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PREVALENCE AND RISK FACTORS FOR GENDER BASED VIOLENCE DURING PREGNANCY IN KISUMU COUNTY KENYA

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ABSTRACT

Background: Gender Based Violence (GBV) is a pervasive and systemic public health problem affecting pregnant women but there is paucity of data on the magnitude of GBV during pregnancy and the factors associated with it in Kenya, particularly in areas where the prevalence of GBV in the general population is unacceptably high.

Objectives: To determine the prevalence and factors associated with GBV during pregnancy in Kisumu County.

Design: A cross sectional survey conducted between May and October 2016. Multivariate Logistic Regression was performed and the Odds Ratio (OR) at 95% Confidence Interval (CI) calculated to identify the factors associated with GBV.

Setting: Two public primary health care facilities in each of the six sub counties in Kisumu County.

Subjects: 691 eligible pregnant women attending antenatal care in the selected facilities responded to a questionnaire and were screened for GBV.

Results: The mean and median age was 24.5 and 24 years respectively, and the age at sexual debut was 16.7 ± 2.2 years. Thirty nine (39.2%) had experienced physical violence during the current pregnancy, perpetrated by an intimate partner (97%). Increased risk of violence was associated with having secondary level of education or more in the women OR=2.088, 95% CI [1.147-3.802], occasional alcohol consumption by the intimate partner (IP) OR=2.843, 95% CI [1.519-4.059], witnessing violence as a child OR=3.380, 95% CI [2.427-6.046] and prior experience of physical OR=13.116, 95% CI [7.976-21.569] or sexual violence OR=4.208, 95% CI [2.603-6.803]. Male partner dominance in decision making, OR=5.930, 95% CI [3.998-8.797] and infidelity by the woman OR=3.442, 95% CI [1.696-9.686] or her IP, OR=9.906, 95% CI [6.088-16.119] were associated with increased violence. The belief in the social superiority of a man OR=3.949, 95% CI [2.044-7.631], man's right to assert over a woman OR=3.163, 95% CI [1.930-5.185] and the belief that

women should tolerate violence to save a relationship/marriage OR=9.493, 95% CI [5.746-15.681] were predictors of increased violence.

Conclusion: A substantial proportion of pregnant women experience GBV in Kisumu County. The findings indicate the need for routine screening for GBV at ANC and the potential for initiation of interventions to mitigate the negative effects of violence for the affected women. Approaches targeting beliefs and strengthening of legal structures may be viable primary prevention options.

INTRODUCTION

Gender based violence (GBV) is a widespread of human rights violation, a pervasive and systemic public health problem affecting women of all socio-economic and cultural groups throughout the world at a high cost to the individual and society [1]. Although data on GBV prevalence varies from and within countries due to the methodological differences in the way that violence has been defined and measured, there is compelling evidence that GBV is a serious and common problem globally [1,2]. GBV includes all forms of violence; physical, psychological and sexual that is related to the survivor's gender or gender role in a society or culture [2]. In this study the term GBV represents self-reported experience of one or more acts of physical, sexual, psychological and economic violence by intimate partners, family members or any other persons including childhood physical and sexual assault.

The lifetime prevalence of physical or sexual violence or both in women aged 15-49 years ranges between 15-71% [3], with comparatively higher prevalence in developing countries [4]. Kenya has among the highest prevalence of GBV in Sub Saharan Africa with 47% of ever married women reporting a lifetime prevalence of physical or sexual abuse from a spouse [5]. Sexual violence is on the increase with up to 20.6% of women aged 15-49 years in Kenya having been sexually violated [6]. Nyanza Province

from which Kisumu County was hived reported the highest prevalence (54.6%) of physical and sexual violence in the country [5].

A growing body of literature shows that GBV during pregnancy prevalent in many parts of the world [4, 7, 8, 9, 10], with about one in every four rural women exposed to GBV during pregnancy [11]. A multi-country survey found 4-32% of pregnant women were exposed to intimate partner violence (IPV) during pregnancy, with low income countries reporting higher prevalence (14-32%) [4]. A study done in a rural clinic in Kisumu County found that 37% of the pregnant women were exposed to one or more forms of violence [8] in line with findings that violence during pregnancy is more prevalent than most other conditions for which women are screened [4, 12].

GBV during pregnancy is recognized as an important risk factor for adverse health outcomes for both the mother and the newborn. Violence during pregnancy has been associated with increased likelihood of miscarriage [13], premature labor or delivery [14], low birth weight [15, 16] and higher levels of depression during and after pregnancy [17, 18], anxiety, low self-esteem/confidence [19], HIV/Acquired Immune Deficiency Syndrome (AIDS), sexually transmitted infections (STIs) and injury [20, 21], maternal deaths [22, 23, 24], alcohol and substance abuse [27] and risky sexual behavior [21]. GBV has also been

associated with constrained access to health care [7] and /or delayed antenatal care, [28,29], limited negotiation for safe sex, uptake of prevention of mother-to child transmission (PMTCT) of HIV and HIV treatment even in cases where women are aware of their sero-positive status [30,31], and reduced the level of breastfeeding [32]. GBV may thus be among the greatest impediments to the attainment of the Sustainable Development Goal (SDG) 3 whose focus is the elimination of preventable deaths in newborns and children under five, reduction of maternal mortality and bringing to an end the HIV/AIDS epidemic among others.

