

Most participants recognized the limitations and challenges with selective screening and agreed that universal screening for IPV may be appropriate, citing the success of universal screening for osteoporosis within the fracture clinic setting.

Fracture Clinic Barriers to Screening for IPV

Participants described how the layout and organization of many fracture clinics makes it challenging for the orthopaedic surgeon to have privacy with their patients (Figure 2). Patients are often accompanied by someone to their appointments and it is difficult to separate the patient from this person. In addition, within the academic setting, orthopaedic surgeons rarely see their patients alone as they are usually accompanied by surgical learners when seeing their patients. One participant explained: “There’s six other people, at least six plus learners so probably twelve people listening to every single conversation I have with patients; it’s not the appropriate place”. In addition, many fracture clinics follow an open concept model, with curtains separating exam rooms. One participant made the following analogy: “The fracture clinic is the equivalent of a family doctor seeing patients in their waiting office”.

When discussing perceptions about common presentations of IPV within the fracture clinic setting one participated noted, “…identification is key…that’s the part that I am most worried about is that I am missing people”; while another participant described: “…the biggest problem is picking it [intimate partner violence] up ‘cause I think so much of it is silent.” Another participant summarized current IPV screening practices: “It seems like if we are going on our intuition and our sense that something is wrong, we are doing a bad job with that from the evidence.”

Surgeons and surgical trainees agreed that they are more comfortable with screening for and caring for patients who are victims of child abuse as a result of policies being in place and having received appropriate training. One participant compared knowing the steps to take after screening for child abuse with not knowing the steps to take after screening for IPV: “With children we sort of know what to do, who to call. There’s like a social work team we call but, you know, if you screen and then they do sort of come forth with “yes it was intimate partner violence” I wouldn’t really know what to do next and so it’s a little intimidating”.

Participants also discussed selective screening for IPV (asking people about IPV based on pre-determined risk factors) versus universal screening for IPV (asking everyone in the fracture clinic about IPV) within the fracture clinic setting. For example, one participant said: “I think it’s more ideal for screening everybody…because if not we are gonna screen people based on our assumptions and I don’t think that’s appropriate.”

Most participants recognized the limitations and challenges with selective screening and agreed that universal screening for IPV may be appropriate, citing the success of universal screening for osteoporosis within the fracture clinic setting.

Fracture Clinic Barriers to Screening for IPV

Participants described how the layout and organization of many fracture clinics makes it challenging for the orthopaedic surgeon to have privacy with their patients (Figure 2). Patients are often accompanied by someone to their appointments and it is difficult to separate the patient from this person. In addition, within the academic setting, orthopaedic surgeons rarely see their patients alone as they are usually accompanied by surgical learners when seeing their patients. One participant explained: “There’s six other people, at least six plus learners so probably twelve people listening to every single conversation I have with patients; it’s not the appropriate place”. In addition, many fracture clinics follow an open concept model, with curtains separating exam rooms. One participant made the following analogy: “The fracture clinic is the equivalent of a family doctor seeing patients in their waiting office”.

When discussing perceptions about common presentations of IPV within the fracture clinic setting one participated noted, “…identification is key…that’s the part that I am most worried about is that I am missing people”; while another participant described: “…the biggest problem is picking it [intimate partner violence] up ‘cause I think so much of it is silent.” Another participant summarized current IPV screening practices: “It seems like if we are going on our intuition and our sense that something is wrong, we are doing a bad job with that from the evidence.”

Surgeons and surgical trainees agreed that they are more comfortable with screening for and caring for patients who are victims of child abuse as a result of policies being in place and having received appropriate training. One participant compared knowing the steps to take after screening for child abuse with not knowing the steps to take after screening for IPV: “With children we sort of know what to do, who to call. There’s like a social work team we call but, you know, if you screen and then they do sort of come forth with “yes it was intimate partner violence” I wouldn’t really know what to do next and so it’s a little intimidating”.

Participants also discussed selective screening for IPV (asking people about IPV based on pre-determined risk factors) versus universal screening for IPV (asking everyone in the fracture clinic about IPV) within the fracture clinic setting. For example, one participant said: “I think it’s more ideal for screening everybody…because if not we are gonna screen people based on our assumptions and I don’t think that’s appropriate.”

Most participants recognized the limitations and challenges with selective screening and agreed that universal screening for IPV may be appropriate, citing the success of universal screening for osteoporosis within the fracture clinic setting.

Fracture Clinic Barriers to Screening for IPV

Participants described how the layout and organization of many fracture clinics makes it challenging for the orthopaedic surgeon to have privacy with their patients (Figure 2). Patients are often accompanied by someone to their appointments and it is difficult to separate the patient from this person. In addition, within the academic setting, orthopaedic surgeons rarely see their patients alone as they are usually accompanied by surgical learners when seeing their patients. One participant explained: “There’s six other people, at least six plus learners so probably twelve people listening to every single conversation I have with patients; it’s not the appropriate place”. In addition, many fracture clinics follow an open concept model, with curtains separating exam rooms. One participant made the following analogy: “The fracture clinic is the equivalent of a family doctor seeing patients in their waiting office”.

When discussing perceptions about common presentations of IPV within the fracture clinic setting one participated noted, “…identification is key…that’s the part that I am most worried about is that I am missing people”; while another participant described: “…the biggest problem is picking it [intimate partner violence] up ‘cause I think so much of it is silent.” Another participant summarized current IPV screening practices: “It seems like if we are going on our intuition and our sense that something is wrong, we are doing a bad job with that from the evidence.”

Surgeons and surgical trainees agreed that they are more comfortable with screening for and caring for patients who are victims of child abuse as a result of policies being in place and having received appropriate training. One participant compared knowing the steps to take after screening for child abuse with not knowing the steps to take after screening for IPV: “With children we sort of know what to do, who to call. There’s like a social work team we call but, you know, if you screen and then they do sort of come forth with “yes it was intimate partner violence” I wouldn’t really know what to do next and so it’s a little intimidating”.

Participants also discussed selective screening for IPV (asking people about IPV based on pre-determined risk factors) versus universal screening for IPV (asking everyone in the fracture clinic about IPV) within the fracture clinic setting. For example, one participant said: “I think it’s more ideal for screening everybody…because if not we are gonna screen people based on our assumptions and I don’t think that’s appropriate.”

Most participants recognized the limitations and challenges with selective screening and agreed that universal screening for IPV may be appropriate, citing the success of universal screening for osteoporosis within the fracture clinic setting.

Fracture Clinic Barriers to Screening for IPV

Participants described how the layout and organization of many fracture clinics makes it challenging for the orthopaedic surgeon to have privacy with their patients (Figure 2). Patients are often accompanied by someone to their appointments and it is difficult to separate the patient from this person. In addition, within the academic setting, orthopaedic surgeons rarely see their patients alone as they are usually accompanied by surgical learners when seeing their patients. One participant explained: “There’s six other people, at least six plus learners so probably twelve people listening to every single conversation I have with patients; it’s not the appropriate place”. In addition, many fracture clinics follow an open concept model, with curtains separating exam rooms. One participant made the following analogy: “The fracture clinic is the equivalent of a family doctor seeing patients in their waiting office”.

When discussing perceptions about common presentations of IPV within the fracture clinic setting one participated noted, “…identification is key…that’s the part that I am most worried about is that I am missing people”; while another participant described: “…the biggest problem is picking it [intimate partner violence] up ‘cause I think so much of it is silent.” Another participant summarized current IPV screening practices: “It seems like if we are going on our intuition and our sense that something is wrong, we are doing a bad job with that from the evidence.”

Surgeons and surgical trainees agreed that they are more comfortable with screening for and caring for patients who are victims of child abuse as a result of policies being in place and having received appropriate training. One participant compared knowing the steps to take after screening for child abuse with not knowing the steps to take after screening for IPV: “With children we sort of know what to do, who to call. There’s like a social work team we call but, you know, if you screen and then they do sort of come forth with “yes it was intimate partner violence” I wouldn’t really know what to do next and so it’s a little intimidating”.

Participants also discussed selective screening for IPV (asking people about IPV based on pre-determined risk factors) versus universal screening for IPV (asking everyone in the fracture clinic about IPV) within the fracture clinic setting. For example, one participant said: “I think it’s more ideal for screening everybody…because if not we are gonna screen people based on our assumptions and I don’t think that’s appropriate.”

Most participants recognized the limitations and challenges with selective screening and agreed that universal screening for IPV may be appropriate, citing the success of universal screening for osteoporosis within the fracture clinic setting.
Focus group participants also identified that adequate patient histories are not readily available or quickly accessible and noted that this is a barrier. Since the patient is often initially seen at the emergency department or by a surgical trainee, the surgeon may not be aware of their full history including previous injuries and the nature of these injuries.

Orthopaedic surgeons and surgical trainees described that they spend a very limited time with individual patients and have a high number of patients to see within their fracture clinic, which makes it difficult to find the time to appropriately screen for and address IPV. One participant described: “The biggest thing is time for orthopaedic surgeons. We see 70 to 80 people in a five hour clinic so if you do the math that’s less than a few minutes a person.”

Both the surgeons and surgical trainees identified that there is a lack of policies on screening for and addressing IPV within the fracture clinic setting. The following exchange between the facilitator and several surgeons exemplifies this concern: Facilitator 1- “So am I right in understanding that the clinics you work in have no policies or sort of integrated mechanisms for screening for intimate partner violence?” Several Surgeons- “None that I’m aware, that’s correct.”
Perceived Barriers for Injured Patients Regarding Screening for IPV

The focus group participants were concerned that universal screening may be challenging if the patients are unable to speak, read, and/or write English. They were also concerned about responding appropriately to possible cultural differences and distinguishing cultural practices from signs of IPV.

Another perceived patient barrier identified during the focus groups was the brief interaction that the patient has with the surgeon, and that the short amount of time spent with the patient is focused on the patient’s orthopaedic problem. As one participant explained, “It’s hard to develop a feeling of trust in a short period of time.”

The focus group participants acknowledged that IPV victims may be more comfortable disclosing to females than males, and the field of orthopaedic surgery is predominately male.

Focus group participants recognized that a patient-surgeon power imbalance may be present which could deter patients from disclosing. One participant described this imbalance: “There’s already a power balance right there and then there’s the body language alone and we almost always wear white coats in there. There’s just a lot of overlay that would probably inhibit the patient from disclosing some information.”

There was concern that patients may not want to disclose IPV, as revealed by the following comment: “If someone comes into the fracture clinic they may just want care for their physical injuries”. However, one participant disagreed, stating that “patients tend to trust medical professionals and may want to open up to someone”. Participants also discussed that women may not disclose due to fear of the consequences of disclosing.

Perceived Barriers Specific to Surgical Trainees Screening for IPV

In general, the surgical trainee participants felt pre-occupied with their learning and clinical activities and felt that they would not have the focus to screen for IPV. This is demonstrated by the following comment, “You are trying to do a good job at what you are, you know, at becoming a good surgeon and that’s taking a lot of our energy away”.

Surgical trainees have multiple demands on them, as illustrated by the following quote, “We’re busy with our … patient load and our next exam coming up and our … evaluation and our fellowships and our no jobs and our everything else that we think about all the time and … that you are going into the OR the next day and you have to read this tonight….”

The surgical trainees expressed concern about IPV screening influencing their relationship with the preceptor. The focus group participants clearly indicated that their preceptor would have to be supportive and encourage IPV screening.

The focus group participants also expressed concern about the lack of education and training that they received on IPV and consequently they were unsure of what to do with a positive screen. A few participants felt fearful about being held accountable due to lack of ability to identify victims as indicated in the following comment, “you saw Mrs. Smith … she had this injury, it was obviously domestic violence cause she’s dead now and this was her fourth occurrence and you didn’t pick up on it, why not doctor?”.  

152
Perceived Barriers Specific to Orthopaedic Surgeons Screening for IPV

The participants felt that the orthopaedic culture, which includes short term interaction with patients and a certain personality-type, is an important barrier. One participant explained, “I think it’s a lot of the perceptions of the surgeon, you know, not that orthopaedics isn’t a caring profession but there are some people that, you know, don’t have the best bedside manner. So I can see people feeling very reluctant to kind of share something personal”. The orthopaedic surgeons also described the belief that screening for IPV falls outside of the role of the orthopaedic surgeon and that they tend to treat the injury in isolation, as opposed to treating the social and other medical issues.

Focus group participants indicated that there is lack of a champion for promoting IPV screening and effective social support for IPV victims, as described in the following comment, “There’s no champion right now who actually works at the fracture clinic.”

System-Level Characteristics that are Facilitators for Screening for IPV in the Fracture Clinic Setting

The participants indicated that trust of the medical profession was an important facilitator, as patients often open up to medical professionals (Figure 3). One of the participants commented, “I’m sometimes surprised at how open and forthcoming patients are in the short time you get to know them the things that they’ll tell you. I mean I think there is a sort of inherent trust in the medical profession”.

The focus group identified education for surgeons and surgical trainees as an important facilitator, as described in the following comment, “I think the next step would be towards education and make it not just completely academic but with these things I think you have to have case scenarios…”

![Figure 3: Facilitators for Screening for IPV](image-url)
Changes to Fracture Clinic Processes That Would Facilitate Screening for IPV in the Fracture Clinic

The focus group participants suggested numerous changes to the fracture clinic environment to facilitate IPV screening and care for IPV victims. Examples described included having a private area where surgeons could talk to patients about confidential issues and having posters and pamphlets on IPV available within the fracture clinic to potentially help patients feel more comfortable with the topic.

Participants noted that having a prepared information package for surgeons would greatly assist in screening for IPV. One participant suggested “having something like a preprinted order pack, an abuse care package so that I know, not just academically what resources are available … it has resources for the patient that has a set of orders.”

Another idea that was raised during the focus groups with having a screening form which the patient would complete upon presentation to the fracture clinic which could help to identify high risk patients for the orthopaedic team to follow-up with.

The focus group participants suggested that they could flag the charts of potential IPV victims. The following participant describes this suggestion: “They can stick like a red dot on the chart or something and then we go okay maybe that red dot means that we should ask them …”

The focus group discussions included suggestions for changing the infrastructure within the fracture clinic to facilitate screening for IPV. These suggestions include ensuring that there is adequate support from all fracture clinic staff and the hospital.

Personnel Resources for Facilitators for Screening for IPV in the Fracture Clinic Setting

Focus group participants suggested that surgical trainees have the opportunity to spend more time with patients so that they can effectively screen for IPV, as suggested in the following comment: “I think sometimes … patients might actually disclose [IPV] to surgical trainees more than surgeons because surgical trainees tend to spend more time with the patient in the fracture clinic in terms of taking the history and doing the physical exam”.

There was a great deal of discussion on the need for a dedicated person within the fracture clinic setting to screen for and manage IPV. The following quote from a surgical trainee demonstrates this: “When we were doing the screening for the IPV Prevalence study we had, you know, students coming in and asking every patient “can I talk to you in private?” That did it quite effectively.”

Facilitators for caring for IPV victims included having a simple plan in place for the fracture clinic including the availability of a crisis team. A participant noted, “You should give them a simple plan that this is a person to contact when these are the problems in the fracture clinic or this is the person coming to the clinic every day three four hours and in case you find some clue you don’t need to waste much time because you are busy”.

Policy Implementation

Both opinion leaders were asked about the need for local and national champions to promote the need for IPV screening and care for victims within the fracture clinic setting (Figure 4). Both believed that a champion would be invaluable, as evident from
the following quote: “I think, you always need a champion not only to develop the policy but also to implement the policy.”

The interviewees identified a need to increase awareness about IPV among all health care professionals working within the fracture clinic setting. One opinion leader explained, “…the data that shows in the last year 30% of women that present to a fracture clinic have been subject to some type of IPV and I’m not so sure that that people even know those numbers so I think, you know, getting the information out there that it impacts a huge segment of the population, that the impact is substantial …”

The interviewees agreed that local policy on IPV would be beneficial in assisting patients who experience abuse. As one opinion leader stated, “…it’s easier taking a grassroots approach, you know, go to a smaller entity like a hospital or clinic…if you have enough you know clinics that a or hospitals that are sort of buying into this program which is being run more at a grassroots level then maybe at the sort of provincial or systemic level someone might so oh this is working really well or seems to be really important, what we need to do is formalize this”.

The need for research to inform policy was also discussed and both opinion leaders believed that the implementation of an IPV screening program should be evidence-based and they supported future research to better inform the decision makers.

![Figure 4: Implementation of Policies for IPV Screening](image-url)
Discussion

The present study aimed to identify barriers to and facilitators for screening and caring for IPV victims in an orthopaedic fracture clinic setting. Our findings are consistent with the published literature looking at barriers to screening for IPV in other medical specialties. Briefly, Sormanti & Smith and Colarossi et al. conducted focus groups with emergency department surgical trainees and health care professionals at an urban family planning centre to examine the perceived barriers to screening for IPV in these specific health care settings. Similar to our findings, they reported barriers to IPV screening that included time constraints, unpreparedness to screen for IPV and discuss the issue comfortably and thoroughly, lack of clarity about implementation of screening and inadequate referral resources [5, 7]. Waalen et al. conducted a review of published studies reporting on barriers to IPV screening among various health care professionals [18]. They found the following provider-related barriers: a lack of provider education regarding IPV, lack of time, and lack of effective interventions. The authors also identified the following patient-related factors: patient nondisclosure and fear of offending the patient. This review also reported that barriers to screening for IPV are documented to be similar among health care professionals across diverse specialties and medical settings. Waalen et al. did not include any studies in the field of orthopaedic surgery [18]. A recent systematic review investigating barriers to IPV screening reported by a variety of health care professionals found many barriers that were also identified in the current study such as a lack of time, language and cultural barriers, lack of training, and lack of institutional protocols [8]. The current study identified several barriers that were special to orthopaedics that the systematic review did not report in other specialties. These included lack of a “champion”, the male-dominated nature of orthopaedics, orthopaedic culture, and the perception of a patient-surgeon power imbalance. Interestingly, none of our focus group participants noted that personal discomfort with IPV, fear of offending patients, or the perception that abuse is rare are barriers to IPV screening, as were commonly noted in other specialties [8].

The published literature demonstrates an exploration of the factors that influence IPV screening in multiple areas of health care, although none of the previous literature focuses on orthopaedic fracture clinics. Our previous research in the field of IPV and orthopaedics has found that injuries requiring the consultation of an orthopaedic surgeon account for 28 percent of clinical manifestations of IPV, but IPV is underemphasized in this medical specialty [3]. A recent survey of orthopaedic surgeons reported that nine percent of the respondents believed that inquiring about IPV was an invasion of the patient’s privacy, and eleven percent believed that ruling out IPV as the cause of injury was not part of their duty [3]. The current study further explored these biases and identified barriers to screening for and addressing IPV in the orthopaedic fracture clinic. Many of the barriers identified in the current study can be addressed with education and the appropriate resources and infrastructure. For example, surgeons and trainees can learn how to approach the topic with sensitivity and confidence in their knowledge of the appropriate plan to take in the event that a patient discloses. Additionally, fracture clinics can be designed or renovated to reflect a more private environment that is conducive to discussing sensitive topics such as a patient’s experience with IPV.
Our focus groups found that the participants were, in general, supportive of implementing practices to improve IPV screening and care within the orthopaedic fracture clinic setting. They identified numerous facilitators, which could be implemented into orthopaedic fracture clinics to help effectively identify and help IPV victims. After analyzing our codes from the three focus group transcripts, it was apparent that there were many shared opinions, attitudes, and experiences among participants. For example, a common theme identified in each focus group discussion was a lack of time and privacy. However, some of the barriers identified by the surgical trainees were unique because they did not apply to the practicing orthopaedic surgeons (e.g. surgical trainee preceptor relationship). There were no other differences in the responses between groups. Our interviews with opinion leaders confirmed the findings from the focus groups and provided insight into and suggestions for implementing policies for IPV screening and providing health care professionals with the structure and support to effectively care for IPV victims.

Our methodology aimed to reduce bias and yield a purposeful sample. The qualitative descriptive method chosen for this research minimizes researcher biases as this method involves minimal interpretation of data and focuses on presenting and organizing the data in the language used by participants [19]. Recruiting volunteers to participate likely led to a bias of having individuals who are interested in the topic of IPV screening participate in our research. Since the goal in purposeful sampling is to include participants who can provide “information-rich” data [10], this bias is favorable as participants who have an interest in IPV screening are likely able to provide detailed information, experiences and perceptions about perceived barriers to and facilitators for IPV screening. In addition, the questions within the focus group guide were worded to ensure that they were neutral and did not lead the participants. The focus group facilitator used neutral probes and reflective statements to clarify what had already been discussed and to encourage more discussion among participants. The use of homogenous groups of professionals ensured that participants within each focus group had similar education levels and clinical expertise which helped to minimize bias related to conforming and suppressing minority views that might be different from views of dominant participants within the group.

This study is limited by a relatively small sample size and by having all focus group participants affiliated with one academic institution. We are also limited by having only interviewed two opinion leaders and therefore, the results of these interviews should be interpreted cautiously. The two opinion leaders were from different academic institutions which may improve the generalizability of our findings, and it should be noted that there are few opinion leaders in the field of orthopaedics in Canada who are well-versed on the topic of IPV and health policy. It is important to note that there may have been bias in deriving out focus group sample exclusively from one academic institution because this community of health care professionals and trainees has had previous exposure to IPV through education initiatives to increase awareness and sensitivity to the issue. Additionally, researchers at this institution have published research focusing on IPV within the field of orthopaedic surgery. This unique culture may have influenced the attitudes and opinions of the orthopaedic surgeons and surgical trainees and this may limit the external validity of our results. This study warrants replication in other jurisdictions and in a community setting to further determine the
generalizability of the findings. Future research could also investigate patient’s opinions of screening and caring for IPV victims within the orthopaedic fracture clinic setting.

Conclusions

There are a number of perceived barriers to screening women in the fracture clinic for IPV, many of which can be addressed through increased education and training, and additional resources in the fracture clinic. Orthopaedic health care professionals were supportive of implementing an IPV screening program in the orthopaedic fracture clinic.

Acknowledgements

The authors would like to thank the focus group participants and the opinion leaders for their time and their contributions. This study would not have been possible without their support.

References

1. McCloskey LA, Williams CM, Lichter E, Gerber M, Ganz ML, Sege R: Abused women disclose partner interference with health care: An unrecognized form of battering. *J Gen Intern Med* 2007, 22:1067-72
2. Bhandari M, Dosanjh S, Tornetta P 3rd, Matthews D; On behalf of the Violence Against Women Health Research Collaborative: Musculoskeletal manifestations of physical abuse after intimate partner violence. *J Trauma* 2006, 61:1473-9
3. Bhandari M, Sprague S, Tornetta P 3rd, D’Aurora V, Schemitsch E, Shearer H, Brink O, Matthews D, Dosanjh S: (Mis)Perceptions about intimate partner violence among orthopedic surgeons. *J Bone Joint Surg Am* 2008, 90:1590-97
4. Bhandari M, Sprague S, Dosanjh S, Petrisor B, Resendes S, Madden K, Schemitsch EH; The PRAISE Investigators: The prevalence of intimate partner violence across orthopaedic fracture clinics in Ontario. *J Bone Joint Surg Am* 2011, 93(2):132-141.
5. Sormanti M, Smith E: Intimate partner violence screening in the emergency department: US medical surgical trainees’ perspective. *Int J Community Health Educ* 2009, 30(1):21-40
6. Jaffee KD, Epling JW, Grant W, Ghandour RM, Callendar E: Physician-identified barriers to intimate partner violence screening. *J Womens Health* 2005, 14(8):713-20
7. Colarossi L, Breithart V, Betancourt G: Barriers to screening for intimate partner violence: A mixed-methods study of providers in family planning clinics. *Perspect Sex Reprod Health* 2010, 42(4):236-43
8. Sprague S, Madden K, Simunovic N, Godin K, Pham NK, Bhandari M, Goslings JC: Barriers to screening for intimate partner violence. *Women Health* 2012, 52(6):587-605
9. Sandelowski M: Whatever happened to qualitative description? *Res Nurs Health* 2000, 23:334-340
10. Patton MQ: *Qualitative research and evaluation methods (3rd ed.)*. Thousand Oaks, CA: Sage Publications, 2005.
11. Lincoln LS, Guba EG: *Naturalistic Inquiry*. Newbury Park CA: Sage Publications; 1985:219
12. Gill P, Stewart K, Treasure E, Chadwik B: Methods of data collection in qualitative research: Interviews and focus groups. *Br Dent J* 2008, 204(6):291-95
13. Hsieh H, Shannon S: Three approached to qualitative content analysis. *Qual Health Res* 2005, 15(9):1277-1288
14. Coffey A, Atkinson P: *Making sense of qualitative data: Complementary research strategies*. Thousand Oaks: Sage; 1996
15. Strauss A, Corbin J: *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage Publications, 1990:3-32
16. Rodgers BL, Cowles KV: The qualitative research audit trail: A complex collection of documentation. *Res Nurs Health* 1993, 16:219-226
17. Koch T: Establishing rigour in qualitative research: The decisions trail. *J Adv Nurs* 1994, 19:976-986
18. Waalen J, Goodwin MM, Spitz AM, Petersen R, Saltzman LE: Screening for intimate partner violence by healthcare providers: Barriers and interventions. *Am J Prev Med* 2000, 19(4):230-37
19. Milne J, Oberle K: Enhancing rigor in qualitative description. *Journal Wound Ostomy Continence Nurs* 2005, 32:413-420
CHAPTER 10

Patient Opinions of Screening for Intimate Partner Violence in a Fracture Clinic Setting (P.O.S.I.T.I.V.E.): A Multicenter Study

S Sprague, JC Goslings, BA Petrisor, V Avram, OR Ayeni, EH Schemitsch, RW Poolman, K Madden, K Godin, S Dosanjh, M Bhandari for the P.O.S.I.T.I.V.E. Investigators

Published
The Journal of Bone and Joint Surgery American Volume. 2013 Jul 3;95:e91.
Abstract

Background: Approximately one-third of injured women presenting to fracture clinics have experienced some form of intimate partner violence in the past year. The aim of the current study was to determine patients’ perceptions on screening for intimate partner violence during visits to a surgical fracture clinic.

