RESEARCH ARTICLE

Gender, power, and violence: A systematic review of measures and their association with male perpetration of IPV

Katharine J. McCarthy1*, Ruchi Mehta2, Nicole A. Haberland1

1 Population Council, New York, New York, United States of America, 2 Mailman School of Public Health, Columbia University, New York, New York, United States of America

* katharine.mccarthy@gmail.com

Abstract

Introduction

Harmful gender norms, views on the acceptability of violence against women, and power inequities in relationships have been explored as key drivers of male perpetration of intimate partner violence (IPV). Yet such antecedents have been inconsistently measured in the empirical literature. This systematic review aimed to identify which measures of gender inequitable norms, views, relations and practices are currently being used in the field, and which are most closely tied with male IPV perpetration.

Methods

We searched five electronic databases to identify studies published between 2000 and 2015 that reported the association between such gender inequities and male perpetration of IPV. Identified scales were categorized by content area and level of generality, as well as other attributes, and we compared the consistency of scale performance across each category.

Results

Twenty-three studies were identified, employing 64 measures. Scales were categorized into three main thematic areas: views on gender roles/norms, acceptance of violence against women, and gender-related inequities in relationship power and control. We also classified whether the scale was oriented to respondents’ own views, or what they believed others do or think. While overall, measures were positively associated with IPV perpetration in 45% of cases, this finding varied by scale type. Measures inclusive of acceptance of violence against women or beliefs about men’s sexual entitlement, followed by scales that measured respondents’ views on gender roles/norms, were most consistently associated with IPV perpetration. Measures of relationship power showed less consistent associations. We found few scales that measured peer or community norms.
Conclusion

Validated scales that encompass views on the acceptance of violence against women, and scales inclusive of beliefs about men’s sexual entitlement, may be particularly promising for unpacking pathways to IPV perpetration, targeting interventions, and monitoring progress in IPV prevention efforts. A number of gaps in the literature are identified.

Introduction

Intimate partner violence (IPV) is a significant human rights and public health concern. Globally, an estimated 30% of ever-partnered women and girls have experienced physical or sexual IPV, with reported lifetime estimates as high as 71% among women in Ethiopia [1,2]. At the same time, a substantial proportion of men report perpetration of physical or sexual IPV. For example, population-based estimates from six countries in Asia and the Pacific documented lifetime estimates ranging between 25.4% of men in rural Indonesia to 80.0% in Bougainville, Papua New Guinea [3].

Activists, theorists, researchers and practitioners have articulated how intimate partner violence is both a product of, and helps perpetuate, a larger gender system (or gender order) [4–6]. This gender system generates and reinforces inequity which often gives men power over women through the distribution of resources, social norms, institutional practices, social interactions, patterns of behavior, and internalized beliefs and identities [7,8]. These factors operate across multiple levels, including societal, community, individual, and interactional, such as families, workplace and intimate relationships. Male perpetration of IPV is linked with multiple components throughout this gender system, including norms, views, practices and relations.

Socially constructed ideologies about masculinity—or the expectations and beliefs about what men should do or what attributes they should perform [9,10]—are implicated in men’s perpetration of violence. For example, masculinity ideology frequently includes roles and qualities such as strength, toughness, control, and sexual dominance that may be demonstrated through violence [4]. Social norms regarding IPV include descriptive norms—perceptions of what others do (e.g., beliefs about IPV frequency in the community or among peers)—and injunctive norms (e.g., beliefs about whether others approve or disapprove of IPV) [11,12]. At the interpersonal level, unequal power in relationships, for example, is enforced through violence or the threat of violence, as well as by controlling daily household decision-making and circumscribing a partner’s autonomy, aspirations, and access to social and economic resources [13]. Individual-level attitudes, beliefs and behaviors—for example, whether a person believes that physical violence against a wife is justified, or the degree to which a man endorses or adheres to masculine norms and roles—also contribute to whether he inflicts violence on a partner. While beyond the scope of this paper, gender inequities at the structural level—such as laws and policies that do not consider forced sex within marriage rape, or that place the burden of proof on the victim of partner violence—further weave IPV into the fabric and processes of a multi-level gender system.

The pathways between gender inequitable norms, views, practices, relations and IPV may be augmented and buttressed by other risk factors for IPV including exposure to violence in childhood, gang membership, substance use, low socioeconomic status, and unemployment [6,14–16]. These factors may operate directly on likelihood of IPV perpetration, or may influence other variables in the gender system [13]. For example, men may struggle to attain a
masculine ideal of ‘provider’ when jobs are scarce, leaving few options for demonstrating masculinity other than through violence against other males and female partners [3,5]. Growing up in an abusive household which models aggression may also normalize violence, resulting in reinforcement of harmful masculinity norms and intergenerational replication of IPV [4,6,14].

The relationship between IPV and the components of the gender system has been well-documented. Recent large-scale, multi-country studies such as the International Men and Gender Equality Survey (IMAGES) and the UN Multi-Country Study on Men and Violence, for example, identify inequitable gender beliefs, permissive attitudes about violence against women, and controlling relationship practices as important risk factors for male perpetration of violence [3,17]. Specifically, the UN study, which involved more than 10,000 men in six countries of Asia and the Pacific, found that the two factors most associated with perpetration of both physical and sexual IPV were controlling behaviors and inequitable gender attitudes [3]. Attributable fraction values—or the proportion of IPV perpetration attributable to these factors—ranged from 6.7% to 10.5% across countries for controlling behaviors, and 20.4% to 23.4% for gender inequitable attitudes.

Given the potential of components of the gender system to condone and promote violence through multiple pathways, addressing them has emerged as a central component of IPV prevention efforts [4,14,18]. However, while some studies have demonstrated an association between gender inequitable norms, views, practices, or relations and IPV perpetration [19–23], others have not [24–27]. A limitation in understanding this association is that the definition and measurement of such constructs of gender inequity has varied, reflecting the large number of hypothesized pathways, but leading to an incomplete understanding of which variables and scales have the most explanatory power in predicting violence perpetration.

At a practical level, theories of change which underpin intervention design can also benefit from greater clarity in terms of what aspects of the gender system, i.e., gender inequitable norms, views, relations or practices, are most associated with IPV perpetration, and at what level of society (e.g., community, interpersonal (family, peer or intimate/sexual relationships), or individual) such constructs are most salient. A better understanding of how gender inequitable norms, views, relations and practices have been measured and what specific scales are most associated with IPV perpetration can inform effective intervention design by helping to target program content, platforms, and reach, as well as identify which scales may be best suited to monitor progress in IPV prevention efforts.

To address these questions, we conducted a systematic review of the published and grey literature to identify: (1) what measures of gender norms, views, relations, and practices have been implemented in the field, and (2) which measures are most consistently associated with IPV perpetration. We empirically classify identified measures by scale content and referent or level of generality or (i.e., community, peer or individual-level) and synthesize what can be gleaned from existing evidence as well as what gaps remain in measurement and understanding.

Methods

This systematic review follows the PRISMA guidelines [28].

Article identification

Articles were identified using key term searches of five electronic databases: Pubmed, EconLit, SocIndex, POPLine and Women’s Studies International. Key terms included “gender norms”, “gender beliefs”, “gender inequity”, “gender relations”, “relationship power” and “women’s agency”. The full search string is listed in S1 Table. Hand searches of specific journals (e.g.,
were also performed to identify relevant titles. Reference lists of included studies were also searched resulting in the inclusion of three additional studies.

Inclusion and exclusion criteria
Articles were included if they were peer reviewed, primary research published in English between January 2000 and August 2015, included participants ages 10 to 49, and reported a quantitative association between measures of gender inequity—i.e., gender inequitable norms, views, relations, and practices—and IPV perpetration. We considered studies which measured the association between males’ responses to these scales and male to female perpetration of IPV in heterosexual relationships. Studies were included if male reports of gender inequity were modeled as the independent variable and male IPV perpetration was the outcome. We excluded studies where it was not possible to locate or classify scale items.

Of 13,635 identified non-duplicate records, 10,985 were excluded following title screen for non-relevance, 520 were excluded at abstract screen for non-relevance and 2,107 were excluded at full-text screen. Reasons for exclusion at the full-text review were most commonly due to lack of an eligible scale or scale items (N = 1,235 excluded) or because no association was reported between male views on gender inequity measures and male IPV perpetration (N = 493 excluded) (see Fig 1).

Data extraction
We extracted information on the following domains: (1) the sample population (gender, age, geographic location, race/ethnicity), (2) the scale (number of scale items, specific wording used, response options and direction), (3) psychometric properties (reliability/validity information of scale performance) in the study sample, and (4) association with IPV perpetration (analysis method, sample size, effect size and measures of variance, any covariates included in the model). Quantitative associations (irrespective of type of effect coefficient) were extracted for the most adjusted model of male to female perpetration of violence. We extracted information on null associations, even when the full quantitative data were not presented by study authors (e.g., in instances of stepwise model building, where only findings significant at the bivariate level were included in the final model).