Although GBV prevalence studies are increasing in low and middle income countries, the evidence base of the risk factors for GBV during pregnancy is yet to reach threshold levels to influence vibrant national policy and intervention programs. Many factors acting at different levels: individual, relationship, community and societal influence an individual's exposure to GBV [33], but there is a dearth of literature on studies that go beyond individual characteristics as risk factors for GBV[34]. Evidence points to the variability of risk factors between and even within countries thus limiting generalizability of findings from high income countries to low and middle income countries [28, 33]. This study aimed to quantify the magnitude of GBV in pregnant women and establish the factors; individual, relationship and community, that are associated with it in a county where violence in the general women population is high. This information is necessary in the design of effective intervention programmes for abused pregnant women. Since 94% of the pregnant women in Kisumu county visit a qualified health care provider for ANC services[5], pregnancy provides an excellent window for

identifying risk factors for abuse and an opportunity to assist and support pregnant survivors and thus contribute to the realization of SDG 3. [4, 7, 35].

MATERIALS AND METHODS

Study Design and Population

A cross sectional survey of pregnant women attending ANC at 12 public primary health care facilities in the 6 sub counties in Kisumu County was conducted from May to November 2016. Consecutive pregnant women were recruited into the study. Pregnant women aged 18-45 years seeking ANC services in the selected health centers were included. Mental competence to provide consent and willingness to participate were other requirements for inclusion into the study. Pregnant women accompanied to ANC by a partner, family member or other persons were excluded.

Sampling

This survey was part of the initial phase of a non-randomised facility based intervention to assess the effect of psychosocial support on GBV, mental health, perceived quality of life and adoption of safety behaviours and a total of 691 pregnant women were surveyed for GBV and other characteristics as the team sought to obtain the desired sample for the intervention phase. To determine the prevalence of GBV among pregnant women in Kisumu County at 95% level of confidence and a confidence interval of 5%, taking the proportion of women exposed to GBV during pregnancy (p) to be 37% from a similar survey [7], a sample of at least 358 pregnant women was deemed adequate.

Two public primary health facilities/health centers with the highest number of new ANC clients in the first

quarter of 2015 in each of the 6 sub counties in Kisumu County formed the study sites. These were: Migosi and Lumumba (Kisumu East sub county), Ober Kamoth and Nyahera (Kisumu West sub county), Tamu and Nyang'oma (Muhoroni sub county), Sondu and Kusa (Nyakach sub county), Hongo Ogosa and Nyag'ande (Nyando sub county) and Manyuanda and Bodi (Seme sub county). A convenience sample of the pregnant women who met the inclusion criteria was taken at the facility level.

Data Collection

Twelve community health volunteers (CHV) were identified with the help of the health facility in charge, the lead nurse at the ANC clinic and the community health unit supervisor. The requirements for the recruitment of a CHV included: female with at least secondary level of education, a track record of excellent performance, a good listener and communicator and interest in GBV. The CHVs were trained before graduating to GBV research assistants conversant in basic interviewing skills, research ethics, consent process and the data collection tool and process.

At the ANC clinic, the nurse briefly explained to each pregnant woman about the study as they left the clinic and encouraged her to meet the research assistant stationed in a private room within the Maternal Child Health Clinic. The research assistant explained the study purpose to consecutive individual women and invited them to participate in the preliminary assessment. On occasions when the queue at the ANC clinic was long, the research assistant approached and invited a woman to her private room where the study purpose was explained and an invitation to participate was extended. The research assistant obtained the mobile phone

number and date for the next ANC visit for interested women. During the subsequent ANC visit, the research assistant obtained consent from interested women and administered the questionnaire on socio-demographic characteristics, relationship, beliefs and community factors.

Each participant was screened for GBV using the five item Abuse Assessment Screen (ASS) after completing the questionnaire. Participants were specifically asked whether they had ever been slapped, kicked, forced into sexual activities or emotionally abused by anyone or their intimate partner at any time, during the past year and during the current pregnancy. The ASS has been widely used to screen pregnant women for abuse and evidence demonstrated the sensitivity and specificity of this tool [36,37, 38].

The research assistant emphasized that participation was voluntary and that refusal to participate would not result in denial of antenatal or any other services. She also discussed with each participant the risk of (more) violence owing to their participation in the study and encouraged the women to keep their participation secret. The interview took place in a quiet private room within the MCH and lasted 15-20minutes.

Data Management and Analysis

All questionnaires were cross-checked for accuracy and completeness at the end of each day by the research assistant. The completed questionnaires were kept in secured cabinets in each facility with one key maintained by the research assistant and the duplicates kept by the principal investigator. The research assistants were instructed not to release the key to anyone else. Emphasis on confidentiality was made during the GBV champions' research ethics training and

throughout the study period. Data entry in to the Statistical Package for Social Scientists (SPSS) was done by trained data entry clerks. Data stored in USB drives, CDs and laptops for backup was password protected and only the principal investigator maintained custody of the password and these devices.

