



Original Article

In-home interpersonal violence: Sex based prevalence and outcomes



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ABSTRACT

Introduction: There is a shortage of data on intimate partner and interpersonal violence in sub-Saharan Africa. We, therefore, sought to characterize patterns of sex-based risk of in-home interpersonal violence in Malawi.

Methods: We performed a retrospective analysis of the Kamuzu Central Hospital Trauma Registry data from 2009 to 2017 on adult patients presenting the emergency room following assault. Data variables collected include basic demographics, injury characteristics, and outcomes. We performed a bivariate analysis for covariates based on sex and Poisson regression analysis to estimate the risk of domestic violence and sex-based mortality.

Results: The in-home assault interpersonal violence was 37.1% ($n = 10,854$) of the total assault cohort and 37.4% ($n = 4056$) were female. Women were more likely to be assaulted at home ($n = 4065$, 69.6%) compared to men. The overall prevalence of in-home interpersonal violence over eight years was 9.09%, with the prevalence in men and women being 7.85 and 12.38%, respectively. Women injured following in-home interpersonal violence assaults were less severely injured. Women were more likely to be injured following slaps, punches, or kicks ($n = 950$, 41.2%) and men were more likely to be injured by an object, 41.0% with a blunt object ($n = 1658$) and 37.9% by a knife or another sharp object ($n = 1532$). For patients experiencing in-home interpersonal violence, overall mortality is 1.8% and 0.5% for men and women, respectively ($p < 0.001$). After controlling for covariates, the relative risk for in-home interpersonal violence was 2.25 ($p < 0.001$) times higher for women. Still, men had a 3.3 times risk of mortality following in-home interpersonal violence ($p < 0.001$).

Conclusion: Interpersonal violence is a global problem. In Malawi, women are more likely to be victims of in-home interpersonal violence. However, men are more likely to die following in-home interpersonal violence. Prevalence of in-home interpersonal violence is likely an underestimation.

African relevance

- In-home interpersonal violence is a global phenomenon yet to be adequately addressed in Africa.
- Similar to other settings, there is a higher prevalence in women than in men, 12.38 and 7.85%, respectively.
- We show a higher mortality following in-home interpersonal violence in men than in women, 1.8 vs. 0.5%, respectively.
- The prevalence of in-home interpersonal violence is likely an underestimation as we capture only those with injuries that necessitated an emergency room visit.

Introduction

Injury and trauma are a leading cause of morbidity and mortality globally. About 5.8 million people die each year as a result of injuries, accounting for 10% of the world's deaths, 32% more than the number of fatalities resulting from malaria, tuberculosis, and HIV/AIDS combined [1,2]. Low- and middle-income countries (LMIC) bear a disproportionate burden of trauma mortality, with 90% of trauma-related deaths occurring in these countries [3]. Globally, interpersonal violence is explicitly responsible for nearly 10% of injury-related deaths and DALYs lost [4–6].

The World Health Organization defines violence as “the intentional use of physical force or power, threatened or actual, against oneself,

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another person, or against a group or community.” [7] This definition encompasses self-directed (suicidal behavior, self-abuse), interpersonal, and collective violence (social, political, and economic violence). Interpersonal violence includes both family and intimate partner violence and community violence.

The prevalence of interpersonal violence in LMICs is underreported, as many injuries may not be severe enough to require medical attention. When injuries are significant, necessitating presentation to the emergency room for care, specific factors in LMICs may contribute to even less accurate reporting, including less robust medical record systems, perceived normalcy of interpersonal violence, and fear of stigma among victims [7].

There is a lack of data on interpersonal and intimate partner violence in LMICs, particularly within the home. Therefore, we sought to describe the sex-based prevalence and mortality outcomes following in-home interpersonal violence among patients presenting to a tertiary care facility in Malawi. We hypothesized the prevalence and mortality following in-home interpersonal violence would be higher in women compared to men.

