

## **Risk Factors of Posttraumatic Stress Disorder and Depression among Female Survivors of Sexual Violence in an Informal Settlement in Nairobi County, Kenya**

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### **Abstract**

This study sought to examine risk factors of Posttraumatic Stress Disorder (PTSD) and depression among female survivors of sexual violence in an informal settlement in Nairobi County. The study employed explorative design to formulate a composite account of the findings and sequencing of the analytical operations. The study was conducted in two hospitals, Mama Lucy Kibaki Hospital and Medical Missionaries of Mary in Nairobi County, Kenya. The hospitals were identified through purposive sampling. Purposive sampling was also used to identify the respondents for the study through screening of the target population. Only those who met the set criteria: age 18 to 49 years, were married or not married, were or had been sexually violated and were resident in Nairobi County, were included in the study. PTSD Check List 5th edition (PCL-5) and Patient Health Questionnaire 9th edition (PHQ-9) were used to collect data on PTSD and depression respectfully. Trauma-focused Cognitive Behavior Therapy (TF-CBT) and Interpersonal Therapy (IPT) were used for the treatment of PTSD and depression, respectively. Binary estimates of risk factors for PTSD and depression for age ranges 26 to 33 years showed (AOR: 1.1; 95% CI: 0.91-12.4) and (AOR: 1.5; 95% CI: 0.2-9.8) respectively. As concerns education, survivors with no formal education had higher odds of developing PTSD (AOR: 8.1; 95% CI: 0.2-352.0) compared to those with Primary level of education at a much lower risk of developing PTSD (AOR: 2.7; 95% CI: 0.1-56.4). Survivors with Secondary level of education (AOR: 2.9; 95% CI: 0.2-50.1) had slightly higher odds of developing PTSD than those with Middle college level of education (AOR: 2.4; 95% CI: 0.1-43.9). Concerning religion, Protestant's risk of PTSD (AOR: 15.0; 95% CI: 0.6 -372.4) was much higher than the Catholics chances of developing PTSD (AOR: 6.2; 95% CI: 0.3-142.9). The unemployed respondent's likelihood of developing PTSD (AOR: 3.1; 95% CI: 0.1-62.7) was much higher compared to the informally employed which was lower (AOR: 2.6; 95% CI: 0.1-55.8). The likelihood of the formally employed survivor's risk of PTSD was the lowest in the category of employment (AOR: 0.3; 95% CI: 0.01-8.9).

*Keywords:* Depression, trauma, sexual violence, posttraumatic stress disorder, informal settlements.

## **Introduction and Background**

Research findings have shown that exposure to sexual violence has significant mental health consequences with several studies confirming that sexual violence survivors are predisposed to psychological distress such as PTSD and depression. The World Health Organization (WHO, 2013) reported that in 2010, 30% of women aged 15 years and above had experienced sexual violence from an intimate partner during their lifetime. The same report further emphasized the existence of considerable regional variations in the prevalence and severity of sexual violence. United Nations International Children's Emergency Fund (UNICEF, 2020) stated that gender-based violence reaches every corner of the globe with approximately 1 in 3 women worldwide experiencing sexual violence in their lifetime, with GBV soaring in emergency settings. The United Nations Women (2020) estimates a combined prevalence of sexual violence survivors range from 27.2% to 45.6% on a regional consideration. Of these, 29% of the survivors were raped at age 18 to 24 years while 16.6% of the survivors were raped when they were 25 years old. Thus, the report concluded that 54% of SV survivors were under 18 years of age at the time of the first rape while 83% of SV survivors were under 25 years old at the time when they were first raped. From the literature available sexual violence can lead to PTSD and depression in women who have been sexually abused. Consequently, a number of studies have demonstrated that sexual violence is a precursor to the risk of developing PTSD and depression.

A study in the USA showed that sexually violated women identified their source of PTSD and depression as emanating from Military Sexual Trauma (MST) which is associated with a high risk of developing PTSD (Blais & Monteith, 2018). The same report concurred with the findings of this present study which showed that sexual violence is a precursor to the development of PTSD and depression. Similarly, Baiocchi et al. (2019) reported that women in informal settlements were more exposed to sexual violence, a risk factor to developing PTSD and depression. The report showed that out of a total of 4125 females from 94 schools, annual rape incidence was 7.2% implying that PTSD and depression are the most significant risk factors associated with sexual violence. This finding resonates with this current study's findings which showed that sexual violence is a risk factor for PTSD and depression. This same study found that

a major risk factor for developing PTSD and depression is family history, a genetic predisposition to PTSD and depression. Another study on female sex workers in Eastern Nepal showed that SV may lead to the development of PTSD and depression (Sagtani et al., 2019). In addition, the study also stated that the SV survivors had engaged in risky sexual behavior which exposed them five times more likely to be depressed than those who had not engaged in such risky sexual behavior.