Methods: We conducted a cross-sectional study to evaluate patients’ perceptions and opinions on screening for intimate partner violence in an orthopaedic fracture clinic. Eligible patients anonymously completed a self-reported written questionnaire, which included questions on patient demographics, attitudes towards intimate partner violence in general, the acceptability of screening for intimate partner violence in an orthopaedic fracture clinic, and opinions on how, when, and by whom the screening should be conducted.

Results: This study included 750 patients (421 male and 329 female) at five clinical sites in Canada and the Netherlands. The majority (554, 73.9%) of the respondents either "agreed" or "strongly agreed" that the fracture clinic was a good place for health-care providers to ask about intimate partner violence. The majority (671, 89.5%) also agreed that health-care providers should screen for intimate partner violence by means of face-to-face interactions rather than other, more passive methods. Increased openness to screening was significantly associated with female sex, higher income, and higher education (F_{5,359} = 21.950, p < 0.001).

Conclusions: Our findings demonstrated that the majority of patients endorse active screening for intimate partner violence in orthopaedic fracture clinics.
Introduction

Over the past several decades, intimate partner violence (IPV) has increasingly been recognized as a substantial cause of mortality and morbidity. IPV is prevalent among diverse populations, affecting both men and women regardless of their socioeconomic status, sexual orientation, age, and ethnicity. The myriad of long-term physical and emotional consequences of present and past IPV are well established.

Several studies have found that IPV is severely underreported among both male and female patient populations. A recent study assessing the prevalence of IPV among women presenting to fracture clinics in two Level-1 trauma centers found that the overall prevalence of IPV (emotional, physical, and sexual abuse) within the previous twelve months was 32%. The high prevalence of IPV among health-care users demonstrates the need for improved approaches for identifying patients in order to provide them with the opportunity for referral.

One method of identifying victims of IPV is through systematic screening programs implemented across health-care settings. Screening programs seek to encourage victims to feel comfortable speaking about their experience with IPV, as this disclosure is rarely spontaneous. The multitude of physical and psychological outcomes associated with IPV frequently lead to victims’ increased use of health-care services, including emergency, primary, and specialty care services. These visits offer several opportunities for identification of IPV victims. One systematic review of twenty studies focusing on the effectiveness and acceptability of screening women for IPV in medical settings revealed that screening programs directly increased the rate of identification of victims and that most women had no objections to being screened. Various medical fields including obstetrics, gynecology and family practice have successfully introduced screening programs for IPV.

The American College of Surgeons has stated that surgeons have a responsibility to identify IPV victims and help them to reduce or prevent further harm. In 2009, the Canadian Orthopaedic Association (COA) stated that it is “good medical practice” for health-care providers to actively identify and offer assistance to victims of IPV. To our knowledge, no previous studies have sought to identify whether patients in fracture clinics are open to being screened for IPV. The purpose of the present study was to explore patients’ opinions and preferences regarding IPV screening programs in orthopaedic fracture clinics.

Materials and Methods

Study Design

We conducted a cross-sectional study to evaluate patients’ perceptions and opinions on screening for IPV in the fracture clinic setting. The primary objective of the study was to determine whether patients in the fracture clinic thought it was acceptable for orthopaedic surgeons, orthopaedic nurses, and/or social workers in the fracture clinic to screen for IPV. Secondary key objectives included identifying (1) patients’ preferences regarding the location, timing, mode, and duration of screening; (2) the type, age, sex, and race of the health-care provider by whom patients would feel most comfortable being screened; (3) differences between the attitudes and opinions held by men and women.
regarding IPV screening; and (4) differences in the reported preferences and opinions among the study sites. Four clinical sites in Ontario, Canada and one clinical site in the Netherlands participated in the study. Research Ethics Board approval was obtained from the McMaster University/Hamilton Health Sciences Research Ethics Board and from the Research Ethics Boards at each participating site.

Participants
Male and female patients who presented to the participating orthopaedic fracture clinics were screened for eligibility. Patients may have presented for immediate treatment of an injury, for follow-up of an injury, or for a chronic problem. In order to be considered for inclusion in the study, patients had to (1) present to the orthopaedic fracture clinic for their own appointment; (2) be at least sixteen years of age; (3) be able to read, understand, and write in English (in Canada) or Dutch (in the Netherlands); and (4) be able to separate themselves from anyone who accompanied them to the clinic, in order to ensure that they could complete the questionnaire in privacy. Patients were excluded if they were too ill or injured to participate or if they were cognitively impaired. Once patients were deemed eligible, informed consent was obtained and they were provided with the self-reported written questionnaire, which was completed anonymously. Participants were also provided with an IPV resource sheet for the local area if they were interested.

Study Questionnaire
The questionnaire comprised forty-five questions and was developed for the purposes of this study. The questionnaire provided patients with a definition of IPV and included questions on patient demographics, attitudes toward IPV in general, acceptability of IPV screening in an orthopaedic fracture clinic setting, and opinions on how, when, and by whom IPV screening in the orthopaedic fracture clinic should be conducted. The questionnaire was reviewed by content experts for face validity and piloted by a small subset of orthopaedic surgeons to ensure that the questions were unambiguous and appropriately targeted the domains of interest.

Study Sample Size
To ensure a ±5% margin of error around our estimates under the assumption of a total clinic population size of 20,000 and an anticipated 50% endorsement of screening across all centers over the recruitment period, we projected the need for at least 370 eligible and included study participants (http://www.raosoft.com/samplesize.html). To limit the risk of under powering of the study, we approximately doubled this value. The resulting sample size of 750 patients (150 from each of the participating study sites) was larger than those in previously published surveys on IPV screening and was sufficient to provide meaningful results.

Data Analysis
Completed questionnaires were entered into a study-specific database, and descriptive statistics (including frequency counts and percentages) were calculated for all collected data. Continuous data are presented as the mean and the standard deviations. Chi-square tests were performed to determine whether any significant differences existed.
among the clinical sites. Chi-square tests were also performed to determine whether any differences existed between the attitudes and preferences of men and women regarding IPV screening. For the series of questions inquiring about patient opinions, descriptive statistics were used to analyze the frequency of each answer.

The responses to each of the twenty questions related to the patient’s openness to being screened for IPV were coded on a scale of one (least open) to five (most open), and the scores for the twenty questions were added to obtain an overall score (possible range, 20 to 100) for each participant. A stepwise regression analysis was performed to determine whether the following demographic characteristics related to a patient’s openness to being screened for IPV: age (as a continuous variable), sex, income level, education level (up to high school compared with post-secondary), marital status, the length of the relationship, country (a Canadian compared with a Dutch clinical site), and whether or not the patient had children.

Patients who completed part of the questionnaire were included in the analysis; no statistical exploration process was carried out for the missing information. All data analyses were performed with the use of SPSS software (version 20.0; IBM, Armonk, New York).

Results

Recruitment (Figure 1)

Each participating site enrolled 150 eligible, consenting patients, resulting in a total of 750 patients included in the overall study cohort. Three of the five participating sites collected data on recruitment, including the number of patients excluded and reasons for exclusion. A total of 238 patients at these three sites were excluded from the study.
Figure 1: Flowchart of Study Recruitment

**Patient Demographics**

The majority of participants in the study were white (81%; 610 of 750), and the mean age (and standard deviation) of the participants was 45 ± 17 years (Table 1). Just over one-half (56%) of the participants were male. Reasons for reporting to the fracture clinic included treatment of a fracture (40%), a sprain or strain (10%), a soft-tissue problem (8%), and arthritis (7%).

**Acceptability of Screening for IPV in the Fracture Clinic**

The majority of respondents (74%) indicated that the fracture clinic was a good place for health-care providers to ask patients about their experiences with IPV (Table 2). Nearly all respondents (94%) either agreed or strongly agreed that orthopaedic surgeons should look for the cause of a patient's injury, and 61% agreed that orthopaedic surgeons could help with IPV. The role of nurses and social workers in supporting victims of IPV within the fracture clinic setting was also endorsed. Nearly 80% of respondents agreed that it would be easier for victims of IPV to get help if health-care providers in the fracture clinic asked about abuse. Participant responses were similar across the five clinical sites.
Table 1: Characteristics of Respondents

| Characteristic                                      | All Respondents, N = 750 |
|-----------------------------------------------------|---------------------------|
| Mean age and std.dev. (yr)                          | 45.4 ± 16.6               |
| Age in yr (no. [%])                                 |                           |
| 16-19                                               | 42 (5.6)                  |
| 20-29                                               | 131 (17.5)                |
| 30-39                                               | 108 (14.4)                |
| 40-49                                               | 140 (18.7)                |
| 50-59                                               | 158 (21.1)                |
| 60-69                                               | 110 (14.7)                |
| ≥ 70                                                | 53 (7.1)                  |
| Declined to answer                                  | 8 (1.1)                   |
| Sex (no. [%])                                       |                           |
| Female                                              | 329 (43.9)                |
| Male                                                | 421 (56.1)                |
| Declined to answer                                  | 0 (0)                     |
| Yearly household income in Canadian dollars*        |                           |
| < 20 000                                            | 104 (13.9)                |
| 20 000 to < 40 000                                  | 124 (16.5)                |
| 40 000 to < 60 000                                  | 148 (19.7)                |
| 60 000 to < 80 000                                  | 112 (14.9)                |
| 80 000 to < 100 000                                 | 76 (10.1)                 |
| ≥ 100 000                                           | 140 (18.7)                |
| Declined to answer                                  | 46 (6.1)                  |
| Highest level of education completed (no. [%])      |                           |
| No high school education                            | 19 (2.5)                  |
| Some high school education                          | 56 (7.5)                  |
| High school diploma                                 | 164 (21.9)                |
| College or trade school                             | 241 (32.1)                |
| Bachelors degree (including BEd)                    | 159 (21.2)                |
| Masters degree                                      | 70 (9.3)                  |
| Doctorate degree                                    | 9 (1.2)                   |
| Professional degree (MD, DDS)                       | 20 (2.7)                  |
| Declined to answer                                  | 12 (1.6)                  |
| Ethnicity (no. [%])                                 |                           |
| White                                               | 610 (81.3)                |
| Asian                                               | 25 (3.3)                  |
| African Canadian                                    | 15 (2.0)                  |
| South-East Asian                                    | 14 (1.9)                  |
| Mixed                                               | 14 (1.9)                  |
| Native Canadian                                     | 12 (1.6)                  |
| Middle-Eastern                                      | 11 (1.5)                  |
| Suriname/Creole/Hindu                               | 9 (1.2)                   |
| Hispanic-Latino                                     | 8 (1.1)                   |
| Other                                               | 25 (3.3)                  |
| Declined to answer                                  | 7 (0.9)                   |
Table 1: Characteristics of Respondents (Continued)

| Characteristic | All Respondents, N = 750 |
|----------------|--------------------------|
| Marital status (no. [%]) |                           |
| Married         | 359 (47.9)               |
| Single          | 216 (28.8)               |
| Divorced or separated | 63 (8.4)              |
| Common law      | 63 (8.4)                 |
| Widowed         | 29 (3.9)                 |
| Other           | 16 (2.1)                 |
| Declined to answer | 4 (0.5)            |
| Length of current relationship in yr (no. [%]) |                        |
| No relationship | 219 (29.2)               |
| <1              | 27 (3.6)                 |
| 1-5             | 84 (11.2)                |
| 6-10            | 63 (8.4)                 |
| 11-20           | 94 (12.5)                |
| 21-30           | 104 (13.9)               |
| 31-40           | 77 (10.3)                |
| > 40            | 68 (9.1)                 |
| Declined to answer | 14 (1.9)             |
| Children (no. [%]) |                           |
| Yes             | 434 (57.9)               |
| No              | 287 (38.3)               |
| Declined to answer | 29 (3.9)             |
| Sexual orientation (no. [%]) |                    |
| Heterosexual    | 675 (90.0)               |
| Homosexual      | 29 (3.9)                 |
| Bisexual        | 10 (1.3)                 |
| Other           | 6 (0.8)                  |
| Declined to answer | 30 (4.0)             |
| Injury/condition being treated at fracture clinic (no. [%]) |                     |
| Fracture        | 298 (39.7)               |
| Sprain or strain | 73 (9.7)                |
| Soft-tissue problem | 60 (8.0)            |
| Arthritis       | 53 (7.1)                 |
| Joint replacement | 38 (5.1)              |
| Dislocation     | 25 (3.3)                 |
| Femoroacetabular impingement | 16 (2.1)       |
| More than one   | 51 (6.8)                 |
| Unsure          | 40 (5.3)                 |
| Other           | 99 (12.0)                |
| Declined to answer | 6 (0.8)               |

*1 Canadian dollar was approximately equal to 1 U.S. dollar at the time.
† Patients were able to select more than one option, as applicable.
Table 2: Patients' Opinions on the Acceptability of Screening for IPV in the Fracture Clinic By Orthopaedic Surgeons, Orthopaedic Nurses, and/or Social Workers*

| Statement and Response | All Sites, N =750 | HHS-General, N =150 | HHS-Chedoke, N =150 | HHS-McMaster, N =150 | St. Michael’s, N =150 | AMC, N =150 |
|------------------------|-------------------|---------------------|---------------------|---------------------|---------------------|------------|
| **The fracture clinic is a good place for HCPs to ask about IPV** |                    |                     |                     |                     |                     |            |
| Strongly agree/agree   | 554 (73.9)        | 96 (64.0)           | 120 (80.0)          | 112 (74.7)          | 97 (64.7)           | 129 (86.0) |
| Neutral                | 131 (17.5)        | 32 (21.3)           | 21 (14.0)           | 22 (14.7)           | 38 (25.3)           | 18 (12.0)  |
| Disagree/strongly disagree | 63 (8.4)       | 22 (14.7)           | 9 (6.0)             | 16 (10.7)           | 14 (9.3)            | 2 (1.3)    |
| Declined to answer     | 2 (0.3)           | 0 (0.0)             | 0 (0.0)             | 0 (0.0)             | 1 (0.7)             | 1 (0.7)    |
| **Orthopaedic surgeons should look for the cause of a patient's injury** |                    |                     |                     |                     |                     |            |
| Strongly agree/agree   | 703 (93.7)        | 138 (92.0)          | 147 (98.0)          | 145 (96.7)          | 138 (92.0)          | 135 (90.0) |
| Neutral                | 28 (3.7)          | 5 (3.3)             | 3 (2.0)             | 2 (1.3)             | 7 (4.7)             | 11 (7.3)   |
| Disagree/strongly disagree | 14 (1.9)       | 6 (4.0)             | 0 (0.0)             | 3 (2.0)             | 2 (1.3)             | 3 (2.0)    |
| Declined to answer     | 5 (0.7)           | 1 (0.7)             | 0 (0.0)             | 0 (0.0)             | 3 (2.0)             | 1 (0.7)    |
| **Orthopaedic surgeons can help with IPV** |                    |                     |                     |                     |                     |            |
| Strongly agree/agree   | 456 (60.8)        | 78 (52.0)           | 92 (61.3)           | 95 (63.3)           | 87 (58.0)           | 104 (69.3) |
| Neutral                | 224 (29.9)        | 50 (33.3)           | 45 (30.0)           | 42 (28.0)           | 48 (32.0)           | 39 (26.0)  |
| Disagree/strongly disagree | 64 (8.5)       | 21 (14.0)           | 13 (8.7)            | 12 (8.0)            | 14 (9.3)            | 4 (2.7)    |
| Declined to answer     | 6 (0.8)           | 1 (0.7)             | 0 (0.0)             | 1 (0.7)             | 1 (0.7)             | 3 (2.0)    |
| **Nurses in the fracture clinic can help with IPV** |                    |                     |                     |                     |                     |            |
| Strongly agree/agree   | 503 (67.1)        | 93 (62.0)           | 93 (62.0)           | 101 (67.3)          | 104 (69.3)          | 112 (74.7) |
| Neutral                | 189 (25.2)        | 40 (26.7)           | 48 (32.0)           | 37 (24.7)           | 34 (22.7)           | 30 (20.0)  |
| Disagree/strongly disagree | 52 (6.9)       | 16 (10.7)           | 9 (6.0)             | 11 (7.3)            | 11 (7.3)            | 5 (3.3)    |
| Declined to answer     | 6 (0.8)           | 1 (0.7)             | 0 (0.0)             | 1 (0.7)             | 1 (0.7)             | 3 (2.0)    |
| **Social workers in the fracture clinic can help with IPV** |                    |                     |                     |                     |                     |            |
| Strongly agree/agree   | 648 (86.4)        | 129 (86.0)          | 132 (88.0)          | 131 (87.3)          | 129 (86.0)          | 127 (84.7) |
| Neutral                | 75 (10.0)         | 11 (7.3)            | 16 (10.7)           | 14 (9.3)            | 15 (10.0)           | 19 (12.7)  |
| Disagree/strongly disagree | 21 (2.8)       | 8 (5.3)             | 2 (1.3)             | 5 (3.3)             | 5 (3.3)             | 1 (0.7)    |
| Declined to answer     | 6 (0.8)           | 2 (1.3)             | 0 (0.0)             | 0 (0.0)             | 1 (0.7)             | 3 (2.0)    |
Table 2: Patients' Opinions on the Acceptability of Screening for IPV in the Fracture Clinic By Orthopaedic Surgeons, Orthopaedic Nurses, and/or Social Workers* (Continued)

| Statement and Response | All Sites, N =750 | HHS-General, N =150 | HHS-Chedoke, N =150 | HHS-McMaster, N =150 | St. Michael's, N =150 | AMC, N =150 |
|------------------------|------------------|---------------------|---------------------|---------------------|---------------------|-------------|
| It would be easier for victims of IPV to get help if HCPs in the fracture clinic asked about abuse | | | | | | |
| Strongly agree/agree | 598 (79.7) | 113 (75.3) | 131 (87.3) | 118 (78.7) | 116 (77.3) | 120 (80.0) |
| Neutral | 112 (14.9) | 24 (16.0) | 15 (10.0) | 26 (17.3) | 25 (16.7) | 22 (14.7) |
| Disagree/strongly disagree | 34 (4.5) | 12 (8.0) | 4 (2.7) | 5 (3.3) | 7 (4.7) | 6 (4.0) |
| Declined to answer | 6 (0.8) | 1 (0.7) | 0 (0.0) | 1 (0.7) | 2 (1.3) | 2 (1.3) |
| Who would you feel comfortable talking about IPV with at the fracture clinic?† | | | | | | |
| Orthopaedic surgeon | 429 (57.2) | 89 (59.3) | 95 (63.3) | 110 (73.3) | 75 (50.0) | 60 (40.0) |
| Social worker | 547 (72.9) | 117 (78.0) | 113 (75.3) | 116 (77.3) | 107 (71.3) | 94 (62.7) |
| Orthopaedic nurse | 381 (50.8) | 79 (52.7) | 88 (58.7) | 88 (58.7) | 74 (49.3) | 52 (34.7) |
| Nobody | 58 (7.7) | 17 (11.3) | 13 (7.3) | 7 (4.7) | 16 (10.7) | 7 (4.7) |
| Other | 60 (8.0) | 17 (11.3) | 8 (5.3) | 7 (4.7) | 7 (4.7) | 21 (14.0) |
| Family doctor/general practitioner | 11 (1.5) | 2 (1.3) | 1 (0.7) | 0 (0.0) | 0 (0.0) | 8 (5.3) |
| Priest/chaplain | 7 (0.9) | 3 (2.0) | 0 (0.0) | 0 (0.0) | 3 (2.0) | 1 (0.7) |
| Declined to answer | 23 (3.1) | 1 (0.7) | 3 (2.0) | 4 (2.7) | 10 (6.7) | 5 (3.3) |

* HHS = Hamilton Health Sciences, AMC = Academic Medical Center, and HCP = health-care provider. Values are given as the number of respondents, with the percentage in parentheses. † Respondents were instructed to select as many of the available answers as they liked.
Patient Opinions on the Logistics of Screening

Nearly one-quarter of all respondents indicated that health-care providers in the fracture clinic should ask all women and all men about IPV (26% and 24%, respectively) (Table 3). The majority of respondents thought that both women and men with suspicious injuries should be asked about IPV (73% and 68%, respectively). Talking face-to-face was the method of IPV screening endorsed by the vast majority of respondents (90%), followed by written questionnaires (22%). The overwhelming majority of respondents believed that screening should occur in a private location (91%) and that health-care providers should ask questions written by experts (72%).

Respondents also varied greatly in their opinions on what health-care providers in the fracture clinic should do when patients report that an intimate partner has abused them. The most common response involved asking the patients what they wanted to do (68%), followed by referral to hospital resources (60%) and to community resources (58%). Thirty-six percent indicated that the health-care provider should respond to such a situation by notifying the police. Less than 1% of respondents believed that the health-care provider should do nothing when patients disclosed that they had been abused. Participant responses were similar across the five clinical sites.

Table 3: Patient Preferences on Location, Timing, Mode, and Duration of Screening

| Statement and Response* | All Respondents, N=750 (no. [%]) |
|-------------------------|-----------------------------------|
| Who do you think HCPs in the fracture clinic should ask about IPV? † |                                   |
| All women               | 196 (26.1)                        |
| Women with suspicious injuries | 548 (73.1)                  |
| All men                 | 176 (23.5)                        |
| Men with suspicious injuries  | 507 (67.6)                |
| Only patients who bring it up first | 122 (16.3)     |
| Nobody                  | 20 (2.7)                          |
| Other                   | 16 (2.1)                          |
| Declined to answer      | 18 (2.4)                          |
| How much time should fracture clinic staff spend talking about IPV with a patient? |                                   |
| About one minute        | 20 (2.7)                          |
| One to five minutes     | 56 (7.5)                          |
| More than five minutes  | 22 (2.9)                          |
| As much time as necessary | 602 (80.3)                     |
| No time                 | 18 (2.4)                          |
| Other                   | 15 (2.0)                          |
| Declined to answer      | 17 (2.3)                          |
| Which of these methods would you like HCPs to use to screen for IPV? † |                                   |
| Talking face-to-face    | 671 (89.5)                        |
| Written questionnaire   | 168 (22.4)                        |
| Computer-based questionnaire | 59 (7.9)                      |
| None of these           | 14 (1.9)                          |
| Other                   | 9 (1.2)                           |
| Declined to answer      | 15 (2.0)                          |
| When HCPs screen for IPV, they should do it in a private location. |                                   |
| Strongly agree/agree    | 685 (91.3)                        |
| Neutral                 | 33 (4.4)                          |
| Disagree/strongly disagree | 23 (3.1)                      |
| Declined to answer      | 9 (1.2)                           |
Table 3: Patient Preferences on Location, Timing, Mode, and Duration of Screening (Continued)

| Statement and Response* | All Respondents, N = 750 no. [%] |
|-------------------------|----------------------------------|
| When HCPs screen for IPV, they should ask questions written by experts. |                                      |
| Strongly agree/agree    | 536 (71.5)                        |
| Neutral                 | 155 (20.7)                        |
| Disagree/strongly disagree | 46 (6.1)                         |
| Declined to answer      | 13 (1.7)                          |
| When HCPs screen for IPV, they should ask about abuse directly. |                                      |
| Strongly agree/agree    | 423 (56.4)                        |
| Neutral                 | 220 (29.3)                        |
| Disagree/strongly disagree | 93 (12.4)                      |
| Declined to answer      | 14 (1.9)                          |
| When HCPs screen for IPV, they should ask everybody the same questions. |                                      |
| Strongly agree/agree    | 312 (41.6)                        |
| Neutral                 | 177 (23.6)                        |
| Disagree/strongly disagree | 249 (33.2)                   |
| Declined to answer      | 12 (1.6)                          |
| What should HCPs in the fracture clinic do when patients tell them they have been abused by an intimate partner†? |                                      |
| Call the police          | 268 (35.7)                        |
| Give out pamphlets and information | 309 (41.2)                   |
| Refer patients to community resource | 433 (57.7)                  |
| Refer patients to hospital resources | 447 (59.6)                  |
| Ask the patient what they want to do | 510 (68.0)                |
| Do nothing              | 7 (0.9)                           |
| Other                   | 65 (7.3)                          |
| Declined to answer      | 18 (2.4)                          |

* HCP = health-care provider
† Respondents were instructed to select as many of the available answers as they liked.