The data was analysed using IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp. The dependent variable was GBV was assessed using a five question Abuse Assessment Screen (ASS). The pregnant woman was asked if she had ever been slapped, kicked, forced into sexual activities or emotionally abused by anyone or their intimate partner at any time, during the past year and during the current pregnancy). A 'yes' to any of the five questions in the ASS meant that the woman had experienced GBV and was coded as 1 while a 'no' was coded as 0 and meant that the woman had not experienced GBV. The independent variables were individual characteristics of participants including history of violence, relations with intimate partners, beliefs anchored on social and cultural norms that may create acceptable environment for GBV and community context in which social relationships occur. Multivariate logistic regression was conducted to identify the risk factors for GBV during pregnancy in Kisumu County.

ETHICAL CONSIDERATIONS

In order to maintain confidentiality all study participants were assigned unique

identification numbers that were recorded on the questionnaire and on one of the middle pages of the ANC booklet. The study was approved by the Scientific and Ethics Review Unit (SERU) of the Kenya Medical Research Institute (KEMRI) as well as from the Board of Post Graduate Studies, Jomo Kenyatta University of Agriculture and Technology (JKUAT).

Permission was obtained from the Ministry of Health, Kisumu County and from the In-charge in every participating health facility. All study participants gave a written informed consent.

RESULTS

Socio-Demographic Characteristics of the Pregnant Women

A total of 691 eligible women were enrolled into the study over a six month period with a mean age of 24.5, standard deviation (SD)= 4.3 years. The age at sexual debut was 16.7, SD= 2.2 years. Majority of the women were living with a husband/partner who was more than 4years older. Most of the women had attained primary level of education or less and had intimate partners who consumed alcohol. Thirty (30.8%) reported witnessing of violence between parents/guardians and close to half (48%) had experienced physical violence since the age of 15 years. Parents were reported as the perpetrators of physical violence by one fifth of the pregnant women [Table 1].

Table 1
Baseline Characteristics of the Pregnant Women (n=691)

Characteristic	n (Mean)	Standard Deviation (SD)
Age of respondent in years	691 (24.51)	4.328
Age at sexual debut in years	688 (16.7)	2.2
	n (691)	Percentage (%)
Currently Living with a Man/Partner		
No	83	12.0
Yes	608	88.0
Age difference with spouse/partner(current or former)		
0-4Yrs	333	48.2
More than 4Yrs	358	51.8
Respondent's Level of Education		
Primary or Less	474	68.6
Post-Secondary or More	217	31.4
Level of Education of partner(current or former)		
Primary or Less	392	56.7
Secondary or Higher	293	42.4
Missing	6	0.9
Woman has Own Income Source		
No	369	53.4
Yes	322	46.6
Employment status partner	236	34.2
Self employed	236	34.2
Casual labourer	295	42.7
Employed	154	22.3
Missing	6	0.9
Presence of Child not born to the partner		
Yes	212	30.7
No	479	69.3
Respondent Drinks Alcohol		
No	580	83.9
Yes	111	16.1
Male Partner's consumption of alcohol		
Often	88	12.6
Only sometimes	296	42.8
Never	307	44.4
Presence of Child not born to current partner		
Yes	212	30.7
No	479	69.3
Witnessing of Violence between Parents/guardians		
Yes	213	30.8

No	391	56.6
Experience of Physical violence from age of 15 years		
Yes	332	48.0
No	359	52.0
Perpetrator of Physical Violence		
Own Parents	142	20.5
Brother/Sister	43	6.2
Other Relative(Cousin, Uncle, aunt)	44	6.4
Intimate Partner(current/former)	67	9.7
In-laws/Co-Wife	11	1.59
Teacher	31	4.5
Refused to answer	28	4.1
Life Time Experience of Sexual Violence		
Yes	234	33.9
No	446	64.5

Intimate Partner Relations

The larger proportion (66.7%) of the pregnant women reported that conflict in their relationships was fairly common and 51% reported husband/partner dominance in decision making. Ten per cent had secret lovers besides their husbands/partners and

32% believed that their partner had other lovers/partners. Slightly more than half (51%) of the pregnant women had barely enough to meet their needs but many did not believe that a difference in the educational attainment (89.9%) or income status (87.6%) had a negative effect on their relationship [Table 2]

Table 2
Intimate Partner Relations (n=691)

Variable	n	Percentage (%)
Partner dominates in decision making		
Yes	356	51.5
No	335	48.5
Frequency of Conflict in the relationship/marriage		
Often	130	18.8
Only sometimes	462	66.9
Never	99	14.3
Whether Respondent has other secret lovers		
Yes	70	10.1
No	621	89.9
Partner raised concerns about respondents fidelity		
Yes	157	22.7
No	534	77.3
Partner has other lovers/partners besides the respondent		
Yes	225	32.6
No	466	67.4
Respondent raised concerns about partners fidelity		
Yes	174	25.2
No	517	74.8
Difference in educational attainment negatively affects relationship		
Yes	70	10.1
No	621	89.9
Difference in income status negatively affects relationship		
Yes	86	12.4
No	605	87.6

Community Characteristics and Beliefs

Most pregnant women (90%) felt that the community had mechanisms to deal with perpetrators GBV but a third felt that the strength of community sanctions against GBV were weak. The processes of seeking

treatment and legal help for GBV atrocities were reported as easy by more than half of the women. Schools were adequate (69%), the population density was average (71%) and the neighbourhoods were safe (27%) or fairly safe (51%), [Table 3].