Data synthesis
To inform which types of scales were most sensitive to measuring IPV perpetration, we stratified measures by content of scale items, level of generality (e.g. individual level, such as personal adherence to norms, own behavioral intentions, or feelings or experience of stress related to gender norms and roles, compared to more general levels, such as how married women should behave, or what men generally feel in specific situations, or the respondent’s perceived peer or community acceptance of a given practice), whether the measure was a single-item indicator or a multi-item scale, psychometric properties (e.g., whether the scale internal consistency reliability was acceptable (Cronbach’s alpha ≥0.70)), and scale name. Meta-analysis was not possible given heterogeneity in the types of scales used and their numeric range as well as variation in perpetration outcomes (e.g., type of violence, type of partner, and reporting period). The consistency of scale performance was analyzed by comparing the number of significant findings in the same direction of association for the above-defined gender categories. Scales were also stratified by scale name if the same scale was implemented in multiple studies. A scale measured in multiple settings of the same study was considered to be unique if it was modified for each population.
We synthesized results first by broad thematic areas of scale content, and then by content sub-domains and level of generality. While Tables 1–4 note the specific perpetration outcome measured, our analysis assumed different forms of IPV perpetration (e.g., emotional, physical and sexual) reflect the same underlying construct. For consistency across studies, in our data
Table 1. Description of studies included in analysis (N = 23).

| Reference        | Gender inequity measure                  | Scale category and level of generality<sup>a</sup> | Country         | Scale internal consistency reliability<sup>b</sup> | Type(s) of perpetration                                                                 | Study quality | Indicator summary of significance<sup>c</sup> |
|------------------|------------------------------------------|---------------------------------------------------|-----------------|---------------------------------------------------|----------------------------------------------------------------------------------------|--------------|-----------------------------------------------|
| Anderson, 2004   | Rules about sex scale                    | GRV                                               | United States   | 0.85                                              | Sexual violence                                                                        | Low          | Positive association                         |
| Chan, 2011       | Dominance subscale of personal and relation | RS CNTRL                                         | China           | 0.73                                              | Outcome 1: Physical Outcome 2: Sexual Outcome 3: Any violence                         | High         | No association                               |
|                  | profile (PRP)                            |                                                   |                 |                                                   |                                                                                        |              |                                               |
|                  | Jealousy subscale of personal and relation | RS CNTRL                                         |                 | 0.87                                              |                                                                                        |              |                                               |
| Das, 2014        | GEM scale (m)                            | GRV                                               | India           | 0.70                                              | Outcome 1: Sexual or verbal combined; Outcome 2: Sexual                              | Medium       | Consistently positive                        |
|                  | Condoning violence against girls scale   |                                                   |                 | 0.83                                              |                                                                                        |              |                                               |
| Espinosa, 2012   | Traditionalism subscale from Mirande sex | GRV                                               | Mexico          | 0.85                                              | Outcome 1: Physical Outcome 2: Verbal/ emotional                                       | Medium       | Inconsistently negative                      |
|                  | role inventory (MSRI)                     |                                                   |                 |                                                   |                                                                                        |              |                                               |
| Figuero, 2001    | Self-reported patriarchy scale           | GRV                                               | Mexico          | 0.78                                              | Any spousal abuse                                                                     | Medium       | No association                               |
| Fleming, 2015    | GEM scale (m) for each country           | GRV                                               | Bosnia          | 0.85                                              | Physical                                                                               | High         | Inconsistently positive                      |
|                  |                                        |                                                   | Brazil           | 0.89                                              |                                                                                        |              |                                               |
|                  |                                        |                                                   | Chile           | 0.67                                              |                                                                                        |              |                                               |
|                  |                                        |                                                   | Croatia         | 0.83                                              |                                                                                        |              |                                               |
|                  |                                        |                                                   | DRC             | 0.76                                              |                                                                                        |              |                                               |
|                  |                                        |                                                   | India           | 0.75                                              |                                                                                        |              |                                               |
|                  |                                        |                                                   | Mexico          | 0.70                                              |                                                                                        |              |                                               |
|                  |                                        |                                                   | Rwanda           | 0.99                                              |                                                                                        |              |                                               |
| Fulu, 2013       | GEM scale                                | GRV                                               | Bangladesh      | 0.72 (overall)                                    | Outcome 1: Physical Outcome 2: Sexual Outcome 3: Physical/ sexual                      | High         | Inconsistently positive                      |
|                  |                                        |                                                   | China           |                                                   |                                                                                        |              |                                               |
|                  |                                        |                                                   | Cambodia        | 0.61 (overall)                                    | Outcome 1: Physical Outcome 2: Sexual Outcome 4: Emotional/ economic                  | High         | Inconsistently positive                      |
|                  |                                        |                                                   | Indonesia       |                                                   |                                                                                        |              |                                               |
|                  |                                        |                                                   | Sri Lanka       |                                                   |                                                                                        |              |                                               |
|                  |                                        |                                                   | Papua New Guinea|                                                   |                                                                                        |              |                                               |
| Gage, 2015       | Gender stereotyping scale                | GRV                                               | Haiti           | 0.68                                              | Outcome 1: Psychological Outcome 2: Physical/ sexual                                   | High         | No association                               |
|                  | Perceived positive consequences of using | VAW (incl of peer)                                |                 | 0.74                                              |                                                                                        |              | No association                               |
|                  | DV scale                                 |                                                   |                 |                                                   |                                                                                        |              |                                               |
|                  | DV Acceptance scale                      | VAW                                               |                 | 0.85                                              |                                                                                        |              | No association                               |
|                  | Perceived peer acceptance of DV scale    | VAW (peer)                                        |                 | 0.88                                              |                                                                                        |              | Consistently positive                        |
| Gomez, 2011      | GEM scale                                | GRV                                               | Brazil          | 0.82                                              | Psychological, physical or sexual                                                      | High         | Positive association                         |
| Kalichman, 2007  | Hostile attitudes towards women scale (tested as 8 single item indicators) | GRV                                               | South Africa    | NR                                                 | Sexual                                                                                 | Low          | Inconsistent positive                        |
|                  | Male role attitudes scale (tested as 10 single item indicators) | GRV                                               |                 | NR                                                 |                                                                                        |              | Mixed effects                                |
|                  | Violence against women scale (tested as five single item indicators) | VAW                                               |                 | NR                                                 |                                                                                        |              | Inconsistent positive                        |
| Kaura, 2004      | Power satisfaction scale (m)             | RS CNTRL                                         | United States   | 0.76                                              | Emotional, psychological, verbal and physical (combined)                              | Low          | Positive association                         |

(Continued)
Table 1. (Continued)

| Reference          | Gender inequity measure                          | Scale category and level of generality | Country       | Scale internal consistency reliability | Type(s) of perpetration                        | Study quality | Indicator summary of significance |
|--------------------|--------------------------------------------------|----------------------------------------|---------------|----------------------------------------|-----------------------------------------------|---------------|----------------------------------|
| Maman, 2010        | Acceptability of violence if woman refuses sex scale | VAW                                    | Tanzania      | NR                                     | Physical or sexual                            | Medium        | No association                   |
|                    | Acceptability of violence scale                  | VAW                                    |               | 0.80                                   |                                               |               | No association                   |
|                    | Male control scale                               | RS CNTRL                               |               | 0.83                                   |                                               |               | No association                   |
| Nanda, 2014        | GEM scale (m)                                    | GRV                                    | India         | 0.70                                   | Emotional, economic, physical or sexual (combined) | High          | Positive association            |
| Prather, 2012      | Traditional-egalitarian sex roles scale (TESR)   | GRV                                    | United States | NR                                     | Romantic aggression                           | Low           | Positive association            |
| Pulerwitz, 2015    | GEM scale                                        | GRV                                    | Ethiopia      | 0.88                                   | Outcome 1: Physical or sexual                  | High          | No association                   |
|                    |                                                  |                                        |               |                                        | Outcome 2: Physical, sexual, emotional (any)   |               |                                  |
| Raiford, 2013      | Attitudes towards intimate partner violence scale| VAW                                    | United States | 0.80                                   | Physical or sexual                            | High          | No association                   |
| Reed, 2011         | Perceptions of peer norms regarding teen dating violence (TDV) perpetration measure | VAW (peer)                              | United States | NR                                     | Physical, sexual or psychological (combined)  | Medium        | No association                   |
|                    | Gender attitudes measure                         | GRV                                    |               | 0.93                                   |                                               |               | Consistently positive           |
| Sambisa, 2010      | Gender role beliefs                              | GRV                                    | Bangladesh    | NR                                     | Outcome 1: Lifetime physical                   | Medium        | No association                   |
|                    | Attitudes toward IPV scale                       | VAW                                    |               |                                        | Outcome 2: Past-year physical IPV              |               | Consistently positive           |
|                    | Domestic authority scale (household decision-making subscale) | RS CNTRL                               |               | NR                                     | IPV Outcome 3: Lifetime sexual 4: Any lifetime IPV |               | No association                   |
|                    | Domestic authority scale (wife’s control of earned cash subscale) | RS CNTRL                               |               | NR                                     |                                               |               |                                  |
| Santana, 2006      | Male role attitudes scale (MRAS)                 | GRV                                    | United States | 0.60                                   | Physical or sexual                            | High          | Positive association            |
| Shannon, 2012      | Gender inequity norms scale                      | GRV                                    | Botswana, Swaziland (Combined) | 0.75                                   | Sexual                                        | High          | Positive association            |
| Verma, 2008        | GEM scale                                        | GRV                                    | India         | 0.78                                   | Physical or sexual                            | Medium        | Consistently positive           |
| Verma, 2006        | GEM scale                                        | GRV                                    | India         | 0.86                                   | Physical                                      | Low           | Positive association            |
| Yoshikawa, 2014    | Acceptance of wife beating scale                 | VAW                                    | Nepal         | NR                                     | Outcome 1: Lifetime physical                   | Medium        | Consistently positive           |
|                    |                                                  |                                        |               |                                        | Outcome 2: Past year physical                  |               |                                  |

Notes

- Scale category and level of generality: GRV refers to ‘gender role views/norms’, this category is inclusive of individual attitudes, adherence to and expectancies on social roles/norms considered appropriate for men and women; RS CNTRL refers to ‘relationship power/control’, ‘VAW’ refers to acceptance of violence against women. The level of generality refers to the referent group for scale items. Except in cases where ‘peer’ and ‘community’ is specified, the level of generality is the individual respondent—i.e., his personal views, etc.
- Cronbach’s alpha or NR (Not reported).
- For consistency across studies, indicator performance is summarized in the hypothesized direction (i.e., inequitable gender role beliefs, norms or control (with control favoring the male partner) and greater likelihood of IPV perpetration). Inconsistent results noted when direction or level of significance varied by subgroup or outcome (if multiple perpetration outcomes). (m): Modified scale.

