Original article

Incidence and factors associated with being a victim of community assault; retrospective review of medical records in an Emergency Centre

Ndedi Phoba a,b,*, Moleen Zunza a

a Division of Epidemiology and Biostatistics, Department of Global Health, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa
b Mamelodi Regional Hospital, Pretoria, South Africa

A R T I C L E   I N F O

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A B S T R A C T

Introduction: Community assault is an interpersonal violence frequently seen in the emergency centres around South Africa. Its aim is to inflict serious injuries to a suspected perpetrator. Data has not been published in Mamelodi Regional Hospital setting whereas the cases have been observed in the emergency centre (EC). The study objectives were to determine the incidence and factors associated with being a victim of community assault in the EC in a regional hospital in Pretoria and clinical outcomes.

Methods: We retrospectively reviewed the medical records of adult patients who were treated for assault in the EC of Mamelodi Regional Hospital between 5 March 2017 and 5 March 2018. EC electronic registries and medical file were used to identify all patients who presented with body injuries due to assault.

Results: Only 807 of 1070 medical records had complete data on the exposure variables of study interest. Of the 807 participants who presented with body injury due to assault, 77 (9.544% (95% CI 7.52 to 11.57)) were due to community assault. The majority of the victims were young adults, of male gender and not married. More than half of the participants were unemployed. Young adult age doubled the odds of being a victim of community assault odds ratio (OR) 2.19 (95% CI 1.02 to 4.70). The odds of being a victim of community assault for males were 11 times the odds of females OR 11.30 (95% CI 2.74 to 46.49). Of the 77 victims of community assault, 45 (58%) were admitted, 25 (32%) were discharged after receiving treatment, 6 (8%) refused treatment and 1 (1%) died.

Discussion: We describe the incidence of, and factors associated with, community assault in the EC of Mamelodi Regional Hospital in Pretoria. Our findings suggest that a modest incidence rate of being a victim of community assault. Young adult males are mostly the target victims of community and non-community assault. Further research is needed to understanding factors precipitating community assault and to test potential community and non-community assault prevention interventions, targeting young adult males.

Introduction

The burden of community assault violence in South African community is a major concern. Community assault accounted for a significant share of interpersonal violence, and its victims sustained serious injuries inflicted by blunt force [1]. One in five victims of blunt assault are harmed by a group of vigilantes [1]. In Pretoria, the estimated mortality rate due to community assault was 17.3% in 2016 [2]. The World Health Organization (WHO) defines interpersonal violence as the intentional use of physical force against another person or community that either results in injury, death, psychological harm maldevelopment or deprivation [3]. Interpersonal violence is classified into two subcategories: community violence and family or partner violence [4]. The WHO defines community violence as violence between individuals who are unrelated, and who may or may not know each other, generally taking place outside the home [3]. Community assault is an extra-judicial violence whereby a group of people takes the law into their hands in order to injure or kill a person accused of wrongdoing, and to serve as punishment upon the alleged perpetrator and as a warning to potential offenders [5,6].

Community assault constitutes a medico-legal, social and public health problem in our setting, and it is associated with significantly high morbidity and mortality [7]. Clinical data in Pietermaritzburg metropolitan trauma service from 2012 to 2018 showed that 1323 incidents of

* Corresponding author.
E-mail address: medGpractice@gmail.com (N. Phoba).

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trauma cases in Ngwelezane Hospital Kwazulu-Natal from 2009 to 2013 attributed to community assault [8]. A five-year review of all major trauma cases in Ngwelezane Hospital Kwazulu-Natal from 2009 to 2013 demonstrated that interpersonal violence accounted for 67.4% of the total number of patients treated, with 9% resulting from community assaults and 16% mortality rate in this group [9]. Kalafong Hospital trauma centre analysed 578 cases of interpersonal violence in 2016, 13% of these were community assault victims of male gender [2].

In South Africa, over 1.6 million individuals aged 16 years and above were victims of crime in 2017/18, of which 21.1% experienced assault [10]. A study in Tanzania found that the age of patients and of those who died due to community assault ranged between 19 and 79 years with the male to female ratio of 6:1 and 94% of victims were unemployed [7]. A study in Khayelitsha township reported 148 adult community assault cases aged 18 to 61 years, and less than 2% were females [11]. A post-mortem examination performed in Cape Town in 2012 reported that 26.7% of community assault death were moderately to severely under the influence of alcohol [12]. Violence and alcohol, each exacerbates the effects of the other with a strong association between alcohol consumption and an individual's risk of being either a perpetrator or a victim of violence [13]. Eight percent of 1380 patients aged 12 to 19 years admitted for intentional trauma at Groote Schuur Hospital from April 2014 to December 2016, were using illicit substances [14].