Methods

We performed a retrospective analysis of data collected from the trauma surveillance registry at Kamuzu Central Hospital (KCH) from January 2009 through July 2017. The characteristics and data collection methodology have been previously described [8]. We captured all patients presenting to KCH with injury within the registry. We included adult patients (≥ 18 years) who presented to the emergency room following an assault mechanism occurring in the home in this study; We excluded all other injury mechanisms and injury settings outside of the home. We chose 18 years in this study as that is the legal minimum age of marriage in Malawi.

Malawi is a small, landlocked country in southeast Africa. Its three-tiered healthcare system includes the primary healthcare centers at the local level, district hospitals located in each of the 28 districts, and four central hospitals that provide surgical care to the country. One of the tertiary hospitals is KCH, a 900-bed referral hospital in Lilongwe, the capital of Malawi. KCH is the tertiary hospital for eight district hospitals, serving a catchment population of six million inhabitants in the central region of Malawi. Over the study period, surgical care at KCH four general surgeons, six surgical clinical officers, and 11 residents provided surgical care. There were four operating rooms with one anesthesiologist and six clinical officer anesthetists. KCH has a five-bed intensive care unit and a five-bed high dependency unit for both medical and surgical patients.

In-home interpersonal violence resulting in injury is defined broadly, to include all acts of physical abuse at home committed against men and women. Physical violence includes slapping and throwing objects, pushing or shoving, pinching, pulling a woman’s hair, hitting, choking, clubbing, kicking, dragging, burning, throwing acid or boiling water, threatening, or using a weapon [9]. We assessed Injury severity using the Malawi Trauma Score (MTS). It a validated trauma score, which includes age, sex, injury location, AVPU, and presence or absence of a radial pulse as a proxy for shock [10].

The study population was analyzed using descriptive statistics in the overall sample and then stratified by sex and mortality. We utilized a univariate analysis to determine data distribution and missing values. There was <5% missing data after the application of the inclusion and exclusion criteria. Univariate analysis is reported as means (\pm standard deviation) or medians (interquartile range) if the covariates were not normally distributed as measures of central tendency. Bivariate analysis was performed by sex. To compare the distribution of exposure across demographic variables, we utilized χ^2 for categorical variables and Student’s *t*-test for normally distributed continuous variables. Kruskal Wallis was used to compare means for not normally distributed continuous covariates.

To determine predictors of in-home interpersonal violence, we performed a multivariate Poisson regression predictive model. A priori, sex was included in the model. Other variables significant at $p < 0.05$ on bivariate analysis by sex were included in the multivariate model. The fully adjusted model included sex, alcohol use, and age. We performed a backward elimination approach to reduce errors in both models, with the removal of variables based on p -value (>0.05). Precision was maintained as there was a narrowing of the confidence intervals. A reduction of bias was obtained as there was a $< 10\%$ change in coefficients. Based on these criteria, age was removed from the final models as its inclusion was not statistically significant in the multiple logistic regression. Removal resulted in minimal change in the coefficients with narrowing of the confidence intervals.

To determine predictors of mortality following in-home interpersonal violence, we performed a multivariate Poisson regression predictive model. A priori, sex was included in the model. Other variables significant at $p < 0.05$ upon bivariate analysis by sex were also included in the multivariate model. The fully adjusted model included sex, alcohol use, injury location, and age. We performed a backward elimination approach to reduce errors in both models, with the removal of variables based on p -value (>0.05). All variables were significant, or removal increased the confidence interval, and therefore none were excluded in the final model.

We performed this analysis using StataCorp v16, College Station, Texas. Confidence intervals are reported at 95%, and we set alpha at 0.05 for this study. Institutional Review Boards approved this study.