Comfort Level with Screeners

Seventy-three percent of the participants indicated that they would be comfortable discussing IPV with a social worker in the fracture clinic; 57%, with an orthopaedic surgeon; and 51%, with an orthopaedic nurse (Table 2). Few (8%) of the respondents reported they would be uncomfortable discussing IPV with any health-care provider in the fracture clinic. Respondents demonstrated a clear preference for having an older compared with a young health-care provider ask them about IPV (Figure 2). Participant responses were similar across the five clinical sites.
Figure 2: Participant Comfort with Being Screened by Certain Healthcare Providers (HCPs)
**General Opinions on IPV and IPV Screening According to Sex**

There were significant differences between male and female participants' opinions on IPV and IPV screening (Table 4). For example, more female than male participants (74% compared with 55%) perceived IPV committed against men as a serious health issue ($p < 0.001$). Additionally, 57% of female respondents compared with 45% of male respondents disagreed or strongly disagreed with the statement that it would be embarrassing to be asked about IPV by a health-care provider ($p = 0.004$). There were no significant differences between male and female participants' opinion that IPV was a serious health in general.

Table 4: General Opinions of IPV Screening According to Sex

| Statement and Response* | Females, $N = 329$ (no. [%]) | Males, $N = 421$ (no. [%]) | $P$ Value |
|-------------------------|-------------------------------|-------------------------------|-----------|
| **IPV is a serious health issue.** | | | |
| Strongly agree/agree | 293 (89.1) | 367 (87.2) | 0.171 |
| Neutral | 14 (4.3) | 32 (7.6) | |
| Disagree/strongly disagree | 19 (5.8) | 22 (5.2) | |
| Declined to answer | 3 (0.9) | 9 (0.0) | |
| **IPV is a private issue that should be settled only by the couple involved.** | | | |
| Strongly agree/agree | 15 (4.6) | 36 (8.6) | 0.001 |
| Neutral | 20 (6.1) | 52 (12.4) | |
| Disagree/strongly disagree | 292 (88.8) | 331 (78.6) | |
| Declined to answer | 2 (0.6) | 2 (0.5) | |
| **I am skeptical that the health care system has the resources to screen for IPV.** | | | |
| Strongly agree/agree | 111 (33.7) | 147 (34.9) | <0.001 |
| Neutral | 96 (29.2) | 171 (40.6) | |
| Disagree/strongly disagree | 167 (50.8) | 193 (45.5) | |
| Declined to answer | 6 (1.8) | 3 (0.7) | |
| **Being asked about IPV by an HCP will put the victim in more danger.** | | | |
| Strongly agree/agree | 48 (14.6) | 64 (15.2) | 0.302 |
| Neutral | 107 (32.5) | 159 (37.8) | |
| Disagree/strongly disagree | 167 (50.8) | 193 (45.5) | |
| Declined to answer | 7 (2.1) | 3 (0.7) | |
| **It is important for HCPs to talk to patients about IPV.** | | | |
| Strongly agree/agree | 302 (91.8) | 348 (82.7) | <0.001 |
| Neutral | 15 (4.6) | 49 (11.6) | |
| Disagree/strongly disagree | 8 (2.4) | 24 (5.7) | |
| Declined to answer | 4 (1.2) | 0 (0.0) | |
| **IPV against men is a serious health issue.** | | | |
| Strongly agree/agree | 242 (73.6) | 232 (55.1) | <0.001 |
| Neutral | 66 (20.1) | 133 (31.6) | |
| Disagree/strongly disagree | 16 (4.9) | 48 (11.4) | |
| Declined to answer | 5 (1.5) | 8 (1.9) | |
| **It would be embarrassing to be asked about IPV by an HCP.** | | | |
| Strongly agree/agree | 67 (20.4) | 113 (26.8) | 0.004 |
| Neutral | 70 (21.3) | 115 (27.3) | |
| Disagree/strongly disagree | 187 (56.8) | 189 (44.9) | |
| Declined to answer | 5 (1.5) | 4 (1.0) | |
Table 4: General Opinions of IPV Screening According to Sex (Continued)

| Statement and Response* | Females, N =329 (n/o [%]) | Males, N =421 (n/o [%]) | P Value |
|-------------------------|---------------------------|--------------------------|---------|
| If HCPs ask women about IPV, it is only fair that they ask men too. | | | |
| Strongly agree/agree | 289 (87.8) | 325 (77.2) | 0.001 |
| Neutral | 26 (7.9) | 64 (15.2) | |
| Disagree/strongly disagree | 8 (2.4) | 23 (5.5) | |
| Declined to answer | 6 (1.8) | 9 (2.1) | |
| Women would be offended or angry if an orthopaedic surgeon asked about IPV. | | | |
| Strongly agree/agree | 55 (16.7) | 66 (15.7) | <0.001 |
| Neutral | 99 (30.1) | 198 (47.0) | |
| Disagree/strongly disagree | 173 (52.6) | 145 (34.4) | |
| Declined to answer | 2 (0.6) | 12 (2.9) | |
| Women would be offended or angry if a social worker asked about IPV. | | | |
| Strongly agree/agree | 52 (15.8) | 67 (15.9) | <0.001 |
| Neutral | 83 (25.2) | 183 (43.5) | |
| Disagree/strongly disagree | 191 (58.1) | 157 (37.3) | |
| Declined to answer | 3 (0.9) | 14 (3.3) | |
| Men would be offended or angry if an orthopaedic surgeon asked about IPV. | | | |
| Strongly agree/agree | 126 (38.3) | 122 (29.0) | 0.017 |
| Neutral | 93 (28.3) | 136 (32.3) | |
| Disagree/strongly disagree | 99 (30.1) | 154 (36.6) | |
| Declined to answer | 11 (3.3) | 9 (2.1) | |
| Men would be offended or angry if a social worker asked about IPV. | | | |
| Strongly agree/agree | 132 (40.1) | 126 (29.9) | 0.008 |
| Neutral | 86 (26.1) | 139 (33.0) | |
| Disagree/strongly disagree | 102 (31.0) | 150 (35.6) | |
| Declined to answer | 9 (2.7) | 6 (1.4) | |

* HCP = health-care professional.

Openness to Screening

The stepwise regression analysis yielded a significant model ($F_{3595} = 21.950$, $p < 0.001$). The following characteristics were associated with increased openness to screening: being female ($p < 0.0001$), having higher income ($p < 0.0001$), and having higher education ($p = 0.035$). These characteristics predicted 9.5% of the variation (adjusted $R^2 = 0.095$) on the twenty questions regarding patient’s openness to being screened for IPV. Age, marital status, having children, being at a Canadian compared with a Dutch clinical site, and the length of relationship were not significant predictors in the model. The participants were generally very open to being screened, as the mean score for the twenty questions regarding openness to screening was 75.1 ± 9.4.

Discussion

The findings of this multicentre study suggest strong patient endorsement of IPV screening within the surgical fracture clinic setting. Patients indicated that surgeons, as the primary providers of care, should investigate the root cause of injuries. In response to questions
regarding which health-care provider should screen for IPV in the fracture clinic, patients indicated that a variety of health-care providers could have a critical role in detecting and managing cases of IPV. Although the responses suggested that patients felt social workers to be the most helpful in addressing the needs of IPV victims, the majority of participants felt that orthopaedic surgeons and nurses working in the fracture clinic could also help with IPV screening. Our findings imply that a team of multidisciplinary health-care providers in the fracture clinic setting could play a major role in identifying and helping IPV victims.

Approximately three-fourths of respondents questioned the need for universal screening of patients. Universal screening would involve health-care providers asking all patients (male and female) in their practice about their experiences with IPV (e.g., as a standard question in patient visits). In the current study, respondents also questioned the need for screening all female patients who present to the fracture clinic. Several previous studies have supported the implementation of universal screening programs for IPV (in contrast to incident-based or selected screening programs). Rodriguez et al. cited several reasons for universal screening for IPV, including the high prevalence, the array of acute and chronic health problems that are associated with IPV, the low level of suspicion and inquiry on the part of physicians, the general unwillingness of abuse victims to volunteer information, and the high level of patient acceptance of direct physician inquiry. In addition, multiple instances of IPV may be missed in incident-based or selected screening initiatives. Furthermore, clinician inquiry has been shown to be the most important determinant of a patient's disclosure of IPV to health-care providers. Our study suggests that patients may need additional education on the benefits of, and rationale for, a universal IPV screening program within the fracture clinic setting. It is imperative that health-care providers foster a relationship grounded in trust and openness with their patients in order to make sensitive discussions (such as ones focused on IPV) more comfortable and honest.

We found that patients preferred screening to be performed face-to-face with their health-care provider and in a private location. Our findings on the preferred mode of screening directly contradict the findings of a 2006 randomized controlled trial that found face-to-face screening to be the least preferred approach among patients, with computerized and written methods being the most favored. Most of the participants in the present study felt that, during screening, health-care providers should ask questions written by experts and should ask about abuse directly. This indicates that patients would consider a standard screening tool and favor a direct method of screening. The ethnicity of the health-care provider screening for IPV was a less important factor to participants in the present study than the provider’s age or sex was. These preferences should be taken into account when developing a successful screening program in a health-care setting, as patients who are comfortable discussing IPV with their health-care provider may be more open to disclosing whether they have been or are being abused.

There were significant differences between the attitudes of men and women regarding general questions about IPV and IPV screening. This was evident in questions regarding whether IPV against men was a serious health issue, whether health-care providers who ask women about IPV should ask men as well, and whether it would be embarrassing to be asked about IPV by a health-care provider. These discrepancies could be explained by the widespread notion in our society that men are perceived as physically superior to women and may be ridiculed if they disclose abuse. However, despite the differences in responses between the sexes, the majority of all respondents indicated that they would not be embarrassed or offended if asked about IPV by a health-care provider. This finding serves as direct evidence against the misperception outlined in
Bhandari et al.\textsuperscript{24}, who reported that 19\% of the surgeons surveyed believed that patients would get angry if asked about IPV. Multiple studies investigating patient opinions on IPV screening in other medical specialties have also revealed that most patients did not mind being asked about IPV and would be glad if someone showed interest in helping.\textsuperscript{16,23,26} A slightly greater proportion (26.8\%) of men in our sample strongly agreed or agreed that being asked about IPV would be embarrassing. This suggests that health-care providers should take a different approach with male patients than with female patients when broaching the topic of IPV.

\textbf{Strengths and Limitations}  
Our results were strengthened by the use of trained female research coordinators to maximize enrollment and recruitment of both men and women sixteen years of age or older. The study cohort varied greatly in many characteristics, including age, sex, yearly household income, educational attainment, marital status, the length of the current relationship, and the injury or condition that was being treated at the fracture clinic. This diverse collection of participants is highly representative of individuals who may experience IPV at some point in their lifetime, increasing the external validity of our findings. Our inclusion of male fracture clinic patients offers a unique perspective on the issue of IPV screening. The majority of studies that have examined patients' preferences and opinions regarding IPV have only evaluated female patients' perspectives. Because participants completed the survey independently (without their accompanying friend, family member, or partner present) and anonymously, we believe that the responses are an accurate depiction of the opinions and values of fracture clinic patients in general.

There are a few limitations to this study. First, only English-speaking patients were included from the Canadian sites and only Dutch and English speakers were included from the site in the Netherlands. This exclusion of patients on the basis of language may have resulted in selection bias. Culture may influence attitudes on IPV and IPV screening, and consideration of the perceptions of non-English-speaking individuals might have added to this study. Selection bias may have also been introduced by the exclusion of critically ill patients. Furthermore, the use of the self-completed questionnaire in a private location resulted in some missing data, which we were unable to retrieve later because the questionnaires were anonymous in design. Additionally, because of resources limitations, two of the participating sites were unable to collect information on patient screening. However, the data regarding screening and patient exclusion at these sites would presumably not be drastically different from the patterns exhibited at the other sites.

Our results demonstrate that fracture clinic patients were amenable to, and supported, active screening approaches for IPV. There is a need for increased awareness in the surgical community regarding IPV, with focused educational initiatives to prepare and engage surgeons to appropriately screen patients.

\textbf{Acknowledgements}  
The authors acknowledge and thank the P.O.S.I.T.I.V.E. (Patient Opinions of Screening for Intimate Partner Violence) Investigators. McMaster University (Methods Centre): Sheila Sprague, Mohit Bhandari, Kim Madden, Katelyn Godin, Sonia Dosanjh, and Nicole Simunovic. Academic Medical Center: J.C. Goslings, Susan Beerekamp, and Aniek Bagijn. Hamilton Health Sciences – General Site: Brad Petrisor, Teresa Chien, and Sarah Resendes. Hamilton Health
References

1. Chalk R, King P. Violence in Families: Assessing Prevention and Treatment Programs. Washington, DC: National Academy Press; 1998.
2. Barber CF. Domestic violence against men. Nursing Standard, 2008;22,35-59.
3. Stinson CK, Robinson R. Intimate partner violence: continuing education for registered nurses. The Journal of Continuing Education in Nursing, 2002;37,58-62.
4. Cherniak D, Grant L, Mason R, Moore B, Pellizzari R. Intimate partner violence consensus statement. Journal of Obstetrics and Gynaecology Canada, 2005;27,36588.
5. Davis JW. Domestic violence: the “rule of thumb”: 2008 western trauma association presidential address. The Journal of Trauma, 2008; 65,969-74.
6. Campbell JC. Health consequences of intimate partner violence. Lancet 2002;359: 1331-6.
7. PRAISE Investigators. Bhandari M, Sprague S, Dosanjh S, Wu V, Schemitsch EH. Prevalence of abuse and intimate partner violence surgical evaluation (P.R.A.I.S.E.): rationale and design of a multi-center cross-sectional study. BMC Musculoskeletal Disorders, 2010;11,1-9.
8. Bhandari M, Sprague S, Dosanjh S, Petrisor B, Resendes S, Madden K, Investigators PRAISE. The prevalence of intimate partner violence across orthopaedic fracture clinics in Ontario. The Journal of Bone and Joint Surgery, 2011:93,1-10.
9. Canadian Orthopaedic Association. Intimate partner violence. Jun 2009. Retrieved December 14, 2010, from http://www.coa-aco.org/library/health-policy/intimate-partner-violence.html
10. Plichta SB. Intimate partner violence and physical health consequences: Policy and practice implications. J Interpers Violence 2004;19:1296-1323.
11. Ramsay J, Richardson J, Carter YH, Davidson LL, Feder G. Should health professionals screen women for domestic violence? Systematic review. BMJ 2002; 325(7359):314.
12. Naumann P, Langford D, Torres S, Jacquelyn Campbell J, Glass N. Women battering in primary care practice. Family Practice. 1999;16(4):343-353.
13. American College of Surgeons. Statement on domestic violence. Bulletin of the American College of Surgeons, 2000:85.26.
14. Hurley KF, Brown-Maher T, Campbell SG, Wallace T, Venugopal R, Bagg S. Emergency department patients’ opinions of screening for intimate partner violence among women. Emerg Med J. 2005;22:97-98.
15. Hayden SR, Barton ED, Hayden M. Domestic violence in the emergency department: How do women prefer to disclose and discuss the issues? J Emerg Med 1997;15(4):447-451.
16. McNeill L, Carlson BE, Gagen D, Winterbauer N. Reproductive violence screening in primary care: Perspectives and experiences of patients and battered women. J Am Med Women Assoc 1999;54(2):85-90.
17. Rodriguez MA, Bauer HM, McLoughlin E, Grumbach K. Screening and intervention for intimate partner abuse practices and attitudes of primary care physicians. JAMA 1999;282(5):468-474.

18. Rhodes KV, Lauderdale DS, He T, Howes DS, Levinson W. "Between me and the computer": increased detection of intimate partner violence using a computer questionnaire. Ann Emerg Med. 2002 Nov;40(5):476-84.

19. Larkin GL, Hyman KB, Mathias SR, D'Amico F, MacLeod BA. Universal screening for intimate partner violence in the emergency department: Importance of patient and provider factors. Annals of Emergency Medicine 1999; 33(6): 669-675.

20. Zachary MJ, Mulvihill MN, Burton WB, Goldfrank LR. Domestic abuse in the emergency department: Can a risk profile be defined? Academic Emergency Medicine 2001;8(8):796–803.

21. Horan DL, Chapin J, Klein L, Schmidt LA, Schulkin J. Domestic violence screening practices of obstetricians-gynecologists. Obstet Gynecol 1998;92(5):785-789.

22. Richardson J, Coid J, Petrukevitch A, Chung WS, Moorey S, Feder G. Identifying domestic violence: cross sectional study in primary care. BMJ 2002;324(7332):274.

23. MacMillan HL, Wathen CN, Jamieson E, Boyle M, McNutt LA, Worster A, Lent B, Webb M. McMaster Violence Against Women Research Group. Approaches to screening for intimate partner violence in health care settings: a randomized trial. Journal of the American Medical Association, 2006;296,530- 536.

24. Bhandari M, Sprague S, Tornetta P, D'Aurora V, Schemitsch E, Shearer H, Brink O, Mathews D, Dosanjh S. (Mis)perceptions about intimate partner violence in women presenting for orthopaedic care: a survey of Canadian orthopaedic surgeons. Journal of Bone and Joint Surgery, 2008;90,1590-7.

25. Friedman LS, Samet JH, Roberts MS, Hudlin M, Hans P. Inquiry about victimization experiences: a survey of patient preferences and physician practices. Archive of Internal Medicine, 1992;152,1186-1190.

26. Gielen AC, O’Campo PJ, Campbell JC, Schollenberger K, Woods AB, Jones AS, Diamann JA, Kub J, Wynne C. Women’s opinions about domestic violence screening and mandatory reporting. American Journal of Preventive Medicine, 2000;19,279-285.
Section V: Moving Towards Developing a Screening Program for Intimate Partner Violence in the Orthopaedic Fracture Clinic
Chapter 11

Screening for Intimate Partner Violence in Orthopedic Patients: A Comparison of Three Screening Tools

S Sprague, K Madden, S Dosanjh, B Petrisor, EH Schemitsch, M Bhandari

Published
Journal of Interpersonal Violence. 2012 Mar;27(5):881-898.
Abstract

Accurately identifying victims of intimate partner violence (IPV) can be a challenge for clinicians and clinical researchers. Multiple instruments have been developed and validated to identify IPV in patients presenting to health care practitioners, including the Woman Abuse Screening Tool (WAST) and the Partner Violence Screen (PVS). The purpose of the current study is to determine if female patients attending an outpatient orthopaedic fracture clinic who screen positive for IPV using three direct questions (direct questioning) also screen positive on the WAST and PVS.

We conducted a prevalence study at two Level I trauma centres to determine the prevalence of IPV in female patients presenting to orthopaedic fracture clinics for treatment of injuries. We used three methods to determine the prevalence of IPV: 1) direct questioning, 2) WAST, and 3) PVS. We compared the prevalence rates across the three screening tools.

Ninety-four women screened positive for IPV using any method. The prevalence of IPV was 30.5% when a direct questioning approach was utilized, 12.4% using the WAST, and 9.2% using the PVS. The WAST identified 37.2% (35/94) of the IPV victims detected and the PVS identified 27.7% (53/94) of the IPV victims detected, whereas direct questioning identified 89.4% of the IPV victims.

Identification of IPV may be under-estimated by the WAST and PVS screening tools. Our findings suggest direct questioning may increase the frequency of disclosure of IPV among women attending outpatient orthopaedic clinics.
Introduction

Intimate partner violence (IPV) is defined by the World Health Organization as “acts of physical, sexual and emotional abuse by a current or former intimate male partner, whether cohabiting or not. In addition, [the definition includes] controlling behaviours, including acts to constrain a woman’s mobility or her access to friends and relatives, extreme jealousy, etc.” (World Health Organization [WHO], 2010) Identifying IPV victims in a medical setting can be challenging for clinicians and researchers. Methods for IPV identification have including screening tools and direct questioning. In a busy clinical setting, it is important to have a tool that is brief and easy to administer, as well as one that accurately identifies victims of IPV. Some tools fail to identify a surprising number of victims. For example, Coker, Pope, Smith, Sanderson and Hussey (2001) found that the Index of Spouse Abuse- Physical (ISA-P) failed to identify 45% of victims of abuse. Several of the validated screening tools available to help identify victims of IPV include the Woman Abuse Screening Tool (WAST; Brown, Lent, Brett, Sas & Pederson, 1996) and the Partner Violence Screen (PVS; Feldhaus et al, 1997). Direct questions have also been used to determine the prevalence of IPV (McCord-Duncan, Floyd, Kemp, Bailey & Lang, 2006; Muelleman, Lenaghan, & Pakiester, 1998; Ruiz-Perez, Mata-Pariente, & Plazola-Castano, 2006).

The WAST was developed in 1996 by Brown et al. because existing IPV screening tools were too lengthy and intrusive (Brown et al, 1996). The WAST is comprised of eight questions and it was developed to quickly screen for IPV in a busy family medicine setting (Table 1) (Brown et al, 1996). This tool has been validated in a family medicine setting (Brown et al, 1996) and has been used in numerous studies in the fields of family medicine (Yut-Lin et al, 2008; Wathen, 2008; MacMillan et al, 2009; MacMillan et al, 2006; McCord-Duncan et al, 2006), emergency medicine (MacMillan et al, 2009; MacMillan et al, 2006; Halpern, 2005; Wathen, 2008), and perinatal care (Vivilaki et al, 2010). In a recent review of IPV screening tools, the WAST was found to have good internal reliability, and it differentiates women who are victims and those who are not (Rabin, Jennings, Campbell, & Bair-Merritt, 2009). The WAST was found by the developers to have classified 100% of the non-abused women and 91.7% of the abused women in a purposive sample of abused and non-abused women (Brown et al, 1996). MacMillan et al. (2006) found that The WAST had a sensitivity of 47.0% and a specificity of 95.6% compared to the Composite Abuse Scale (CAS; MacMillan et al, 2006). Test-retest reliability of the WAST has not been studied (Rabin et al., 2009).

The PVS is comprised of three questions and was developed in 1996 by Feldhaus et al. to quickly screen for physical and nonphysical partner abuse in a busy health care setting (Table 1; Feldhaus et al, 1997). The first question addresses physical violence and the second and third questions address feelings of safety (Feldhaus et al, 1997). This tool has been validated in an emergency medicine setting (Feldhaus et al, 1997) and has been used in numerous studies in the fields of family medicine (Halpern et al., 2005; MacMillan et al, 2006; McCord-Duncan et al, 2006), emergency medicine (Halpern et al., 2005; MacMillan et al, 2006) and perinatal care (Vivilaki et al, 2010). Compared to the Index of Spouse Abuse, the PVS had a sensitivity of 64.5% and a specificity of 80.3% (Feldhaus et al, 1997). The same study found that, compared to the Conflict Tactics Scale, the PVS had a sensitivity of 71.4% and a specificity of 84.4% (Feldhaus et al, 1997). A systematic review found that the PVS has a good specificity of 80-94%, but has varying sensitivities of 35-71% (Rabin et al, 2009). The review also found that
the PVS or PVS plus additional questions has only been evaluated in a healthcare setting in five studies, yet this is one of the most well-validated screening tools (Rabin et al, 2009).

### Table 1: Questions on Each Screening Method

| Direct Questioning Approach | WAST                                      | PVS                                      |
|-----------------------------|-------------------------------------------|------------------------------------------|
| Has your partner ever abused you physically? (Often, Sometimes, Never) | In general how would you describe your relationship? (A lot of tension, Some tension, No tension) | Have you been hit, kicked, punched, or otherwise hurt by someone in the past year? (Yes, no) |
| Has your partner ever abused you emotionally? (Often, Sometimes, Never) | Do you and your partner work out arguments with: (Great difficulty, Some difficulty, No difficulty) | If so, by whom?** (Person in a current intimate relationship, Person in a previous intimate relationship, Person who you have no intimate relationship with) |
| Has your partner ever abused you sexually? (Often, Sometimes, Never) | Do arguments ever result in you feeling put down or bad about yourself? (Often, Sometimes, Never) | Do you feel safe in your current relationship? (Yes, no) |
|                          | Do arguments ever result in hitting, kicking, or pushing? (Often, Sometimes, Never) | Is there a partner from a previous relationship who is making you feel unsafe now? (Yes, no) |
|                          | Do you ever feel frightened by what your partner says or does? (Often, Sometimes, Never) | **This question is only to be answered if the answer to the previous question is “Yes” |
| Has your partner ever abused you physically? (Often, Sometimes, Never) | Has your partner ever abused you emotionally? (Often, Sometimes, Never) |                                |
| Has your partner ever abused you sexually? (Often, Sometimes, Never) | Has your partner ever abused you sexually? (Often, Sometimes, Never) |                                |

Some researchers have used direct questions to screen for IPV, although the questions used vary greatly from study to study. Ruiz-Perez et al. (2006) asked similar direct questions about physical, emotional, and sexual abuse such as “Have you ever been abused by your current partner physically (hit, slapped, kicked, pushed)”? In this study, the overall prevalence of any type of IPV was 22.8%. McCord-Duncan et al. (2006) used the direct question “Have you ever suffered domestic violence?” Using this question alone, the overall rate of IPV was 39%. Muelleman et al. (1998) used the questions “Have you ever been in a relationship and intentionally injured by an intimate male partner?” to determine the prevalence of IPV. Using this question, 37% of women were positive for IPV.