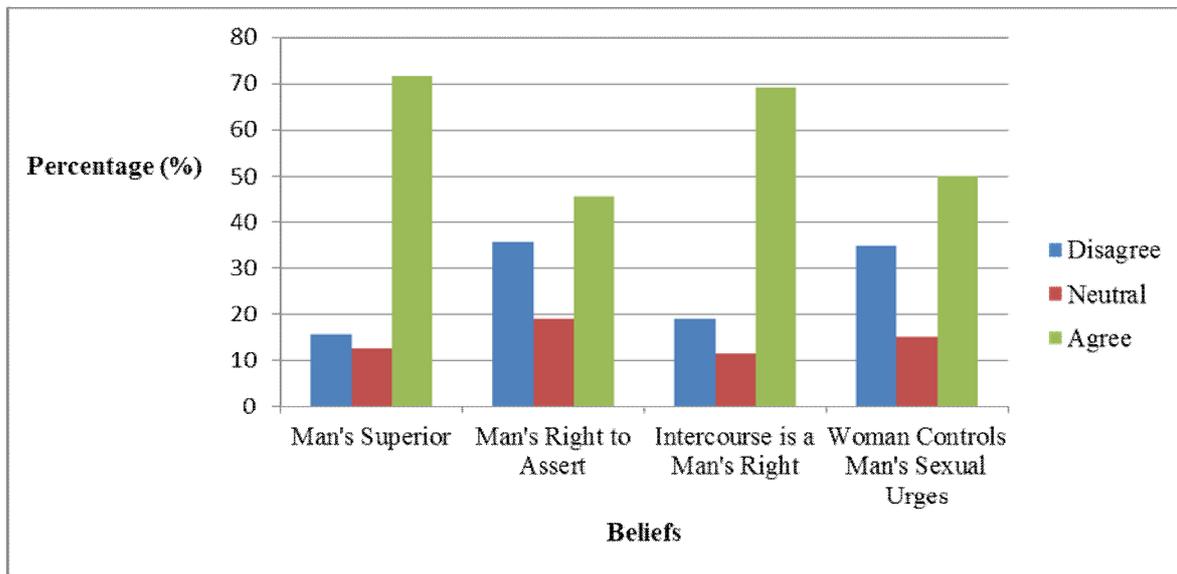
Table 3
Community Characteristics (n=691)

Variable	n	Percentage (%)
Existence of Community Mechanisms to deal with perpetrators		
GBV		
Yes	625	90.4
No	66	9.6
Strength of community sanctions against GBV		
Weak	228	33.0
Strong	463	67.0
Process of seeking treatment for GBV		
Difficult	128	18.5
Easy	563	81.5
Process of seeking Legal Help for GBV		
Difficult	276	39.9
Easy	415	60.1
Acceptance of violence as a way to resolve conflict		
Not Acceptable	412	59.6
Acceptable	279	40.4
Clean water		
Adequate	353	51.1
Fairly adequate	265	38.4
Inadequate	73	10.6
Adequacy of Schools		
Adequate	473	68.5
Fairly adequate	188	27.2
Inadequate	30	4.3
Population density/overcrowding		
Not overcrowded	60	8.7
Average	492	71.2
Overcrowded	139	20.1
Security in the neighbourhood		
Safe	185	26.8
Fairly safe	350	50.7
Unsafe	156	22.6

Seventy two per cent (72%) believed that a man is socially superior to woman while 45% believed that a man has right to assert over woman. Although 69% of the women felt that sexual intercourse was a man's right in a relationship/marriage, almost half (49.5%) did not agree with the belief that a woman should

tolerate violence in order to keep a relationship/family. Twenty one (21%) felt that there are times when a women deserves to be beaten and half believed that a woman is responsible for controlling a man's sexual urge [Figure 1].

Figure 1
Some of the Beliefs Anchored on Social and Cultural Norms (n=691)



Prevalence of GBV during Pregnancy and the Associated Factors

Almost half of the pregnant women (48.6%) reported some form of GBV while 51.4% did not. Forty two per cent (42%) had experienced physical violence (being slapped, kicked or physically hurt by someone) and one in four pregnant women (23.4%) reported experiencing sexual violence in the past one year. Thirty nine per cent of the women had experienced physical violence during the current pregnancy, which was mostly perpetrated by intimate partners (husband, ex-husband and boyfriend).

Individual Factors Associated with GBV during Pregnancy

The independent variables/predictors were; age, woman's age difference and that of her husband/IP, whether the woman was currently living with a man, whether the woman had her own source of income, employment status of the husband/IP, level of education (of the woman and her IP), whether the woman or her IP drink alcohol, childhood witnessing of violence between

parents/guardians and experience of physical or sexual violence from the age of 15 years.

The model with predictors entered was significant, $p=0.005$ ($df=15$) and fit $\chi^2= 12.02$, $p= 0.149$ $df 8$. The model without the predictors correctly classified 51% of the cases while that with the predictors correctly classified 81% of the cases. The variability explained by the set of independent variables was between 43.3%-57.7%.