https://doi.org/10.1371/journal.pone.0207091.t001
| Citation            | Measure\(^a\) (No. of items) | Indicator attributes | Sample description & size                                                                                                                                                                      | Scale range\(^b\) | Analysis method | Definition of Violence Perpetration [Male to female] | Results\(^c\)                                                                 | Indicator summary of significance\(^d\) |
|---------------------|-------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------|
| **Gender equitable men (GEM) scale** |                               |                      |                                                                                                                                                                                              |                 |                 |                                                      |                                                                                 |                                        |
| Das, 2014 \[39\]    | Modified (m) GEM scale–(15 items) | Gender roles, acceptance of control over women, sexual entitlement, IPV inclusive | Boys ages 10–16 in urban Mumbai, India. Part of school or community-based cricket team (N = 1040)                                                                                                   | High vs. low equity; Moderate vs. low equity (rev) | Multivariate logistic regression | Outcome 1: Perpetrated sexual or verbal violence last 3 months | Outcome 1: High v. low equity aOR: 0.29* (0.11, 0.80)  
Mod v. low equity aOR: 0.44 (95%CI: 0.18, 1.11)\(^\ddagger\)  
Outcome 2: Perpetrated sexual violence last 3 months (incl. harassment)  
Outcomes v. low equity aOR: 0.31** (0.20, 0.48) | Consistently positive association                                      |
| Gomez, 2011 \[42\]  | GEM scale (24 items)           | IPV inclusive, sexual entitlement | Young men ages 15–24 in urban slum of Rio de Janeiro (N = 240)                                                                                                                                 | Mean = 0 (range = -3.1 to 1.5) (rev) | Multinomial logistic regression | IPV perpetration in past 6 months (physical, sexual or emotional) | aRRR: 0.69* (0.40, 0.89)  
Outcome 2: High v. low equity aOR: 0.09* (0.04, 0.23) | Positive association                                                  |
| Fleming, 2015 \[17\] | (m)GEM scale–Brazil (11 items) | IPV inclusive          | Men ages 18 to 59 surveyed in IMAGES multi-country survey (N = 7806 in pooled sample). Data from Bosnia and Rwanda are nationally representative; other countries are representative of regions/cities surveyed. | Standardized in each country, Mean = 0, SD = 1; score represents respondent’s score relative to other men surveyed in country (rev) | Multivariate logistic regression | Physical perpetration (lifetime)                       | Brazil: aOR: 0.99 (0.79, 1.23)  
Chile: aOR: 0.87 (0.74, 1.01)  
Mexico: aOR: 0.68** (0.56, 0.82) | Positive association                                                 |
|                     | (m)GEM scale–Chile (15 items)  | IPV inclusive          |                                                                                                                                                                                              |                 |                 |                                                      |                                                                                 |                                        |
|                     | (m)GEM scale–Mexico (11 items) | IPV inclusive          |                                                                                                                                                                                              |                 |                 |                                                      |                                                                                 |                                        |
|                     | (m)GEM scale–Bosnia (15 items) | IPV inclusive          |                                                                                                                                                                                              |                 |                 |                                                      |                                                                                 |                                        |
|                     | (m)GEM scale–Croatia (13 items) | IPV inclusive          |                                                                                                                                                                                              |                 |                 |                                                      |                                                                                 |                                        |
|                     | (m)GEM scale–DRC (13 items)    | IPV inclusive          |                                                                                                                                                                                              |                 |                 |                                                      |                                                                                 |                                        |
|                     | (m)GEM scale–India (12 items)  | IPV inclusive          |                                                                                                                                                                                              |                 |                 |                                                      |                                                                                 |                                        |
|                     | (m)GEM scale–Rwanda (13 items) | IPV inclusive          |                                                                                                                                                                                              |                 |                 |                                                      |                                                                                 |                                        |

(Continued)
Table 2. (Continued)

| Citation | Measure³ (No. of items) | Indicator attributes | Sample description & size | Scale range⁵ | Analysis method | Definition of Violence Perpetration [Male to female] | Results⁶ | Indicator summary of significance⁷ |
|----------|------------------------|----------------------|--------------------------|--------------|----------------|------------------------------------------------|---------|----------------------------------|
| Fulu, 2013 [3] | Gender attitudes scale (10 items) | IPV inclusive, sexual entitlement | Men ages 18 to 59 surveyed in UN Multi-country study on Men and Violence sampled from a combination of urban and rural sites. Estimates are nationally representative in Cambodia only and regionally representative in Bougainville, Papua New Guinea. | Low equity vs. high or moderate equity | Multinomial logistic regression | Outcome 1: Physical IPV perpetration (ever) | Bangladesh Outcome 1: aRR 1.82² (1.35, 2.44); Outcome 3: aRR 2.22² (1.28, 3.84); Outcomes 2, 4: NR (ns) | Inconsistently positive |
| Nanda, 2014 [44] | (m)GEM scale (27 items) | IPV inclusive, sexual entitlement | Men ages 18–49 from 6 states in India (Uttar Pradesh, Rajasthan, Punjab & Haryana, Odisha, Madhya Pradesh, and Maharashtra), representative at each state level (total N = 9205) | Low vs. high/ moderate equity | Multivariate logistic regression | IPV perpetration (emotional, economic, physical or sexual) in past 12 months | aOR: 1.35² (1.15, 1.57) | Positive association |
| Pulerwitz, 2015 [19] | GEM scale (24 items) | IPV inclusive | Young men ages 15–24 in Ethiopia (N = 729), part of community-engagement intervention | High equity vs. moderate or low (rev) | Multivariate logistic regression | Any IPV perpetration (physical, sexual, or emotional) | High-equity GEM scores were associated with a 34% reduction in the odds of perpetration† (95%CI: NR) | No association |
| Verma, 2008 [23] | (m)GEM scale (15 items) | IPV inclusive | Young men ages 15–29 in Mumbai (urban site) and Gorakhpur (rural site), India (N = 660) | High, moderate, and low equity. Terciles created from continuous score (rev) | Multivariate logistic regression | Perpetration of physical or sexual IPV in past 3 months | Mumbai High v. low equity aOR: 0.69² (95%CI: NR); Mod. v. low aOR: 0.79² (95%CI: NR); | Consistently positive association |
| Verma, 2006 [30] | GEM scale (24 items) | IPV inclusive | Young men ages 16–24 in Mumbai, India (N = 107) | Continuous (range: NR) | Mean difference | Physical IPV perpetration in past 3 months | NR coefficient’ | Positive association |

Other gender norms and belief scales

| Citation | Measure¹ (No. of items) | Indicator attributes | Sample description & size | Scale range | Analysis | Definition of Violence Perpetration [Male to female] | Results | Indicator summary of significance |
|----------|------------------------|----------------------|--------------------------|-------------|----------|------------------------------------------------|---------|----------------------------------|
| Anderson, 2004 [43] | Rules about sex questionnaire (21 items) | Sexual entitlement | Male students ages 11 to 36 (middle/high school and university) in Indiana, USA (N = 137) | Continuous | Correlation | Frequency of perpetration of sexual coercion | r: 0.30*² | Positive association |

(Continued)
Table 2. (Continued)

| Citation            | Measure\(^a\) (No. of items) | Indicator attributes | Sample description & size | Scale range\(^b\) | Analysis method | Definition of Violence Perpetration [Male to Female] | Results\(^c\) | Indicator summary of significance\(^d\) |
|---------------------|-------------------------------|----------------------|---------------------------|-------------------|-----------------|---------------------------------------------------|--------------|-------------------------------------|
| Espinosa, 2012 [31] | Traditionalism subscale of Mirande sex role inventory (MSRI) (17 items) | Young men age 15–18 in high school in Monterrey, Mexico (N = 75) | Continuous | Multiple linear regression | Outcome 1: physical IPV Outcome 2: emotional IPV | Outcome 1 Adj.B: -0.44**, SE: NR Inconsistently negative association |
| Figueredo, 2001 [39] | Patriarchy scale (11 items) | IPV inclusive, male control over wealth | Men in Sonora, Mexico who were in a committed relationship during past year. Mean age = 33 (N = 106) | Continuous | Multiple linear regression | IPV perpetration (any type) | Adj Beta: -0.06, SE: NR No association |
| Gage, 2016 [32] | Gender stereotyping scale (7 items) | Male high school students in Port-au-Prince who had ever been on a date (N = 342) | Continuous | Multiple linear regression | Outcome 1: Psychological IPV perpetration Outcome 2: Physical/sexual IPV perpetration (ever) | Outcome 1 Adj.B: -0.27, SE: 0.12 No association | Outcome 2 Adj B: 0.23, SE: 0.20 |
| Kalichman, 2007 [36] | Male role attitudes scale items [tested individually] | Men older than 18 in Cape Town, South Africa (N = 435) | NR | Multivariate logistic regression | Sexual assault perpetration (ever) | aOR: 0.70 (0.40, 1.40) No association | aOR: 0.50* (0.20, 0.90) Negative association |
|                     |                               |                      |                           |                   |                 |                                                   | aOR: 0.50* (0.20, 0.80) Negative association | aOR: 0.80 (0.50, 1.20) No association |
|                     |                               |                      |                           |                   |                 |                                                   | aOR: 0.70 (0.40, 1.30) No association | aOR: 1.60** (1.10, 1.60) Positive association |
|                     |                               |                      |                           |                   |                 |                                                   | aOR: 0.90 (0.50, 1.40) No association | aOR: 1.10 (0.60, 1.90) No association |
| Citation | Measure$^a$ (No. of items) | Indicator attributes | Sample description & size | Scale range$^b$ | Analysis method | Definition of Violence Perpetration [Male to female] | Results$^c$ | Indicator summary of significance$^d$ |
|----------|-----------------------------|----------------------|--------------------------|----------------|----------------|-----------------------------------------------|------------|-----------------------------------|
| Hostile attitudes towards women scale items [tested individually] | Men older than 18 in Cape Town, South Africa (N = 435) | NR | Multivariate logistic regression | Sexual assault perpetration (ever) | aOR: 1.70$^*$ (1.10, 2.90) | Positive association |
| Many women seek special favors that place them over men | | | | | aOR: 1.10 (0.70, 1.80) | No association |
| Most women think innocent remarks or acts are meant to hurt them | | | | | aOR: 1.30 (0.80, 2.30) | No association |
| Women are too easily offended | | | | | aOR: 1.10 (0.70, 1.90) | No association |
| Most women fail to appreciate all that men do for them | | | | | aOR: 1.20 (0.70, 1.90) | No association |
| Women who have jobs and make money should give the money to their man to pay bills | Male control over wealth | | | | aOR: 1.20$^*$ (1.10, 2.70) | Positive association |
| Women only work so they can gain power and control over men | Male control over wealth | | | | aOR: 1.70$^*$ (1.10, 2.70) | Positive association |
| Once a woman makes money she usually tries to control her man | Male control over wealth | | | | aOR: 1.40 (0.90, 2.20) | No association |
| It is difficult for a man to work at a job where a woman is the boss | | | | | aOR: 0.80 (0.50, 1.20) | No association |
| A woman should only show her man respect in front of other people. | | | | | aOR: 0.80 (0.50, 1.30) | No association |
| Some women need a man to help them survive | | | | | aOR: 2.20$^{**}$ (1.20, 4.10) | Positive association |