Although there have been many estimates of prevalence of IPV in several medical specialties such as family medicine and emergency medicine, only one study has reported the prevalence of IPV in among orthopaedic patients (Bhandari et al., 2011). The study found that 32% of female patients presenting to two Ontario orthopaedic fracture clinics with injuries had
experienced IPV in the past 12 months and that 2.5% of participants were presenting to treat an injury due to IPV (Bhandari et al., 2011).

The purpose of the current study is to determine if female fracture clinic patients who screen positive for IPV using the direct questioning also screen positive using the WAST and PVS. In addition, we explore the possible reasons for the differing results between the Direct Method, WAST, and the PVS.

Methods

Prevalence Study

We conducted a cross-sectional observational study in two Level I trauma centres in Ontario, Canada to determine the prevalence of IPV in orthopaedic clinics (Bhandari et al, 2011). The primary study results are reported elsewhere (Bhandari et al, 2011). A female research co-ordinator screened all women attending the fracture clinics for eligibility. Inclusion criteria were; 1) The patient is presenting to the fracture clinic for her own appointment, 2) The patient is 18 or older, 3) The patient is able to read, understand and write in English, 4) The patient is attending the fracture clinic for treatment of an orthopaedic injury, 5) The patient is able to separate herself from anyone who accompanied her. Exclusion criteria included the following; 1) The patient is too ill or injured to participate, 2) The patient is cognitively impaired, 3) Other reason 4) Patient did not provide informed consent. Once the research co-ordinator screened the patient, she obtained informed consent and provided the patient with a questionnaire to complete. Eligible and consenting participants answered questions about their injury and demographics, and they completed two validated self-report questionnaires (WAST and PVS) in written format (Table 1). The WAST includes three direct questions asking about physical, emotional, and sexual abuse in the past 12 months. We scored these questions separately and referred to this approach as “direct questioning”. We received formal ethical approval from McMaster University/Hamilton Health Sciences Research Ethics Board #08-369, and St. Michael’s Hospital Research Ethics Board #09-047.

Measuring and Defining IPV

We defined IPV as a partner of any gender physically, sexually, or emotionally abusing a current or previous female partner. The written questionnaire included a preamble stating that an intimate partner is a current or previous spouse, common-law partner, or any sexual or dating partner within the last 12 months. Patients were asked to consider only the past 12 months when answering questions. A woman was considered a victim of IPV if she: 1) screened positive on the direct questioning method by answering “sometimes” or “often” to one or more of the three direct questions, 2) screened positive on the WAST, or 3) screened positive on the PVS. The WAST was scored according to a 2008 revision with a positive cut-off score if 13 (Yut-Lin et al, 2008). The PVS was scored according to the original developers’ instructions (Feldhaus et al, 1997).

Data Analysis

We compared the IPV prevalence rates across the three methods of screening for IPV. We used the comparisons to calculate a sensitivity and specificity for the PVS compared to the direct questioning approach. We also analyzed the types of abuse (i.e. emotional, physical and/or sexual) that women experienced and compared them across screening tools. We
performed cross-tabulations for all frequency data. No extrapolation processes were carried out for missing data. We included partially completed questionnaires in the study. The WAST has a positive cut-off score of 13, and the PVS has a positive cut-off score of one. Once the cut-off score was reached, we identified the patient as a victim of IPV regardless of whether she completed the remainder of the questions. In addition, we carried out analyses using only fully completed questionnaires for comparison. We analyzed all data using PASW Statistics version 18.0 (SPSS Inc. Chicago, IL).

Results

Out of 395 eligible patients, 282 gave informed consent and completed the questionnaire (response rate 71.4%). The majority of women in this study were white (85.1%), over forty years old (62.8%), and had an annual income of less than $40,000 (59.6%). Most participants were reporting for the treatment of a fracture (73%). Additional participant details are reported in Bhandari et al, 2011.

Prevalence of IPV

Ninety-four of 282 participants (33.3%) screened positive for IPV on our composite of three screening methods (direct questioning, WAST, and PVS). Eighty-six women (30.5%) screened positive using the direct questioning approach, 35 (12.4%) using the WAST, and 26 (9.2%) using the PVS. The direct questioning approach identified 85 victims of emotional abuse (85/282, 30.1%), 24 victims of physical abuse (24/282, 8.5%) and 9 victims of sexual abuse (9/282, 3.2%). Of the 94 women identified as victims of IPV, half screened positive only using direct questioning and not on either the WAST or PVS (47/94, 50.0%). Refer to Tables 2, 3, and 4 for comparisons of those who scored positive on the WAST vs. direct questioning, the PVS vs. direct questioning, and the WAT vs. the PVS. Please see Table 5 for characteristics of participants who screened positive on the PVS versus the WAST versus the direct questioning method.

When we excluded participants with missing responses, 74 women out of 208 (35.6%) screened positive for IPV. Seventy women out of 208 (33.7%) screened positive using the direct questioning approach, 27 (13.0%) using the WAST, and 20 (9.6%) using the PVS. Of the women who screened positive for IPV, 38 of 74 (51.4%) screened positive using only direct questioning and not on either the WAST or PVS.

Table 2: Prevalence Rates of IPV Using Direct Questioning Compared to WAST

| N=226* | Direct Questioning | WAST | Positive Score | Negative Score |
|--------|--------------------|------|----------------|----------------|
|        | Positive Score     | 34(15.0%) | 1(<0.1%)      |
|        | Negative Score     | 47(27.8%) | 144(63.7%)  |

*Includes women who completed enough questions to score on both tools

Table 3: Prevalence Rates of IPV Using Direct Questioning Compared to the PVS

| N=215* | Direct Questioning | PVS | Positive Score | Negative Score |
|--------|--------------------|-----|----------------|----------------|
|        | Positive Score     | 19(8.8%) | 3(1.4%)        |
|        | Negative Score     | 56(26.0%) | 137(63.3%)   |

*Includes women who completed enough questions to score on both tools
Table 4: Prevalance Rates of IPV Using the PVS Compared to the WAST

|                  | WAST (N=213*) | Positive Score | Negative Score |
|------------------|---------------|----------------|----------------|
| PVS Positive Score | 14 (63.6%)    | 8 (36.4%)      |
| PVS Negative Score | 15 (7.9%)     | 176 (92.1%)    |

*Includes women who completed enough questions to score on both tools.

Table 5: Characteristics of Patients who Screened Positive for IPV

| Patient Characteristic | Direct Questioning Approach (N=86) | WAST (N=35) | PVS (N=26) |
|------------------------|-----------------------------------|-------------|------------|
| Age                    | <30: 22 (25.6%)                   | <30: 14 (40.0%) | <30: 6 (23.1%) |
|                        | ≥30: 61 (70.9%)                   | ≥30: 21 (60.0%) | ≥30: 20 (76.9%) |
| Annual Income (Canadian dollars) | <$40,000: 59 (68.8%)      | <$40,000: 28 (80.0%) | <$40,000: 17 (65.4%) |
|                        | ≥$40,000: 24 (27.2%)              | ≥$40,000: 6 (17.1%) | ≥$40,000: 6 (23.1%) |
| Education              | No post-secondary: 38 (44.1%)     | No post-secondary: 17 (48.6%) | No post-secondary: 11 (42.3%) |
|                        | Post-secondary: 47 (54.7%)        | Post-secondary: 18 (51.4%) | Post-secondary: 15 (57.7%) |
| Ethnicity              | Caucasian: 72 (83.7%)             | Caucasian: 27 (77.1%) | Caucasian: 17 (65.4%) |
|                        | Other: 14 (16.3%)                 | Other: 8 (22.9%) | Other: 9 (34.0%) |
|                        | -African Canadian: 3              | -African Canadian: 2 | -African Canadian: 2 |
|                        | -Native Canadian: 4               | -Native Canadian: 2 | -Native Canadian: 2 |
|                        | -Asian: 1                        | -Asian: 1          | -Asian: 2          |
|                        | -Middle Eastern: 1               | -Middle Eastern: 1 | -Middle Eastern: 1 |
|                        | -Mixed Ethnicity: 5               | -Mixed Ethnicity: 3 | -Mixed Ethnicity: 2 |
| Injury type            | Fracture: 58 (67.4%)              | Fracture: 23 (65.7%) | Fracture: 18 (69.2%) |
|                        | Other injury: 28 (30.2%)          | Other injury: 12 (34.3%) | Other injury: 8 (30.8%) |
|                        | -Dislocation: 7                  | -Dislocation: 4    | -Dislocation: 1    |
|                        | -Strain or sprain: 5             | -Strain or sprain: 3 | -Strain or sprain: 2 |
|                        | -Cartilage injury: 1             | -Cartilage injury: 1 | -Cartilage injury: 1 |
|                        | -Unsure: 6                       | -Unsure: 2         | -Unsure: 2         |
|                        | -Other (Unspecified): 8          | -Other (Unspecified): 3 | -Other (Unspecified): 3 |

*We found a statistically significant difference in race between the women who screened positive on the PVS versus the Direct Method (p=0.043). No other difference across screening tools is significantly different. p<0.05 was considered statistically significant.

**Percentages may not add due to missing values.

Validation Measures

Compared to the direct questioning method, the PVS has a sensitivity of 25.3% and a specificity of 97.9%. We could not calculate sensitivity and specificity of the WAST compared to the direct questioning approach because the direct questions appear on the WAST, which could lead to misleading sensitivity and specificity data. When incomplete questionnaires were excluded, the PVS has a sensitivity of 24.6% and a specificity of 97.8% compared to the direct questioning method.

Discussion

Our study found surprising differences in the prevalence rates of IPV in orthopaedic injury patients across three different screening methods. Specifically, we found that the prevalence of IPV was 30.5% when a direct questioning approach was utilized, 12.4% using the WAST, and 9.2% using the PVS. There are a number of plausible explanations for the difference in prevalence rates identified by these three methods.
The first explanation for the differences in prevalence rates is that different screening tools define IPV in a different manner, and they are therefore not identifying the same women as victims of IPV. This is a problem because the WAST and the PVS were both developed for the same purpose, and they are often used for the same purpose in research and clinical practice. Our direct approach included three questions that asked about physical, sexual, and emotional abuse, incorporating three types of abuse into our definition of IPV. The WAST also includes these three questions, however, answering positively to any of these three questions does not necessarily result in a positive score. For example, a woman may report no tension and no difficulty in her relationship, no emotional or sexual abuse, but she may have been punched by her partner on a few occasions after he came home intoxicated. Her WAST score would likely be negative, but we argue that she is still a victim of abuse. The direct questioning method would likely detect this while the WAST would not. The PVS asks questions relating to physical violence and threats of violence. A woman who is sexually abused but not physically abused by her partner may screen negative on the PVS if she reports feeling safe at home. Two-thirds of women in this study who said they had been sexually abused reported feeling safe at home. Many women experience more than one form of violence; however, women experiencing emotional abuse only may not be classified as IPV victims on the PVS, and those who experience emotional abuse only sometimes may not screen positive on the WAST. The WAST also includes questions about threats of violence. This is an advantage the WAST has over the direct questioning approach that we used.

Another plausible explanation for the differences that we identified in IPV prevalence is that patients are misinterpreting the questions or are not comfortable answering the questions. For example, women who suffered emotional abuse comprised a large percentage of those who screened positive for IPV using all methods. Since emotional abuse is a subjective term, each woman may have her own definition and threshold of what is considered emotional abuse. These differences in definitions may lead to a wide variation in who reports that they have been emotionally abused and who does not. Since the WAST asks the direct question “Has your partner ever abused you emotionally?” and the PVS does not ask a similar question, a patient’s interpretation of what is and is not emotional abuse may skew the results. Women who have been abused may not admit that they have been abused if they feel uncomfortable discussing their abuse. Brown et al (2000) found that more abused women were uncomfortable with the physical and sexual abuse questions than non-abused women. We chose to include emotional abuse in our definition of IPV because emotional abuse has a tendency to escalate to physical abuse, and emotional abuse often co-occurs with physical and/or sexual abuse (Ahmad, 2007).

Another possible explanation is that one or more of the measures are incorrectly classifying women who have not experienced IPV as victims of IPV. While it is true that falsely identifying women as victims of IPV could be embarrassing and uncomfortable, we believe that failing to identify victims can be more harmful. Rabin et al (2009) recommend that IPV screening tools have maximal sensitivity to avoid missing victims. The direct approach that we used is an attempt to err on the side of inclusion when screening for IPV. After a woman screens positive for IPV using a direct approach such as this, the health care professional can initiate a more in-depth discussion of the patient’s situation to determine which actions, if any, are necessary for her specific situation. Even though the direct questioning approach is likely to increase the number of false positives, initiating an in-depth conversation with patients who have screened positive can help to reduce the number of false positives.
We chose to use direct questioning about IPV because the questions are simple, easy to understand, and intuitive. The three-question approach is also quick to administer and easy to score, which is an important issue in a busy health care environment. Medical organizations such as the American Medical Association (AMA, 1992) and the Canadian Orthopaedic Association recommend using direct questions because “it tends to elicit direct answers” (COA, 2009).

**Previous Literature**

In this study we asked direct questions in the form of “Have you been abused [physically/emotionally/sexually]?” Several other studies have also used a direct approach. Ruiz-Perez et al (2006) asked “Have you ever been abused by your current partner physically (hit, slapped, kicked, pushed)?” They estimated the overall prevalence of any type of IPV as 22.8%. McCord-Duncan et al (2005) used the direct question “Have you ever suffered domestic violence?” and estimated the overall rate of IPV to be 39%. Using the direct question “Have you ever been in a relationship and intentionally injured by an intimate male partner?” to determine the prevalence of IPV, Muelleman et al (1998) found that 37% of women were positive for IPV. Our study showed a similarly high prevalence using the direct questioning approach; however, these studies examined the lifetime prevalence of IPV while our study examined one year prevalence. Although patients in our study were explicitly asked to disclose “IPV within the past year’ at the beginning of the questionnaire, the language a few of the questions (use of the word “ever”) could have caused some confusion and they may have disclosed IPV in their lifetime, leading to an overestimation of prevalence. Whether our findings do represent an inflated estimate remains debatable. Our findings are not that dissimilar from another Canadian study which found that the overall prevalence of IPV in the past year was 25% (Cox, 2004).

Few studies have compared the WAST to the PVS for the purposes of screening for IPV in a health care setting. Vivilaki et al (2010) compared a Greek translation of the WAST to the PVS using a sample of women at a perinatal care clinic in Greece. Using the PVS as a criterion standard, the sensitivity of the WAST was 99.7% and the specificity was 64.4% (Vivilaki et al, 2010). MacMillan et al (2009) found that, in English-speaking emergency, family medicine, and women’s health clinic patients, the PVS and WAST had similar sensitivities and specificities when compared to the CAS. This high degree of correlation between the two screening tools is not seen in our study. Orthopaedic injury patients are not a well-studied population; therefore we cannot assess the impact of population on the results of each screening tool.

Brown et al (1996) determined, using a known sample of abused versus non-abused women, that each question on the WAST (including the direct questions) correlated significantly with the Abuse Risk Inventory (ARI), and that there are significant differences between the answers of abused and non-abused women on the direct physical and emotional abuse questions. The direct sexual abuse question was not studied. To our knowledge, no study has compared prevalence of IPV using direct questions alone to prevalence of IPV using the PVS.

**Limitations**

A limitation of the current study is a small sample size of women who screened positive for IPV using our composite of the three measures. The questionnaire was self-reported, and did not require verification of the answers. Since the research coordinator who conducted the interviews did not look at the completed questionnaires before the patients left (for privacy reasons), information that was missing or incorrect could not be corrected. The questionnaire
was anonymous and the results were not shared with the treating surgeon or any other health care provider, so answers could not be verified verbally with the patient or by consulting medical records. Some women may not feel comfortable with direct questions if they do not trust the medical system. They may fear being judged or not believed. Another limitation is that the study excludes non-English speaking women and previous studies have shown that people of many races and ethnicities are affected by IPV (McCloskey et al., 2005, Azziz-Baumgartner et al., 2010, El-Bassel et al., 2007). Each participant was asked the PVS questions, followed by the WAST questions, including the direct questions last. This may mean that the participants were primed to see abuse after answering questions about various abusive behaviours. This may have lead to an overestimation of prevalence of IPV on the direct questions. Another potential limitation is that participants may have misread the instruction to disclose IPV in the past year only, which could have inflated the one year prevalence rate.

Future Considerations

It is important to consider the definition of IPV that one wishes to use before screening for IPV in a clinic setting or in IPV research initiatives. Since the WAST, PVS and many other tools screen for different types of violence, selecting the most appropriate screening tool for the task is essential. Using a combination of screening tools may broaden the types of IPV victims identified (i.e. physical, emotional, sexual abuse victims), and a direct questioning approach can broaden the definition even further. Researchers and clinicians could consider asking directly about physical, emotional, and sexual abuse when screening for IPV as a means of broadening the definition of IPV. However, validation studies are required before this approach should be widely implemented. Future research should focus on using one reference standard to evaluate existing screening tools. The direct approach could be used as the reference standard for other screening tools because of its broad definition, ease of administration, and simple to understand questions.

Conclusions

Despite being tested for validity and being developed and used for the same purpose, the WAST and the PVS largely identified different women as victims of IPV, as there is very little overlap in the women who screened positive for IPV on the WAST and the PVS. This difference in identification is concerning for investigators and clinicians who use only one of the WAST or PVS to detect IPV in their study or practice. Some women who are victims of IPV may remain undetected when using only one screening instrument. In the current study, the direct approach identified more women as victims of IPV than the WAST and PVS, and missed fewer victims compared to the WAST and PVS. We suggest that the direct questioning approach should be used as a preliminary assessment for IPV, and then the clinician can initiate a more in-depth discussion of the patient’s situation and determine which actions are appropriate for her situation. By using this approach clinicians can err on the side of detecting more victims. All three measures are quick to administer in a clinical setting.
References

1. American Medical Association Diagnostic and Treatment Guidelines on Domestic Violence. Arch Fam Med. 1992 Sep;1(1):39-47.
2. Azziz-Baumgartner E, McKeown L, Melvin P, Dang Q, Reed J. Rates of Femicide in Women of Different Races, Ethnicities, and Places of Birth. Massachusetts, 1993-2007. J Interpers Violence 2010;[Epub]
3. Bhandari M, Sprague S, Dansonj S, Petrisor B, Resendes S, Madden K, Schemitsch EH; The PRAISE Investigators. The Prevalence of Intimate Partner Violence Across Orthopaedic Fracture Clinics In Ontario. J Bone Joint Surg Am 2011;93(2):132-141.
4. Brown JB, Lent B, Brett PJ, Sas G, Pederson LL. Development of the woman abuse screening tool for use in family practice. Fam Med 1996;28:422-8.
5. Brown JB, Lent B, Schmidt G, Sas G. Application of the woman abuse screening tool (WAST) and the WAST-Short in the family practice setting. J Fam Pract 2000;49(10):896-903.
6. Canadian Orthopaedic Association. Intimate Partner Violence Position Statement (2009). http://www.coa-aco.org/library/health-policy/intimate-partner-violence.html. Accessed on July 7, 2010
7. Coker AL, Pope BO, Smith PH, Sanderson M, Hassey JR. Assessment of clinical partner violence screening tools. JAMWA 2001;56(1):19-23
8. Cox J, Bota GW, Carter M, Bretzlaflf-Michaud JA, Sahai V, Rowe BH. Domestic violence. Incidence and prevalence in a northern emergency department. Can Fam Physician. 2004;50:90-7.
9. El-Bassel N, Gilbert L, Wu E, Chang M, Gomes C, Vincour D, Spevack T. Intimate partner violence prevalence and HIV risks among women receiving care in emergency departments: implications for IPV and HIV screening. Emerg. Med. J. 2007;24:255-9.
10. Feldhaus KM, Koziol-McLain J, Amsbury HL, Norton I'm, Lowenstein SR, Abbott JT. Accuracy of 3 brief screening questions for detecting partner violence in the emergency department. JAMA 1997;277(17):1357-61
11. Halpern LR, Susarla SM, Dodson TB. Injury location and screening questionnaires as markers for intimate partner violence. J Oral Maxillofac Surg 2005 63:1255-1261
12. MacMillan HL, Wathen CN, Jamieson E, Boyle M, Mc-Nutt LA, Worster A, Lent B, Webb M. Approaches to screening for intimate partner violence in health care settings. JAMA 2006;296(5)
13. MacMillan HL, Wathen NC, Jamieson E. Screening for intimate partner violence in health care settings: a randomized trial. JAMA 2009;302(5):493-501
14. McCloskey LA, Lichter E, Ganz ML, Williams CM, Gerber MR, Sege R, Stair T, Herbert B. Intimate Partner Violence and Patient Screening across Medical Specialties. Acad Emerg Med 2005;12(8):712-22
15. McCord-Duncan EC, Floyd M, Kemp EC, Bailey B, Lang F. Detecting potential intimate partner violence: which approach do women want? Fam Med 2006;38(6):416-22
16. Muellerman RL, Lenaghan PA, Pakiester RA. Nonbattering presentations to the ED of women in physically abusive relationships. Am J Emerg Med 1998;16(2):126-31
17. Rabin RF, Jennings JM, Campbell JC, Bair-Merrit MH. Intimate partner violence screening tools: A systematic review. Am J Preventive Med 2009;36(5) 439-44.
18. Ruiz-Perez I, Mata-Pariente N, Plazaola-Castano J. Women’s response to intimate partner violence. J Interpers Violence 2006;21(9):1156-1168
19. Vivilaki VG, Dafermos V, Daglas M, Antoniou E, Tsopelas ND, Theodorakis PN, Brown JB, Lionis C. Identifying intimate partner violence (IPV) during the postpartum period in a Greek sample. Arch Womens Ment Health 2010 [Epub]
20. Wathen NC, Jamieson E, MacMillan HL, The McMaster Violence Against Women Research Group. Who is identified by screening for intimate partner violence? Women’s Health Issues 2008;18:423-32
21. World Health Organization. http://www.who.int/gender/violence/who_multicountry_study/Introduction-Chapter1-Chapter2.pdf. Accessed on May 11, 2010.
22. Yut-Lin W, Othman S. Early detection and prevention of domestic violence using the Woman Abuse Screening Tool (WAST) in primary health care clinics in Malaysia. Asia Pac J Public Health. 2008;20(2):102-16.
Chapter 12

Intimate Partner Violence and Musculoskeletal Injury: Bridging the Knowledge Gap in Orthopaedic Fracture Clinics

S Sprague, K Madden, S Dosanjh, K Godin, JC Goslings, EH Schemitsch, M Bhandari

Published
BMC Musculoskeletal Disorders, 2013Jan 15;14(1):23.
Abstract

Intimate partner violence (IPV) is a serious health issue. There have been widespread research efforts in the area of IPV over the past several decades, primarily focusing on obstetrics, emergency medicine, and primary care settings. Until recently there has been a paucity of research focusing on IPV in surgery, and thus a resultant knowledge gap. Renewed interest in the underlying risk of IPV among women with musculoskeletal injuries has fueled several important studies to determine the nature and scope of this issue in orthopaedic surgery. Our review summarizes the evidence from surgical research in the field of IPV and provides recommendations for developing and evaluating an IPV identification and support program and opportunities for future research.

**Keywords:** Intimate Partner Violence, Domestic Violence, Identification Program, Orthopaedic Surgery, Musculoskeletal Injury
Background

Intimate partner violence (IPV) is a serious global health issue and is a large source of preventable morbidity and mortality among women. It is characterized by a pattern of assaultive and coercive behaviours, including physical, sexual, and psychological attacks as well as economic coercion committed by both men and women against their partners. Consequences of IPV include a host of physical and mental health problems documented in numerous studies. The economic costs of IPV against women are substantial. Max and colleagues reported that IPV against women costs $5.8 billion, considering expenditures for increased medical care, mental health services, and lost productivity stemming from injury and premature death. These large health consequences and costs to the health care system have led to widespread research efforts in the area of IPV over the past several decades, primarily focusing on obstetrics, emergency medicine, and primary care settings.

Until recently, there has been a paucity of research focusing on IPV in the realm of orthopaedic surgery. Renewed interest in the underlying risk of IPV among women with musculoskeletal injuries has fueled several important studies to determine the nature and scope of this issue in orthopaedic surgery. Because of the high prevalence of IPV in orthopaedics, the evidence that patients rarely have their IPV documented by emergency department staff, and because orthopaedic surgeons see patients several times for follow up appointments, often when they are not in acute pain (as opposed to the emergency department), orthopaedic surgeons are in an ideal position to help victims of IPV. This information has led several organizations to recommend that orthopaedic surgeons take a lead role in IPV identification and offering assistance to victims of IPV including the Canadian Orthopaedic Association and the American Academy of Orthopaedic Surgeons.