An overall significant effect was found between age and GBV during pregnancy $\chi^2= 9.650$, $p= 0.008$, $df=2$. The risk of experiencing violence was lower in older pregnant women (23-26 years), Odds Ratio (OR) =0.441, 95% Confidence Interval (CI) [0.261-0.745] compared to women aged ≤ 22 years. An age difference of more than 4 years between the pregnant woman and her IP was found to be associated with reduced violence OR= 0.618, 95% CI[0.395-0.965]. Similarly having an intimate partner who was a casual labourer OR= 0.372, 95% CI [0.222-0.621] or had steady employment OR= 0.135, 95% CI [0.067-0.273], and an IP with secondary level of education or more OR=0.394, 95% CI [0.236-0.659] were all associated with reduced violence [Table 4].

The risk of experiencing violence during pregnancy was however higher in women with secondary level of education or more OR= 2.088,95% CI [1.147-3.802] compared to those with primary level of education or less, women whose IPs consumed alcohol 'sometimes' OR= 2.483, 95% CI [1.519-4.059],

those who witnessed violence between parents/guardians OR=3.380, 95% CI [2.427-6.046], women with a history of physical violence since age of 15yrs OR= 13.116, 95% CI [7.976-21.569] and pregnant women exposed to sexual violence OR= 4.208,95% CI [2.603-6.803], Table 4.

Table 4
Individual Factors Associated with GBV during Pregnancy

Variable	Total (%)	GBV+		GBV-		B	Wald(df)	p-Value	Adjusted OR (95% CI)
		n	%	n	%				
Age (n=691)									
≤ 22	246(35.6)	128	38.1	118	33.2		9.650(2)	0.008	1.00
23 – 26	246(35.6)	103	30.7	143	40.3	-0.819	9.387(1)	0.002	0.441(0.261-0.745)
27+	199(28.8)	105	31.3	94	26.5	-0.303	1.116(1)	0.291	0.738(0.420-1.296)
Age Difference with Spouse/Partner (=691)									
0-4years	333(48.2)	167	49.7	166	46.8				1.00
> 4years	358(51.8)	169	50.3	189	53.2	-0.482	4.486(1)	0.034	0.618(0.395-0.965)
Currently Living with a Man (n= 691)									
No	83(12.0)	46	13.7	37	10.4				1.00
Yes	608(88.0)	290	86.3	318	89.6	-0.172	0.235(1)	0.628	0.842(0.420-1.688)
Existence of Income Source [Respondent](n=691)									
No	369(53.4)	191	56.8	178	50.1				1.00
Yes	322(46.6)	145	43.2	177	49.9	-0.369	2.590(1)	0.108	0.692(0.441-1.084)
Partner's Employment Status(n=691)									
Self employed	242	133	39.6	109	30.7		33.112(2)	0.001	1.00
Casual labourer	295	141	42.0	154	43.4	-0.990	14.235(1)	0.001	0.372(0.222-0.621)
Employed	154	62	18.5	92	25.9	-2.003	31.044(1)	0.001	0.135(0.067-0.273)
Respondent Drinks Alcohol(n=691)									
No	580(83.9)	274	81.5	306	86.2				1.00
Yes	111(16.1)	62	18.5	49	13.8	-0.227	0.503(1)	0.478	0.797(0.426-1.491)
Partner Drinks Alcohol									
Never	307(44.4)	107	31.8	200	56.3		13.312(2)	0.001	
Sometimes	296(42.8)	174	51.8	122	34.4	0.910	13.167(1)	0.005	2.483(1.519-4.059)
Often	88(12.7)	55	16.4	33	9.3	0.563	2.332(1)	0.127	1.756(0.852-3.618)
Respondent's									

Education Level(n=691)									
Primary or Less	474(68.6)	233	69.3	241	67.9				1.00
Secondary or More	217(31.4)	103	30.7	114	32.1	0.736	5.800(1)	0.016	2.088(1.147-3.802)
Partners' Education Level(n=691)									
Primary or Less	398(57.6)	203	60.4	195	54.9				1.00
Secondary or More	293(42.4)	133	39.6	160	45.1	-0.931	12.608(1)	0.001	0.394(0.236-0.659)
Witnessed Violence between Parents/Guardians(n=691)									
No	391(56.6)	125	37.2	266	74.9				1.00
Yes	300(43.4)	211	62.8	89	25.1	1.343	33.265(1)	0.001	3.380(2.427-6.046)
History of violence since age of 15yrs(n=691)									
No	359(52.0)	76	22.6	283	79.7				1.00
Yes	332(48.0)	260	77.4	72	20.3	2.574	102.841(1)	0.001	13.116(7.976-21.569)
Lifetime Exposure to Sexual Violence(n=691)									
No	446(64.5)	151	44.9	295	83.1				1.00
Yes	245(35.5)	185	55.1	60	16.9	1.437	34.379(1)	0.001	4.208(2.603-6.803)

Relationship Factors Associated with GBV during Pregnancy

The relationship factors entered in to the model were: partner dominance in decision making, existence of other intimate partners, satisfaction in the marriage/relationship and financial adequacy. The model with predictors entered was significant, $p=0.005$ ($df=5$) and fit $\chi^2=12.1$, $p=0.10$ $df=7$. The model without the predictors correctly classified 51.4% of the cases while that with the predictors correctly classified 78.7% of the cases. The variability explained by the set of independent variables was between 37.9%-50.5%.