Mamelodi Regional Hospital has 400 beds and offers 24-h emergency health services. An average of 85 patients attends the emergency centre (EC) per day and most of them are trauma cases (unpublished data). The types of injuries vary, ranging from simple abrasions to death due to traumatic brain injury or internal bleeding following community assault [12]. To the best of our knowledge, there is no data available describing the extent of community assault in this setting. Understanding the extent of community assault in the setting may assist in allocation of human resources and financial resources in healthcare facilities of the affected communities and provide data to motivate the need, to test potential prevention interventions and to reduce the incidence of community assault in future studies.

The study objectives were to determine the incidence of, and factors associated with, being a victim of community assault and clinical outcomes in the EC of Mamelodi Regional Hospital in Pretoria.

Methods

We retrospectively reviewed the hospital EC electronic registry and paper medical records of trauma patients who were treated for assaults in the Mamelodi Regional Hospital EC between 5 March 2017 and 5 March 2018. The dates for extraction of data were prespecified to obtain the most recent data on community assault. Given the principal investigator’s experience and working in the environment, we had some insight of getting potentially enough medical records to achieve the required sample size, in the prespecified study period.

Mamelodi Regional Hospital is based in the Mamelodi Township within Pretoria East, Gauteng province, South Africa. It provides secondary level care, serving the community and surrounding area with a total population of 334,577, 99% of which are black African and 42.3% speak northern Sotho [15].

The study population comprised of male and female adult patients aged 18 years and above whose mechanism of injury was assault, who presented to the EC of Mamelodi Regional Hospital and were entered by the clerks in the electronic registries between 5 March 2017 and 5 March 2018. We defined community assault as an attack or physical beating by two or more community members where the victim was accused of wrongdoing [10].

The rate of being a victim of community assault was used for sample size calculation. A previous study has shown the rate of being a victim of community assault to be about 6% [11]. A sample size of at least 769 was required to estimate the rate of being a victim of community assault to achieve a precision of ±4%. Sample size estimation was done using WINPEPI (www.brixtonhealth.com/pepi4windows.html). We included 807 participants in our study.

We reviewed all electronic charts of patients whose primary trauma diagnosis was related to assault as recorded by clerks in the hospital’s EC registry. At presentation, the patient self-reported or the escort reported the patient as a victim of community assault where the victim was accused of wrongdoing or non-community assault. We then determined the outcome of community assault by reviewing the electronic hospital registry and categorised each incident as trauma due to community or non-community assault according to how many people were involved in the assault and whether the victim was accused of wrongdoing. We defined community assault as an attack or physical beating by two or more community members where the victim was accused of wrongdoing [10].

Socio-demographic characteristics were obtained by data abstraction from the registries and medical files included age (young adult = 18 to 39 years and middle to old adult = 40 years and above), gender (male or female), marital status (single or married), employment status (unemployed or employed) and alcohol or substance use. The history on alcohol or substance use was recorded by the triage nurse or the treating physicians based on patient or escort’s report or subjective observation of the attending nurse or treating physician. Patients with trauma not due to assault and those below 18 years of age were not included in the study.

Categorical variables were summarised as counts (percent). Pearson’s chi square test was used to determine socio-demographic characteristics associated with being a victim of community assault in the bivariate analysis. Socio-demographic characteristics with a $p$-value $<0.1$ in bivariate analysis were entered into a multiple logistic regression model to determine factors associated with being a victim of community assault after adjustment for potential confounding. Summary statistics were reported as odd ratio (OR) with the corresponding 95% confidence intervals. Statistical significance was set at 0.05 in the multiple regression model. Statistical analyses were done using Stata version 16 (Stata 16 software, Stata corp., College Station, Texas, USA).

Ethical clearance was obtained from University of Stellenbosch Human research ethics committee (Reference No: S19/08/153). Permission to conduct the study was obtained from the research committee of Mamelodi Regional Hospital.

Results

A total of 1070 assault cases were identified from the EC registries from 5 March 2017 to 5 March 2018. Only 807 of 1070 medical records had complete data on the exposure variables of study interest. Socio-demographic characteristics of the 807 study participants with complete exposure data are summarised in Table 1. The majority of the participants were young adults, of male gender and not married. More than half of the participants were unemployed.

Of the 807 participants who presented with body injury due to assault, 77 (9.54% (95% CI 7.52 to 11.5%)) of the assaults were due to community assault. When we included 263 with no complete exposure data, 104 of 1070 (9.72% (95% CI 7.94 to 11.49%)) were due to community assault.