We present an overview of the current knowledge in the field of IPV and orthopaedics as well as where the knowledge gaps lie and we propose a method of developing a support program for IPV victims in orthopaedic fracture clinics based on the best available evidence.

Review

What do we know about intimate partner violence and musculoskeletal injury?

The field of orthopaedics has historically been closely involved in the identification and management of cases of child abuse involving physical injuries. Orthopaedic research in the area of child abuse and injuries began as early as 1974 with a description of battered child syndrome. However, descriptions of IPV and musculoskeletal injuries did not appear in the orthopaedic literature until 1993. Varvaro and Lasko described the most common physical injuries from IPV as contusions, abrasions/lacerations, and fractures/strains/sprains with most injuries occurring on the face, neck, head, extremities, or in multiple locations. Bhandari and colleagues evaluated 263 women referred to a domestic violence therapy and advocacy center and found that the most prevalent forms of abuse were emotional (84%), psychological (68%), physical (43%), sexual (41%), and financial (38%). Among those women who reported physical abuse, 46% sought medical attention. The authors identified 144 injuries in the 218 women who experienced physical abuse. Head and neck injuries were the most common, followed by musculoskeletal injuries, which included sprains, fractures and dislocations, and foot injuries.

The authors concluded that recognizing musculoskeletal injuries in women as a potential result of IPV is warranted.
A recent systematic review and meta-analysis examined the pattern of physical injury associated with IPV in women presenting to emergency rooms. The association between head, neck, and facial injuries and IPV was higher among studies that excluded women with verifiable injuries such as witnessed falls or motor vehicle accidents. Thoracic, abdominal, or pelvic injuries were generally non-specific for IPV whereas upper extremities were suggestive of non-IPV. The authors cautioned that the quality of evidence pertaining to thoracic, abdominal, and extremity injuries may be limited by methodological issues and lack of data to a greater extent than findings that pertained to head, neck, and facial injuries.

A recent meta-analysis examined the prevalence of IPV across different medical specialties. The authors included 37 articles in their study and found that most studies took place in family medicine clinics (15/37, 40.5%) and emergency departments (12/37, 32.4%). Pooled prevalence was reported for emergency (lifetime: 38%; one year: 19.9%) and family medicine (lifetime: 40%, one year: 19.5%). Data from other specialty areas suggested that from 43% (obstetrics and gynecology) to 73% (addiction recovery) of women experienced IPV during their lifetime of which 4% (pediatric emergency) to 21% (obstetrics and gynecology) of women experience physical abuse. This review did not find any data examining the prevalence of IPV in orthopaedic fracture clinics and identified this as a gap in the literature.

A cross-sectional study of women reporting to two trauma centres in Ontario found that one third of the respondents had experienced IPV in the last twelve months. Emotional abuse was the most prevalent form of abuse (30.5%), followed by physical abuse (8.5%), and sexual abuse (3.3%). Seven women (2.5%) presented to the orthopaedic fracture clinic as a direct result of their abuse. This study also reported that none of the women included in this study were asked about IPV by their attending orthopaedic surgeon. This is the first study that attempted to ascertain the number of women reporting to orthopaedic fracture clinics who were victims of IPV. The estimate is similar to previously reported one-year rates in other medical specialties, including internal medicine, pediatrics, and obstetrics and gynecology.

**Knowledge Gaps Among Orthopaedic Surgeons**

Knowledge and comfort with IPV identification has been assessed in large scale surveys and smaller qualitative studies. Of 186 surgeon members of the Canadian Orthopaedic Association surveyed, 148 (80%) believed that IPV was exceedingly rare among the women they treated, affecting less than one percent of their patients. Furthermore, one in two surgeons expressed that they lacked knowledge of the appropriate resources available to IPV victims (53%). Many surgeons held a number of misperceptions about IPV including 1) victims must be getting something out of the abusive relationships (14%); 2) some women have personalities that cause the abuse (20%); and 3) the battering would stop if the batterer quit abusing alcohol (43%). These findings were supported by a similar evaluation of US surgeon members of the Orthopaedic Trauma Association which found that among 153 surgeon members of the Orthopaedic Trauma Association, several misconceptions were evident: 1) victims must be getting something out of the abusive relationships (16%); 2) some women have personalities that cause the abuse (20%); and 3) the battering would stop if the batterer quit abusing alcohol (40%). In the past year, only 4% of respondents currently screened for IPV among female patients with injuries.

Whether the knowledge gaps resulted from a lack of reinforcing early education during medical school and residency training into later practice or instead, a systemic lack of education in the system is unclear. However, a recent online survey demonstrated knowledge gaps and
discomfort in both surgical residents and medical students\textsuperscript{10}. Respondents reported feelings that physicians should not interfere with a couple’s conflicts (21%), that patient’s personalities caused them to be abused (41%), and the majority (84% of medical students and 60% of surgical residents) felt that their training on IPV was inadequate [10]. Over 90% of both residents and medical students estimated the prevalence of IPV in their intended practice is less than 10%\textsuperscript{10}.

**How Can We Help IPV Victims in the Orthopaedic Fracture Clinic Setting**

The varied research exploring the relationship between IPV and orthopaedics allows for greater understanding of the issue at hand and helps to generate possible responses to this significant public health issue. The demonstrated high prevalence of IPV among patients presenting to orthopaedic fracture clinics\textsuperscript{11}, suggests that fracture clinics are an opportune setting for offering support to IPV victims. There is reason to believe that patients in orthopaedic clinics may experience more severe IPV than other types of patients because their fractures and other injuries warrant an orthopaedic surgeon’s care. Furthermore, IPV victims may not be effectively assisted by other health care professionals (HCPs), so asking about IPV at the level of the fracture clinic may be a window of opportunity. For example, a study of family medicine records showed that fewer than 15% of abused women had their abuse documented in a medical chart\textsuperscript{21}.

There are multiple initiatives that could be implemented within the orthopaedic fracture clinic setting to help IPV victims and provide them with the appropriate social support. Prior to the widespread implementation of any new initiative or program, it should be appropriately evaluated, following an evidence-based approach. Several of these programs are currently underway and are described in the next section. There are also simple steps that orthopaedic surgeons can take immediately and they are outlined in Table 1.

**Practical Approaches to Identification and Support of IPV Victims in a Clinic Setting**

Multiple system-level factors must be considered to enable orthopaedic surgeons to effectively identify and help patients who have experienced IPV, including case-finding protocols and support plans. Multiple items need to be carefully considered when developing an IPV case-finding protocol in the fracture clinic setting, which are described below and summarized in Figure 1. An evidence-based approach should be followed when possible.

**Table 1: Roles and Responsibilities of Orthopaedic Surgeons (Adapted from the Canadian Orthopaedic Association Position Statement on IPV - Version 2 – December 2012)**

| Domain                        | Simple Things Surgeons Can do                                                                 |
|-------------------------------|---------------------------------------------------------------------------------------------|
| **Education and Awareness**  | Educate yourself about IPV                                                                  |
|                               | Consider IPV when diagnosing and treating patients                                           |
|                               | Be aware that disclosure is a voluntary act, and, therefore, the decision to disclose or not disclose must be respected |
|                               | Be knowledgeable about counseling, shelters and social and legal services that are available locally and have hospital and community support contact information readily available, as well as toll-free help-lines for IPV. These resources are location-dependent but the USA and Ontario toll-free help line numbers are below: |
|                               | National Domestic Violence Hotline (USA): 1-800-799-SAFE                                     |
|                               | Assaulted Women’s Helpline (Ontario): 1-866-863-0511                                       |
Table 1: Roles and Responsibilities of Orthopaedic Surgeons (Adapted from the Canadian Orthopaedic Association Position Statement on IPV - Version 2 – December 2012) (Continued)

| Domain          | Simple Things Surgeons Can do |
|-----------------|-------------------------------|
| **Asking About IPV** |                                |
| **Bring up IPV in a conversational manner:** “Because violence is so common in many people’s lives and because there is help available for people being abused, I now ask every patient about domestic violence. Is this something that is happening in your life?” |
| **Follow up with the three direct questions:** “Have you been physically abused by an intimate partner?”; “Have you been emotionally abused by an intimate partner?”; “Have you been sexually abused by an intimate partner?” OR use a mobile phone app to assist in screening. |
| **A statement — such as, “I’d rather risk offending you than miss the opportunity to provide you with some information or possible resources that could help you in the future.” — can be very helpful in initiating a referral to social services and moving beyond the purely medical context.** |
| **After Disclosure** |                                |
| **If the patient discloses IPV validate their feelings by telling them that the abuse is not their fault. Be non-judgmental, empathic and supportive throughout the interaction.** |
| **Assess the patient’s safety (and the safety of any children) in the home. “Do you feel safe returning home today?”** |
| **If the patient feels unsafe, and with her/his permission, initiate a safety strategy immediately through referral to social services or shelter as required.** |
| **Provide care for the patient’s immediate injuries and orthopaedic-related issues** |
| **Take clear, legible, objective clinical notes, using the patient’s own words about abuse. Add diagrams or photographs, when appropriate. Should the patient be unwilling to talk about how the injuries were sustained or about the possibility of IPV, documentation and your impressions could be of benefit to the patient sometime in the future.** |
| **Provide a referral and contact information for local hospital-based or community-based support services if the patient is open to it.** |
| **In Canada, physicians are not legally obligated to report abuse of adults to the police. In some US states reporting of IPV is mandatory. Ensure that you know the legal requirements for your jurisdiction.** |
| **If you believe that children are at risk, you must notify your local Child Protective Services agency. Ensure you know the reporting requirements for your jurisdiction.** |
*These recommendations are based on the best available evidence in the field of orthopaedics where possible, and other fields where studies in orthopaedics are not available. Some recommendations are based on expert opinion where research has not yet been conducted.

Figure 1: Developing and Evaluating an IPV Identification and Support Program – The Initial Steps
Item 1: Determine Who Should Be Asked: A Case for Case-Finding in Trauma

Multiple methods of IPV identification have been developed and evaluated. In universal screening, HCPs routinely ask all patients who present to them about abuse, regardless of whether they show signs of IPV or are considered at risk of IPV\textsuperscript{2}. In a case-finding approach, HCPs ask only patients that they believe may be victims of IPV about abuse or those who are deemed to be high risk\textsuperscript{2}. One of the limitations of case-finding is that HCPs may not be able to accurately determine who the victims of IPV are and they may miss multiple opportunities to help victims\textsuperscript{2}. We argue that asking about IPV in orthopaedic trauma is targeted “case-finding” as opposed to “universal screening” because evidence demonstrates that orthopaedic trauma patients experience a similar prevalence of IPV compared to other medical specialties\textsuperscript{13} but it could be more severe because IPV that is seen in orthopaedics has often escalated to the point of causing major orthopaedic injuries such as fractures and dislocations\textsuperscript{13}. This means that we would be asking a population that has a demonstrated high risk of IPV, in contrast to asking all women who present to emergency departments, for example, since emergency department patients have a large range of health care issues that may or may not be indicative that they are at high risk for IPV.

While who to include in an IPV identification program within an orthopaedic fracture clinic setting may seem like a simple question, there are multiple options and the best approach has not been established. Primary options are shown in Figure 1. Although, on the surface, it may seem fair to ask all men about IPV in addition to all women, evidence shows that women are disproportionately affected by IPV compared to men\textsuperscript{23,24,25}. Men are also less likely to admit that they are victims of abuse and less likely to seek help, making identifying IPV in men a greater challenge\textsuperscript{26}. Since most research to date, and all IPV research in surgery, focuses on violence against women, more research is required to determine the best approach to identifying male victims of IPV as well as determining if asking men about IPV is effective, practical, and cost-efficient. We argue that it is unethical to implement an IPV screening program for men without having appropriate supports in place to support men who have experienced IPV. In many jurisdictions, men are underserved when it comes to IPV support\textsuperscript{26}. Future studies should investigate the best ways to ask about IPV against men as well as implementing support programs so health care providers (HCPs) are able to refer men for assistance when required.

It is difficult to define who is at high risk and researchers have not yet been able to construct a sensitive model of how an IPV victim presents for medical care\textsuperscript{27,28,29}. HCPs tend to screen for IPV based on stereotypes of patients who they think are at high risk\textsuperscript{30}. Since IPV is present across all ethnicities, socioeconomic statuses, and relationship types\textsuperscript{15}, these stereotypes are often incorrect or incomplete. It is plausible that HCPs may overlook a high proportion of cases if they screen solely based on their perceptions and stereotypes. If asking about IPV were a part of a routine medical assessment in the fracture clinic, patients may become accustomed to being asked about IPV and it would be seen as a normal discussion, much like being asked about sexual history or smoking status\textsuperscript{22}. Women may feel more comfortable speaking to their HCP about IPV, facilitating disclosure. Based on the above, our initiative would include all women who present to the fracture clinic in an IPV case-finding program.

Item 2: Determine Who Should Ask about IPV

The majority of women support asking about IPV in a health care setting and 95% of
patients would prefer to disclose to an HCP as opposed to a friend, family member, or coach\textsuperscript{10}. Multiple HCPs are well positioned to ask about IPV and there are advantages and disadvantages associated with each option. In the orthopaedic fracture clinic setting, the individuals who could ask about IPV are listed in Figure 1.

Orthopaedic surgeons interact with up to 100 patients a day in a busy fracture clinic. A major barrier to asking about IPV, according to HCPs, is that they often have little to no training on how to talk to patients about IPV or how to refer victims to other resources\textsuperscript{11}. Allied HCPs such as physician assistants, nurse practitioners, nurses, or casting technicians could be another option. Although Gerlach et al. report that gender of the IPV screener is not associated with disclosure rates\textsuperscript{12}, many women report that they would feel more comfortable being asked about IPV by a female HCP\textsuperscript{10}. Nurses and casting technicians are often female, which is a potential advantage; however they are just as busy as surgeons and residents with their existing responsibilities already. A lack of training may be an additional issue\textsuperscript{13}. It would take a great deal of institutional restructuring to allow any of these busy allied HCPs to dedicate the required time for the IPV screening process.

Another option would be to have designated HCPs such as a specially trained nurse, social worker, or other highly trained individual be available to identify and offer assistance to victims of IPV. This option could potentially eliminate many of the barriers that HCPs currently face. One problem with having an outside person involved is that it is resource-intensive. However, there is already an example of a successful campaign to have an outside person in orthopaedic fracture clinics that is analogous. Osteoporosis used to be a perceived as a purely medical problem that orthopaedic surgeons rarely treated directly. Now, many orthopaedic centres in Canada have an osteoporosis coordinator in orthopaedic fracture clinics to screen and treat patients with osteoporosis, and this has proven to be a sustainable program\textsuperscript{14}. While this is a medical model, and IPV is a social issue, we believe that similar to this osteoporosis model, having a specially-trained “IPV Coordinator” available in orthopaedic clinics to identify victims of IPV and offer appropriate assistance may be an ideal approach.

Item 3: Determine the Method of Identification

Multiple tools have been developed to identify victims of IPV for both research and clinical uses and the levels of validation vary across the different instruments. Instruments used for research purposes, such as the Index of Spouse Abuse (ISA)\textsuperscript{15} and Conflict Tactics Scale (CTS)\textsuperscript{16} and Composite Abuse Scale (CAS)\textsuperscript{17}, are often lengthy questionnaires. Although these tools are well validated and highly used as gold standards in the research setting to validate other scales\textsuperscript{18}, they would be very difficult to administer in a busy clinic environment due to logistics of time and scoring. The semi-structured or freeform interview approach may not work in orthopaedic clinics because it requires a lot of training and may be too time consuming to administer.

Screening tools with a single question are inconsistent in their ability to detect victims according to a review by Rabin et al. so they should not be used\textsuperscript{19}. For example, Peralta et al. used the question “In the past 3 months, did you feel safe at home?” to evaluate the prevalence of IPV and found that the sensitivity was only 8.8% and the specificity was 91.2%\textsuperscript{19}. Similarly, Sagrestano et al. used the question “Are you suffering mental or physical abuse now?” to assess the prevalence of IPV\textsuperscript{20}. They found that only 3% of women answered affirmatively to the single question as opposed to 17% of women on the longer Conflict Tactics Scale.

Several shorter tools that were designed to be used in clinic are widely used. The Woman
Abuse Screening tool (WAST)\(^{41}\) [41], Partner Violence Screen (PVS)\(^{42}\), and Abuse Assessment Screen (AAS)\(^{43}\) are among the most widely used and validated short screening tools\(^{38}\). In orthopaedic trauma populations, previous research has found that the WAST and PVS have very good specificity, but the sensitivity is relatively low\(^{12}\). It is important that we maximize sensitivity with IPV screening tools to avoid missing the opportunity to assist victims. Although good specificity is fairly important, having a good set of questions to begin with is essential from which HCPs can initiate a more in-depth conversation with the patient\(^{12}\). Although these tools are frequently used in other settings, there is a subset of the WAST questions that have increased sensitivity in the orthopaedic trauma population\(^{12}\) (Figure 2). A simple set of three questions is easy to remember, does not take a lot of time, and the results can be determined easily, not with a complicated scoring procedure. In addition, the American Medical Association and the Canadian Orthopaedic Association recommend using direct questions because they are easy to understand and tend to elicit direct responses\(^{13,44}\).

Another simple measure that surgeons and other HCPs should consider is the mobile phone app called “R3” made by Harbour House shelter in Florida that guides HCPs step-by-step through the process of asking about IPV in a medical setting using the well-studied HITS screening tool\(^{45}\). The app also provides some local, state, and national (USA) referral resources for victims of IPV and it also provides some specific instructions such as ensuring the victim is connected with an advocate before leaving the appointment (if available), using the patient’s own words to document abuse, and tips on how to assess safety and follow up appropriately. Future endeavours could include expanding upon available apps to include resources for other countries or developing new apps for specific purposes such as screening in orthopaedics specifically.

**Figure 2: Recommended IPV Screening Questions for Orthopaedics (A Subset of the WAST)**

- **Have you been physically abused by an intimate partner?**
- **Have you been emotionally abused by an intimate partner?**
- **Have you been sexually abused by an intimate partner?**
**Item 4: Ensure Confidentiality and Patient Safety in the Clinic Setting**

When discussing IPV, it is critical that HCPs minimize the victims' risk of harm and maximize potential benefits. Discussing IPV could have negative consequences for IPV victims including anxiety, shame, fear, and physical harm. These risks can be minimized through careful consideration of the type of environment in which screening takes place. Maintaining the confidentiality of IPV victims is of paramount importance because of the sensitive nature of the topic. The subject should not be broached with the patient’s partner, friends, or family in the area, to respect the patient's safety and confidentiality. The vast majority of patients agree that it is important to ask about IPV in a private location. Creating an environment conducive to maintaining confidentiality may be challenging; one of the most commonly reported barriers to screening for IPV is that clinics are not private enough. Many fracture clinics (especially in older hospitals) are not constructed with having a personal and delicate conversation in mind. However, in even the most open clinics, there is often a room or small space with a bit more privacy which an IPV coordinator could use to speak to patients about IPV, thereby reducing the likelihood of harm. Victims should be treated in a manner that will minimize their anxiety, shame, and fear, assuring them that their abuse is not their fault.

**Item 5: Develop Social Support Plans**

When assisting with a complex issue such as IPV, the victim’s choices must be respected. If a patient does not wish to disclose about an IPV experience, the HCP should understand that it is the patient’s choice and not to force the conversation. Similarly, if the patient chooses to disclose but not take action (leave the relationship, accept referrals, seek counselling etc.), then the patient’s wishes should be respected. IPV is a very complex issue that involves social, financial, physical, and psychological considerations and consequences. Following disclosure, it may be difficult for an IPV victim to accept help for fear of losing their children, losing their partner, being financially worse off, or experiencing retaliation from their partner. IPV management must be individualized, effectively addressing each victim’s particular needs. The IPV Coordinator must be sufficiently experienced with assisting victims of IPV and must be aware of the complex social, psychological, financial, and familial issues that surround IPV to help provide IPV victims with the appropriate social support. Health care guidelines for implementing IPV identification and support programs include the following components to assist women who have experienced IPV: 1) Listen to her concerns in a non-judgmental way; use phrases like “I am concerned for your safety” or “The abuse is not your fault”, 2) Provide information that helps to reduce misconceptions and alleviate fear and anxiety, 3) Create an immediate safety plan with the patient; make sure that she is safe to go home and offer immediate assistance such as a social worker or legal/police assistance if required and if she agrees, 4) Offer longer-term resources such as health-care or community support system access, women’s shelters, other specialized local services, etc.

**Item 6: Evaluate the Program**

The next step in advancing IPV advocacy in orthopaedic fracture clinics is to pilot and evaluate a universal screening program within the orthopaedic fracture clinic setting. This program would include having a trained IPV Coordinator to ask three screening questions (Figure) to all patients who present to the orthopaedic fracture clinic. With patients who screen positive, the IPV coordinator would assist the patient with providing the appropriate social support as described above. This is a challenging and costly initiative to both implement and
Future Directions - Bridging the Gaps in Knowledge and Research

The current literature has identified numerous gaps in both IPV knowledge and research in the field of orthopaedic surgery. Multiple research initiatives are currently underway and are being developed to further advance this important field which include assessing the prevalence of IPV, evaluating an IPV fracture clinic tool kit, and developing and evaluating an IPV case-finding program in the orthopaedic setting. Each of these is described in detail below.

Assessing the Prevalence of IPV

A larger multi-centre IPV prevalence study is currently being conducted at eleven sites in North America, Europe, and Asia. Approximately 3000 women will be included in this initiative. This study will provide a more accurate estimate of the prevalence of IPV in the orthopaedic fracture clinic setting and will demonstrate the differences in prevalence rates between nations. The results of this study will further inform the need for IPV screening and offering victim’s support programs within the orthopaedic fracture clinic setting.

Providing an IPV Fracture Clinic Tool Kit

Another way that fracture clinic personnel may be able to help IPV victims is through an IPV “toolkit” that includes IPV awareness posters, buttons, and pamphlets to post throughout the fracture clinic setting. The Family Violence Prevention Project found that the implementation of pamphlets, resource cards and examination room posters increased the number of clinician referrals and patient self-referrals to an on-site domestic violence evaluator more than twofold, indicating that such an intervention may have a significant impact on a patient’s willingness to discuss IPV in the clinic. HCPs can also be provided with a simple set of steps to follow in case of disclosure. Previous research has shown that orthopaedic surgeons, medical students, and surgical residents are largely unsure of what to do if a patient discloses. A pre- and post-interventional study is currently under way that aims to evaluate whether the presence of posters, buttons, and pamphlets on IPV changes patients perceptions about IPV and their comfort level with discussing IPV within the orthopedic setting.

Developing and Evaluating an IPV Identification Program – The Initial Steps

Identifying victims of IPV within the fracture clinic setting through a case-finding program may be another method of assisting individuals who are being abused. Multiple researchers have suggested that screening for IPV in a medical setting is not supported by evidence and “universal screening” for IPV within medical settings remains highly controversial, as is exemplified in the debate between Wathen and MacMillan, and Taket. MacMillan and Wathen hold the opinion that routinely screening all women for IPV in any setting (universal screening) is not appropriate and has potential harms. They support targeted “case-finding” for women who present with certain signs and symptoms of IPV. Conversely, Taket holds the opinion that universal screening should be applied because it “contributes to changing social attitudes to domestic abuse” among other benefits such as decreasing
stigmatization, possible increased safety compared to selective screening, and avoiding incorrect stereotypes of IPV among HCPs.

A recent randomized controlled trial on identification of IPV in primary care clinics concluded that screening all women for IPV did not increase quality of life. This trial had three intervention groups: a group that was screened using a computer and received a list of local resources, a group that received a list of local resources only, and a group that received no intervention. This study, along with MacMillan and colleagues' randomized trial shows that passive interventions are not effective. This evidence suggests there is a need for a high quality trial evaluating “active” screening or case finding programs that include both an identification component and a component where women who disclose can get the support they require.

Conclusions

Based on the available evidence in surgery and other medical fields, surgeons should recognize that IPV is a serious public health issue that affects a large proportion of orthopaedic patients. Surgeons and other HCPs should be aware of the various issues and complexities surrounding the problem of IPV. We propose a stepwise, structured approach to developing a support program that includes the following: Item 1) Decide who to include in IPV identification programs; Item 2) Determine who should ask about IPV; Item 3) Determine the method of identification; Item 4) Ensure confidentiality and patient safety in the clinic setting; Item 5) Develop social support programs; Item 6) Evaluate the program. Additional research is currently underway to inform the development of an IPV screening program within the orthopaedic fracture clinic setting.

Acknowledgements

We would like to thank everyone who has worked on IPV projects with us over the years. Thank you for your dedication and contributions.