From a regional perspective, in Sub-Saharan Africa, a longitudinal study conducted in Cape Town, South Africa, assessed 31 SV survivors; two weeks post-rape (Oshodi et al., 2020). The results of the study showed that the SV survivors exhibited depressive symptoms (22.6%), an indication that the odds of risk factors of developing PTSD and depression were high. In addition, another study in South Africa (Mgoqi-Mbalo et al., 2017) on sexually violated women, found that women with low level of education were at higher odds of developing PTSD and depression. The report's findings concurred with this present study results which showed SV survivors with low level of education (AOR: 8.1: 95% CI: 0.2-352.0) were at higher odds of risk of developing PTSD and depression compared to the rest of the educational levels in that category. Further, a study in Uganda by Kawuki et al. (2016) showed that no formal education or low level of education is one of the leading risk factors associated with sexual violence which is a precursor to developing PTSD and depression among sexually violated women. This finding implied that a high education level is an important tool for women's protection against sexual violence.

In addition, the high risk factors of SV in sub-Saharan Africa could also be attributed to conflict-prone areas which expose women to sexual violence, a risk factor for developing of PTSD and depression. For instance, in the conflict-ridden Democratic Republic of Congo (DRC), Northern Uganda (Gulu) and Northern Kenya, women were exposed to sexual violence and as a result were found to exhibit symptoms of PTSD and depression. This was an indication that sexual violence is a risk factor for developing PTSD and depression (Fiske & Shakel, 2014). Another study by Sen and Bolsoy (2017) showed that low level of education was a risk factor for sexual violence which may lead to the development of PTSD and depression. Their findings were consistent with the findings of this study which showed that SV survivors with no formal education were the most vulnerable to sexual violence, a risk factor for PTSD and depression.

The same study also showed that women with low level of education had higher odds of being sexually violated than their counterparts with a high level of education. The study concluded that while one out of every five women with a higher level of education was vulnerable to sexual violence, one out of every two women with a low level of education was found vulnerable to sexual violence. That article concurred with this present study which showed that the lower the level of education, the higher the vulnerability to sexual violence which may lead to PTSD and depression. Other regions in the larger sub-Saharan Africa too, experience sexual violence, a consequent of PTSD and depression.

In Nigeria a report by the Nigerian Stability and Reconciliation Program (NSRP) of 2015 reported that women with disabilities, aged 15 to 49 years were at a high risk of sexual violence, standing at 7.0% nationally. In the Sub-Saharan Africa (SSA) region, sexual violence as a risk factor for PTSD and depression stood at 18.75% among women who had been sexually abused since age 15 years. This was attributed to the lack of opportunities for women (Muluneh et al., 2020). This finding concurs with this present study which showed that lack of opportunities, for instance, higher education for women, is one of the leading risk factors associated with sexual violence, a precursor to developing PTSD and depression among sexually abused women. In Uganda, risk factors associated with sexual violence among rural women were higher at 24.3% (95% confidence interval [CI]: 23.4–25.7) compared to their urbanite counterparts which was much lower at 18.4% (95% CI: 17.0–20.7). A report by the Uganda Demographic and Health Survey (UDHS) of 2016 indicated women aged 15 to 49 had been sexually violated once in their lifetime (Kawuki et al., 2016).

In Dar es Salaam, Tanzania, a multi-country study on women's health and domestic violence revealed a risk factor of sexual violence against women at 23% (WHO (2005). The USA Department of State (USADOS) too in reporting on human rights practices for 2007 adds family as a risk factor for the development of PTSD. For instance, it is common for people with PTSD to withdraw from family or friends if they do not receive much support, they become more susceptible to developing PTSD after a traumatic event. People with PTSD need comfort and support from family and friends in order to overcome feelings of helplessness. Family need to demonstrate their love and support for a member who has been through a traumatic event. In the Eastern African countries, Kiuwua-Muyingo and Kadengye (2020) conducted a study using the

most recent demographic health survey data from six Eastern African countries (Burundi, Uganda, Ethiopia, Tanzania, Rwanda, and Tanzania) on sexually violated women. For Rwanda and Ethiopia, sexual violence was at 8.3% while for Burundi it was at 18.4% implying that the women were at risk of developing PTSD and depression after being sexually abused.