(Continued)
| Citation | Measure | Indicator attributes | Sample description & size | Analysis method | Results of Violence Perpetration |
|----------|---------|----------------------|---------------------------|------------------|----------------------------------|
| Reed, 2011 | Gender attitudes scale (13 items) | Male control over wealth | Young men ages 18-20 seeking healthcare at clinics in Boston, USA (N = 320) | Continuous Multiple linear regression | Total sample: Adj. beta: 1.50, SE: 0.60; Sexually active subgroup: Adj. beta: 2.00, SE: 0.90 |
| Sambisa, 2010 | Attitudes about wife working outside the home (2 items) | Male control over wealth | Married men ages 15-49 in Bangladesh (N = 8320) | Support for wife working outside home: 1 or more instances (vs. none) | Outcome 1: Lifetime physical IPV perpetration aOR: 0.92, (95% CI: NR) |
| Santana, 2006 | Male role attitudes scale (8 items) | IPV inclusive, sexual entitlement | Men ages 18-35 who are sexually active in the past 3 months, English and/or Spanish and receive services at clinics in Boston, USA (N = 283) | Continuous | Physical or sexual IPV perpetration in the past year aOR: 1.80, (1.10, 2.09) |
| Shannon, 2012 | Gender inequity norms scale (6 items) | IPV inclusive, sexual entitlement | Men ages 23 to 36 in Botswana and Swaziland (N = 999) | | Rape perpetration aOR: 2.19, (1.22, 3.51) |
| Prather, 2012 | Traditional-egalitarian sex roles scale (TESR) (20 item) | Male control over wealth | College students ages 18-25 in USA (N = 260; 77 men, 183 women) | Continuous | Psychological IPV perpetration Std Adj. beta: 0.25, (95% CI: NR); Respondent sex did not moderate relationship between sex role attitudes and perpetration (Std adj. beta: 0.08) |

Notes: NR indicates not reported.

This category is inclusive individual beliefs, attitudes and expectancies on social norms and roles considered appropriate for men and women

Scales are coded so that higher score represents less equitable beliefs, (rev): indicates reverse orientation of indicator response scale (higher score signifies more equitable views)

Adjusted for: [Note: adjusted for gender, sex role attitudes, sexual orientation (if multiple reported)]

* p < 0.05
† Marginal significance at p < 0.10

https://doi.org/10.1371/journal.pone.0207091.t002
Table 3. Associations between measures of acceptance of violence against women and IPV perpetration (N = 9 studies).

| Citation       | Measure (No. of items) | Indicator attributes | Sample description & size | Scale range | Analysis method | Definition of Violence Perpetration [Male to female] | Adjusted results | Indicator summary of significance |
|----------------|------------------------|----------------------|---------------------------|-------------|----------------|---------------------------------------------------|-----------------|---------------------------------|
| Das, 2014 [39] | Condoning violence against girls (9 items) | Specific justification | Boys ages 10–16 in urban Mumbai, India. Part of school or community-based cricket team (N = 1040) | High vs. low equity; Moderate vs. low equity (rev) | Multivariate logistic regression | Outcome 1: Perpetrated sexual or verbal violence in last three months | Outcome 1: NR (ns) | No association |
|                |                        |                      |                           |             |                | Outcome 2: Perpetrated sexual violence in last three months (incl. harassment) | Outcome 2: NR (ns) |                      |
| Fleming, 2015 [17] | Attitudes towards violence against women (1 item) | General acceptance | Men ages 18 to 59 surveyed in IMAGES multi-country survey (N = 7806 in pooled sample). Data from Bosnia and Rwanda are nationally representative; other countries are representative of regions/cities surveyed. | Standardized in each country, Mean = 0, SD = 1; score represents respondent’s score relative to other men surveyed in country (rev) | Multivariate logistic regression | Physical perpetration (lifetime) |                      | Inconsistently positive association |
|                |                        |                      |                           |             |                | Outcome 1: Physical IPV perpetration (ever) |                      |                     |
|               |                        |                      |                           |             |                | Outcome 2: Physical/sexual IPV perpetration (ever) |                      |                     |
| Gage, 2016 [32] | Perceived peer acceptance of domestic violence (8 items) | Specific justification, peer norms | Male high school students in Port-au-Prince who had ever been on a date (N = 342) | Continuous | Multiple linear regression | Outcome 1: Psychological IPV perpetration | Outcome 1: Adj. beta: 0.47*, SE: 0.12 | Consistently positive association |
|               |                        |                      |                           |             |                | Outcome 2: Physical/sexual IPV perpetration (ever) | Outcome 2: Adj. beta: 0.55**, SE: 0.20 |                     |
|               | Domestic violence acceptance (8 items) | Inclusive of specific justification |                           | Continuous |                | Outcome 1: Adj. beta: -0.04, SE: 0.14 | No association |
|               | Perceived positive consequences of using domestic violence (3 items) | General acceptance, inclusive of peer norms |                           | Continuous |                | Outcome 1: Adj. beta: 0.47, SE: 0.28 | No association |
|               |                        |                      |                           |             |                | Outcome 2: Adj. beta: 0.41, SE: 0.46 |                     | (Continued) |
| Citation | Measure (No. of items) | Indicator attributes | Sample description & size | Scale range | Analysis method | Definition of Violence Perpetration [Male to female] | Adjusted results | Indicator summary of significance |
|----------|------------------------|----------------------|---------------------------|-------------|----------------|-------------------------------------------------|----------------|----------------------------------|
| Kalichman, 2007 [36] | Acceptance of violence against women scale items [tested individually] | Men older than 18 in Cape Town, South Africa (N = 435) | NR | Multivariate logistic regression | Sexual assault perpetration (ever) | aOR: 2.70** (1.4, 4.9) | Inconsistently positive association |
| | A woman who talks disrespectful to a man in public should expect trouble | Specific justification | | | | | |
| | Hitting a woman is sometimes necessary to keep her in line | Specific justification | | | | | |
| | It is understandable that a man will hit his women if she is disrespectful of him | Specific justification | | | | | |
| | There are times when a man should hit his woman because of things she has done | General acceptance | | | | | |
| | A man is expected to discipline his woman | General acceptance | | | | | |
| Maman, 2010 [46] | Acceptability of violence scale (9 items) | Young men ages 16–24 who were sexually active, Dar Salaam, Tanzania (N = 360) | It is always unacceptable for a woman to refuse sex vs. it is acceptable in at least one of 9 conditions | Multivariate logistic regression | IPV perpetration (at least one physical or sexual violent act with partner) | aOR: 1.63 (0.54, 4.93) | Violence is always unacceptable v. no conditions |
| | Acceptability of violence if woman refuses sex scale (4 items) | It is always unacceptable for a woman to refuse sex vs. it is acceptable in at least one of four sexual scenarios | Multivariate logistic regression | IPV perpetration (at least one physical or sexual violent act with partner) | aOR: 0.79 (0.37, 1.68) | No association |
| Raiford, 2013 [38] | Attitudes towards intimate partner violence scale (12 items) | African American men who were single, heterosexual and had unprotected sex in the past 30 days in Atlanta, USA (N = 65) | Continuous | Multiple linear regression | IPV perpetration (physical or sexual) past 3 months | Adj. beta: 0.07, SE: NR | No association |
In Tables 1–4, a significant finding in this direction is noted as a “positive” association, whereas a significant association between more equitable norms and greater perpetration illustrates a “negative” association.

### Quality assessment rating

The risk of bias in individual studies was assessed using a modified quality appraisal checklist for quantitative studies [29]. Criteria included study design (e.g., cross-sectional, observational cohort, quasi-experimental or experimental design), representativeness of the source population in the study sample, ascertainment of the exposure (e.g., whether the masculinity measure

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**Table 3. (Continued)**

| Citation          | Measure (No. of items) | Indicator attributes | Sample description & size | Scale rangea | Analysis method | Definition of Violence Perpetration [Male to female] | Adjusted resultsb | Indicator summary of significancec |
|-------------------|------------------------|----------------------|---------------------------|--------------|----------------|--------------------------------------------------|------------------|-----------------------------------|
| Reed, 2011 [37]   | Perceptions of peer norms regarding teen dating violence (TDV) perpetration measure (2 items) | Specific justification; inclusive of sexual entitlement; Peer norms | Young men ages 14–20, seeking healthcare at clinics in Boston, USA (N = 320). Includes men both sexually active and non | NR | Multivariate logistic regression | Teen dating violence perpetration (physical, sexual or emotional) (ever) | Total sample: aOR: 1.50 (0.80, 3.10) | No association |
|                   |                        |                      |                           |              |                | Sexually active sample: aOR: 2.80 (0.90, 9.30)   |                  |                     |
| Sambisa, 2010 [41] | Attitudes toward IPV scale (5 items) | Specific justification | Married men ages 15 to 49 in Bangladesh (N = 8320) | NR | Multivariate logistic regression | Outcome 1: Lifetime physical IPV perpetration | Outcome 1: aOR: 2.02** (95% CI: NR) | Consistently positive association |
|                   |                        |                      |                           |              |                | Outcome 2: Past-year physical IPV perpetration | Outcome 2: aOR: 1.95** (95% CI: NR) |                     |
|                   |                        |                      |                           |              |                | Outcome 3: Lifetime sexual IPV perpetration | Outcome 3: aOR: 1.57** (95% CI: NR) |                     |
|                   |                        |                      |                           |              |                | Outcome 4: Any lifetime IPV perpetration | Outcome 4: aOR: 2.17* (95% CI: NR) |                     |
| Yoshikawa, 2014 [35] | Husband’s acceptance of wife beating scale (6 items) | Specific justification; inclusive of sexual entitlement | Married couples ages 18 to 49 in Nepal (N = 717)d | 1 = at least one affirmative response, 0 = no affirmative responses | Multivariate logistic regression | Outcome 1: Lifetime physical IPV perpetration | Outcome 1: aOR: 2.58** (1.36, 4.91) | Consistently positive association |
|                   |                        |                      |                           |              |                | Outcome 2: Past-year physical IPV perpetration | Outcome 2: aOR: 2.78** (1.41, 5.51) |                     |

Notes: NR indicates not reported.

a Scales are coded so that higher score represents greater justification of violence against women.
b We report outcomes for the most adjusted or final statistical model using the following terminology; aOR = adjusted odds ratio; Adj beta = adjusted beta coefficient, \( \exp(b) = \log \text{odds coefficient.} \) Unless otherwise indicated, the variance measure is 95% confidence interval.
c For consistency across studies, indicator performance is summarized in the hypothesized direction (e.g., greater endorsement of violence against women and greater likelihood of IPV perpetration). Inconsistent results noted when direction or level of significance varied by subgroup or outcome (if multiple reported).
d Models male perpetration of IPV controlling for husband and wife specific factors.