References

1. Kyriacou DN, Anglin D, Taliaferro E, Stone S, Tubb T, Linden JA, Muelleman R, BartonE, Kraus JF: Risk factors for injury to women from domestic violence against women. *N Engl J Med* 1999, 341(25):1892–1898.
2. Centres for Disease Control: *Intimate Partner Violence: Definitions*. 2010.http://www.cdc.gov/ViolencePrevention/intimatepartnerviolence/definitions.html.
3. Campbell JC: Health consequences of intimate partner violence. *Lancet* 2002,359(9314):1331–1336.
4. Max W, Rice DP, Finkelstein E, Bardwell RA, Leadbetter S: The Economic Toll of Intimate Partner Violence Against Women in the United States. *Violence Vict* 2004,19(3):259–272(14).
5. Nelson HD, Bougatsos C, Blazina I: Screening women for intimate partner violence: a systematic review to update the U.S. Preventive Services Task Force recommendation. *Ann Intern Med* 2012, 156(11):796–808. W-279, W-280, W-281, W-282.
6. Bhandari M, Dosanjh S, Tornetta P, Matthews D 3rd: Violence Against Women Health Research Collaborative: Musculoskeletal manifestations of physical abuse after intimate partner violence. J Trauma 2006, 61:1473–1479.
7. Wu V, Huff H, Bhandari M: Pattern of Physical Injury Associated with Intimate Partner Violence in Women Presenting to the Emergency Department: A Systematic Review and Meta-Analysis. Trauma Violence Abuse 2010, 11(2):71–82.
8. Bhandari M, Sprague S, Tornetta P, D'Aurora V, Schemitsch E, Shearer H, Brink O, Mathews D, Dosanjh S 3rd, Violence Against Women Health Research Collaborative: (Mis)perceptions about intimate partner violence in women presenting for orthopaedic care: a survey of Canadian orthopaedic surgeons. J Bone Joint Surg Am 2008, 90(7):1590–1597.
9. Della Rocca GJ, Sprague S, Dosanjh S, Schemitsch EH, Bhandari M: Misperceptions of orthopaedic surgeons in the clinical identification of intimate partner violence against women: a survey of surgeon members of the Orthopaedic Trauma Association. Minneapolis MN: Orthopaedic Trauma Association Annual Meeting; 2012.
10. Sprague S, Kaloty R, Madden K, Dosanjh S, Mathews DJ, Bhandari M: Perceptions of Intimate Partner Violence: a cross sectional survey of surgical residents and medical students. J Inj Violence Res 2013, 5(1):1–10.
11. PRAISE Investigators, Bhandari M, Sprague S, Dosanjh S, Petrisor B, Resendes S, Madden K, Schemitsch EH: The prevalence of intimate partner violence across orthopaedic fracture clinics in Ontario. J Bone Joint Surg Am 2011, 93(2):132–141.
12. Sprague S, Madden K, Dosanjh S, Petrisor B, Schemitsch EH, Bhandari M: Screening for Intimate Partner Violence in Orthopedic Patients: A Comparison of Three Screening Tools. J Interpers Violence 2012, 27(5):881–898.
13. PRAISE Investigators, Bhandari M, Sprague S, Dosanjh S, Wu V, Schemitsch E H PRevalence of Abuse and Intimate Partner Violence Surgical Evaluation (P.R.A.I.S.E.): rationale and design of a multi-center cross-sectional study. BMC Musculoskelet Disord 2010, 11:77.
14. Datner EM, O'Malley M, Schears RM, Shofer FS, Baren J, Hollander JE: Universalscreening for interpersonal violence: inability to prove universal screening improves provision of services. Eur J Emerg Med 2004, 11(1):35–38.
15. Canadian Orthopaedic Association: Intimate Partner Violence Position Statement. 2009.http://www.coa-aco.org/library/health-policy/intimate-partner-violence.html.
16. American Academy of Orthopaedic Surgeons: Information Statement: Child Abuse or Maltreatment, Elder Maltreatment, and Intimate Partner Violence (IPV): The Orthopaedic Surgeon’s Responsibilities in Domestic and Family Violence. 2012.http://www.aaos.org/about/papers/advismnl/1030.asp.
17. Family Violence Prevention Fund: National consensus guidelines on identifying and responding to domestic violence victimization in health care settings. 2004.http://www.futureswithoutviolence.org/userfiles/file/Consensus.pdf.
18. Akbarnia B, Torg JS, Kirkpatrick J, Sussman S: Manifestations of the battered-child syndrome. J Bone Joint Surg Am 1974, 56(6):1159–1166.
19. Varvaro FF, Lasko DL: Physical abuse as cause of injury in women: information for orthopaedic nurses. Orthop Nurs 1993, 12(1):37–41.
20. Sprague S, Goslings JC, Hogentoren C, de Miliano S, Simunovic N, Madden K, Bhandari M: Prevalence of intimate partner violence across medical and surgical health care settings: A systematic review. Violence Against Women, [Accepted for publication Sept2011].
21. Coker AL, Davis KE, Arias I, Desai S, Sanderson M, Brandt HM, Smith PH: Physical and mental health effects of intimate partner violence for men and women. *Am J Prev Med* 2002, 23:260–268.

22. Taket A, Wathen CN, MacMillan H: Should health professionals screen all women for domestic violence? *PLoS Med* 2004, 1(1):e4.

23. Archer J: Sex differences in aggression between heterosexual partners - A metaanalytic review. *Psychol Bull* 2000, 126(5):651–680.

24. Tjaden P, Thoennes N: *Extent, nature, and consequences of intimate partner violence: Findings From the National Violence Against Women Survey*. 2000.

25. Walton MA, Murray R, Cunningham RM, Chermack ST, Barry KL, Booth BM, IlgenMA, Wojnar M, Blow FC: Correlates of intimate partner violence among men and women in an inner city emergency department. *J Addict Dis* 2009, 28(4):366–381.

26. Barber CF: Domestic violence against men. *Nurs Stand* 2008, 25(51):35–39.

27. Brokaw J, Fullerton-Gleason L, Olson L, Chandall C, McLaughlin S, Sklar D: Health status and intimate partner violence: a cross-sectional study. *Ann Emerg Med* 2002, 39(1):31–38.

28. Coben JH, Forjuoh SN, Gondolf EW: Injuries and health care use in women with partners in batterer intervention programs. *J Fam Violence* 1999, 14:83–93.

29. Muelleman RL, Lenaghan PA, Pakieser RA: Non battering presentations to the ED of women in physically abusive relationships. *Am J Emerg Med* 1998, 16:128–131.

30. Zeitler MS, Paine AD, Breithart V, Rickert VI, Olson C, Stevens L, Rottenberg L, Davidson LL: Attitudes About Intimate Partner Violence Screening Among an Ethnically Diverse Sample of Young Women. *J Adolesc Health* 2006, 39(1):119. e1-8.

31. Sprague S, Madden K, Simunovic N, Godin K, Pham NK, Bhandari M, Goslings JC: Barriers to screening for intimate partner violence. *Women Health* 2012, 52(6):587–605.

32. Gerlach LB, Dutner EM, Hollander JE, Zogby KE, Robey JL, Wiebe DF: Does sex matter? Effect of screener sex in intimate partner violence screening. *Am J Emerg Med* 2007, 25(9):1047–1050.

33. Beynon CE, Gutmanis IA, Tutty LM, Wathen CN, Macmillan HL: Why physicians and nurses ask (or don’t) about partner violence. A qualitative analysis. *BMC Public Health* 2012, 12(1):473 [Epub ahead of print].

34. Canadian Medical Association: *Fragility fracture prevention begins in the clinic*. 2012. http://www.cma.ca/learning/fragility-fracture-prevention-clinic.

35. Hudson WW, McIntosh SR: The assessment of spouse abuse: Two quantifiable dimensions. *J Marriage Fam* 1981, 43:873–888.

36. Straus MA: Measuring intra family conflict and violence: The Conflict Tactics Scale. *J Marriage Fam* 1979, 41:75–88.

37. Hegarty KL, Sheehan M, Schonfeld C: A multidimensional definition of partner abuse: Development and preliminary validation of the Composite Abuse Scale. *J Fam Violence* 1999, 14(4):399–414.

38. Rabin RF, Jennings JM, Campbell JC, Bair-Merritt MH: Intimate partner violence screening tools: a systematic review. *Am J Prev Med* 2009, 36(5):439–445. e4.

39. Peralta RL, Fleming MF: Screening for intimate partner violence in a primary care setting: the validity of “feeling safe at home” and prevalence results. *J Am Board Fam Pract* 2003, 16(6):525–532.
40. Sagrestano LM, Rodriguez AC, Carroll D, et al: A comparison of standardized measures of psychosocial variables with single-item screening measures used in an urban obstetric clinic. *J Obstet Gynecol Neonatal Nurs* 2002, 31(2):147–155.

41. Brown JB, Lent B, Schmidt G, Sas G: Application of the Woman Abuse Screening Tool (WAST) and WAST-short in the family practice setting. *J Fam Pract* 2000, 49(10):896–903.

42. Feldhaus KM, Koziol-McLain J, Arnsbury HL, Norton IM, Lowenstein SR, Abbott JT: Accuracy of 3 brief screening questions for detecting partner violence in the emergency department. *JAMA* 1997, 277(17):1357–1361.

43. Soeken K, McFarlane J, Parker B, Lominack M: The abuse assessment screen. 2003. http://www.nvavi.org/pdfs/abusescreen.pdf.

44. American Medical Association: AMA diagnostic and treatment guidelines on domestic violence. *Arch Fam Med* 1992, 1(1):39–47.

45. Liebschutz JM, Rothman EF: Intimate-Partner Violence — What Physicians Can Do. *N Engl J Med* 2012, 367(22):2701–2703.

46. Palmer VJ, Yelland JS, Taft AJ: Ethical complexities of screening for depression and intimate partner violence (IPV) in intervention studies. *BMC Public Health* 2011, 11(5):S3.

47. Electronic Privacy Information Center (EPIC): Domestic Violence and Privacy. http://epic.org/privacy/dv.

48. Morse DS, Lafleur R, Fogarty CT, Mittal M, Cerulli C: They told me to leave: how health care providers address intimate partner violence. *J Am Board Fam Med* 2012, 25(3):333–342.

49. Donner A, Brown KS, Brasher P: A methodological review of non-therapeutic intervention trials employing cluster randomization, 1979–1989. *Int J Epidemiol* 1990, 19(4):795–800.

50. McCaw B, Berman WH, et al: Beyond screening for domestic violence: a systems model approach in a managed care setting. *Am J Prev Med* 2001, 21(3):170–176.

51. MacMillan H, Warthen C, Jamieson E, Boyle M, Shannon H, Ford-Gilboe M, Worster A, Lent B, Coben J, Campbell J, McNutt L, McMaster Violence Against Women Research Group: Screening for intimate partner violence in health care settings: A randomized trial. *JAMA* 2009, 302(7):493–501.

52. Ramsay J, Richardson J, Carter YH, Davidson LL, Feder G: Should health professionals screen women for domestic violence? Systematic Review. *BMJ* 2002, 325:314–318.

53. Kleven J, Kee R, Trick W, Garcia D, Angulo FR, Jones R, Sadowski LS: Effect of screening for partner violence on women's quality of life: a randomized controlled trial. *JAMA* 2012, 308(7):681–689.
Chapter 13
Summary and General Discussion
Background

Intimate partner violence (IPV) or domestic violence is a common and serious public health problem around the globe. Victims of IPV frequently present to health care practitioners including orthopaedic surgeons. Substantial research has been conducted on IPV over the past few decades, but very little research has focused on IPV in the field of orthopaedic surgery. Orthopaedic surgeons may be well positioned to help women who are experiencing IPV and position statements from both the American Academy of Orthopaedic Surgeons and the Canadian Orthopaedic Association exist and provide guidance on the topic (1,2). This thesis originated from the lack of understanding of IPV in orthopaedic patients as well as the desire to develop a program for orthopaedic surgeons to assist IPV victims presenting to orthopaedic fracture clinics.

Aims of this Thesis

The overarching purpose of this thesis was to conduct research to understand the opportunities and challenges facing orthopaedic surgeons in assisting IPV victims in their orthopaedic fracture clinics. The specific aims of this thesis were: 1) to investigate orthopaedic surgeons’, surgical trainees’, and medical students’ perceptions about IPV, 2) to determine the prevalence of IPV in orthopaedic fracture clinic patients, 3) to assess the barriers to and facilitators for screening for IPV in orthopaedic settings, and 4) to discuss the development of a screening program for IPV in orthopaedic fracture clinics.

Key Finding of this Thesis

Section I: Orthopaedic Surgeons and Surgical Trainees Perceptions about Intimate Partner Violence

To inform the current situation, we assessed the perceptions, attitudes, and knowledge of orthopaedic surgeons, surgical trainees, and medical students on the topic of IPV. This section reported on the findings of two surveys. We began by surveying the Canadian Orthopaedic Association membership, which is comprised of over 700 orthopaedic surgeons practicing in Canada (Chapter 2). A qualitative survey was used to collect demographic data about the surgeons and their practices, as well as to measure their attitudes towards IPV by identifying their beliefs regarding victims, batterers, and their own responsibilities as healthcare practitioners. One-hundred-and-eighty-six orthopaedic surgeon members of the Canadian Orthopaedic Association completed the survey, which equates to a response rate of 51%. The majority of the respondents (95 percent) estimated that less than 10 percent of their patients were victims of IPV and most respondents believed that IPV was rare (a prevalence of less than one percent). Multiple misperceptions were identified including: 1) the belief that asking about IPV is an invasion of the victims’ privacy, 2) investigating IPV is not the surgeon’s duty, 3) IPV victims choose to be victims, and 4) IPV victims play a role in causing their abuse. In summary, this survey found that discomfort about IPV and a lack of education on IPV have led to many misconceptions among Canadian orthopaedic surgeons.

Misperceptions about IPV were also evident in a survey of Ontario medical students and surgical trainees (Chapter 3). Misperceptions about IPV among respondents included the following: 1) victims must get something from the abusive relationships, 2) physicians should not interfere with a couple's conflicts, 3) asking about IPV risks offending patients, 4) victims choose to be victims, 5) it usually takes 'two to tango', and 6) some patients' personalities cause them to
be abused. The majority of medical students and surgical residents estimated the IPV prevalence in their intended practice to be 10 percent or less. However, the majority of respondents believed identifying IPV was very relevant to clinical practice. Most of the medical students and surgical residents felt that their level of training on IPV was inadequate and over three quarters of respondents expressed a desire to receive additional education and training on IPV.

The surveys of the Canadian Orthopaedic Association (Chapter 2) and of Ontario medical students and surgical trainees (Chapter 3) are strengthened by the use of a survey that has previously been well described. In our survey of the Canadian Orthopaedic Association we obtained a response rate of 51 percent. Our survey was limited to Canadian orthopaedic surgeons who are practicing members of the Canadian Orthopaedic Association, which represents approximately 80 percent of orthopaedic surgeons in Canada. This may limit the generalizability of our study results.

Although our survey of medical students and surgical trainees had an adequate sample size, our response rate was 29 percent (Chapter 3), which may be a potential source of bias. In addition, this survey was restricted to medical students and surgical trainees at McMaster University who could be contacted via email. It is unclear as to whether our findings are generalizable to other academic institutions and jurisdictions.

In summary, this section found that orthopaedic surgeons, surgical trainees, and medical students have multiple misperceptions about IPV. Our surveys also found that respondents believed that the prevalence of IPV was very low in their patient population. These surveys also identified the need for further education of orthopaedic surgeons, surgical trainees, and medical students on the topic of IPV. Through education and awareness, the misperceptions must be corrected before we can develop IPV screening programs and IPV support programs within orthopaedic fracture clinics.

Section II: Prevalence of Intimate Partner Violence in Orthopaedic Fracture Clinic Patients

The aim of this section was to determine the prevalence of IPV in patients presenting to orthopaedic fracture clinics. We began by conducting a systematic review and meta-analysis of the published literature to examine the best estimates of IPV prevalence across different medical subspecialties (Chapter 4). This meta-analysis found that the best estimates of lifetime prevalence of any type of IPV were 38 percent in family medicine and 40 percent in emergency medicine. We did not identify any studies assessing the prevalence of IPV in orthopaedic patients, revealing a gap in the present published literature. This review and meta-analysis (Chapter 4) is strengthened by our comprehensive search of the literature. We screened articles for inclusion in duplicate and two independent reviewers abstracted data from each included study, ensuring accuracy. Despite these strengths, this study is limited by a large degree of heterogeneity across the included studies, which limited our ability to directly compare studies. Another limitation is that only articles published in English were included. We also did not include grey literature in our review.

To measure the prevalence of IPV in orthopaedic fracture clinic patients, we developed the protocol for the PRevlance of Abuse and Intimate Partner Surgical Evaluation (P.R.A.I.S.E.) study (Chapter 5). This is a multi-centre cross-sectional study in which female patients presenting to fracture clinics completed two validated self-reported questionnaires (Woman Abuse Screening Tool (WAST) and the Partner Violence Screen (PVS)), as well as a direct screening approach, to determine the prevalence of IPV in the past 12 months and in their lifetime. Prior to completing the large cross-sectional study, we completed a pilot P.R.A.I.S.E. study at two level I trauma centres in Ontario (Chapter 6). In our pilot study, we found that the
overall prevalence of IPV (defined as emotional, physical, and/or sexual abuse) within the last 12 months was 32 percent. This study suggested a high prevalence of IPV among female patients with injuries who presented to fracture clinics within trauma centres in Ontario. The pilot study helped to inform the protocol for the definitive P.R.A.I.S.E. study and the high prevalence that we found in the pilot study provides a strong rationale to complete the larger definitive study.

The definitive P.R.A.I.S.E. study included 2,945 women from 12 clinical sites in Canada, the United States, the Netherlands, Denmark, and India. This study found that the 12-month prevalence of IPV is 16.0 percent and the lifetime prevalence is 34.6 percent (Chapter 7). This study also found that the rates of IPV differed across the different jurisdictions.

Our Prevalence of Abuse and Intimate Partner Surgical Evaluation (P.R.A.I.S.E.) study (Chapters 5, 6, and 7), was strengthened by the use of previously developed screening questionnaires and direct questions, broad eligibility criteria, the use of female study coordinators in order to maximize enrolment, the completion of self-administered questionnaires in a private location, and the assurance of anonymity of the respondents. Using multiple screening tools may help to identify patients who have experienced forms of abuse that may not be detected with only utilizing one tool. However, there is a risk that broadening the definition of IPV created a high rate of false-positives. The P.R.A.I.S.E. pilot study (Chapter 6) is limited by 113 women declining to participate in the study. It is plausible that the non-participants differed from the participants in terms of prevalence of IPV. In addition, the generalizability of the findings may be limited to fracture clinics with similar referral and triage practices as the two included in this pilot study.

Our cross-sectional multi-centre study assessing the prevalence of IPV in the fracture clinic setting was strengthened by including multiple international centres (Chapter 7). This study was limited by the use of a self-completed questionnaire, which resulted in some missing data. This study was also limited by including only patients who present to the clinic for treatment or follow-up of an injury, which decreases the generalizability of the findings. In addition, the exclusion of non-English speaking patients further decreases the generalizability of the findings. Finally, this study only included female patients and it consequently does not provide an estimate of the prevalence of IPV in male orthopaedic fracture clinic patients.

This research from this section provides suggests that the prevalence of IPV is as high as other medical subspecialties (3 - 24) and provides a strong rationale to consider implementing a screening program to assist IPV victims in orthopaedic fracture clinics.

Section III: Barriers to and Facilitators for Screening for Intimate Partner Violence in Orthopaedic Fracture Clinic Patients

The results of the first section of this thesis demonstrated that orthopaedic surgeons and surgical trainees had multiple misperceptions and a lack of education about IPV, which is a significant barrier to implementing a screening program within a fracture clinic. This section further investigated some of the barriers to screening for IPV in an orthopaedic fracture clinic setting and also suggests recommendations on how to overcome some of these barriers.

We conducted a systematic review which examined health care providers’ perceived barriers to screening for IPV (Chapter 8) and identified and explored five categories of IPV screening barriers: personal barriers, resource barriers, perceptions and attitudes, fears, and patient-related barriers. The most frequently reported barriers included personal discomfort with IPV, lack of knowledge about IPV, and time constraints within a clinical setting. Health care provider barriers were reported more frequently than patient-related barriers. This systematic review was strengthened by a thorough and systematic search of the literature. We reviewed all
potentially eligible articles and independently abstracted all data in duplicate. In addition, this systematic review is limited by the small sample sizes and the low response rates in some of the included studies. In addition, there was heterogeneity across the included studies as a result of variations in study design, methodology, provider characteristics, and medical specialties. Consequently, this heterogeneity limited the direct comparisons of the included studies. Another limitation was the high number of low- and moderate-quality studies included in the review. In addition, we included only articles that were published in English. Finally, we did not include grey literature in this review.

To further explore the barriers to and facilitators for IPV screening in fracture clinics, we conducted a series of focus groups with orthopaedic surgeons and orthopaedic surgical trainees (Chapter 9). To provide additional context to the focus group findings, we also interviewed two opinion leaders in the field of orthopaedics. Similar to the previous published literature, the focus groups of orthopaedic surgeons and surgical trainees identified multiple perceived fracture clinic barriers, barriers related to patients, barriers specific to surgical trainees, and barriers specific to surgeons. The participants of the focus groups also discussed and identified facilitators for IPV screening including system-level facilitators, fracture clinic processes, and personnel resources. The interviews with the opinion leaders identified several facilitators for the implementation of policies for IPV screening including the need for champions, the need to increase awareness both locally and nationally, local policy implementation, and the need for research to inform policy. This qualitative study was strengthened by utilizing an experienced facilitator and interviewer who was knowledgeable about IPV. In addition, we worded questions within our focus group and interview guide to ensure that they were neutral and did not lead the participants. Participants in our focus groups were from a single academic institution, limiting the generalizability of the results. However, we did interview two opinion leaders from different academic institutions, which may improve the generalizability of our findings.

We then evaluated whether it was acceptable to fracture clinic patients for health care practitioners to screen for IPV in the orthopaedic fracture clinic setting. Seven-hundred and fifty patients at five different hospitals in Canada and the Netherlands completed a survey that addressed this question (Chapter 10). This study found that the majority of patients agreed that the fracture clinic was an appropriate setting for health care practitioners to ask about IPV. This survey was strengthened by including multiple centres and the use of broad inclusion criteria. This study was limited by only including English (Canada) and Dutch (Netherlands) speaking patients, which may mask the effects of cultural differences. In addition, the use of a self-completed questionnaire resulted in some missing data.

In summary, this section identified multiple barriers to screening for IPV, which are similar to those identified in other specialties (25-27). Fortunately, many of which are possible to overcome through championship, education and additional resources. In addition, orthopaedic surgeons provided multiple facilitators for implementing a screening program within the fracture clinic and patients were acceptable to the idea of a universal screening program for IPV being implemented in the fracture clinic setting.

Section IV: Moving Towards Developing a Screening Program for Intimate Partner Violence in the Orthopaedic Fracture Clinic

There are a number of potential options for screening for IPV in health care settings and the optimal method of screening for IPV remains highly controversial (28, 29). This section provides a discussion on several different screening methods and the challenges for implementing a screening program within an orthopaedic fracture clinic setting.
Multiple screening instruments have been developed and implemented in various health care settings (30-37). For the P.R.A.I.S.E. study, we utilized two previously developed instruments (the WAST and the PVS), and we also directly asked patients whether they had experienced physical, emotional, and/or sexual abuse. We found that the prevalence rates varied across these instruments (Chapter 11). Specifically, the prevalence was 30.5 percent with the direct questioning approach, 12.4 percent using the WAST, and 9.2 percent using the PVS. This study suggests that previously developed screening tools may not be broad enough and are consequently under-estimating the prevalence of IPV. A more direct approach to screening for IPV may be more effective. This study is limited by the small sample size of women who screened positive using the composite of the three measures. Please refer to the previous discussion about the strengths and limitations for Chapter 6.

Multiple factors need to be considered prior to implementing an IPV program in an orthopaedic fracture clinic setting. This chapter (Chapter 12) provides a summary of the research conducted to date on IPV in the field of orthopaedic surgery. This chapter also sets the stage for future research initiatives which include providing orthopaedic fracture clinics with an IPV tool kit and determining its effectiveness. We also discussed several items that need to be considered when developing a program to identify cases of IPV within the orthopaedic fracture clinic setting. Recommendations for future research are also discussed. This review is strengthened by a thorough review of the literature and using an evidence-based approach in making recommendations for future research.

This section has discussed several items that need to be considered when implementing an initiative to help identify patients who are experiencing IPV within the orthopaedic fracture clinic setting. Screening for IPV remains controversial and recent randomized controlled trials evaluating different screening programs have not shown positive results (38, 39). Future research needs to rigorously evaluate active screening programs using the appropriate study designs and outcome measures.

**Implications of this Thesis**

Unlike child abuse, it is not mandatory to screen for and report IPV in adult patients in most jurisdictions. As a consequence, most hospitals and clinics have procedures and protocols in place for screening for and managing cases of child abuse, but not for IPV. In addition, most physicians receive education on how to identify and manage children who are being abused and very little education on how to manage IPV in a clinical setting. While the mandatory reporting of IPV in the adult population is not appropriate, we can learn from the establishment of detailed protocols and processes and educational initiatives that are in place to guide health care professionals in the screening and management of child abuse.