Results

Of the 120,537 patients in the KCH trauma surveillance registry during the study period, 29,275 (24.3%) patients presented after assault of any mechanism. Of the total assaults, 23,292 (79.6%) were male. The primary injury locations for both men and women were the head ($n = 7111$, 31.4% vs. $n = 1388$, 48.4%) and abdomen and pelvis ($n = 7354$, 32.4% vs. $n = 1960$, 33.8%), respectively ($p < 0.001$). For males, assaults occurred primarily with knives or other sharp objects ($n = 5929$, 43.8%) and hands ($n = 2211$, 16.3%) resulting in lacerations ($n = 10,318$, 44.5%) and contusions ($n = 6595$, 28.5%). Females were primarily assaulted with hands ($n = 1233$, 37.0%) and knives or other sharp objects ($n = 932$, 28.0%) resulting in contusions ($n = 2960$, 49.9%) and lacerations ($n = 1826$, 30.1%). Interpersonal violence primarily occurred on the road for males ($n = 9188$, 40.4%) versus at home for women ($n = 4056$, 69.6%), Table 1.

Of the patients presenting to the emergency room with assaults from any mechanism, 10,854 (37.1%) were following in-home interpersonal violence; 6793 (62.6%) victims of in-home assault were male. There was no statistically significant difference in time to hospital presentation based on sex as both men and women presented to KCH in a median time of 4 h (IQR 2–14 h), $p = 0.05$. Female victims of in-home interpersonal violence were less severely injured as measured by the Malawi Trauma Injury Severity Score (MTS) than men (7.0 ± 2.6 vs. 10.4 ± 2.7 , $p < 0.001$, respectively). The MTS is a locally developed modified injury severity score for LMIC settings, which includes age, sex, body region injured, and the presence of a radial pulse was included to control for shock index. Of those admitted to KCH, 76.1% ($n = 1004$) and 23.9% ($n = 315$) were men and women, respectively. Women were more likely to be injured following slaps, punches, or kicks ($n = 950$, 41.2%) and blunt objects ($n = 714$, 30.9%) and men were more likely to be injured by blunt ($n = 1658$, 41.0%) and sharp ($n = 1532$, 37.9%) objects, $p < 0.001$. The overall prevalence of in-home interpersonal violence in the KCH trauma population over the study period was 9.09%, with a prevalence of 7.85 and 12.38% in men and women, respectively. For patients experiencing in-home interpersonal violence, overall mortality was 1.8% and 0.5% for men and women, respectively ($p < 0.001$), Table 2.

In the Poisson regression model, being female increased the relative risk of being a victim of in-home interpersonal violence (RR 2.27, 95%

Table 1
Demographics of patients presenting after being a victim of all mechanisms of assaults.