Lastly, in Kenya, there is a paucity of data on predisposition to PTSD and depression among female survivors of sexual violence. The present study opines that sexual violence does not happen in isolation rather, various underlying risk factors play a role in the onset of PTSD and depression among them sexual violence. Sexual violence play a bigger role in the onset and progression to severe PTSD and depression (Chivers-Wilson, 2006). Another study conducted on children in Charitable Children's Institutions (CCIs) in Nairobi County showed that the children who had been sexually abused were at high odds of risks of developing PTSD at 21.6% (WHO, 2017). These findings were confirmed in the WHO (2017) report which stated that Kenya was ranked sixth among African countries with the highest number of PTSD as a consequence of sexual abuse. Further, another study showed that sexual violence continues to manifest itself in the survivors who do not seek help (Gatuguta, 2018). This trend continues because SV survivors fear re-experiencing victim-blaming, secondary victimization or they feel less likely to be believed (Cotter & Savage, 2019). The average age of the sexually violated women was 31.6 years, the same age as the respondents of this present study who were age range 26 to 33 years, who also were at high odds of risk of developing PTSD and depression as a result of sexual violence.

Sareen's (2014) study showed that high-risk factors likely to escalate the development of PTSD and depression were individual factors: lack of supportive system from family and friends, hostility towards women, childhood sexual abuse, relationship factors, mental health problems and genetics from blood relatives with PTSD or depression. The same more same article states that similar studies in the USA and Canada found that lifetime estimates of PTSD range between 6% and 9% respectively. Perrin et al. (2019) found that negative social consequences are never addressed because survivors do not disclose abuse to providers (e.g., community weakness on sanctions against perpetrators and protecting family honor over survivor safety) all of these are risk factors to PTSD and depression. Yet another study by Wilkins et al. (2014) states that

societal norms, among them weak laws and policies which do not favor women, contribute to risks for PTSD for sexually abused women.

Overall, literature available on a global, regional and local perspective shows that a majority of women who experienced sexual violence exhibited symptoms of PTSD and depression. This present study showed that respondents age range 26 to 33 years had higher risk of developing PTSD (AOR: 1.1; 95% CI: 0.91-12.4) and depression (AOR: 1.5; 95% CI: 0.2-9.8) than the rest of the respondents in the age category. The vulnerability of the younger SV survivors illustrated in this investigation raises a number of research questions about these women's prior history and future safety.

Studies have shown a relationship between sexual violence and PTSD as evidenced in a study in Swaziland where sexually violated women whose level of education was low had a high risk of developing PTSD (Breiding et al., 2011). Further, the results of this current study concurred with the findings of a similar study in South Africa which reported that a low level of education was a risk factor for developing PTSD among sexually violated women (Mgoqi-Mbalo et al., 2017). From a regional perspective, a study in a country in Sub-Saharan Africa from peer-reviewed journals with 450 participants revealed that PTSD was common in armed conflict regions where women were exposed to sexual violence. A study in Kenya sought to establish the relationship between SV and PTSD in schoolchildren with results indicating that the children experienced PTSD a year after the sexual abuse (Mutavi, et al., 2017). People, who have had PTSD at some point in their lifetime as a result of being sexually violated, are more likely to develop depression (APA, 2013).

Shackel and Fiske's (2014) study showed that sexually violated women did not report sexual abuse citing complex processes, risking shame, fear of reprisals by perpetrators and humiliation. Most women therefore kept this a secret from their families and community and few made an official report. As a result, the women suffered consequences of sexual violence including depression and PTSD. This study concluded that the most common psychological effect of sexual violence is depression. Further, a study by Kawuki et al. (2016) showed that no formal education or low level of education is one of the leading risk factors associated with sexual violence which can lead to the development of PTSD and depression among sexually violated

women. Accordingly, it is the view of this researcher that to protect, lessen and prevent sexual violence, women need to aim higher in academic achievement as one way of scaling up efforts to address the unequal gender power relations.

## **Methodology**

This study was conducted in 2020 at the Mama Lucy Kibaki Hospital (MLKH) and the Medical Missionaries of Mary (MMM) both located at Embakasi Constituency in Nairobi County, Kenya. The two study sites were purposively selected from among others in the study area. Nairobi County has several densely populated informal settlements such as Kibera, Mathare Valley, Mukuru Kwa Njenga, Korogocho, Huruma, and Baba Dogo where there is a likelihood of high sexual violence crimes (Ferreira et al., 2015). The two study sites were purposively selected because they both have mental health clinics/support centers for sexual violence survivors who were the targeted population in this study. The criteria used for selection of the two public hospitals and their suitability was based on, first, their being public and their location in the densely populated informal settlements and secondly, their being central catchment areas of the respondents.