Traditionally, general practitioners have been well-positioned to screen for IPV and assist IPV victims due to their gatekeeper role within the health care system. Many patients have close relationships with the family physicians which leads one to believe that general practitioners are appropriately helping IPV victims within their practice. Unfortunately, not everyone has a general practitioner and not all general practitioners actively ask patients about IPV. In addition, patients may be hesitant to disclose IPV to someone that they and their families are very close to. Given these limitations, it is vital that other health care practitioners look to identify cases of IPV.

Many of the women who present to emergency departments with injuries are referred to orthopaedic surgeons for treatment of their injuries. Although these patients may be screened for IPV in the emergency room, the emergency department is not the perfect location to manage IPV.
(2). The orthopaedic fracture clinic may provide an ideal opportunity for a second chance to screen for IPV and subsequently offer appropriate assistance for patients with orthopaedic injuries (2). At the initiation of this thesis, very little research had been conducted on IPV in orthopaedic trauma and this thesis helps us to move towards an evidence-based approach for addressing how orthopaedic surgeons can help IPV victims.

We hypothesized that orthopaedic surgeons are well positioned to help victims of IPV; however, as is evident by the research conducted in this thesis, multiple barriers must be overcome before large-scale IPV programs can be implemented in the orthopedic fracture clinic. One of the key barriers identified in this thesis is the lack of education on IPV for medical students, surgical trainees, and orthopaedic surgeons. Broad education initiatives need to be developed, evaluated, and then implemented to ensure that orthopaedic surgeons are comfortable with assisting IPV victims. Another key barrier identified included was the lack of privacy within the orthopedic fracture clinic setting. As fracture clinics are renovated and redesigned, patient privacy should be taken into consideration. We need to move from a model of open-concept, to private exam rooms. Orthopaedic surgeons and the surgical trainees also identified that the lack of time during the patient’s fracture clinic visit was a critical barrier. This suggests that it may be more efficient to have a nurse or social worker screen for IPV and provide support to patients who are victims of IPV.

Our surveys found that orthopaedic surgeons believed that the prevalence of IPV was very low in the patients presenting to their fracture clinics. This is a misperception, as the cross-sectional prevalence studies conducted as part of this thesis found a higher than anticipated rate of IPV in patients presenting to fracture clinics with injuries. This finding further supports our belief that screening for IPV in the orthopaedic fracture clinic presents an opportunity to help many women who are victims of IPV.

The last section of this thesis touched on some of the items to consider when developing a program to identify IPV victims within the fracture clinic setting. Our research found that a direct approach when asking about IPV and computer based screening may be more effective than face-to-face screening and self-administered written screening. There are numerous factors to take under consideration when developing, evaluating, and implementing a new IPV initiative and it is vital that a multi-disciplinary approach be utilized. Future research needs to be conducted to evaluate different screening options. In summary, through education, restructuring, forward thinking, and additional research, the barriers to identifying and managing IPV patients in orthopaedic fracture clinics needs to be urgently overcome.

Future Research

Future research needs to begin with a formal evaluation of educational initiatives in identifying and managing IPV for medical students, surgical trainees, and orthopaedic surgeons. Educational opportunities regarding IPV may include an addition to the core curriculum at the medical school level. Individual surgical trainee programs also need to incorporate information about the management of IPV into their programs to ensure that surgical trainees are comfortable with screening and managing IPV victims. Workshops and educational rounds may also provide an excellent opportunity for creating awareness and improving the level of comfort about IPV amongst orthopaedic surgeons and surgical trainees.

This thesis identified several different facilitators to screening for IPV, along with multiple methods for creating awareness and managing IPV in the fracture clinic setting. Despite the initial research on IPV screening in the fracture clinic setting conducted as part of this thesis,
numerous questions remain unanswered. Some of these questions include: what is the optimal method of screening for IPV, is passive or active screening more effective, who should conduct the screening, and what are the most effective means of helping fracture clinic patients who are identified as IPV victims. These initiatives need to be formally developed and appropriately evaluated using an evidence-based approach before they are widely implemented to ensure that they are an effective and safe means of helping victims of IPV. In addition, very little research has been conducted on IPV in male patients. Future research should estimate the prevalence of IPV in male patients as well as design, implement, and evaluate screening and management programs aimed at male IPV victims.

Conclusions

We are moving towards an evidence-based approach to assisting IPV victims in orthopaedic fracture clinics. We found that multiple barriers to screening exist, and that orthopaedic surgeons, surgical trainees, and medical students have many misperceptions about IPV. Educational programs are urgently needed to address these misperceptions and to provide factual knowledge about IPV. We also identified a higher than anticipated prevalence of IPV (physical, emotional, and sexual abuse) in orthopaedic patients, which suggests that the orthopaedic fracture clinic may provide an opportunity to identify and subsequently help many women who are victims of IPV. Our focus groups with orthopaedic surgeons and surgical trainees and our interviews with opinion leaders also identified multiple facilitators for screening for IPV in orthopaedic fracture clinics. Most focus group and interview participants are in favour of IPV screening programs and would be supportive of their implementation. Multiple factors need to be considered when designing an IPV screening and assistance program and future research needs to focus on the evaluation of educational programs as well as the effectiveness of different IPV screening and assistance programs.
Nederlandse Samenvatting

Achtergrond

Partnergeweld als onderdeel van huiselijk geweld is wereldwijd een veelvoorkomend en ernstig gezondheidsprobleem. Slachtoffers van partnergeweld komen frequent in contact met medische zorgverleners, waaronder orthopedisch- en traumachirurgen. De afgelopen jaren is er belangrijk onderzoek verricht naar partnergeweld. Echter een zeer beperkt deel hiervan is uitgevoerd binnen de orthopedie en traumatologie. Orthopedisch- en traumachirurgen zijn mogelijk in de positie om slachtoffers van partnergeweld te helpen. Temeer daar zowel de Amerikaanse Vereniging van Orthopedisch Chirurgen (“American Academy of Orthopaedic Surgeons”) als de Canadese Vereniging voor Orthopedie (“Canadian Orthopaedic Association”) duidelijke standpunten in hebben genomen ten aanzien van partnergeweld en daarbij ook richtlijnen bieden (1,2).

Dit proefschrift komt voort uit het bestaande gebrek aan kennis op het gebied van partnergeweld bij orthopedische en traumachirurgische patiënten. Daarnaast komt het voort uit de wens om een educatief programma voor orthopedisch- en traumachirurgen te ontwikkelen, waarmee zij slachtoffers van partnergeweld bij kunnen staan wanneer deze zich presenteren op de polikliniek orthopedie en traumachirurgie.

Doelen van dit proefschrift

Het overkoepelende doel van dit proefschrift was om te onderzoeken welke mogelijkheden er zijn voor orthopedisch- en traumachirurgen om slachtoffers van partnergeweld in hun kliniek bij te staan en voor welke uitdagingen zij daarbij mogelijk staan. De specifieke doelen van dit proefschrift waren: 1) onderzoeken wat de perceptie van orthopedisch- en traumachirurgen, artsen in opleiding tot specialist (AIOS) en medisch studenten is over partnergeweld, 2) het bepalen van de prevalentie van partnergeweld in de polikliniek orthopedie en traumachirurgie, 3) het bepalen van de belemmerende en bevorderende factoren voor het screenen naar partnergeweld in de praktijk, en 4) het uiteenzetten van de mogelijkheden voor een programma gericht op screening naar partnergeweld in de polikliniek orthopedie en traumachirurgie.

Belangrijkste bevindingen in dit proefschrift

Deel I: De perceptie van orthopedisch- en traumachirurgen en AIOS over partnergeweld

Om een beeld te krijgen van de huidige perceptie, houding en kennis ten aanzien van partnergeweld hebben we een tweetal enquêtes afgenomen bij orthopedisch- en traumachirurgen, AIOS en medisch studenten. De eerste enquête is uitgevoerd onder leden van de Canadese Vereniging voor Orthopedie, waarbij meer dan 700 praktiserende orthopedisch en traumachirurgen zijn aangesloten (Hoofdstuk 2). Demografische persoons- en praktijkgegevens werden verzameld en er werden vragen gesteld met betrekking tot hun houding ten aanzien van partnergeweld. Dit werd gedaan door te vragen naar het beeld dat chirurgen hebben van slachtoffers, daders en hoe zij hun eigen verantwoordelijkheid zien als zorgverlener. Honderdzesentachtig orthopedisch en traumachirurgen hebben de enquête ingevuld (response rate 51%). Volgens de meerderheid van de respondenten (95%) was minder dan 10% van hun patiënten slachtoffer van partnergeweld. Daarnaast dachten de meeste respondenten dat
partnergeweld slechts zelden voorkomt (een prevalentie van minder dan 1%). Verschillende
misvattingen werden geïdentificeerd: 1) de opvatting dat het vragen naar partnergeweld een
schending zou zijn van de privacy van het slachtoffer; 2) het vragen naar partnergeweld is niet
de verantwoordelijkheid van de chirurg, 3) slachtoffers van partnergeweld kiezen ervoor om
slachtoffer te zijn, en 4) slachtoffers van partnergeweld zijn zelf betrokken in de aanzet tot het
misbruik. Samenvattend werd uit deze enquête duidelijk dat persoonlijk ongemak en gebrek aan
scholing hebben geleid tot verschillende misvattingen over partnergeweld bij Canadese
orthopedisch- en traumachirurgen.

Misvattingen over partnergeweld kwamen ook naar voren uit een enquête uitgevoerd bij
medische studenten en AIOS chirurgie uit Ontario, Canada (Hoofdstuk 3). Deze waren als volgt:
1) slachtoffers halen zelf ook iets uit de gewelddadige relatie; 2) artsen moeten zich niet mengen
in een relationeel conflict; 3) vragen naar partnergeweld kan door een patiënt als beledigend
worden ervaren; 4) een slachtoffer kiest ervoor om slachtoffer te zijn; 5) waar twee vechten
hebben twee schuld; en 6) sommige persoonlijkheidskenmerken van patiënten liggen ten
grondslag aan misbruik. De meerderheid van de medisch studenten en AIOS chirurgie schatten
de prevalentie van partnergeweld in hun eigen toekomstige praktijk op 10% of minder.

De kracht van de enquête onder de leden van de Canadese Vereniging voor Orthopedie
(Hoofdstuk 2) en bij de medische studenten en AIOS (Hoofdstuk 3) is het gebruik van een
enquête die in eerder onderzoek uitgebreid is beschreven. De enquête werd alleen uitgezet onder Canadese orthopedisch- en traumachirurgen die lid zijn van de
Canadese Vereniging voor Orthopedie. Dit is ongeveer 80% van alle Canadese orthopedisch- en
traumachirurgen. Dit kan de generaliseerbaarheid van onze resultaten mogelijk beperken.

De kracht van de enquête onder de leden van de Canadese Vereniging voor Orthopedie
(Hoofdstuk 2) en bij de medische studenten en AIOS (Hoofdstuk 3) is het gebruik van een
enquête die in eerder onderzoek uitgebreid is beschreven. De enquête werd alleen uitgezet onder Canadese orthopedisch- en traumachirurgen die lid zijn van de
Canadese Vereniging voor Orthopedie. Dit is ongeveer 80% van alle Canadese orthopedisch- en
traumachirurgen. Dit kan de generaliseerbaarheid van onze resultaten mogelijk beperken.

Ondanks dat aan onze enquête (Hoofdstuk 3) voldoende medisch studenten en AIOS
chirurgie uit Ontario deelnamen, is enige vertekening mogelijk aangezien de respons rate slechts
29% was. De enquête werd alleen uitgezet onder Canadese orthopedisch- en traumachirurgen die lid zijn van de
Canadese Vereniging voor Orthopedie. Dit is ongeveer 80% van alle Canadese orthopedisch- en
traumachirurgen. Dit kan de generaliseerbaarheid van onze resultaten mogelijk beperken.

Samenvattend vonden we in dit deel van het proefschrift dat er onder orthopedisch- en
traumachirurgen, AIOS chirurgie en medisch studenten verschillende misvattingen bestaan over
partnergeweld. Onze enquêtes wezen uit dat de respondenten dachten dat partnergeweld slechts
weinig voorkomt bij hun eigen patiënten populatie. Uit de enquêtes bleek de noodzaak voor
verdere scholing van orthopedisch- en traumachirurgen, AIOS en medisch studenten over
partnergeweld. De bestaande misvattingen moeten eerst uit de weg geholpen worden door
scholing en bewustwording. Pas daarna kunnen screenings- en hulpprogramma’s worden
ontwikkeld voor partnergeweld in de polikliniek orthopedie en traumachirurgie.

Deel II: Prevalentie van partnergeweld bij patiënten van de polikliniek orthopedie en
traumachirurgie

Het doel van dit deel was het bepalen van de prevalentie van partnergeweld bij patiënten
die de polikliniek orthopedie en traumachirurgie bezoeken.
Eerst hebben we een meta-analyse uitgevoerd. Hiervoor hebben we een overzicht gemaakt van de gepubliceerde literatuur om de beste prevalentie schatters van partnergeweld bij verschillende medische subspecialismen te bepalen (Hoofdstuk 4). Uit deze meta-analyse bleek dat de beste lifetime prevalentie schatter voor partnergeweld in de huisartsenpraktijk 38% was en op de Spoedeisende Hulp 40%. Er werden geen studies gevonden waarin de prevalentie van partnergeweld was bepaald bij orthopedische- en traumachirurgische patiënten; een duidelijk hiat in de huidige literatuur. De kracht van deze meta-analyse zit in de uitgebreide zoekstrategie. De artikelen zijn tweemaal gescreend op inclusie. Twee beoordelaars hebben vervolgens onafhankelijk van elkaar alle data geëxtraheerd, waarmee een grote nauwkeurigheid is gegarandeerd. Deze studie werd overigens wel beperkt door de hoge mate van heterogeniteit onder de geïncludeerde artikelen, waardoor het niet mogelijk was om studies direct met elkaar te vergelijken. Een andere beperking is dat alleen Engelstalige artikelen zijn geïncludeerd. Grijze literatuur werd ook niet meegenomen.

Om de prevalentie van partnergeweld te meten bij patiënten van de polikliniek orthopedie en traumachirurgie werd het protocol ontwikkeld voor de “PRevalance of Abuse and Intimate Partner Surgical Evaluation (P.R.A.I.S.E.) study” (Hoofdstuk 5).

In deze multicenter crossectionele studie, uitgevoerd onder volwassen vrouwelijke patiënten die voor het eerst de polikliniek orthopedie en traumachirurgie bezochten, werd gevraagd twee gevalideerde vragenlijsten (Woman Abuse Screening Tool (WAST) en de Partner Violence Screen (PVS)) en een aantal directe screeningsvragen in te vullen. Hiermee kon de prevalentie van partnergeweld bepaald worden in de afgelopen 12 maanden en gedurende het leven tot nu toe. Voor deze grote crossectionele studie van start ging, is eerst een pilotstudie uitgevoerd in twee level I traumacentra in Ontario, Canada (Hoofdstuk 6). In onze pilotstudie vonden we een 12 maanden prevalentie van partnergeweld (gedefinieerd als emotioneel, fysiek en/of seksueel geweld) van 32%. Deze studie suggereerde een hoge prevalentie van partnergeweld onder vrouwelijke patiënten die zich met lichamelijk letsel presenteren op de polikliniek orthopedie en traumachirurgie in traumacenters in Ontario, Canada. De ervaringen opgedaan in de pilotstudie zijn gebruikt om het definitieve P.R.A.I.S.E. studie protocol te optimaliseren. De hoge prevalentie gevonden in de pilotstudie toont tevens het belang om een grotere studie op te zetten.

In de uiteindelijke P.R.A.I.S.E. studie werden 2.945 vrouwen geïncludeerd over 12 ziekenhuizen in Canada, de Verenigde Staten, Nederland, Denemarken en India. Uit deze studie bleek een 12 maanden prevalentie van partnergeweld van 16%. De lifetime prevalentie is 34.6% (Hoofdstuk 7). Deze studie vond ook dat de percentages verschillen tussen verschillende regio’s en landen.

De kracht van onze Prevalence of Abuse and Intimate Partner Surgical Evaluation (P.R.A.I.S.E.) studie (Hoofdstukken 5, 6, and 7) zit in het gebruik van reeds ontwikkelde screeningsinstrumenten (vragenlijsten), de breed gehanteerde inclusiecriteria, het gebruik van vrouwelijke studiecoördinatoren om maximale deelname te realiseren, het invullen van de zelfgerapporteerde vragenlijsten in een besloten ruimte, en de borging van anonimiteit van de respondenten. Door gebruik te maken van meerdere vragenlijsten kunnen patiënten herkend worden als slachtoffer van partnergeweld, die mogelijk niet herkend zouden worden bij gebruik van één enkele vragenlijst. Het gebruik van deze brede definitie van partnergeweld kan daarentegen ook leiden tot fout-positieven. De P.R.A.I.S.E. pilot (Hoofdstuk 6) is enigszins beperkt doordat 113 vrouwen weigerden om deel te nemen aan deze studie. Het is mogelijk dat de vrouwen die niet mee wilden doen verschillen van de deelnemende vrouwen wanneer het gaat om de prevalentie van partnergeweld. Daarnaast is de generaliseerbaarheid van onze pilot
bevindingen mogelijk beperkt tot poliklinieken met vergelijkbare verwijzingspatronen en triageprotocollen als in de twee deelnemende centra.

De kracht van onze multicenter crossectionele P.R.A.I.S.E. studie, waarin de prevalentie van partnergeweld in de polikliniek orthopedie en traumachirurgie werd bepaald, was de deelname van meerdere internationale ziekenhuizen (Hoofdstuk 7). Deze studie werd beperkt door het gebruik van vragenlijsten die door de respondent zelf werd ingevuld. Hierdoor waren de gegevens soms incompleet. Een andere beperking van de studie is dat alleen patiënten werden geïncludeerd die de polikliniek voor de eerste maal bezochten. Dit beperkt mogelijk de generaliseerbaarheid. Daarnaast zijn patiënten die (afhankelijk van het land van inclusie) geen Engels, Deens, Nederlands, of Indiaas spraken geëxcludeerd. Tot slot beperkte deze studie zich alleen tot de vrouwelijke patiënten, en kunnen geen prevalentie cijfers gegeven worden voor partnergeweld onder mannelijke patiënten die de polikliniek orthopedie en traumachirurgie bezoeken.

Het onderzoek uit dit deel geeft aan dat de prevalentie van partnergeweld bij de orthopedie en traumachirurgie net zo hoog is als in andere medische subspecialismen (3-24). Dit onderstreept het belang om een programma te ontwikkelen gericht op screening naar partnergeweld op de polikliniek orthopedie en traumachirurgie om eventuele slachtoffers hiervan bij te staan.

Deel III: Belemmerende en bevorderende factoren voor het screenen naar huiselijk geweld bij patiënten van de polikliniek orthopedie en traumachirurgie

De resultaten uit het eerste deel van dit proefschrift lieten zien dat orthopedisch- en traumachirurgen en AIOS chirurgie meerdere misvattingen hebben over partnergeweld en dat scholing hierover ontbreekt. Dit zijn belangrijke belemmeringen bij de implementatie van een screeningsprogramma naar partnergeweld in de poliklinische setting van de traumachirurgie en orthopedie.

In dit deel hebben we een aantal van deze belemmerende factoren voor screening verder onderzocht en doen we aanbevelingen hoe sommige belemmeringen kunnen worden overkomen.

In een systematisch literatuuronderzoek hebben we de belemmerende en bevorderende factoren voor het screenen naar partnergeweld onderzocht, zoals zij door de zorgverleners worden ervaren (Hoofdstuk 8). Vijf categorieën belemmeringen werden geïdentificeerd en nader bekeken: persoonlijke belemmeringen, financiële belemmeringen, percepties en houdingen, angst en patiëntgerelateerde belemmeringen. De meest genoemde belemmeringen waren het persoonlijk ongemak dat men ervoer bij partnergeweld, het gebrek aan kennis en het gebrek aan tijd in de kliniek. Persoonlijke belemmeringen van zorgverleners werden vaker benoemd dan patiëntgerelateerde. De kracht van dit systematisch literatuuronderzoek zat in de gedegen en systematische zoekstrategie. Alle potentieel geschikte artikelen werden beoordeeld en alle data werd tweeledig, maar onafhankelijk, geëxtraheerd. Dit literatuuronderzoek werd echter wel beperkt door de kleine groepsgrootte en de lage respons in enkele van de geïncludeerde studies. Verder was er sprake van heterogeniteit tussen de geïncludeerde studies als gevolg van verschillende studieontwerpen, methodologie, type zorgverlener en medische specialismen. Hierdoor werd directe onderlinge vergelijking van de geïncludeerde studies beperkt. Andere beperkingen waren dat er relatief veel studies van slechte en matige kwaliteit zijn geïncludeerd, er alleen Engelstalige artikelen zijn geïncludeerd en grijze literatuur niet is meegenomen.

De belemmerende en bevorderende factoren voor het screenen naar partnergeweld op de polikliniek orthopedie en traumachirurgie zijn nader onderzocht in focusgroepen (Hoofdstuk 9). Deze verschillende focusgroepen bestonden uit orthopedisch chirurgen en arts-assistenten.
Om de informatie verkregen uit de focusgroepen in een bredere context te plaatsen hebben we ook twee vooraanstaande opinieleiders uit het orthopedisch werkveld geïnterviewd. Vergelijkbaar met de eerder gerapporteerde literatuur werden in de focusgroepen verschillende belemmerende en bevorderende factoren geïdentificeerd: belemmeringen gerelateerd aan de kliniek, belemmeringen gerelateerd aan patiënten, belemmeringen specifiek gerelateerd aan AIOS, belemmering specifiek gerelateerd aan de chirurgen. In de focusgroepen werden de bevorderende factoren besproken voor screening naar partnergeweld, waaronder factoren op organisatie niveau, poliklinische processen en personele bezetting. Uit de interviews met de opinieleiders kwamen verschillende bevorderende factoren naar voren voor het implementeren van beleid op het screening naar partnergeweld. De behoefte aan voorvechters, het belang van het vergroten van lokale en nationale bewustwording, de behoefte aan onderzoek en de behoefte aan beleidsmakers te informeren. Een sterk punt van deze kwalitatieve studie is het gebruik van een ervaren interviewer met expertise op het gebied van partnergeweld. Daarnaast werden de vragen in onze focusgroep en interviews neutraal geformuleerd, zodat deelnemers niet werden beïnvloed. Deelnemers in onze focusgroep waren afkomstig uit één academische instituut, wat de generaliseerbaarheid mogelijk beperkt. Daarentegen waren de geïnterviewde opinieleiders afkomstig uit verschillende academische institut, wat de generaliseerbaarheid mogelijk verbetert.

In een volgende stap hebben we geëvalueerd of het voor patiënten op de polikliniek orthopedie en traumachirurgie acceptabel is wanneer zij daar gescreend zouden worden op de aanwezigheid van partnergeweld. Zevenhonderdvijftig patiënten uit vijf verschillende ziekenhuizen in Canada en Nederland hebben daarover een enquête ingevuld (Hoofdstuk 10). De meerderheid van de respondenten gaf aan dat zij het gepast vonden wanneer zorgverleners van de polikliniek patiënten zouden vragen naar partnergeweld. De kracht van deze studie was dat de enquête in meerdere ziekenhuizen werd afgenomen en brede inclusiecriteria werden gehanteerd. De studie werd beperkt doordat alleen Engelstalige (Canada) en Nederlandstalige (Nederland) patiënten werden geïncludeerd. Hierdoor is de invloed van culturele verschillen mogelijk gemaskeerd. Daarnaast werd de studie beperkt door het gebruik van vragenlijsten die door de respondent zelf werd ingevuld. Hierdoor waren de gegevens soms incompleet.

Samenvattend vonden we in dit deel van het proefschrift dat de verschillende geïdentificeerde belemmeringen bij het screening naar partnergeweld gelijk zijn aan die gemeld bij andere medisch specialismen (25-27). Gelukkig zijn ze hiervan weg te nemen door goed leiderschap, onderwijs en de inzet van extra middelen. Orthopedisch chirurgen gaven daarnaast aan dat er verschillende bevorderende factoren zijn voor de implementatie van een programma gericht op screening naar partnergeweld. Patiënten gaven aan dat zij openstaan voor de invoering van een algemene screening naar partnergeweld op de polikliniek orthopedie en traumachirurgie. Patiënten gaven aan dat zij openstaan voor de invoering van een algemene screening naar partnergeweld op de polikliniek orthopedie en traumachirurgie.

Deel IV: De ontwikkeling van een programma gericht op screening naar partnergeweld in de polikliniek orthopedie en traumachirurgie.