	Overall n = 29,275	Female n = 5983	Male n = 23,292	p- Value
Age: $\mu \pm$ SD	28.3 \pm 11.1	26.4 \pm 11.3	28.8 \pm 11.1	<0.001
MTS: $\mu \pm$ SD	9.8 \pm 3.0	6.9 \pm 2.7	10.5 \pm 2.7	<0.001
Hours to presentation: median (IQR)	4 (2–12)	4 (2–14)	3 (2–12)	<0.001
Method of transport: n (%)				<0.001
Minibus	9937 (34.3)	2527 (42.7)	7410 (32.1)	
Private vehicle	12,062 (41.6)	2351 (39.7)	9711 (42.1)	
Ambulance	2043 (7.1)	334 (5.6)	1709 (7.4)	
Walked	1269 (4.5)	270 (4.6)	1024 (4.4)	
Police	2799 (9.7)	366 (6.2)	2433 (10.6)	
Other	837 (2.9)	72 (1.2)	765 (3.3)	
Primary injury location: n (%)				<0.001
Head	8499 (29.9)	1388 (48.4)	7111 (31.4)	
Face	447 (1.6)	77 (1.3)	370 (1.6)	
Spine	1449 (5.1)	419 (7.2)	1030 (4.5)	
Chest	1873 (6.6)	430 (7.4)	1443 (6.4)	
Abdomen/pelvis	9314 (32.7)	1960 (33.8)	7354 (32.4)	
Upper extremity	4910 (17.3)	1103 (19.0)	3807 (16.8)	
Lower extremity	1976 (6.9)	424 (7.3)	1552 (6.9)	
Mechanism of assault: n (%)				<0.001
Hands	3444 (20.4)	1233 (37.0)	2211 (16.3)	
Kicked	222 (1.3)	72 (2.2)	150 (1.1)	
Stones or bricks	2012 (11.9)	358 (10.7)	1654 (12.2)	
Knife/sharp object	6861 (40.1)	932 (28.0)	5929 (43.8)	
Gun	28 (0.2)	3 (0.1)	25 (0.2)	
Tools	505 (3.0)	76 (2.3)	429 (3.2)	
Stick	1122 (6.7)	240 (7.2)	882 (6.5)	
Other metal object	2051 (12.2)	268 (8.0)	1783 (13.2)	
Other	623 (3.7)	152 (4.6)	471 (3.5)	
Primary injury type: n (%)				<0.001
Contusion	9555 (32.8)	2960 (49.9)	6595 (28.5)	
Laceration	12,144 (41.7)	1826 (30.1)	10,318 (44.5)	
Abrasion	1516 (5.2)	282 (4.8)	1234 (5.3)	
Fracture	1715 (5.9)	276 (4.7)	1439 (6.2)	
Dislocation	273 (0.9)	66 (1.1)	207 (0.9)	
Head Injury	1294 (4.5)	125 (2.1)	1170 (5.1)	
Penetrating wound	2037 (7.0)	262 (4.4)	1775 (7.7)	
Bite	55 (0.2)	17 (0.3)	38 (0.2)	
Burn	26 (0.1)	9 (0.2)	17 (0.1)	
Other	479 (1.7)	112 (1.9)	367 (1.6)	
Had surgery: n (%)	1140 (3.9)	133 (2.2)	1007 (4.3)	<0.001
Setting of injury: n (%)				<0.001
Home	10,849 (38.0)	4056 (69.6)	6793 (29.9)	
Work	2331 (8.2)	164 (2.8)	2167 (9.5)	
Road	10,099 (35.3)	911 (15.6)	9188 (40.4)	
School	387 (1.4)	69 (1.2)	318 (1.4)	
Farm	213 (0.8)	43 (0.7)	170 (0.8)	
Sports	843 (3.0)	135 (2.3)	708 (3.1)	
Public space	3641 (12.7)	427 (7.3)	3214 (14.1)	
Other	225 (0.8)	23 (0.4)	202 (0.9)	
Alcohol use: n (%)	4730 (16.2)	653 (11.0)	4077 (17.6)	<0.001
Disposition: n (%)				<0.001
Treated & sent home	24,819 (85.2)	5471 (91.9)	19,348 (83.4)	

Table 1 (continued)

	Overall n = 29,275	Female n = 5983	Male n = 23,292	p- Value
Admitted	3968 (13.6)	459 (7.7)	3509 (15.1)	
Died in casualty	361 (1.2)	26 (0.4)	335 (1.4)	
Disposition: n (%)				<0.001
Survived	27,962 (98.4)	5832 (99.5)	22,130 (98.1)	
Died	450 (1.6)	30 (0.5)	420 (1.9)	

CI 2.21–2.34, $p < 0.001$). Presumed alcohol use of the victim decreased the relative risk of being a victim of in-home interpersonal violence (RR 0.70, 95% CI 0.68–0.75, $p < 0.001$), [Table 3](#).

In the Poisson regression model for predictors of mortality after in-home interpersonal violence, being male (RR 3.00, 95% CI 1.83–4.92, $p < 0.001$) and increasing age (RR 1.03, 95% CI 1.02–1.04, $p < 0.001$) increased the relative risk of mortality. Both head injury (RR 15.92, 95% CI 5.03–50.39, $p < 0.001$) and spinal injury (RR 12.05, 95% CI 3.33–43.53, $p < 0.001$) locations increased the relative risk of mortality after controlling for pertinent covariates, [Table 4](#).