In this study, the target population were adult female survivors of sexual violence, aged between 18 and 49 years, married or not, were living or had lived with a partner, had been sexually violated and are residing in Nairobi County. This study only selected the sexual violence survivors who were seeking treatment at MLKH and the MMM center located in Embakasi Constituency. MLKH hospital had 340 sexual violence survivors while the MMM Center had 16 survivors who sought treatment at the facilities between June and December 2018. The six month period was based on a time frame snapshot and was used to concretize the study population. The figure of 356 was adopted as the population of this study based on the cumulative number of SV survivors who sought treatment at both MLKH and the MMM center. The Meridith (2005) formula for sample size calculation was used to determine the sample size as follows:

$$\text{Sample size} = \frac{(Z_{\alpha/2})^2 \times P(1-P)}{E^2}$$

$$E^2$$

where  $(Z_{\alpha/2}) = Z$  value (2.58=99%; 1.96= 95%; 1.645=90% confidence level). In this case 1.96 used; P = percentage proportion of choice (10% used for sample size needed); and E = margin of error (5%). Based on the stated assumptions the sample size will therefore be:

$$\begin{aligned}\text{Sample size} &= \frac{(1.96)^2 \times 0.1 (1 - 0.1)}{0.05^2} \\ &= \frac{3.8416 \times 0.09}{0.0025}\end{aligned}$$

Sample size = 138.2976 = 139 respondents

The study sample size of 139 was allowed for generalizability and accommodated the possible mortality of respondents during the research period without the sample dropping too low to be generalizable. The method used by this study was informed by similar studies which have used it for gathering information because it is more accurate, eliminates bias, and provides data on all respondents accurately (Chepkwony, 2016). The study considered this method appropriate because it reduces sampling errors.

The researcher used the purposive sampling technique to recruit female survivors of sexual violence because it is a non-probability sampling technique where the choice of the respondent is based on the met criteria of interest of the researcher. The selection of the study sample was conducted in three stages. In stage one a purposive sampling technique was used to select the study sites and in stage two purposive sampling was done to identify the targeted sexual violence survivors who were seeking treatment at the selected public hospitals through screening against the set inclusion and exclusion criteria. The inclusion criteria were adult females who were experiencing or had experienced sexual violence and consented voluntarily to participate in the study. The female adults who were not willing to participate voluntarily were excluded. Those respondents with extremely severe symptoms of distress from posttraumatic stress disorder (PTSD) and depression were excluded and referred for further assessment and intervention. Respondents who were below 18 years and those above 49 years were excluded because they were not within the study criteria of age limit. At stage three, sampling involved the selection of psychotherapists at the two hospitals assisted by the site managers. They were considered valuable in providing in-depth information on sexual violence survivors whilst permitting



continuous clarification of information and ideas. Due to their first-hand experience in the field, the psychotherapists provided an opportunity for the researcher to explore unanticipated ideas/areas. This approach was considered potentially enriching and useful because it ensured the credibility of data and was used to corroborate the primary data collected from the respondents.

Data on posttraumatic stress disorder (PTSD) was collected using the Patient Check List-5 (PCL-5). The PCL-5 has 74.5% sensitivity and 70.6% specificity (Weathers et. al., 2013). Data on depression was collected using Patient Health Questionnaire-9 (PHQ-9). The PHQ-9 has 61% sensitivity and 94% specificity ((Kroenke, et al, 2001). Both PCL-5 and PHQ-9 instruments are self-administered for common mental disorders and are primary care validated instruments used to monitor PTSD and depression severity and response to treatment. Descriptive and inferential statistics were used to analyze quantitative data. The data was edited, classified, coded, and analyzed using descriptive statistics by tallying and forming frequency distributions and percentages.

## Results

In total, 203 questionnaires were distributed to the survivors of sexual violence who were seeking treatment at the two study sites. Of the returned questionnaires, 64 were rejected for various reasons. 23 were rejected due to their being above the cut-off age of 49 years; 16 were rejected due to their being below the cut-off age of 18 years; 6 were referred for further intervention/treatment due to severity of symptoms; 12 were rejected due to questionnaire incompleteness while 7 were rejected due to their being not sexually abused. The remaining 139 questionnaires met the inclusion criteria, were accepted, coded, and the raw data was entered and considered for analysis. Return rate was 68% as shown below:

Location of Study	Questionnaires distributed	Questionnaires Returned	% Return rate
MLKH	25	17	$17/25 = 68$
MMM	178	122	$122/178 = 68.5$
<b>Total</b>	<b>203</b>	<b>139</b>	<b><math>139/203 = 68</math></b>

Social demographic characteristics of the respondents indicated that all the 139 respondents had been in a relationship for at least 5 years. Table 1 presents the distribution of respondents at the

two study sites. Descriptive analysis of the background characteristics of the respondents including age, marital status, level of education, religion, occupation, and employment status was considered. The age was clustered into 7-year intervals and the results were analyzed based on risk factors of PTSD and depression. Percentages and frequencies were used to describe the demographic data and the symptoms of PTSD and depression.