\*p<0.05
\**p<0.001
† Marginal significance at p<0.10

https://doi.org/10.1371/journal.pone.0207091.1003

synthesis we oriented the effect coefficient so the relationship between gender inequity measures and IPV perpetration was in the hypothesized direction (e.g., endorsement of more inequitable norms and gender inequity in divisions of power with greater likelihood of perpetration). In Tables 1–4, a significant finding in this direction is noted as a “positive” association, whereas a significant association between more equitable norms and greater perpetration illustrates a “negative” association.

### Quality assessment rating

The risk of bias in individual studies was assessed using a modified quality appraisal checklist for quantitative studies [29]. Criteria included study design (e.g., cross-sectional, observational cohort, quasi-experimental or experimental design), representativeness of the source population in the study sample, ascertainment of the exposure (e.g., whether the masculinity measure...
was clearly defined, whether validity or reliability data were presented for the gender measure), 
assessment of the outcome (e.g., whether the violence outcome was well-defined, the reporting 
period was reasonable, whether types of IPV were disaggregated or combined), the potential 
that confounding factors were identified and controlled for, whether analytical methods were 
appropriate, whether the precision of the estimate was provided or appropriate, among other 
criteria. For each checklist criteria, studies could receive between 0 to 2 points, with a possible 
range of 0 to 22. We considered studies with total scores between 0 to 11 points as low quality, 
12 to 15 as medium quality and 16 or higher as high quality.

Results
Characteristics of included studies and measures
We identified 23 studies that measured the association between a measure of gender inequity 
and male perpetration of IPV (Fig 1). Nearly all (20) studies were observational and used a 
cross-sectional design. Three studies were quasi-experimental and examined the effect of inter-
vention activities on support for inequitable gender norms and partner violence, among other 
outcomes [19,23,30]. One study assessed change in gender views on the likelihood of IPV per-
petration over time [19], while the remaining associations relevant to this review were cross-
sectional (e.g., cross-sectional comparison at baseline or endline). Within this sample of stud-
ies, ten studies were considered high quality, eight medium, and five low quality (Table 1). 
Five studies were implemented among combined samples of males and females but disaggre-
gated findings by respondent sex [31–35]. In these cases, the male coefficient is presented.

More than one-third of studies took place in Asia or the Pacific, while about 20% were 
located in North America, Latin America and Sub-Saharan Africa, respectively. By country, 
most studies took place in the United States (6 studies), followed by India (5). In total, data 
were extracted for 64 measures in relation to IPV perpetration. The majority of measures (39 
of 64) were multi-item scales, while 25 were single item indicators. A higher proportion of 
multi-item scales were positively associated with IPV perpetration (54%) relative to single-

Table 4. Associations between measures of relationship power and control and IPV perpetration (N = 5 studies).

| Citation   | Measure (No. of items) | Indicator attributes | Sample description & size                | Scale range | Analysis method | Definition of Violence Perpetration [Male to female] | Adjusted results | Indicator summary of significance |
|------------|------------------------|----------------------|------------------------------------------|-------------|----------------|-----------------------------------------------------|-----------------|----------------------------------|
| Chan, 2011 [47] | Dominance subscale of Personal and Relationship Profile (PRP) (9 items) | Male authority, disparagement of partner, restrictiveness of partner | Adult married men ages 16 and older in Hong Kong, China (N = 2225) | Continuous | Multivariate logistic regression | Outcome 1: Physical IPV perpetrationOutcome 2: Sexual IPV perpetrationOutcome 3: Any violence or injury perpetration | Outcome 1: aOR: 0.61 (0.18, 2.06) | No association |
| Jealousy subscale of Personal and Relationship Profile (PRP) (8 items) | Anticipated emotional response | Continuous | Outcome 1: aOR: 0.93 (0.54, 1.59) | No association |
| | | | | Outcome 2: aOR: 0.71 (0.36, 1.42) | |
| | | | | Outcome 3: aOR: 0.88 (0.56, 1.40) | |

(Continued)
| Citation            | Measure (No. of items)                          | Indicator attributes                        | Sample description & size                                                                 | Scale range\(^a\)                                                                 | Analysis method | Definition of Violence Perpetration [Male to female] | Adjusted results\(^b\) | Indicator summary of significance\(^c\) |
|---------------------|-----------------------------------------------|---------------------------------------------|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------|--------------------------------------------------|------------------------|-----------------------------------------|
| Fulu, 2013 [3]      | Controlling behavior scale (8 items)          | Inclusive of sexual behavior               | Men ages 18 to 59 surveyed in UN Multi-country study on Men and Violence sampled from a combination of urban and rural sites. Estimates are nationally representative in Cambodia only and regionally representative in Bougainville, Papua New Guinea. | Low equity vs. high or moderate equity. Terciles created from continuous score. | Multinomial logistic regression | **Outcome 1**: Physical IPV perpetration (ever) | Bangladesh: aOR: 2.27" (1.10, 4.67) | Inconsistently positive association |
|                     |                                               |                                             |                                           |                                                                                 |                 | **Outcome 2**: Sexual IPV perpetration (ever) | China: aOR: 3.40" (1.39, 8.30) |                                                                       |
|                     |                                               |                                             |                                           |                                                                                 |                 | **Outcome 3**: Physical or sexual IPV perpetration (ever) | Cambodia: aOR: 2.55" (1.30, 4.98) |                                                                       |
|                     |                                               |                                             |                                           |                                                                                 |                 | **Outcome 4**: Emotional or economic IPV perpetration (ever) | Indonesia: aOR: 2.50" (1.14, 5.49) |                                                                       |
|                     |                                               |                                             |                                           |                                                                                 |                 |                                                   | Sri Lanka: aOR: 3.30" (1.61, 6.75) |                                                                       |
|                     |                                               |                                             |                                           |                                                                                 |                 |                                                   | Papua New Guinea: Outcomes 1–4: NR (ns) |                                                                       |
| Kaura, 2004 [33]    | Modified power satisfaction scale (6 items)   | General relationship decisions              | Male university students, USA (N = 352)                                                 | Continuous                                                | Multiple linear regression | Frequency of IPV perpetration (emotional, psychological, verbal, and physical) | Adj. beta: 0.19 "*, SE: NR | Positive association                |

(Continued)
item scales (36%). Of multi-item scales, the majority (69%, N = 27) reported some indicator of scale internal consistency reliability that was considered acceptable (e.g., Cronbach’s alpha ≥0.70), 10% (N = 4) reported a Cronbach’s alpha of <0.70, and 20% (N = 8) of multi-item scales did not report any measure of reliability among the sample population. A slightly higher proportion of multi-item scales with moderate or higher internal consistency reliability (48%,

Table 4. (Continued)

| Citation          | Measure (No. of items) | Indicator attributes | Sample description & size | Scale range | Analysis method | Definition of Violence Perpetration [Male to female] | Adjusted results | Indicator summary of significance |
|-------------------|------------------------|----------------------|---------------------------|-------------|----------------|-----------------------------------------------------|-----------------|----------------------------------|
| Maman, 2010 [46] | Male control scale (3 items) | Male autonomy, partner control | Young men ages 16–24 who were sexually active, Dar Salaam, Tanzania (N = 360) | Always unacceptable for a woman to refuse sex vs. acceptable in at least 1 of 4 conditions | Multivariate logistic regression | IPV perpetration (at least one physical or sexual violent act with partner) | Violence is always unacceptable v. no conditions aOR: 1.31, (0.30, 5.83) | No association |
| Sambisa, 2010 [41] | Domestic authority scale (6 items) | Household decision-making; women’s mobility | Married men ages 15 to 49 in Bangladesh (N = 8320) | Dichotomized: High/ moderate vs. low control) | Multivariate logistic regression | Outcome 1: Lifetime physical IPV perpetration Outcome 2: Past-year physical IPV perpetration Outcome 3: Lifetime sexual IPV perpetration Outcome 4: Any lifetime IPV perpetration | Outcome 1: aOR: 1.04, (95% CI: NR) Outcome 2: aOR: 1.06, (95% CI: NR) Outcome 3: aOR: 1.18, (95% CI: NR) Outcome 4: aOR: 1.12, (95% CI: NR) | No association |
| Wife’s control of cash she earned (2 items) | Male control over wealth | Husband controls wife’s cash vs. egalitarian | | | | | Outcome 1 aOR: 1.01, (95% CI: NR) Outcome 2 aOR: 0.96, (95% CI: NR) Outcome 3 aOR: 1.60, (95% CI: NR) Outcome 4 aOR: 1.07, (95% CI: NR) | No association |

Notes: NR indicates not reported.

a Scales are coded so that higher score represents greater male power/ control in relationship.
b We report outcomes for the most adjusted or final statistical model using the following terminology: aOR = adjusted odds ratio; Adj beta = adjusted beta coefficient, exp(b) = log odds coefficient. Unless otherwise indicated, the variance measure is the 95% confidence interval.
c For consistency across studies, indicator performance is summarized in the hypothesized direction (e.g., higher male control and greater likelihood of IPV perpetration). Inconsistent results noted when direction or level of significance varied by subgroup or outcome (if multiple reported).

*p<0.05
**p<0.001
† Marginal significance at p<0.10

https://doi.org/10.1371/journal.pone.0207091.t004
or 13 of 27 scales) were positively associated with IPV perpetration relative to multi-item scales with no data reported (3 of 8, 37%).