Overall, of those who died ($n = 136$), head injury ($n = 73$, 53.7%), lacerations ($n = 21$ (15.4)), and penetrating wounds ($n = 17$, 12.5%) were the leading injury types, [Table 5](#).

Discussion

In-home interpersonal violence is a global phenomenon. In sub-Saharan Africa, the problem of intimate partner violence, and in particular, violence against women is exacerbated by the prevailing poverty resulting in women staying in abusive environment for economic, social, and emotional reasons. Based on this present study, in line with our hypothesis, women have higher than twice the risk of being victims of in-home interpersonal violence when compared to men. However, contrary to our hypothesis, men have a threefold increase risk of mortality following in-home interpersonal violence compared to women. Although more men presented in our dataset to the hospital following in-home interpersonal violence, women were more likely to be assaulted at home than men.

The sex-based difference in the risk of mortality is a surprising finding. The general observation of the death of women in the hands of partners, parents, boyfriends, or acquaintances is rooted in the global subordination and oppression of women within the hierarchy of societal construct. Our findings of higher male mortality may be attributable to the mechanism and mode of assault. Women were far more likely to be assaulted with less-lethal blunt force via slaps, punches, and kicks, whereas, men had a higher penetrating injury mechanism such as stab wounds or blunt force injury to the head. Head injury resulted in over 50% of deaths and was the most significant driver of mortality following in-home interpersonal violence. Traumatic brain injury due to assault is strongly associated with being male and from a low-income household [11]. Our finding that men were more likely to die from in-home interpersonal violence has not been previously identified. Male victims of in-home interpersonal violence may be engaged in relationships characterized by violence. That is, men may be at a higher risk of mortality because they are victims of more violent, retaliatory actions. It is also possible that within the home, men are more likely to be assaulted by other men, resulting in a more significant injury severity and higher mortality.

Our finding that women were more likely to be victims of in-home interpersonal violence is well established in the literature. While our study did not identify the victim’s assailant, the fact victims sustained injuries perpetrated by another person in the home suggests that they may be victims of intimate partner violence. Intimate partner violence (IPV) is the most common type of violence against women worldwide [12], with African and Southeast Asian regional prevalence of 36.6 and

Table 2
Demographics of patients presenting after being a victim of interpersonal violence at home.