Young adult age doubled the odds of being a victim of community assault odds ratio (OR) 2.19 (95% CI 1.02 to 4.70). The odds of being a victim of community assault for males were 11 times the odds of females OR 11.30 (95% CI 2.74 to 46.49). Married marital status was protective although the effect was not significant OR 0.53 (95% CI 0.22 to 1.28) (Table 2).

Of the 77 victims of community assault, 45 (58%) were admitted in hospital, 25 (32%) were discharged after receiving treatment in the EC, six (8%) refused treatment and one (1%) died on arrival. Of those who
Socio-demographic characteristics associated with being a victim of community assault.

| Characteristics | All assault victims, n (%) | Community assault victims, n (%) | Crude OR (95% CI) | p-Value | Adjusted OR (95% CI) | p-Value |
|-----------------|---------------------------|----------------------------------|------------------|---------|----------------------|---------|
| Age:            |                           |                                  |                  |         |                      |         |
| ≤39 years       | 164 (20.32)               | 9 (11.68)                        | 1 (ref)          | 0.031   | 1 (ref)              | 0.045   |
| >39 years       | 643 (79.68)               | 68 (88.32)                       | 2.29 (1.08 to 4.87) | 0.001   | 2.19 (1.02 to 4.70)  | 0.001   |
| Gender:         |                           |                                  |                  |         |                      |         |
| Male            | 636 (78.8)                | 75 (97.40)                       | 11.30 (2.74 to 46.5) | 0.001   | 11.31 (2.74 to 46.6) | 0.001   |
| Female          | 171 (21.2)                | 2 (2.60)                         |                  |         |                      |         |
| Marital status: |                           |                                  |                  |         |                      |         |
| Single          | 682 (84.51)               | 71 (92.20)                       | 1 (ref)          | 0.06    | 1 (ref)              | 0.16    |
| Married         | 125 (15.49)               | 6 (7.80)                         | 0.43 (0.18 to 1.02) | 0.53    | 0.53 (0.22 to 1.28)  | 0.001   |
| Occupation:     |                           |                                  |                  |         |                      |         |
| Employed        | 371 (45.97)               | 30 (38.96)                       | 1 (ref)          | 0.20    |                      |         |
| Unemployed      | 436 (54.03)               | 47 (61.04)                       | 1.38 (0.85 to 2.21) |         |                      |         |
| Alcohol use:    |                           |                                  |                  |         |                      |         |
| Yes             | 157 (19.45)               | 9 (11.69)                        | 1 (ref)          | 0.08    | 1 (ref)              | 0.09    |
| No              | 650 (80.55)               | 68 (88.31)                       | 1.92 (0.94 to 3.94) | 0.74    |                      |         |
| Substance:      |                           |                                  |                  |         |                      |         |
| Yes             | 49 (6.07)                 | 4 (5.19)                         | 1 (ref)          |         |                      |         |
| No              | 758 (93.93)               | 73 (94.81)                       | 1.20 (0.42 to 3.43) |         |                      |         |
community assault victims could have experienced multiple injuries, were unaccompanied eventually succumbed to their injuries, in which case mortality rate in our study may be an underestimate. The burden placed on the healthcare services due to community assault should guide the allocation of human and financial resources.

Our study had some limitations. The study was retrospective and restricted to patients treated at one hospital over a one-year period. Our assessment on factors associated with community assault was limited to those recorded in the medical records, and 263 incomplete medical records were excluded in this analysis. We do not expect the demographic distribution of those with and without complete medical records to be different and assume the medical records were missing completely at random. Assault on minors was excluded as the study focus was on the adult population and therefore our results may not be generalisable to assaults on minors.

We describe the incidence of, and factors associated with, being a victim of community assault presenting to the Mamelodi Regional Hospital in Pretoria. Our findings suggest a modest incidence rate of community assault and is of public concern. Young adult unemployed males are mostly the target victims of community and non-community assault. Further research is needed to understanding factors precipitating community assault and to test potential community and non-community assault prevention interventions, targeting young adult males.

Dissemination of results

The results of this study were shared with the EC head of the department and with the management of Mamelodi Regional Hospital via research committee via e-mail. The article was also shared with the Gauteng Department of Health and City of Tshwane metropolitan municipality research offices, again via e-mail.

Authors’ contribution

Authors contributed as follow to the conception or design of the work; the acquisition, analysis, or interpretation of data for the work; and drafting the work or revising it critically for important intellectual content: NMP contributed 65% and MD contributed 35%. All authors approved the version to be published and agreed to be accountable for all aspects of the work.

Declaration of competing interest

The authors declare no conflicts of interest.

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