**Overall association between gender inequity measures and IPV perpetration**

In total, 64 measures (i.e., multi-item scales or single item indicators) of gender norms, views, relations, and practices were identified. The high number of measures is partially due to the disaggregation of two scales into multiple single item indicators (Hostile Attitudes towards Women scale and Male Role Attitude scale) in one low quality study, rather than reporting the association with the overall scale [36]. Additionally, one high-quality multi-country study implemented the GEM scale, with a modified (i.e., unique) version tailored for each setting [17]. Overall, about half of measures (N = 35, 55%) were not associated with male perpetration of IPV. Greater perceived gender inequitable norms, individual endorsement of traditional gender norms or violence against women, or more male power/control in relationships were positively associated with male perpetration of IPV in 29 of the 64 identified measures (45%). A negative (or inverse) association was documented in three instances in two studies [31,36]. If we look at results at the level of the study, most (74%, 17 out of 23) found at least one positive relationship between a gender inequity measure and an IPV outcome.

**Specific scale subtypes**

While the majority of examined associations, did not find positive correlations with IPV perpetration, this finding varied by the type of construct measured. We empirically categorized three broad scale types: views on gender roles/norms, acceptance of violence against women, and relationship power and control. Within each category, we further note the level of generality/reference group (e.g., individual-level view, or perception of peer or community level norms) and common sub-domains of question content (Tables 1–4). We note that all analyses were at the level of the individual (e.g., individual’s perceived peer or community acceptance of a given practice).

A total of 42 measures (18 studies) reflected views on gender roles or norms, the largest category of identified scales. Views on gender roles/norms encompassed individual-level attitudes and personal adherence to gender norms (henceforth collectively referred to as “views”). Example scale items include “A man should have the final word about decisions in his home” [17], or “I admire a boy/man who is totally sure of himself” [37]. Measures of gender views encompassed multiple sub-domains of specific content areas, such as male beliefs of sexual entitlement, control over wealth, and the acceptability of use of violence against women, either as a demonstration of masculinity or to enforce traditionally defined gender roles for girls and women. The second largest category of identified measures (20 measures) exclusively reflected views on the acceptance of violence against women (11 studies), either in general (e.g., “some women deserve to be slapped” [38] or in specific scenarios (e.g., “when she replies back when harassed by boys” [39]. Finally, seven measures represented power and control dynamics in relationships (5 studies). Relationship power and control measures included both self-reported male behaviors to limit the autonomy and decision-making of their partners, or men’s anticipated controlling reaction (either behavioral or emotional) towards their partner’s actions. We discuss variation in the consistency of observed findings by these broad scale categories in the sections that follow. We also synthesize findings by above-noted sub-domains of content area and level of generality (Tables 2–4).
Measures assessing views on gender roles / norms

Eighteen (18) studies (eight high quality, six moderate and four low quality) tested 42 measures of views on gender roles/norms and IPV perpetration (Table 2). No gender norm measures were identified, i.e., measures that reflected the respondent’s perception of what a reference group (e.g., peers or community) does or approves of in terms of socially accepted roles and behaviors of men or women. Further, no study aggregated individual-level views to approximate a community norm. Across all 42 measures, greater endorsement of gender inequitable views was positively correlated with IPV perpetration in 17 of 42 (40%) measures. About half of measures (22) found no significant association with perpetration, and in a minority (3), an inverse association was documented [31,36]. Of note is about half (12 of 22) of the measures with no significant correlation with perpetration and two of the three items with an observed negative association with violence perpetration were single-item indicators as opposed to multi-item scales. When only multi-item scales are considered, 13 out of 24 (54%) were significantly positively correlated with violence perpetration. When examined at the level of study, out of 18 papers that assessed measures of views on gender roles/norms, 13 (72%) found at least one positive association between such a measure and IPV perpetration. This finding did not substantially change considering only moderate and high-quality studies.

GEM scale. The most commonly used scale in this broad category was the GEM scale, which asks about participant endorsement of gender roles/norms. Fifteen scales were derived from eight studies (five high quality, two moderate and one low-quality). One high-quality study implemented the GEM scale in eight countries, adapted for each setting [17]. Example items of the GEM scale include, "A woman’s most important role is to take care of her home and cook for her family" and, "To be a man, you need to be tough". In the great majority of studies—seven out of the eight studies—the GEM scale was positively associated with perpetration of IPV in at least one instance. When examined at the level of the scale (considering each modified version of the GEM scale as unique), the GEM scale was positively associated with at least one form of IPV perpetration in eight out of the 15 (53%) measures. We also note some trends by geographic area. The GEM scale was most often implemented in India, and inequitable beliefs were positively associated with male IPV perpetration in four of five Indian settings [17,23,30,39]. The GEM scale was also implemented more than once in Brazil, with inconsistently positive findings [17,40]. Considering the scales that only implemented the unmodified GEM scale, two out of three studies documented a significant positive association with IPV perpetration (Table 2).

Gender views inclusive of attitudes towards violence against women. Measures of views on gender roles/norms often included questions about participant’s attitudes towards or acceptance of use of violence against women (15 scales), (e.g., “A woman should tolerate violence to keep her family together”) [17], in addition to questions about participant’s views about other gender norms. The 15 scales were derived from 10 studies (six high quality, three moderate and one low quality). One high quality study implemented eight modified versions of the GEM scale, six which were inclusive of views on the acceptance of violence against women [17]. Overall, the majority of scales (8 of 15, 53%) inclusive of justification for violence were positively associated with perpetration of violence. In contrast, a lower proportion of the scales which did not include attitudes towards violence, (9 of 27, 33%) were associated with perpetration. No scales inclusive of views on violence demonstrated a negative association with perpetration.

Gender views on male control over wealth. Male authority or control regarding finances (e.g., “If the husband is making enough money, do you believe it is acceptable for women to work outside the home” [41], was another common component of scales assessing participants views
on gender roles/norms, reflected in five measures (3 studies) [34,36,41]. In two out of the five measures, a positive association was documented between the scale and male IPV perpetration. However, two of the three studies were low quality; one was moderate quality. The small number of studies and overall quality limits the ability to draw stronger conclusions between views on male control over wealth and IPV perpetration.

**Gender views regarding male sexual entitlement.** Seven gender view scales included questions about male sexual entitlement to women [3,37,39,42–45]. Male sexual entitlement included male beliefs about conditions where sex was expected from women, or agreement that men should be sexually aggressive (e.g., "A man has the right to have sex with his wife/partner when he wants" or promiscuous, "A man needs other women, even if things with his wife are fine" [42]. All seven studies (four high, two moderate and one low quality) documented a positive association with IPV perpetration, although in one of the studies the association was inconsistently positive. This high quality, multi-country study found a positive association among men in Bangladesh and Cambodia, but not in four other Asian countries [3]. Notably, only one gender role scale, the Rules About Sex scale, focused exclusively on male beliefs regarding conditions where women were expected to give in to sex [43]. This study documented a positive association with IPV, but was low quality.

**Acceptance of violence against women**

Nine studies considered 16 measures regarding acceptance of violence against women (Table 3). Of these, four were considered high quality [17,32,38,39], four medium quality [35,37,41,46], and one low quality [36]. Roughly half of measures (9 of 16, 56%) were positively correlated with male perpetration of IPV in at least one instance. The same was true when we looked at the level of study—about half the studies (5 out of 9) found at least one positive association between a scale measuring endorsement of violence against women and IPV perpetration. All positive associations were documented in relation to physical or sexual violence perpetration and most studies (four out of five) were moderate or high quality. Emotional violence was measured in one high-quality study, and no association with acceptance of IPV was observed [32]. One high quality, multi-country study which examined acceptance of violence against women in eight low and middle-income countries (LMIC) found the positive association with physical IPV also varied by setting (a significant positive association was observed in 4 of 8 countries) [17].

Measures of IPV acceptance were most often comprised of situation-specific justifications for using violence (12 of 16 measures). Typically, the justifications related to use of violence as a means to enforce socially proscribed gender roles and responsibilities, such as "A husband is justified for beating his wife if she fails to provide food on time" [41]. Less often justifications related to use of violence as a means to express male love or commitment. Four measures reflected general acceptance of IPV, irrespective of the context in which it occurred [17,32,36]. Two measures of general acceptance (from one high and one low quality study) were positively associated with perpetration, although one varied by country setting [17,36]. Similarly, half of measures which included situation-specific justifications (6 of 12 measures) were associated with perpetration in at least one instance.

While most measures of acceptance of violence reflected individual-level views (13 of 16), three measures (two from a high quality study, one from a moderate quality study) reflected perceived peer acceptance of IPV or the frequency of peer IPV perpetration [32,37]. One of these scales included peer norms in addition to questions about the respondent's own views of domestic violence [32]. No measures reflected normative beliefs regarding community acceptance of gender-based violence. Only one of the two norm scales, perceived peer acceptance of
domestic violence, was positively associated with perpetration [32]. The measure that included, but did not exclusively measure peer norms, was not associated with perpetration. Taken together, these results raise the question whether individual-level endorsement of norms is more salient to IPV perpetration than perceived peer norms, but the number of studies assessing norms was too small to make conclusions in this regard.

Relationship power and control

Five studies (two high quality studies, two moderate quality and one low quality) included seven distinct measures of power and control in relationships (Table 4) [3,33,41,46,47]. Most measures reflected behavioral practices, however anticipated emotional reactions (e.g., jealousy) towards a partner’s actions were also included in the scales, (e.g., “I would be upset if someone hugged my partner a little too long”) [47]. Of these seven power and control measures, two (from one high and one low quality study) were positively associated with violence perpetration in at least one instance [3,33]. The high-quality study assessed men’s controlling behaviors in relation to perpetration of physical, sexual, physical/sexual combined or emotional/economic violence, respectively, in six countries [3]. The scale demonstrated an inconsistently positive association depending on the setting and type of violence. In four of the six settings, relationship power and control was positively associated with physical violence, in three settings it was associated with sexual violence, and in one setting it was associated with emotional/economic violence. This particular scale was the only relationship power/control measure to reference sexual behavior (among other aspects of partner control in the relationship), although these items reflected behavioral and emotional expectations rather than explicit behaviors (e.g., “When I want sex, I expect my partner to agree”, “If my partner asked me to use a condom, I would get angry”). The other study which documented a positive association (low quality) assessed a measure of relationship decision-making dominance, and the respondent’s satisfaction with the relative distribution of power. The study found that greater dissatisfaction with relationship power among men was associated with greater likelihood of any type of IPV perpetration [33]. The five remaining measures of power and control showed no association with violence perpetration.