*Table 1: Frequency of respondents in the study sites.*

<i>Study site</i>	<i>Frequency</i>	<i>Percentage</i>
<i>Mama Lucy Kibaki Hospital (MLKH)</i>	<i>17</i>	<i>12.2</i>
<i>Medical Missionaries of Mary (MMM)</i>	<i>122</i>	<i>87.8</i>
<i>Total</i>	<i>139</i>	<i>100</i>

The disparity in frequency distribution was unavoidably justified. The researcher reached out to the respondents at MMM from where they were being referred to Mama Lucy Kibaki Hospital, hence the disparity in frequency distribution shown in Table 1 above. This implied that the distribution of survivors was not proportionate to a particular location. This distribution also implied that the prevalence of sexual violence was more prone in some locations than in others.

Analysis of the socio-demographic data revealed that the most reported sexual abuse (43.2%) was in women age range 26 to 33 years. Further, unequal gender dynamics in relationships including decision-making, social norms and low negotiation skills, all expose this age group to sexual violence (researcher opinion). Binary regression estimates of risk factors for PTSD (AOR: 1.1; 95% CI: 0.91-12.4) showed that sexually violated women were more at risk of developing PTSD than women who had not. The study showed that women with low level of education (40.3%) were more at risk of SV compared to those with a high level of education. A high level of education is considered a protective factor against SV because such women are economically independent, can challenge social norms that do not favor women. They also can challenge societal norms that put women at a disadvantage. This was found to be true with this study showing that women with higher education were at less risk of being sexually violated (AOR: 2.4; 95% CI: 0.1-43.9) compared to their counterparts with no formal education (AOR: 8.1; 95% CI: 0.2-352.0) whose risk of being sexually violated was higher.

*Risk factors of PTSD:*

*Table 2: Binary Regression Estimates of Risk Factors of PTSD*

		<i>Variables in the Equation</i>					<i>95% C.I. for EXP(B)</i>		
		<i>B</i>	<i>S.E.</i>	<i>Wald</i>	<i>Df</i>	<i>Sig.</i>	<i>Exp(B)</i>	<i>Lower</i>	<i>Upper</i>
<i>Step 1<sup>a</sup></i>	<i>Age</i>			.986	3	.805			
	<i>18-25 (1)</i>	-.146	1.448	.010	1	.919	.864	.051	14.758
	<i>26-33 (2)</i>	.061	1.252	.002	1	.001	1.063	.091	12.369
	<i>34-41 (3)</i>	-.779	1.302	.358	1	.550	.459	.036	5.893
	<i>Marital</i>			2.417	6	.878			
	<i>Married (1)</i>	-19.200	15927.334	.000	1	.999	.000	.000	.
	<i>Single (2)</i>	-19.445	15927.334	.000	1	.999	.000	.000	.
	<i>Cohabiting (3)</i>	-18.220	15927.334	.000	1	.999	.000	.000	.
	<i>Separated (4)</i>	-17.727	15927.334	.000	1	.999	.000	.000	.
	<i>Divorced (5)</i>	-18.545	15927.334	.000	1	.999	.000	.000	.
	<i>Widowed (6)</i>	-18.838	15927.334	.000	1	.999	.000	.000	.
	<i>Education</i>			.902	4	.924			
	<i>No formal (1)</i>	20.596	18701.362	.000	1	.999	880469046.538	.000	.
	<i>Primary (2)</i>	1.192	1.910	.390	1	.532	3.295	.078	139.099
	<i>Secondary (3)</i>	1.012	1.674	.365	1	.546	2.751	.103	73.198
	<i>Middle college (4)</i>	.530	1.665	.101	1	.750	1.699	.065	44.371
	<i>Religion</i>			1.845	4	.764			
	<i>Catholics (1)</i>	1.955	1.666	1.376	1	.241	7.061	.269	185.066
	<i>Protestant (2)</i>	2.334	1.729	1.822	1	.017	10.323	.348	306.086
	<i>Muslim (3)</i>	22.674	21125.567	.000	1	.999	7034646318.330	.000	.
	<i>Hindu (4)</i>	18.692	40192.970	.000	1	1.000	131131418.632	.000	.
	<i>Occupation</i>			3.486	3	.323			
	<i>Formal emp (1)</i>	-20.703	28420.676	.000	1	.999	.000	.000	.
	<i>Informal emp (2)</i>	-19.415	28420.676	.000	1	.999	.000	.000	.
	<i>Not employ. (3)</i>	-18.953	28420.676	.000	1	.999	.000	.000	.
	<i>Trust talk (1)</i>	-.490	.743	.436	1	.509	.613	.143	2.626
	<i>Constant</i>	37.938	32579.320	.000	1	.999	29946914661165744.000		