	Overall n = 10,849	Female n = 4056 (37.4%)	Male n = 6793 (62.6%)	p- Value
Age: $\mu \pm$ SD	27.2 \pm 12.7	26.8 \pm 12.1	27.5 \pm 13.1	0.004
MTS: $\mu \pm$ SD	9.9 \pm 3.1	7.0 \pm 2.6	10.4 \pm 2.7	<0.001
Hours to presentation: median (IQR)	4 (2–14)	4 (2–14)	4 (2–14)	0.05
Method of transport: n (%)				<0.001
Minibus	4582 (42.7)	1926 (47.9)	2656 (39.5)	
Private vehicle	3869 (36.0)	1405 (35.0)	2464 (36.6)	
Ambulance	878 (8.2)	241 (6.0)	637 (9.5)	
Walked	431 (4.0)	1717 (4.3)	260 (3.9)	
Police	854 (8.0)	243 (6.0)	611 (9.1)	
Other	130 (1.21)	34 (0.9)	96 (1.4)	
Primary injury location: n (%)				<0.001
Head/face	5958 (55.4)	2045 (50.9)	3913 (58.1)	
Spine	590 (5.5)	291 (7.3)	299 (4.4)	
Chest	727 (6.8)	303 (7.6)	424 (6.3)	
Abdomen/flank	427 (4.0)	213 (5.3)	214 (3.2)	
Upper Extremity	1144 (10.6)	447 (11.1)	697 (10.4)	
Hand	1051 (9.8)	386 (9.6)	665 (9.9)	
Pelvis	109 (1.0)	56 (1.4)	53 (0.8)	
Lower extremity	741 (6.9)	274 (6.8)	467 (6.9)	
Mechanism of assault: n (%)				<0.001
Physical assault (hitting/kicking)	1636 (25.7)	950 (41.2)	686 (17.0)	
Knife/sharp object	2069 (32.6)	537 (23.3)	1532 (37.9)	
Blunt object	2372 (37.3)	714 (30.9)	1658 (41.0)	
Gun	8 (0.1)	1 (0.0)	7 (0.2)	
Other	271 (4.3)	106 (4.6)	165 (4.1)	
Primary injury type: n (%)				<0.001
Contusion	4014 (37.2)	2098 (52.1)	1916 (28.4)	
Laceration	3993 (37.0)	1131 (28.1)	2862 (42.4)	
Abrasion	505 (4.7)	169 (4.2)	336 (5.0)	
Fracture	705 (6.5)	218 (5.4)	487 (7.2)	
Dislocation	139 (1.3)	51 (1.3)	88 (1.3)	
Head Injury	407 (3.8)	75 (1.9)	332 (4.9)	
Penetrating wound	767 (6.5)	218 (5.4)	487 (7.2)	
Bite	30 (0.3)	14 (0.4)	16 (0.2)	
Burn	21 (0.2)	9 (0.2)	12 (0.2)	
Other	203 (1.9)	87 (2.2)	116 (1.7)	
Had surgery: n (%)	355 (3.3)	90 (2.2)	265 (3.9)	<0.001
Alcohol use: n (%)	1214 (11.2)	361 (8.9)	853 (12.6)	<0.001
Disposition: n (%)				<0.001
Treated & sent home	9381 (86.8)	3706 (91.8)	5675 (83.8)	
Admitted	1319 (12.2)	315 (7.8)	1004 (14.8)	
Died in casualty	111 (1.0)	18 (0.5)	93 (1.4)	
Admitted disposition: n (%)				0.01
Survived	1035 (97.5)	250 (99.6)	785 (96.8)	
Died	27 (2.5)	1 (0.4)	26 (3.2)	

Table 3
Multivariate Poisson regression of predictors of domestic violence.

	Multivariable analysis		
	RR	95% CI	p-Value
Female	2.27	2.21–2.34	<0.001
Alcohol use	0.70	0.68–0.75	<0.001

Table 4
Multivariate Poisson regression of predictors of mortality after domestic violence.

	Multivariable analysis		
	RR	95% CI	p-Value
Male	3.00	1.83–4.92	<0.001
Age	1.03	1.02–1.04	<0.001
Injury location			
Head	15.92	5.03–50.39	<0.001
Face	3.43	0.35–33.38	0.3
Chest	5.23	1.31–20.95	0.02
Abdomen/pelvis	3.12	0.91–19.73	0.07
Upper extremity	Ref	–	–
Lower extremity	5.35	1.34–21.31	0.02
Spine	12.05	3.33–43.53	<0.001
Alcohol use	0.93	0.54–1.62	0.8

Table 5
Mechanisms of injury in non-survivors.

	Overall (n = 10,510)	Survived (n = 10,374, 98.7%)	Died (n = 136, 1.3%)
Contusion: n (%)	3962 (37.7)	3952 (38.1)	10 (7.4)
Laceration: n (%)	3898 (37.1)	3877 (37.4)	21 (15.4)
Abrasion: n (%)	502 (4.8)	500 (4.8)	2 (1.5)
Fracture: n (%)	656 (6.2)	650 (6.3)	6 (4.4)
Dislocation: n (%)	137 (1.3)	136 (1.3)	1 (0.7)
Head injury: n (%)	374 (3.6)	301 (2.9)	73 (53.7)
Penetrating wound: n (%)	735 (7.0)	718 (6.9)	17 (12.5)
Bite: n (%)	30 (0.3)	30 (0.4)	0 (0.0)
Burn: n (%)	20 (2)	20 (0.2)	0 (0.0)
Other: n (%)	196 (1.9)	190 (1.8)	6 (4.4)