Financial adequacy was not associated with GBV OR= 0.935, 95% CI [0.627-1.394] but satisfaction in the relationship was. Pregnant women reporting satisfaction in their relationship were less likely to report GBV

compared to those who did not OR=0.502, 95% CI (0.327-0.770). Women who reported partner dominance in decision making were six times more likely to report GBV OR=5.930, 95% CI [3.998-8.797] compared to those who did not report partner dominance. Having other intimate relationships by the woman or her husband/IP was associated with GBV. Pregnant women who had other secret intimate partners were more likely to report GBV OR=3.442, 95% CI [1.696-6.986] as well as women who reported that their husbands/IP had other secret lovers OR=9.906, 95% CI [6.088-16.119], Table 5.

Community Factors and Beliefs associated with GBV during Pregnancy

The strength of sanctions against GBV, access to treatment and legal help for GBV violations, the population density and security were the Independent/explanatory

variables in the model. The model with the explanatory variable was significant, $p=0.005$ ($df=7$) and fit Hosmer Lemeshow test, $\chi^2=9.57$, $p=0.214$ ($df=7$). The model without the predictors correctly classified 51.4% of the cases while that with the predictors correctly classified 74.4% of the cases. The variability explained by the set of independent variables in the model is between 25.9%-34.5%. Having strong sanctions against GBV $OR=0.142$, 95% CI [0.094-0.217], ease of access to legal help for GBV violations $OR=0.304$, 95% CI [0.202-0.459] were associated with reduced GBV. The association between GBV and the population density, security and ease of access to treatment was not significant, Table 6.

The belief that man is socially superior, a man has right to assert over a woman, women should tolerate violence to maintain a relationships/marriages, sex is a man's right in a relationship/marriage and that a woman is responsible for controlling a man's sexual urges were the explanatory variables. The model with the predictors was significant, $p=0.005$, ($df=10$) and fit Hosmer and Lemeshow test $\chi^2=14.25$, $p=0.08$ ($df=8$). The model with the predictors correctly classified

76.4% of the cases compared to that without the variables (51.4%). The variables in the model accounted for 31.0%-41.4% of the variability.

An overall significant association was found between three beliefs and GBV during pregnancy. The belief that man is socially superior $\chi^2=20.516$, ($df=2$), $p=0.005$, a man has right to assert over a woman $\chi^2=26.330$, ($df=2$), $p=0.005$ and the belief that women should tolerate violence to maintain relationships/marriages $\chi^2=85.603$, ($df=2$), $p=0.005$. The pregnant women who believed that a man is socially superior were four times likely to experience GBV, $OR=3.949$, 95% CI [2.044-7.631]). The women who returned a 'neutral' response and those who believed that a man had a right to assert over a woman had three times more risk of experiencing violence, $OR=3.326$, 95% CI [1.899-5.826] and $OR=3.163$, 95% CI [1.930-5.185] respectively. The risk of GBV was nine times higher $OR=9.493$, 95% CI [5.746-15.681] among pregnant women who believed that a woman should tolerate violence in order to maintain a relationship/marriage, Table 6.

Table 5
Relationship Factors Associated with GBV

Variable	Total (%)	GBV+		GBV-		B	Wald(df)	p-Value	Adjusted OR (95% CI)
		n	%	n	%				
Partner Dominance in Decision Making(n=691)									
No	335(48.5)	76	22.6	260	73.2				1.00
Yes	356(51.5)	260	77.4	95	26.8	1.780	78.270(1)	0.001	5.930(3.998-8.797)
Respondent has Other IP's(n=691)									
No	621(89.9)	286	85.1	335	94.4				1.00
Yes	70(10.1)	50	14.9	20	5.6	1.236	11.719(1)	0.001	3.442(1.696-6.986)
Partner has other IP's(n=691)									
No	466(67.4)	139	41.4	327	92.1				1.00
Yes	225(32.6)	197	58.6	28	7.9	2.293	85.214(1)	0.005	9.906(6.088-16.12)
Satisfaction in the Relationship(n=691)									
No	239(34.6)	156	46.4	83	23.4				
Yes	452(65.4)	180	53.6	272	76.6	-0.689	9.950(1)	0.002	0.502(0.327-0.770)
Financial Adequacy(n=691)									
Enough to Get Us by	343(49.6)	162	48.2	181	51.0				1.00
Barely Enough	348(50.4)	174	51.8	174	49.0	0.067	0.109(1)	0.742	0.935(0.627-1.394)