Discussion

This systematic review finds that overall, over half of gender inequity measures—i.e., those that measured gender norms, views on gender roles/norms, endorsement of violence against women and gender-related inequities in relationship power and control—were not associated with male perpetration of IPV. This suggests that if, in fact gender inequities play a salient role in IPV perpetration as hypothesized, there may be considerable scope for improving our scales and indicators for men in these domains. Indeed, we found substantial variation by the scale content category and by specific scales used. Overall, of the three broad categories of measures considered, measures that included acceptance of violence against women were most often associated with male perpetration of IPV (56%), followed by views on gender roles/norms (40%) and lastly by measures of relationship power and control (29%). We also find that subsets of these categories—such as scales which encompassed male sexual entitlement to women—which were associated with IPV in seven out of seven studies—or the GEM scale—which was associated with IPV at least once in seven out of eight studies—tended to be more consistently positively associated with perpetration.

Male control over women is one way men demonstrate and enforce their masculine identity [17]. One might hypothesize that controlling behavior may be more proximal to violence perpetration than endorsement of norms as it suggests that such views are already being acted
It was thus somewhat surprising that measures of gender inequities in relationship power and control were the category of scales least consistently associated with IPV perpetration. While this is consistent with the findings of the UN study—which found that men’s reports of gender inequitable attitudes explained a greater proportion of IPV perpetration than their reports of controlling behaviors [3]—there are a number of possible explanations for our finding. In most instances the content of control scales identified in this review reflected more moderate and general behaviors (e.g., “I generally have the final say when my partner and I disagree”) as opposed to specific restrictive controlling behaviors. Indeed, only one identified relationship control scale specifically included control over sexual behavior [3]. This study was one of the two relationship control measures which documented a positive association with IPV perpetration. The less explicit and more general content of the control measures may explain the weaker overall association observed between the control measures and IPV perpetration. Moreover, we note that because the IPV perpetration studies in this review were conducted among males, scales more widely used among females to measure equality in relationships, such as the Sexual Relationship Power Scale did not appear in the final sample of studies we analyzed here. It may be that these scales would have different results.

Scales most sensitive to measuring males’ self-report of IPV perpetration tended to be more explicit about views towards male sexual entitlement. That is, views on gender role / norm measures inclusive of views on violence against women or which reflected male sexual entitlement to women were more consistently associated with IPV perpetration than measures that did not include these content areas. Notably, none of the measures of gender inequities in relationship control, the category of scales least consistently associated with IPV perpetration, referenced violence. Scales that reflected other gendered behavior domains, such as male control over household wealth, were less consistently associated with IPV perpetration. These results suggest that the antecedents—such as attitudes, anticipated reactions, norms, etc.—most strongly correlated with enactment of IPV reflect IPV perpetration or sexual entitlement in terms of content.

The role of social norms regarding violence against women and the culture of complicitness and acceptance of male perpetration of violence and harassment has sprung to the fore of national discussions. Men who perceive a higher peer or community prevalence of IPV perpetration or acceptance of this behavior may be more likely to perceive permission—or even experience greater pressure—to perpetrate violence themselves [17]. Unfortunately, we identified no measures of community norms and few measures of peer norms regarding IPV that met our inclusion criteria (N = 3 measures, from one high quality and one moderate quality study). While the three measures regarding peer norms around violence were less salient in predicting male perpetration than individual-level endorsement of norms [32,37], the studies were too few in number to draw definitive conclusions. This reflects a substantial research gap: how to best measure social norms around violence, or how to consider it in analyses or pathways of influence are outstanding questions.

Important to note are several methodological limitations to this review. First, it is possible that relevant studies were missed by our review. Reviewed data were most often observational in nature and extracted associations were cross-sectional, which precludes the ability to establish temporality. Studies with inappropriate or inadequate adjustment for confounders could result in a spurious finding, rather than differences attributable to specific scale types, content or construction. While we accounted for statistical control for covariates in our quality assessment, there is the potential for uncontrolled confounding to remain in reviewed studies. Additionally, while we assessed scale performance by considering associations established a priori by individual study authors, reporting deficiencies within articles may have masked non-significant results or other study limitations. Further, not all studies disaggregated perpetration by type of violence. There was insufficient sample size to stratify results by both the type of scale

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and the form of violence perpetrated. Therefore, this review assumes that perpetration of different forms of violence are interrelated and findings are synthesized across types of violence [48]. Future research to expand the evidence base on the role of masculinity in the perpetration of IPV could allow this assumption to be further explored. All data were self-reported and therefore vulnerable to recall and social desirability bias. As most of the studies were conducted among males, underreporting of IPV perpetration is a very real possibility, though whether a male who does not disclose perpetration would also bias his responses on a gender attitude scale to appear more equitable/progressive is an open question. Confirming male self-reports of violence perpetration with female reports of IPV experience should be further explored. Finally, no identified studies employed analytic techniques such as structural equation modeling, which may be better suited to measuring variables which may be co-determined or which can examine pathways of influence. Such techniques should be explored in future studies.

Our review also identified salient research gaps. Many identified scales were not validated or were excluded from this review because it was unclear what the scale measured (no scale items were reported). We also identified wide variation in how scales were labeled, defined and implemented. These measurement and reporting challenges make it difficult to ascertain patterns in the association between gender inequity measures and IPV perpetration. Despite these limitations, this review suggests that multi-item scales that are explicit in nature and reflect endorsement of violence against women or male sexual entitlement are more consistently associated, and therefore may be more salient to male perpetration of IPV. In contrast, single-item indicators, scales more general in nature, those which do not reference violence, tended to be less consistently associated with violence perpetration. Results from this study also suggest that validated scales and those which reflect acceptance of violence against women or male sexual entitlement tended to be more robust across settings and sample populations, and may be of practical utility in monitoring progress in preventing the perpetration of IPV. Further research is needed to understand how normative changes at the peer and community levels contribute to or sustain individual-level behavior change [4].

Conclusion

This systematic review identified three major content areas of gender inequity measures commonly implemented in IPV research: views on gender roles/norms, endorsement of violence against women, and relationship power and control. We find that most measures reflected individual-level views or behaviors while few reflected normative influences operating at the peer level and no identified studies measured norms at the community or other level. Overall, we found that gender inequity measures were inconsistently associated with male perpetration of IPV. However, the relationship was sensitive to how such constructs were measured. Our findings suggest the importance of validated scales which include views on the acceptance of violence against women and male sexual entitlement in measuring determinants of male IPV perpetration. To move the field forward, we also argue for greater standardization of scale terminology in the field and further innovation and validation of scales that aim to capture gender inequitable norms, views, practices and relations. Longitudinal data which model an explicit and multi-level theory of behavior change would be useful for intervention design to identify what drives and what sustains change in IPV perpetration.

Supporting information

S1 Table. Sample key term search string used in PubMed, EconLit, SocIndex, POPline, and Women’s Studies International.

(DOCX)
Acknowledgments

We acknowledge the contributions of Cece Choi in the identification of articles and assistance in the extraction of information from included studies. This analysis was supported by the Evidence Project. The Evidence Project is made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the terms of the cooperative agreement no. AID-OAA-A-13-00087. The results of this paper do not necessarily reflect the views of USAID or United States government.

Author Contributions

Conceptualization: Katharine J. McCarthy, Nicole A. Haberland.

Data curation: Ruchi Mehta.

Formal analysis: Katharine J. McCarthy.

Funding acquisition: Nicole A. Haberland.

Investigation: Ruchi Mehta.

Methodology: Katharine J. McCarthy, Nicole A. Haberland.

Supervision: Katharine J. McCarthy, Nicole A. Haberland.

Writing – original draft: Katharine J. McCarthy.

Writing – review & editing: Katharine J. McCarthy, Ruchi Mehta, Nicole A. Haberland.

References

1. WHO. Global and regional estimates of violence against women. Geneva: World Health Organization. 2014. Accessed 17 September 2017.

2. 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. Elsevier; 2006; 368: 1260–9. https://doi.org/10.1016/S0140-6736(06)69523-8 PMID: 17027732

3. Fulu E, Jewkes R, Rosell T, Garcia-Moreno C, UN Multi-country Cross-sectional Study on Men and Violence research team. Prevalence of and factors associated with male perpetration of intimate partner violence: Findings from the UN multi-country cross-sectional study on men and violence in Asia and the Pacific. Lancet Glob Health. 2013; 1(4):e187–207. https://doi.org/10.1016/S2214-109X(13)70074-3 PMID: 25104345

4. Jewkes R, Flood M, Lang J. From work with men and boys to changes of social norms and reduction of inequities in gender relations: A conceptual shift in prevention of violence against women and girls. Lancet; 2015; 385: 1580–1589. https://doi.org/10.1016/S0140-6736(15)61683-4 PMID: 25467578

5. Jewkes R, Morrell R, Hearm J, Lundqvist E, Blackbeard D, Lindegger G, et al. Hegemonic masculinity: combining theory and practice in gender interventions. Cult Health Sex. 2015; 17: 112–127. https://doi.org/10.1080/13691058.2015.1085094 PMID: 26680535

6. Heise LL. Violence against women: An integrated, ecological framework. Violence against women. 1998; 4: 262–290. https://doi.org/10.1177/107780129800403002 PMID: 12296014

7. Ridgeway CL, Correll SJ. Unpacking the Gender System. Gend Soc. Sage: Thousand Oaks, CA; 2004; 18: 510–531. https://doi.org/10.1177/0891243204265269

8. Connell R. Gender, health and theory: Conceptualizing the issue, in local and world perspective. Soc Sci Med. 2012; 74: 1675–1683. https://doi.org/10.1016/j.socscimed.2011.06.006 PMID: 21764489
9. Levant RF. The new psychology of men. Prof Psychol Res Pract. 1996; 27: 259–265. https://doi.org/10.1037/0735-7028.27.3.259

10. Thompson EH, Pleck JH. The structure of male role norms. Am Behav Sci. 1986; 29: 531–543. https://doi.org/10.1177/002743280029003003