a. Variable(s) entered on step 1: Age, Marital, Edu, Rel, Occp, Trust\_talk.

Table 2 presents the binary logistic regression estimating the risk factors of PTSD among survivors of sexual violence. The result of the logistic regression showed that the SV survivors aged 26 to 33 years (AOR: 1.1; 95% CI: 0.91-12.4) were more at risk of developing PTSD when exposed to SV than other age ranges in that categorical order. This age bracket vulnerability to sexual violence can be attributed to their desire to be independent of their intimate partner, according to this author. They are emotionally intolerant to criticism compared to more mature women who are more tolerant hence; they maintain a stable intimate relationship. The results indicated that the SV survivors whose level of education was Primary (AOR: 3.3; 95% CI: 0.08-139.1) and those of Secondary level of education (AOR: 2.7; 95% CI: 0.10-73.2) were at risk of developing PTSD as a result of being sexually violated. The results also showed that respondents with Middle-level college education (AOR: 1.7; 95% CI: 0.06-44.4) had less odds of developing PTSD compared to the rest of the levels of education in that category. However, respondents whose level of education was Primary were 3 times more at risk of developing PTSD compared to other education categories that were significantly associated with PTSD. The low level of education, Primary, meant that this category of respondents were less likely to find gainful employment to enable them make economic decisions independent of their intimate partner. The economic dependency on their intimate partner makes them vulnerable to sexual violence hence exposing them to the risk of developing PTSD.

Further, among religious categories, Protestant women adherents (AOR: 10.3; 95% CI: 0.3-306.1) were the most at risk of developing PTSD. Vulnerability to SV of both the Protestants and Catholics, can be attributed to their religious doctrines which views the institution of marriage as sacred and holy thereby hiding subtle forms of violence (Sande, 2019), at the expense of personal well-being. Protestants, for instance, hold the institution of marriage in high regard and therefore strive to preserve it at all costs. Thus all subtle forms of violence thrive in the name of adhering to a religious doctrine. As concerns Catholics (AOR: 7.1; 95%CI: 0.3-185.1) the Church teaches that holy matrimony, is a partnership of life ordered for the good of a spouse. The woman therefore considers it her responsibility to observe and preserve the institution of marriage irrespective of the hardships experienced. The women internalize and are ashamed to discuss the violence and therefore are exposed to PTSD (views on Protestants and Catholics are the author's).