37.7%, respectively [13]. Half of African women report being beaten by their husbands is justified if they leave the house without permission, neglect their children, burn the food, argue back, or refuse sex [14]. There are significant health consequences in victims of interpersonal violence. There is an estimated increase in the likelihood of depression by two-fold, with 16% of these women more likely to have low birth-weight babies [15]. Furthermore, 38% of all murders of women globally were reported as being committed by intimate partners [16].

In countries where data is available, <40% of the women who experience violence seek help of any sort. Among women who do, most look to family and friends, and very few have access to formal institutions and mechanisms. <10% of women seeking help after an experience of violence sought help by appealing to the police [17]. Several interventions in this setting may help to reduce the prevalence of interpersonal violence in the home in Malawi and similar environments. One study of prevention efforts showed in-home violence-related safety and harm reduction strategies employed by women in LMICs differed significantly from those in high-income countries. Specifically, “staying” rather than “leaving” strategies were encouraged, and there was higher resistance to engaging with social and legal services due to cultural consequences for separation [18]. Another study revealed only one-fourth of Malawian women surveyed could accurately identify types of interpersonal abuse, which are punishable by law [19]. Therefore, public health efforts could emphasize the importance of separation in

breaking the cycle of violence.

Emergency medicine physicians have advocated for screening by healthcare providers at the point of contact [20]. Screening must be seen as part of preventative care and has the potential to identify patients at current and future risk for repeated in-home interpersonal violence. Furthermore, to better engage victims at the time of emergency department presentation, social and legal services must be integrated into the emergency department and hospital setting. The presence of these services onsite could also contribute educational value, informing patients of their legal rights as victims of interpersonal violence.

Our study has several limitations. The retrospective cross-sectional study design with analysis of secondary data limits our ability to solicit the experiences of the victims of the assault directly. Also, our injury surveillance registry does not allow for the identification of the perpetrator or the relationship of the perpetrator to the victim. Therefore, although the assaults were sustained within the home, whether this interpersonal violence was by intimate partner violence or by other cohabitants is not delineated. Secondly, we could not determine a victim's prior history of assaults. More detailed information could further clarify the relationship between men's and women's differing injury patterns. Finally, this study captures only people whose injuries required presentation to the emergency room at a tertiary hospital. As noted previously, the severity of non-lethal violence is variable, and in many instances, prompts the victim to seek a lower level of care or none at all. Therefore, our findings may significantly underestimate the incidence, morbidity, and mortality of in-home interpersonal violence among both sexes. The study design limits generalization of our study findings.

Conclusion

The prevalence of in-home interpersonal violence is low in this study due to underreporting. However, the increased lethality associated with male victims of in-home interpersonal violence is striking. Emergency care physicians and medical providers in sub-Saharan Africa should develop a robust policy for the management and reporting of in-home interpersonal violence. Furthermore, efforts to make resources available for victims for in-home interpersonal violence so that they are not discharged back to the same abusive and possibly dangerous environment is needed. Increasing education and poverty alleviation will empower men and women and reduce interpersonal violence.

Dissemination of results

Results from this study were shared with staff members at the data collection site through an informal presentation. The findings were also presented at the College of Surgeons for East Central and Southern Africa meeting in Kampala, Uganda, in December 2019.

CRediT authorship contribution statement

LP contributed 30%; DE contributed 20%; TR, CM, RM, and AC contributed 10% each.

All authors approved the version to be published and agreed to be accountable for all aspects of the work.

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: LP contributed 30%; DE contributed 20%; and TR, CM, RM and AC contributed 10% each. 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 conflict of interest.

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