Table 6
Community Factors and Beliefs Associated with GBV during Pregnancy

Variable	Total (%)	GBV+		GBV-		B	Wald(df)	p-Value	Adjusted OR (95% CI)
		n	%	n	%				
Strength of Sanctions Against GBV (n=691)									
Weak	228(33.0)	188	56.0	40	11.3				1.00
Strong	463(67.0)	148	44.0	315	88.7	-1.949	82.397(1)	0.005	0.142(0.094-0.217)
Access to Treatment for GBV Violations(n=691)									
Difficult	128(18.5)	89	26.5	39	11.0				1.00
Easy	563(81.5)	247	73.5	316	89.0	0.011	0.002(1)	0.967	1.011(0.592-1.726)
Access to Legal Help for GBV Violations(n=691)									
Difficult	276(40.0)	201	59.8	75	21.1				1.00
Easy	415(60.0)	135	40.2	280	78.9	-1.189	32.399(1)	0.001	0.304(0.202-0.459)
Population Density(n=691)									
Low	60(8.7)	33	9.8	27	7.6		3.345(2)	0.188	1.00
Average	492(71.2)	233	69.3	259	73.0	-0.407	1.593(1)	0.207	0.666(0.354-1.252)
High	139(20.1)	70	20.8	69	19.4	-0.686	3.293(1)	0.070	0.504(0.240-1.056)
Security(n=691)									
Safe	185(26.8)	80	23.8	105	29.6		0.262(2)	0.877	1.00
Fairly Safe	350(50.7)	173	51.5	177	49.9	0.094	0.190(1)	0.663	1.099(0.719-1.680)
Unsafe	156(22.6)	83	24.7	73	20.6	0.003	0.005(1)	0.990	1.004(0.581-1.732)
Beliefs									
Man is Socially Superior(n=691)									
Disagree	108(15.6)	15	4.5	93	26.2		20.516(2)	0.001	1.00
Neutral	87(12.6)	33	9.8	54	15.2	0.567	2.032(1)	0.154	1.762(0.809-3.840)
Agree	496(71.8)	288	85.7	208	58.6	1.374	16.702(1)	0.001	3.949(2.044-7.631)
Man has right to assert over a woman(n=691)									
Disagree	246(35.6)	63	18.8	183	51.5		26.330(2)	0.001	1.00
Neutral	131(19.0)	74	22.0	57	16.1	1.202	17.651(1)	0.001	3.326(1.899-5.826)
Agree	314(45.4)	199	59.2	115	32.4	1.152	20.859(1)	0.001	3.163(1.930-5.185)

A woman should tolerate violence to maintain a relationship/marriage(n=691)									
Disagree	342(49.5)	90	26.8	252	71.0		85.603(2)	0.001	1.00
Neutral	168(24.3)	96	28.6	72	20.3	1.340	32.327(1)	0.001	3.820(2.407-6.063)
Agree	181(26.2)	150	44.6	31	8.7	2.251	77.224(1)	0.001	9.493(5.746-15.681)
Sex is a Man's right in a relationship/marriage(n=691)									
Disagree	133(19.2)	42	12.5	91	25.6		4.752(2)	0.093	1.00
Neutral	80(11.6)	25	7.4	55	15.5	0.089	0.052(1)	0.819	0.915(0.428-1.956)
Agree	478(69.2)	269	80.1	209	58.9	0.434	2.645(1)	0.104	1.544(0.915-2.606)
A Woman is responsible for controlling a man's sexual urges(n=691)									
Disagree	240(34.7)	86	25.6	154	43.4		1.667(2)	0.435	1.00
Neutral	104(15.1)	59	17.6	45	12.7	0.278	0.843	0.358	1.321(0.729-2.392)
Agree	347(50.2)	191	56.8	156	43.9	0.098	0.161	0.689	0.907(0.563-1.462)

DISCUSSION

In this cross-sectional survey of pregnant women attending ANC clinic in 12 public primary health care facilities in Kisumu County, the self-reported overall GBV among the pregnant women was 49%. This is high compared to a reported prevalence of 13.5% from a population based sample, but comparable to proportions found in other clinic based studies [35,39,40]. A study in Zimbabwe [8] reported a much higher prevalence of 63%. The differences in prevalence may be attributable to methodological differences such as the study design, setting and the instruments used. Clinic based studies generally yield higher reporting compared to population samples and the use of specific questions (like have you ever been slapped, kicked, forced to perform sexual activities) which were used in this study result in higher disclosure compared to general questions.

The physical GBV in the past 12 months was reported by 42% of the women in this study is similar to that reported in another study in Africa [40]. Physical GBV in the current pregnancy was 39%, consistent with findings in other similar studies [41,42]. High prevalence of GBV during pregnancy like most other forms of GBV in non-pregnant population has been reported in Kenya [5]. The interviews in this study were conducted in private rooms nested in the ANC clinics and this favoured greater disclosure. Screening for GBV is not part of ANC in Kenya but in this study the ANC nurses and the research assistants' friendly and active enquiry of GBV may have increased disclosure. This approach is in line with findings that women prefer healthcare workers to take up an active role in disclosure of violence [43].

Krug *et al* explained an individual's exposure to violence as the result of interacting factors at the individual,

relationship, community and society levels [33]. Many studies on the factors associated with GBV have been done in developed countries but the same cannot be said of the low and middle income countries. There is evidence that these factors vary between and within countries and this limits generalization of findings. To the best of our knowledge, this study is among the first in Kenya to adopt Krug's ecological model in the investigation of the factors associated with GBV in Kisumu County which has some of the highest rates of GBV among women of reproductive age in the country.

This study established an overall significant effect between age and GBV, consistent with findings reported elsewhere [41,44,40,45]. Other studies [34, 46] did not report a significant association between age and violence. Increase in age had a protective effect on GBV which was significant in the 23-26 years age group. Younger women ≤ 22 years are less emotionally mature to handle relationships and are also often economically disadvantaged which places them in a position of vulnerability. Further the younger women may experience stressful transition to parenthood which can trigger conflict and violence [47].