*Risk factors of Depression*

*Table 3: Binary Logistic Regression Estimates of Risk Factors of Depression*

		<i>Variables in the Equation</i>					<i>95% C.I. for EXP(B)</i>		
		<i>B</i>	<i>S.E.</i>	<i>Wald</i>	<i>Df</i>	<i>Sig.</i>	<i>Exp(B)</i>	<i>Lower</i>	<i>Upper</i>
<i>Step 1<sup>a</sup></i>	<i>Age</i>			9.669	3	.022			
	<i>18-25 (1)</i>	-1.205	1.055	1.303	1	.254	.300	.038	2.371
	<i>26-33 (2)</i>	.404	.961	.177	1	.004	1.498	.228	9.845
	<i>34-41 (3)</i>	-1.420	1.027	1.911	1	.167	.242	.032	1.810
	<i>Marital</i>			9.033	6	.172			
	<i>Married (1)</i>	-.948	1.061	.800	1	.371	.387	.048	3.097
	<i>Single (2)</i>	.030	1.049	.001	1	.977	1.031	.132	8.053
	<i>Cohabiting (3)</i>	.172	1.088	.025	1	.874	1.188	.141	10.015
	<i>Separated (4)</i>	2.829	1.701	2.765	1	.006	16.929	.603	475.139
	<i>Divorced (5)</i>	.205	1.233	.028	1	.868	1.228	.110	13.753
	<i>Widowed (6)</i>	1.199	1.505	.635	1	.426	3.318	.174	63.430
	<i>Education</i>			1.292	4	.863			
	<i>No formal (1)</i>	2.091	1.925	1.180	1	.027	8.094	.186	352.007
	<i>Primary (2)</i>	.997	1.549	.414	1	.520	2.710	.130	56.424
	<i>Secondary (3)</i>	1.055	1.459	.523	1	.469	2.873	.165	50.152
	<i>College (4)</i>	.884	1.478	.358	1	.550	2.421	.134	43.882
	<i>Religion</i>			4.822	4	.306			
	<i>Catholics (1)</i>	1.827	1.599	1.306	1	.253	6.217	.271	142.685
	<i>Protestant (2)</i>	2.708	1.639	2.730	1	.098	14.998	.604	372.436
	<i>Muslim (3)</i>	3.230	2.199	2.156	1	.012	25.270	.339	1882.601
	<i>Hindu (4)</i>	18.149	40192.970	.000	1	1.000	76202705.459	.000	.
	<i>Occupation</i>			8.941	3	.030			
	<i>Formal emp (1)</i>	-1.031	1.643	.394	1	.530	.357	.014	8.926
	<i>Informal emp(2)</i>	.966	1.560	.383	1	.536	2.626	.123	55.859
	<i>Not employ. (3)</i>	1.118	1.541	.526	1	.048	3.060	.149	62.774
	<i>Trust talk (1)</i>	-.295	.542	.295	1	.587	.745	.257	2.156
	<i>Constant</i>	-2.294	3.021	.577	1	.448	.101		

*a. Variable(s) entered on step 1: Age, Marital, Edu, Rel, Occp, Trust\_talk.*

Table 3 presents the binary logistic regression estimates of risk factors associated with depression among women exposed to sexual violence. The binary logistic regression estimate results indicated that the SV survivors aged 26 to 33 were more at risk of developing depression (AOR: 1.5; 95% CI: 0.2-9.8) than the rest of the age ranges in that category. As regards the marital status of the SV survivors, the survivors who were separated (AOR: 16.9; 95% CI: 0.6 - 475.1), the widowed SV survivors (AOR: 3.3; 95% CI: 0.2-63.4) those SV survivors who were cohabiting (AOR: 1.2; 95% CI: 0.1-10.0), as well as the SV survivors who were single (AOR: 1.0; 95% CI: 0.1-8.0) including the divorced SV survivors (AOR: 1.2; 95% CI: 0.1-13.7) were found to be significantly associated with depression as a result of exposure to sexual violence. Vulnerability of most of age 26 to 33 to sexual violence could be attributed to their being unemployed and in a quest for survival; they fall for sexual advances which predispose them to sexual abuse. As regards to the separated and the widowed, they may have been economically dependent on their ex/deceased partner. Used to dependence, they find solace in an abuser so long as the abuser can provide. The cohabiting respondent is doubtful and feels insecure to enter into a long-term commitment hence willingly gives in to sexual abuse in order to economically survive, irrespective of the abuse. The survivors who are single, especially if they have children, will brave abuse in order that their children are provided for. Finally a divorced woman will have issues of trust. She will look for comfort from intimacy with reservation. Any sign of a trigger will cause her to look for a next partner hence more predisposed to sexual abuse.

Looking at the above scenario, all the SV survivors except those who were single had had an intimate partner in their lifetime. The Married status was considered a protective factor from abuse (AOR: 0.4; 95% CI: 0.4-3.0). This can be explained, in the researcher's view, that being in a marriage is more stable hence considered a safer haven from abuse than the rest of the statuses in the marital category. Marriage involves families. Unlike the rest in the Married category, In case of conflict, the married woman has family as interveners and in a majority of cases, marriage is held intact. As regards the level of education, results revealed that SV survivors who had no formal education (AOR: 8.1; 95% CI: 0.2-352.0) were at a higher risk of sexual violence compared to the rest of the educational ranges in that category. The survivors with Primary (AOR: 2.7; 95% CI: 0.1-56.4) level of education were still at risk of SV. Primary level of education cannot afford the survivor gainful employments to enable them make economic

decisions. They still will have to brave sexual abuse to be provided for by an abusive intimate partner. As regards the SV survivors with a Secondary level of education (AOR: 2.9; 95% CI: 0.2-50.1) these were less vulnerable to sexual abuse because they can earn a living through informal employment and can make economic decisions. Consequently, College level SV survivors (AOR: 2.4; 95% CI: 0.1-43.9) were less likely to be at risk of developing depression as a result of being sexually violated. This category can negotiate gainful employment hence economically independent and therefore are not susceptible to sexual abuse. However, the test indicated that SV survivors who had no formal education were 8 times more at risk of depression as a result of being sexually violated compared to the rest of the ranges in that category. This could be attributed to their inability to make a move towards freeing themselves from an abusing but providing perpetrator.