11. Bicchieri C. Norms in the wild: how to diagnose, measure, and change social norms. Cambridge University Press; 2015.

12. Cialdini RB, Reno RR, Kallgren CA. A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. J Pers Soc Psychol. 1990; 58: 1015–1026. https://doi.org/10.1037/0022-3514.58.6.1015

13. Cislaghi B, Heise L. Using social norms theory for health promotion in low-income countries. Health Promot Int. 2018; https://doi.org/10.1093/heapro/day017 PMID: 29579194

14. Heise LL. What works to prevent partner violence? An evidence overview. Paris: OECD; 2011.

15. Jewkes R, Morrell R. Gender and sexuality: emerging perspectives from the heterosexual epidemic in South Africa and implications for HIV risk and prevention. J Int AIDS Soc. 2010; 13: 6–6. https://doi.org/10.1186/1758-2652-13-6

16. Krishnan S, Rocca CH, Hubbard AE, Subbiah K, Edmeades J, Padian NS. Do changes in spousal employment status lead to domestic violence? Insights from a prospective study in Bangalore, India. Soc Sci Med. 2010; 70: 136–43. https://doi.org/10.1016/j.socscimed.2009.09.026 PMID: 19828220

17. Fleming PJ, McCleary-Sills J, Morton M, Levtov R, Heilman B, Barker G. Risk factors for men's lifetime perpetration of physical violence against intimate partners: results from the International Men and Gender Equality Survey (IMAGES) in eight countries. PLOs One, 2015; 10, e0118639. https://doi.org/10.1371/journal.pone.0118639 PMID: 25734544

18. Ricardo C, Eads M, Barker G. Engaging boys and young men in the prevention of sexual violence: A systematic and global review of evaluated interventions. Washington, DC: Promundo, 2011.

19. Pulerwitz J, Hughes L, Mehta M, Kidanu A, Verani F, Tewolde S. Changing gender norms and reducing intimate partner violence: Results from a quasi-experimental intervention study with young men in Ethiopia. Am J Public Health. 2015; 105: 132–137. https://doi.org/10.2105/AJPH.2014.302214) PMID: 25393199

20. Foshee VA, Bauman KE, Ennett ST, Linder GF, Benefield T, Suchindran C. Assessing the long-term effects of the Safe Dates program and a booster in preventing and reducing adolescent dating violence victimization and perpetration. Am J Public Health. 2004; 94: 619–24. PMID: 15054015

21. Foshee VA, Bauman KE, Arriaga XB, Helms RW, Koch GG, Linder GF. An evaluation of Safe Dates, an adolescent dating violence prevention program. Am J Public Health. 1998; 88: 45–50. PMID: 9584032

22. Wolfe DA, Crooks C, Jaffe P, Chiodo D, Hughes R, Ellis W, et al. A school-based program to prevent adolescent dating violence: a cluster randomized trial. Arch Pediatr Adolesc Med. 2009; 163: 692–9. https://doi.org/10.1001/archpediatrics.2009.105 PMID: 19652089

23. Verma RK, Pulerwitz J, Mahendra VS, Khandekar S, Singh AK, Das SS, et al. Promoting gender equity as a strategy to reduce HIV risk and gender-based violence among young men in India. Horizons Final Report. Washington DC: Population Council; 2008.

24. Gidycz CA, Orchoowski LM, Berkowitz AD. Preventing sexual aggression among college men: an evaluation of a social norms and bystander intervention program. Violence Against Women. 2011; 17: 720–742. https://doi.org/10.1177/1077801211409727 PMID: 21571742

25. Miller E, Das M, Tancredi DJ, McCauley HL, Virata MCD, Nettiksimmons J, et al. Evaluation of a gender-based violence prevention program for student athletes in Mumbai, India. J Interpers Violence, 2014; 29, 758–778. https://doi.org/10.1177/0886260513505205 PMID: 24142444

26. Taylor B, Stein N, Burden F. The effects of gender violence/ harassment prevention programming in middle schools: a randomized experimental evaluation. Violence Vict. 2010; 25: 202–23. PMID: 20514817

27. Kerpelman JL, Pittman JF, Adler-Baeder F, Eryigit S, Paulik A. Evaluation of a statewide youth-focused relationships education curriculum. J Adolesc. 2009; 32: 1353–1370. https://doi.org/10.1016/j.adolescence.2009.04.006 PMID: 19500829

28. Moher D, Shamseer L, Clarke M, Ghersi D, Liberati A, Petticrew M, et al. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. Syst Rev. 2015;4. https://doi.org/10.1186/2046-4053-4-4

29. National Institute for Health and Care Excellence (NICE) Methods for the development of NICE public health guidance ( third edition ). London: NICE, 2012. Retrieved from: https://www.nice.org.uk/process/pmg4/chapter/reviewing-the-scientific-evidence

30. Verma RK. Shifting support for inequitable gender norms among young Indian men to reduce HIV risk and partner violence. New Delhi: Population Council, 2006.
31. Espinoza G, Hokoda A, Ulloa EC, Ulibarri MD, Castañeda D. Gender Differences in the Relations among Patriarchal Beliefs, Parenting, and Teen Relationship Violence in Mexican Adolescents. J Aggress Maltreat Trauma. 2012; 21: 721–738. https://doi.org/10.1080/10926771.2012.703289 PMID: 23277734

32. Gage AJ. Exposure to Spousal Violence in the Family, Attitudes and Dating Violence Perpetration Among High School Students in Port-au-Prince. J Interpers Violence. 2016; 31: 2445–2474. https://doi.org/10.1177/0886260515576797 PMID: 25810092

33. Kaura S a., Allen CM. Dissatisfaction with relationship power and dating violence perpetration by men and women. J Interpers Violence terpers onal violence. 2004; 19: 576–588. https://doi.org/10.1177/0886260504262966 PMID: 15104862

34. Prather E, Dahlen ER, Nicholson BC, Bullock-Yowell E. Relationa l aggression in college students’ dat-ing relationships. J Aggress Maltreat, 2012; 21, 705–720. https://doi.org/10.1080/10926771.2012.693151

35. Yoshikawa K, Shapka TM, Poudel KC, Jimba M. Acceptance of wife beating and its association with physical violence towards women in Nepal: A cross-sectional study using couple’s data. PLoS One. 2014; 9. https://doi.org/10.1371/journal.pone.0095929 PMID: 24752579

36. Kalichman SC, Simbayi LC, Cain D, Cherry C, Henda N, Cloete A. Sexual assault, sexual risks and gender attitudes in a community sample of South African men. AIDS Care. 2007; 19: 20–27. https://doi.org/10.1080/09540120600984003 PMID: 17129854

37. Reed E, Silverman JG, Raj A, Decker MR, Miller E. Male perpetration of teen dating violence: Associations with neighborhood violence involvement, gender attitudes, and perceived peer and neighborhood norms. J Urban Heal. 2011; 88: 226–239. https://doi.org/10.1007/s11524-011-9545-x PMID: 21311987

38. Ralford JL, Seth P, Braxton ND, DiClemente RJ. Interpersonal- and community-level predictors of inti-mate partner violence perpetration among African American men. J Urban Heal. 2013; 90: 784–795. https://doi.org/10.1177/0152426113495111 PMID: 22711168

39. Das M, Ghosh S, Verma R, O’Connor B, Fewer S, Virata MC, et al. Gender attitudes and violence among urban adolescent boys in India. Int J Adolesc Youth. 2014; 19: 99–112. https://doi.org/10.1080/02673843.2012.716762

40. Gomez AM, Speizer IS, Moracco KE. Linkages between gender equity and intimate partner violence among urban brazilian youth. J Adolesc Health, 2011; 49: 393–399. https://doi.org/10.1016/j.jadohealth.2011.01.016 PMID: 21939870

41. Sambisa W, Angeles G, Lance PM, Naved RT, Curtis SL. Physical and sexual abuse of wives in urban Bangladesh, Studies in Family Planning, 2010; 41, 165–178. https://doi.org/10.1177/0143600510358878 PMID: 21469270

42. Anderson VN, Simpson-taylor D, Herrmann DJ. Gender, age, and rape-supportive rules. 2004; 50.

43. Nanda P, Gautam A, Verma R, Khanna A, Khan N, Brahme D, et al. Study on masculinity, intimate part-ner violence and son preference in India. New Delhi: International Center for Research on Women, 2014.

44. Shannon K, Leiter K, Phaladze N, Hlanze Z, Tsai AC, Heisler M, et al. Gender inequity norms are associated with increased male-perpetrated rape and sexual risks for HIV infection in Botswana and Swazi-land. PLoS One. 2012; 7. https://doi.org/10.1371/journal.pone.0028739 PMID: 22477617

45. Maman S, Yamani s T, Kouyoumdjian F, Mbambamo J. Intimate partner violence and the association with HIV risk behaviors among young men in Dar es Salaam, Tanzania. J Interpers Violence. 2010; 25: 1855–1872. https://doi.org/10.1177/0886260509344948 PMID: 19966247

46. Chan K.L. Brownridge DA, Tiwari A, Fong DYT, Wing Cheong Leung, Pak Chung Ho. Associating pregnancy with partner violence against Chinese women. J Interpers Violence, 2011; 26: 1478–1500. https://doi.org/10.1177/0886260510369134 PMID: 20495098

47. Fleming PJ, Gruskin S, Rojo F, Dworkin SL. Men’s violence against women and men are inter-related: Recommendations for simultaneous intervention. Soc Sci Med; 2015; 146: 249–56. https://doi.org/10.1016/j.soscimed.2015.10.021 PMID: 26482359

48. Figueiredo AJ, Corral-Verduco V, Frías-Armenta M, Bachar KJ, White J, McNeill PL, et al. Blood, soli-darity, status, and honor: The sexual balance of power and spousal abuse in Sonora, Mexico. Evol Hum Behav. 2001; 22: 295–328. https://doi.org/10.1016/S1090-5138(01)00067-8

49. Santana MC, Raj A, Decker MR, La Marche A, Silverman JG. Masculine gender roles associated with increased sexual risk and intimate partner violence perpetration among young adult men. J Urban Health. 2006; 83: 575–85. https://doi.org/10.1007/s11524-006-9061-6 PMID: 16845496