Er zijn verschillende mogelijkheden waarop screening naar partnergeweld uitgevoerd kan worden. De optimale methode blijft controversieel (28, 29). In dit deel van het proefschrift worden een aantal verschillende methodes voor screening besproken en bespreken we de uitdagingen waarvoor we staan bij de implementatie van een screeningsprogramma op de polikliniek orthopedie en traumachirurgie. Patiënten gaven aan dat zij openstaan voor de invoering van een algemene screening naar partnergeweld op de polikliniek orthopedie en traumachirurgie.
hebben we een tweetal reeds ontwikkelde instrumenten gebruikt (de WAST en de PVS). Daarnaast hebben we ook patiënten directe vragen gesteld om te bepalen of zij te maken hebben gehad met fysiek, emotioneel en/of sexueel misbruik. Op basis van deze instrumenten vonden we verschillende prevalentie cijfers (Hoofdstuk 11). De prevalentie was 30,5% met de directe vragen-methode, 12,4% gebruikmakend van de WAST en 9,2% met de PVS. Deze studie suggerereert dat reeds ontwikkelde screeningsinstrumenten mogelijk niet breed genoeg zijn en daarom de prevalentie van partnergeweld onderschatten. Een directere benadering om te screenen naar partnergeweld is mogelijk effectiever. Deze studie werd echter beperkt door een kleine groepsgrootte van vrouwen die gescreend zijn met een samenstelling van de drie verschillende methodes. Voor de overige sterke en zwakke punten van deze studie verwijzen wij naar de discussie van Hoofdstuk 6.

Verschillende factoren spelen een rol bij de implementatie van een screenings programma naar partnergeweld op de polikliniek orthopedie en traumachirurgie. Dit hoofdstuk (Hoofdstuk 12) bevat een samenvatting van al het tot op heden uitgevoerde onderzoek naar partnergeweld binnen de orthopedie en traumachirurgie. Dit hoofdstuk legt een basis voor toekomstige onderzoeksinitiatieven door het bieden van een toolkit partnergeweld voor gebruik binnen poliklinieken orthopedie en traumachirurgie en de effectiviteitsbepaling daarvan.

Verschillende aspecten werden besproken en aanbevelingen gegeven die overwogen moeten worden bij de ontwikkeling van een programma om slachtoffers van partnergeweld te herkennen op de polikliniek orthopedie en traumachirurgie. De kracht van dit literatuuroverzicht ligt in de uitgebreide zoekstrategie en het gebruik van een evidence-based benadering bij het doen van aanbevelingen voor toekomstig onderzoek.

In dit deel werden verschillende aspecten besproken die overwogen moeten worden wanneer een initiatief wordt gestart om patiënten te herkennen die slachtoffer zijn van partnergeweld op de polikliniek orthopedie en traumachirurgie. Het screenen op partnergeweld blijft controversieel en in recente gerandomiseerde studies waarin verschillende screensingsprogramma’s werden vergeleken bleven positieve resultaten uit (38,39). Toekomstig onderzoek, opgezet volgens het juiste studieontwerp en met de juiste uitkomstmaten, zal de verschillende actieve screenings programma’s op nauwgezette wijze moeten evalueren.

Implicaties van dit proefschrift

In tegenstelling tot kindermishandeling is het in de meeste regio’s of landen niet verplicht om te screenen op partnergeweld bij volwassen patiënten, of hier melding van de maken. Daarom hebben de meeste ziekenhuizen wel procedures en protocollen tot hun beschikking voor het screenen naar kindermishandeling, maar niet voor partnergeweld. Daarbij worden artsen wel geschoold in het herkennen van slachtoffers van kindermisbruik en hoe hiermee om te gaan, maar is er maar weinig scholing met betrekking tot de omgang met partnergeweld in een klinische setting. Hoewel een meldplicht voor partnergeweld niet op zijn plek is, kunnen we wel veel leren van de bestaande gedetailleerde protocollen, meldcodes en scholingsinitiatieven om zorgverleners te begeleiden bij de screening naar kindermishandeling en de omgang daarmee.

Huisartsen zijn van oudsher het meest aangewezen om te screenen naar partnergeweld en slachtoffers van partnergeweld bij te staan door hun poortwachtersfunctie binnen de gezondheidszorg. Veel patiënten hebben een goede relatie met hun huisarts, wat de veronderstelling kan geven dat huisartsen reeds voldoende hulp bieden aan slachtoffers van partnergeweld binnen hun praktijk. Helaas heeft niet iedereen een huisarts en vragen niet alle huisartsen actief naar partnergeweld. Daarnaast kunnen patiënten terughoudend zijn het
partnergeweld te bespreken met iemand die zo dicht bij hen en hun familie staat. Gegeven deze beperkingen is het van belang dat ook andere zorgverleners alert zijn op het herkennen van slachtoffers van partnergeweld.

Veel van de vrouwen die zich op de Spoedeisende Hulp presenteren met letsels worden verwezen naar de orthopedie of traumachirurgie voor de behandeling daarvan. Hoewel deze patiënten mogelijk worden gescereerd op partnergeweld op de spoedeisende hulp, is dit mogelijk niet de beste plek om met het partnergeweld om te gaan (2). De polikliniek orthopedie/traumachirurgie kan de ideale omgeving bieden voor een tweede kans om te screenen naar partnergeweld en de juiste begeleiding bieden voor patiënten met een letsel van het bewegingsapparaat (2). Bij aanvang van dit proefschrift was er erg weinig onderzoek verricht naar partnergeweld binnen de orthopedie en traumachirurgie. Dit proefschrift draagt dan ook bij aan de ontwikkeling van wetenschappelijk benaderde aanpak van orthopedisch- en traumachirurgen met slachtoffers van partnergeweld.

We veronderstelden dat orthopedisch- en traumachirurgen in de positie waren om slachtoffers van partnergeweld te kunnen helpen; echter uit het onderzoek van dit proefschrift wordt duidelijk dat verschillende belemmeringen moeten worden overwonnen voordat op grote schaal programma’s tegen partnergeweld kunnen worden geïmplementeerd op de polikliniek orthopedie/traumachirurgie. Eén van de belangrijkste belemmeringen die in dit proefschrift naar voren kwam is het gebrek aan scholing over partnergeweld voor medisch studenten, chirurgische artsen in de positie tot specialist (AIOS) en orthopedisch- en traumachirurgen. Breed gestoelde scholingsinitiatieven moeten worden ontwikkeld, geëvalueerd en vervolgens geïmplementeerd om te verzekeren dat orthopedisch- en traumachirurgen zich comfortabel voelen in de begeleiding van slachtoffers van partnergeweld. Een andere belangrijke belemmering die naar voren kwam was het gebrek aan privacy op de polikliniek orthopedie/traumachirurgie. Bij de renovatie en herinrichting van de poliklinieken zou de privacy van de patiënt beter in acht moeten worden genomen. Van open ruimtes zullen we meer naar individuele onderzoekskamers moeten gaan. Orthopedisch- en traumachirurgen en AIOS gaven ook het gebrek aan tijd per patiënt op de polikliniek aan als belangrijke belemmering. Dit wekt de suggestie dat het efficiënter zal zijn wanneer een verpleegkundige of maatschappelijk werker de screening naar partnergeweld en begeleiding van slachtoffers voor zijn/haar rekening zal nemen.

Onze enquêtes lieten zien dat orthopedisch- en traumachirurgen dachten dat de prevalentie van partnergeweld zeer laag was onder de patiënten die hun poliklinieken bezochten. Dit is een misvatting. De crossectionele prevalentie studies in dit proefschrift lieten zelfs een hogere prevalentie zien bij patiënten die de polikliniek bezochten dan werd verwacht. Deze bevindingen ondersteunen onze mening dat screening naar partnergeweld op de polikliniek orthopedie en traumachirurgie de mogelijkheid biedt om vele vrouwelijke slachtoffers van partnergeweld te helpen.

In het laatste deel van dit proefschrift werden een aantal zaken aangehaald die overwogen moeten worden bij de ontwikkeling van een programma gericht op herkennen van slachtoffers van partnergeweld op de polikliniek orthopedie en traumachirurgie. Uit ons onderzoek bleek dat een directe aanpak bij het vragen naar partnergeweld en screening via de computer mogelijk effectiever zijn dan face-to-face-screening en het zelf invullen van papieren vragenlijsten. Er zijn verschillende factoren waarmee rekening moet gehouden worden wanneer een nieuw initiatief ontwikkeld, geëvalueerd en geïmplementeerd wordt gericht op partnergeweld. Daarnaast is het van wezenlijk belang dat de aanpak multidisciplinair is. Toekomstig onderzoek moet zich richten op het evalueren van de verschillende methodes voor screening. Samenvattend zullen we de belemmeringen voor het herkennen van en omgaan met partnergeweld overkomen moeten
worden door scholing, herstructurering, vooruitdenken en aanvullend onderzoek op de polikliniek orthopedie/traumachirurgie.

**Toekomstig onderzoek**

Toekomstig onderzoek moet zich in eerste instantie richten op het in kaart brengen van de verschillende scholingsmogelijkheden gericht op het herkennen van en omgaan met slachtoffers van partnergeweld voor medisch studenten, AIOS en orthopedisch- en traumachirurgen. Mogelijkheden voor scholingsprogramma’s gericht op partnergeweld zijn onder andere inbedding in het curriculum op de universiteit. Binnen de individuele opleiding van AIOS zou het onderwerp partnergeweld standaard ingebed moeten worden om er voor te zorgen dat AIOS zich niet ongemakkelijk voelen wanneer zij hierop screenen en hulp bieden. Workshops en trainingen bieden ook een goede gelegenheid voor het creëren van bewustzijn en het verbeteren van de mate van comfort dat orthopedisch chirurgen en AIOS hebben ten aanzien van partnergeweld.

In dit proefschrift zijn een aantal verschillende bevorderende factoren voor screening naar huiselijk geweld geïdentificeerd en zijn meerdere methoden voor de bewustwording van en omgang met partnergeweld op de polikliniek orthopedie en traumachirurgie beschreven. Desondanks blijven vele vragen nog onbeantwoord, zoals: wat is de optimale screeningsmethode naar partnergeweld; wat is doeltreffender: passieve of actieve screening; wie moet screenen, en wat zijn de meest doeltreffende middelen om patiënten te helpen die als slachtoffer van partnergeweld worden herkend? Deze initiatieven moeten formeel worden ontwikkeld, goed worden geëvalueerd en worden opgezet volgens een evidence-based benadering, voordat screening echt op grote schaal kan worden uitgevoerd. Op deze wijze verzekeren we ons dat screening als een effectief en veilig middel kan worden ingezet om slachtoffers van partnergeweld bij mannelijke patiënten te herkennen en te helpen. Toekomstig onderzoek zal in eerste instantie een inschatting moeten maken van de prevalentie van partnergeweld bij mannelijke patiënten. Vervolgens zal ook voor mannelijke slachtoffers van partnergeweld een screenings- en hulpprogramma moeten worden ontwikkeld, welke ook zal moeten worden geïmplementeerd en geëvalueerd.

**Conclusies**

De aanpak om slachtoffers van partnergeweld op de polikliniek orthopedie en traumachirurgie te helpen berust steeds meer op een wetenschappelijke benadering. We vonden dat er verschillende belemmeringen en misvattingen bestaan ten aanzien van screening naar partnergeweld bij orthopedisch- en traumachirurgen, AIOS en medische studenten. Educatieve programma’s zijn dringend nodig om deze misvattingen te corrigeren en de feitelijke kennis over partnergeweld te vergroten. Wij vonden daarnaast een hoger prevalentie cijfer van partnergeweld (fysiek, emotioneel en seksueel misbruik) dan verwacht bij orthopedische- en traumachirurgische patiënten. Dit wijst erop dat er voor de polikliniek orthopedie en traumachirurgie zeker een mogelijkheid ligt om vrouwelijke slachtoffers van huiselijk geweld te herkennen en vervolgens ook te helpen. In de gesprekken met de focusgroepen van orthopedisch chirurgen en AIOS, evenals uit de interviews met opinieleiders zijn verschillen bevorderende factoren genoemd voor het screenen naar partnergeweld op de poliklinieken orthopedie en traumachirurgie. Het merendeel van deze deelnemers is voorstander van screeningsprogramma’s naar partnergeweld en zouden de implementatie ervan ondersteunen. Meerdere factoren moeten worden overwogen bij het ontwerpen van een screenings- en hulpprogramma. Toekomstig onderzoek zou zich zowel
moeten richten op de evaluatie van scholingsprogramma's als op de effectiviteit van verschillende screenings- en hulpprogramma's voor partnergeweld.

References

1. American Academy of Orthopaedic Surgeons. Advisory statement - domestic and family violence and abuse: the orthopaedic surgeon's responsibilities. Document 1030. http://www.aaos.org/about/papers/advisstmt/1030.asp. Accessed Sept. 2012.
2. Canadian Orthopaedic Association. Intimate partner violence: position statement. http://www.coa-aco.org/library/health-policy/intimate-partner-violence.html. 2009. Accessed Sept. 2012.
3. Abbott J, Johnson R, Koziol-McLain J, Lowenstein SF. Domestic violence against women. Incidence and prevalence in an emergency department population. JAMA. 1995;273:1763-7.
4. Bauer HM, Rodriguez MA, Perez-Stable EJ. Prevalence and determinants of intimate partner abuse among public hospital primary care patients. J Gen Intern Med. 2000;15:811-7.
5. Cleary BS, Keniston A, Havranek EP, Albert RK. Intimate partner violence in women hospitalized on an internal medicine service: Prevalence and relationship to responses to the review of systems. J Hosp Med. 2008;3:299-307.
6. Coker AL, Fleer VC, Smith PH, Whitaker DJ, Fadden MK, Williams, M. Partner violence screening in rural health care clinics. Am J Public Health. 2007;97;1319-25.
7. Cox J, Bota GW, Carter M, Bretzlaflf-Michaud JA, Sahai V, Rowe BH. Domestic violence. Incidence and prevalence in a northern emergency department. Can Fam Physician. 2004;50:90-97.
8. Dearwater SF, Coben H, Campbell JC, Nah G, Glass N, McLoughlin E, Bekemeier B. Prevalence of intimate partner abuse in women treated at community hospital emergency departments. JAMA. 1998;280:433-438.
9. Elliott BA, Johnson M. Domestic violence in a primary care setting. patterns and prevalence. Arch Fam Med. 1995;4:113-9.
10. Ernst AA, Nick TG, Weiss SJ, Houry D, Mills T. Domestic violence in an inner-city ED. Ann Emerg Med. 1997;30:190-7.
11. Glass N, Dearwater S, Campbell, J. Intimate partner violence screening and intervention: data from eleven Pennsylvania and California community hospital emergency departments. J Emerg Nurs. 2001;27:141-9.
12. Hegarty KL, Bush R. Prevalence and associations of partner abuse in women attending general practice: A cross-sectional survey. Aust N Z J Public Health. 2002;26:437-42.
13. Johnson D, Elliott B. Screening for domestic violence in a rural family practice. Minnesota Medicine. 1997;80:43-5.
14. Johnson M, Elliott BA. Domestic violence among family practice patients in midsized and rural communities. J Fam Pract. 1997;44:391-400.
15. Kramer A, Lorenzon D, Mueller G. Prevalence of intimate partner violence and health implications for women using emergency departments and primary care clinics. Women's Health Issues, 2004;14:19-29.
16. Krishnan SP, Hilbert JC, Pase M. An examination of intimate partner violence in rural communities: results from a hospital emergency department study from Southwest United States. Fam Community Health. 2001;24:1-14.
17. Mazza D., Dennerstein L, Ryan V. Physical, sexual and emotional violence against women: A general practice-based prevalence study. Med J Aust. 1996;164:14-17.
18. McCauley J, Kern DE, Kolodner K, Dill L, Schroeder, AF, DeChant HK, Ryden J, Derogatis LR. The "battering syndrome": Prevalence and clinical characteristics of domestic violence in primary care internal medicine practices. Ann Intern Med. 1995;123:737-46.
19. McCloskey LA, Lichter E, Ganz ML, Williams CM, Gerber MR, Stair T, Herbert B. Intimate partner violence and patient screening across medical specialties. Acad Emerg Med. 2005;12:712-22.
20. McFarlane JM, Groff JY, O'Brien JA, Watson, K. Prevalence of partner violence against 7,443 african american, white, and hispanic women receiving care at urban public primary care clinics. Public Health Nurs. 2005;22:98-107.
21. McLaughlin SA, Crandall CS, Fullerton L, Brokaw J, Olson LM, Sklar DP. Comparison of intimate partner violence reporting between an emergency department and a clinic setting. Acad Emerg Med. 1999;6:1292-5.
22. Newman JD, Sheehan KM, Powell EC. Screening for intimate-partner violence in the pediatric emergency department. Pediatr Emerg Care. 2005;21:79-83.
23. Paul G, Smith SM, Long J. Experience of intimate partner violence among women and men attending general practices in Dublin, Ireland: A cross-sectional survey. Eur J Gen Practice 2006;12:66-9.
24. Roberts GL, O'Toole BI, Raphael B, Lawrence JM, Ashby R. Prevalence study of domestic violence victims in an emergency department. Ann Emerg Med. 1996;27:741-753.
25. Jaffee KD, Epling JW, Grant W, Ghandour RM, Callendar E. Physician-identified barriers to intimate partner violence screening. J Womens Health. 2005;14:713-20
26. Colarossi L, Breitbart V, Betancourt G. Barriers to screening for intimate partner violence: A mixed-methods study of providers in family planning clinics. Perspect Sex Reprod Health. 2010;42:236-43.
27. Waalen J, Goodwin MM, Spitz AM, Petersen R, Saltzman LE. Screening for intimate partner violence by health care providers: barriers and interventions. Am J Prev Med. 2000;19:230-237.
28. Tacket A, Wathen CN, MacMillan H. Should health professionals screen all women for domestic violence? PLoS Medicine. 2004;1(1):e4.
29. Ramsay J, Richardson J, Carter YH, Davidson LL, Feder G. Should health professionals screen women for domestic violence? Systematic Review. BMJ. 2002;325:314-8.
30. Rabin RF, Jennings JM, Campbell JC, Bair-Merritt MH. Intimate partner violence screening tools: A systematic review. Am J Preventive Med 2009;36:439-44.
31. Hudson WW, McIntosh SR. The assessment of spouse abuse: Two quantifiable dimensions. J Marriage Fam. 1981;43:873–888
32. Straus, MA. Measuring intra family conflict and violence: The Conflict Tactics Scale. J Marriage Fam. 1979;41:75–88.
33. Hegarty KL, Sheehan M, Schonfeld C. A multidimensional definition of partner abuse: Development and preliminary validation of the Composite Abuse Scale. J Fam Violence. 1999;14:399-414.
34. Peralta RL, Fleming MF. Screening for intimate partner violence in a primary care setting: the validity of "feeling safe at home" and prevalence results. J Am Board Fam Pract. 2003;16:525–32.
35. Sagrestano LM, Rodriguez AC, Carroll D, Bieniarz A, Greenberg A, Castro L, Nuwayhid B. A comparison of standardized measures of psychosocial variables with single-item screening measures used in an urban obstetric clinic. J Obstet Gynecol Neonatal Nurs. 2002;31:147–55
36. Brown JB, Lent B, Schmidt G, Sas G. Application of the Woman Abuse Screening Tool (WAST) and WAST-short in the family practice setting. *J Fam Pract.* 2000;49:896-903.
37. Feldhaus KM, Koziol-McLain J, Amsbury HL, Norton IM, Lowenstein SR, Abbott JT: Accuracy of 3 brief screening questions for detecting partner violence in the emergency department. JAMA. 1997;277:1357-61.
38. MacMillan H, Wathen C, Jamieson E, Boyle M., Shannon H, Ford-Gilboe M, Worster, A, Lent B, Coben J, Campbell J, McNutt L, McMaster Violence Against Women Research Group: Screening for intimate partner violence in health care settings: A randomized trial. JAMA. 2009;302:493-501.
39. Klevens J, Kee R, Trick W, Garcia D, Angulo FR, Jones R, Sadowski LS: Effect of screening for partner violence on women's quality of life: a randomized controlled trial. JAMA. 2012;308:681-9.
Acknowledgements

Carel Goslings, thank you for your supervision and promotion of my doctorate degree. I appreciate your time and mentorship and I have learned a lot from you. I look forward to working with you in the future.

Mohit Bhandari, thank you for your mentorship, support, and friendship. Thank you for seeing the big picture about IPV and the role of the orthopaedic surgeon and for letting me be part of the development of this critical program and its huge success. I look forward to continuing to work with you and learning from you in the years to come.

Rudolf Poolman, thank you for suggesting that I complete my doctorate degree and pushing me along to do this. Your faith in me and your friendship means so much and I look forward to our continued collaboration between Canada and the Netherlands.

Kim Madden, thank you for being my co-author on so many IPV projects. I look forward to working with you to further building the IPV orthopaedic research program and being your co-author as you complete your doctorate degree. I look forward to seeing you continue to grow academically and I can’t wait to see what we do next.

Marilyn Swinton, thank you for your close friendship and your help with the qualitative components of this thesis. I have enjoyed working with you and look forward to continuing to work with you.

Nicole Simunovic, thank you for expertise on meta analyses and systematic reviews. I appreciate your knowledge and that you abstracted data from so many articles with me. I wish you all the best and look forward to future projects.

Katelyn Godin, Rukia Swaleh, Sarah Resendes, Sarah Jiwa, Teresa Chien, and Manraj Chahal, thank you for working so hard on the IPV research program during your education terms. I learned so much from working with each of you. I appreciate your help with the literature searches, article retrieval, data collection, data entry, data analysis, and manuscript preparation. I wish you all the best in your studies and I hope that you consider a career in clinical research.

Sonia Dosanjh, thank you for your friendship and your expertise on IPV. I appreciate your careful review and input on papers that we co-authored. I look forward to continuing to work with you.

Clare Freeman, thank you for sharing your expertise on IPV. You are truly an inspiration to everyone.

Greg Della Rocca, thank you for your support and for your clinical expertise. It has been a lot of fun collaborating with you on the IPV research program. I am looking forward to more collaboration in the future.

Emil Schemitsch, thank you for your expertise and collaboration. I appreciate your critical review of the papers we co-authored and your input on the big picture items.
My colleagues at the research project office, thanks so much for your support and best wishes.

Thank you to my co-authors and all of those of you contributed to our multi-centre work. Orthopaedic research cannot be done without large-scale collaboration and it has been a pleasure working with all of you. I hope that we can continue our established collaborations.

Thank you to Vanessa A.B. Scholtes and to Suzan Beerekamp for completing the Dutch translation of my thesis document and to Jacqueline Boomguard for coordinating everything. I so appreciate your help.

Paula McKay, thank you for your amazing support throughout this process, for being such a dear friend, and for keeping me grounded. I also appreciate your careful proofreading. You are an amazing person and a role model. Thank you for all of the evenings out and adding some fun into work.

Angela Reitsma, you have been a wonderful leader in balancing a busy career, post-degree education, and being a mom. Thank you so much for your friendship.

Tim Sprague, thank you for your encouragement and friendship and for traveling to Amsterdam for my defense. It means so much. Leslie and Hugh Sprague, thank you for your encouragement and support, it is so greatly appreciated. Brian MacDonald, thank you for your patience and motivation throughout this process.

Michaela Sprague MacDonald and Carly Sprague MacDonald, my baby girls. You are my world. Thank you for adding love and balance into my life.
Biography

The author of this thesis was born on August 23rd, 1976 at McMaster University Medical Centre in Hamilton Ontario. She attended the University of Waterloo where she completed her undergraduate Bachelor of Science degree in 1999, with a major in Health Studies and a minor in Gerontology. Under the supervision and mentorship of Prof. Deborah J. Cook, she completed her Masters of Science degree at McMaster University in Health Research Methodology in 2004. In 2007, the author began her doctorate work under the close supervision and mentorship of Prof. Mohit Bhandari, Prof. J. C. Goslings, and Dr. Rudolf Poolman.

In 1999, she began her clinical research career at McMaster University focusing in the areas of surgical outcomes research with Ms. Sonia de Pauw. Shortly after she began her employment at McMaster University, she had the opportunity to work for Prof. Mohit Bhandari and Prof. Gordon H. Guyatt coordinating the S.P.R.I.N.T. (Study to Prospectively Evaluate Reamed Versus Unreamed Nails in Tibial Shaft Fractures) trial. Since the completion of the S.P.R.I.N.T. trial, the author has overseen the coordination of multiple international clinical trials in fracture repair. The author currently works at McMaster University for Prof. Mohit Bhandari managing his research programs in the field orthopaedic surgery. She lives in Hamilton Ontario and has two young daughters; Michaela and Carly.
Sheila Ann Sprague

Intimate Partner Violence in Orthopaedic Trauma Patients

Uitnodiging

voor het bijwonen van de openbare verdediging van het proefschrift

Intimate Partner Violence in Orthopaedic Trauma Patients

door
Sheila Ann Sprague

Op maandag 28 oktober 2013 om 16.00 uur
in de Agnietenkapel
Oudezijds Voorburgwal 229-231
1012 EZ Amsterdam

Receptie ter plaatse
Na afloop van de promotie

Paranimfen:
Vanessa Scholtes en Paula McKay

Sheila Sprague
sprags@mcmaster.ca