Table 3 also revealed that Muslim survivors of SV were 25 times more likely to be at risk of developing depression (AOR: 25.3; 95% CI: 0.3-1882.6) than other SV survivors whose religious affiliation was Protestant (AOR: 15.0; 95% CI: 0.6 -372.4) as well as those whose religion was Catholic (AOR: 6.2; 95% CI: 0.3-142.9). This can be attributed to varying doctrinal teachings of the three religious affiliations (author's opinion). In addition, SV survivors who were not employed (AOR: 3.1; 95% CI: 0.1-62.7) had a high risk of developing depression compared to the SV survivors who were informally employed (AOR: 2.6; 95% CI: 0.1-55.8) because their economic situation can lead to dependence hence are at high risk of developing depression as a result of exposure to sexual violence. The results also revealed that having formal employment was a protective factor of depression (AOR: 3; 95% CI: 0.01-8.9) which implies that being formally employed improves the economic position of a survivor and reduced dependency hence much less risk of SV abuse.

## **Discussion**

The traumatic experiences the survivors of sexual violence endure have a negative implication on their psychological and daily general functioning. This research examined the risk factors of posttraumatic stress disorder (PTSD) and depression among the female respondents of survivors of sexual violence at Mama Lucy Kibaki Hospital and Medical Missionaries of Mary in Nairobi County, Kenya. Findings showed that respondents age 18 to 25 years were a significant risk

factor of PTSD with a negative coefficient of the  $\beta$  estimate. This indicated that as the age value of the respondent increased, the severity of PTSD decreased.

Furthermore, it was found that the SV survivors whose marital status was identified as married were at less coefficient estimate. Wyatt et al. (2017) conducted a study in South Africa which showed that unmarried SV survivors were at a higher risk of developing PTSD and depression. This finding demonstrated how socioeconomic status and relationship dynamics from region to region, increase risks of PTSD and depression. This could be concluded, in the author's opinion, that other confounding factors could play a part in a relationship whether or not one risks developing PTSD. On the other hand, the widows who were sexually violated were at risk of presenting with depressive symptoms compared to the other categories of marital status. This finding was consistent with Dienemann et al. (2014) findings which also found that widows who were sexually abused were at risk of PTSD. The report also found that women who had no formal education were at a higher risk of PTSD than those with other educational trajectory levels in the educational category. This finding was in concurrence with a study undertaken in Swaziland among female survivors of sexual violence which found that sexually violated women with little or no formal education were at higher risk of developing PTSD symptoms than those with higher education levels (Breiding et al., 2011). The current study also concurs with the findings of Mgoqi-Mbalo et al. (2017) who found that the level of education was a determinant factor of the severity of PTSD and depression among women survivors of sexual violence.

The role of religious affiliations in matters of sexual violence and its resultant effects are rarely given in-depth discussions in many fora. In this study, it was found that the respondents whose religious affiliation was Protestant were more at risk of PTSD as opposed to other religious affiliations. However, there was insufficient data to determine whether religious affiliations put sexually abused women at risk of developing PTSD and depression. Nevertheless, the results tentatively showed that, inter alia, lack of religious coping, stigmatization, and condemnation from the pulpit and church members, contributed negatively to the mental health of the SV survivors, in accord with the findings of Reinert et al. (2016). Sexually abused women from other denominations who lacked religious coping and intrinsic religiosity, coupled with stigmatization and condemnation from the pastoral and church members, had worse mental health conditions.



The findings from the present study were consistent with those of Mgoqi-Mbalo et al. (2017) who found that employment status was a significant contributor to the development of the symptoms of PTSD and depression after experiencing sexual violence.

## **Conclusion**

The findings of this study demonstrated that the majority of the respondents exhibited symptoms of PTSD and depression following their exposure to sexual violence. The findings of these risk factors to PTSD and depression are important to all stakeholders for prevention purposes and the benefit of women in general. Identification of the risks helps to better plan preventive measures in areas of sexual violence by making it possible to better target higher-risk groups, for instance, women. Identification is important to stakeholders to be proactive rather than reactive. This study emphasizes the exploration of the topic of sexual violence by including men to help eradicate sexual violence against women. Secondly, qualitative research is conducted to unravel the epidemiology of sexual violence to find a long-lasting solution to shield women against sexual violence. Finally, literature available is skewed more to women being sexually abused. Research to confirm or disconfirm this view is desirable.

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