Having an IP partner who was > 4 years older was associated with reduced violence. This finding is consistent with others [48]. Mature men may have better experience in handling conflict in the marriage/relationship compared to younger men.

Compared to self-employment, having an IP with stable or a casual job was associated with decreased violence. Farming and fishing are the predominant economic activities and it is possible that self-employment earned less income compared to the other two. Lack or little of income makes a man unable to provide for the family/in a

relationship and this is a potential cause of conflict stemming from the economic stress. The ability to provide may also serve to entrench a man's position of dominance and elicit learnt submissiveness from the woman as a way to avoid violence.

Men with secondary level of education or more in this study were less likely to abuse their partners. This may be the result of greater awareness of the health risks associated with violence and/or less economic stress because such are more likely to have better employment opportunities. The positive association between secondary or more level of education in the women and violence may be explained by the assertiveness of this group because they tend to be more aware of their rights.

An association between occasional alcohol use by an IP and GBV was established in this study which is consistent with other studies [41,49]. Some men will occasionally drink alcohol in order to 'hide' behind the drunkenness and engage in violence against their partners. This is supported by research using real and mock alcoholic beverages which showed that people who believed they had consumed alcohol acted more aggressively, regardless of whether they had consumed alcoholic beverage or not [50].

Witnessing violence, experience of physical violence since the age of 15 years and history of sexual violence were associated with increased violence in this study. Although studies measure the history of violence as well as the types differently, there is strong evidence that a history of violence is positively associated with GBV in adult life. This may be explained by the normalization of violence as an adult and learnt subordination [35]. Pregnancy makes a woman more dependent on her partner, more

vulnerable and thus more likely to submit even in an abusive relationship.

We established a relationship between male dominance and infidelity by either the woman or her partner and increased GBV. The African culture is still highly patriarchal and male dominance in decision making is common place. Increased GBV among pregnant women who reported male partner dominance in decision making may be explained by the perceived insubordination when women made decisions without 'consulting' the partner/husband. Similar findings have been reported elsewhere [7,28,35,51].

Real or perceived infidelity has been found to predispose women to more violence [41]. This study found satisfaction in the marriage/relationship to be associated with reduced violence consistent with findings that dissatisfaction is a predictor for violence in pregnant [52] and non-pregnant women [53].

Strong community sanctions against GBV protected against violence in this study. This finding is in line with evidence that community based approaches for the prevention of GBV emphasizing respect for rights especially those of women and children and encouraging individuals to speak out and act to prevent violence have the potential to prevent GBV [54,55].

Ease of access to legal help for GBV violations were associated with reduced GBV in this study suggesting that perceived potential of legal action against GBV perpetrators may act as a deterrent of violence. The beliefs in the socially superior position of a man over a woman, the right to assert over a woman and the belief that GBV in an intimate relationship is normal and therefore women should tolerate it so as to maintain a marriage/relationship were all positively associated with increased GBV.

This points to the role of societal norms and beliefs on individual behaviour and indicate that primary prevention of GBV must go beyond the individual to challenge norms and beliefs that perpetuate violence.

The violence was self-reported and corroborating the information provided by the pregnant women with that of their intimate partners and other individuals from their communities without placing them at an elevated risk of violence was not possible. The possibility of intentional and/or inadvertent exaggeration was real but we felt that the likelihood of underreporting GBV exposure is more common due the self-blame and shame associated with GBV.

Almost all (94%) of pregnant women in Kisumu County utilize ANC from qualified healthcare providers and the survey was done in 12 public primary health care facilities distributed across all the 6 sub counties. Primary health care facilities are the most accessible to majority of the Kenyan population and therefore the survey captured a representative sample of the pregnant women in Kisumu County and not merely the abused pregnant women. Finally this study surveyed pregnant women in public primary health care facilities and the generalization of the findings to non-pregnant women may not be done without caution.

CONCLUSION

GBV during pregnancy in Kisumu County is high, particularly violence perpetrated by intimate partners. The factors associated with increased GBV were found to be related to individual characteristics of the women and their partners, decision making and infidelity as well as beliefs that influence the a woman's attitude and response to GBV. These findings indicate the need for routine screening for

GBV at ANC and the potential for initiation of interventions to mitigate the negative effects of violence for affected women.

Active male partner involvement in the pregnancy can provide an opportunity to talk about GBV and how it affects the pregnancy outcomes. The findings also indicate the need in the long-term, for collaborative efforts by relevant sectors aimed at influencing beliefs that perpetuate GBV, improving the socioeconomic status of communities and strengthening of legal structures to enhance access to legal help for GBV violations.

COMPETING INTERESTS

The authors declare that they have no competing interests.

AUTHORS CONTRIBUTIONS

RM conceptualized and designed the study, trained the GBV Champions, supervised data collection, conducted analysis and interpretation of findings and drafting of manuscript. CM: participated in the conceptualization and design of the study, interpretation of findings, drafting and approval of the manuscript. KN participated in the design, interpretation of findings, drafting and approval of the manuscript.

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