



Prevalence of Depressive Disorder and the Associated Social and Demographic Characteristics in a Post-Conflict Setting: Maai Mahiu IDP in Nakuru, Kenya.

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ABSTRACT

Trauma can have long-term effects on the survivors' mental health. In addition, levels of mental disorders reported among Internally Displaced Persons (IDPs) and refugees globally vary considerably. The disputed 2007 presidential election in Kenya eventually resulted in violence. The survivors were left with heavy psychosocial and economic burdens. Therefore, the aim of this study was to establish the prevalence of depression at baseline among IDPs resident in Maai Mahiu camp after the 2007/8 Post Election Violence (PEV) in Kenya. This study was pretest-posttest quasi-experimental and used purposive sampling to select a sample of 139 respondents out of the target population of 196 households. The respondents gave informed consent and filled out socio-demographic and Beck's Depression Inventory (BDI-11) questionnaires. Analysis was conducted using SPSS, whereby univariate, bivariate and multivariate statistical tests were done. The findings indicated a high prevalence of Depressive Disorder (DD) at 63.3% among the respondents. These findings are significant for clinical practice and could be used to update strategies and policies governing IDP's health. Therefore, the study recommended that psychosocial interventions should be provided to the PEV survivors and other vulnerable populations in Kenya to avert their suffering.

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Introduction

The traumatic experiences of survivors of human conflict have been known to cause elevated levels of mental health disorders such as depression and Post-traumatic stress disorder (PTSD) (Ayazi et al., 2014; Gerritsen et al., 2006; Hollifield et al., 2002; Nakimuli-Mpungu et al., 2013; Onyut, Neuner, Ertl, Schauer, Odenwald & Elbert, 2009). In Kenya, there occurred a human conflict in 2007/8 which left the survivors with scars of shattered assumptions of safety and personal vulnerability (King'ori, Odera, & Oboka, 2014). Families were separated at the height of violence or were left with no source of livelihoods. The internal displacement exposed the survivors to hunger, vagaries of weather and health risks (Onwong'a, 2013). In addition, despite calls to resettle them, there has been poor coordination and implementation of resettling them by the government.

The PEV resulted in the killing of more than one thousand and one hundred people, internal-displacement of at least three hundred and fifty thousand (some estimates are up to six hundred thousand) people, sexual offences and gender-based violence against women on a massive scale (Harneit-Sievers & Peters, 2008). Even though there are several studies done on mental health of IDPs globally, there is limited literature available of IDPs in Kenya. Thus, this study aimed at examining the prevalence of DD among the 2007/8 conflict-affected IDPs in Kenya.

Methods

This was a pretest-posttest quasi experimental study. The study population was IDPs living in Maai Mahiu camp, Nakuru County about 80km from Nairobi, Kenya.

The sample included 45 adult males and 94 females. A total of 139 respondents were purposively recruited into the study.

The study employed different research tools in the data collection process. A socio-demographic questionnaire was developed and assessed respondent's gender, age, marital status, education, and the traumatic events experienced during the PEV. Beck's Depression Inventory (BDI-11) assessed the prevalence of depression among the IDPs. Ethical issues of informed consent, confidentiality; ensuring quality control and avoiding bias were observed. They all gave informed consent and had a right to refuse, stop and withdraw from participation at any time during the data collection without loss of any entitlement. Permission to carry out the intervention study was sought from the Nairobi Hospital Ethics Board (Ref number: TNH/ADMIN/ERC/16/07/15), as well as from the National Commission for Science, Technology and Innovation (NACOSTI) (Ref number: NACOSTI/P/15/4979/6572).

Statistical analysis was performed by using Statistical Package for Social Sciences (SPSS) version 21. Data entry, cleaning and editing for inconsistencies was done before the analysis. Data was examined using descriptive statistics and logistic regression, odds ratios and 95 % confidence intervals. Frequencies of demographic variables and mental disorders were computed. Therefore, frequencies, proportions, and tables were used to summarize the data.

Results**1.1 Social demographic characteristics**

Table 1.1 summarizes the demographic characteristics of our study sample. The demographic characteristics that were considered in this study were gender, age, level of education, and marital status. The socio-demographic data showed indicated that 67.6% (94) were females while 32.4% (45) were males. This shows that a higher percentage of the respondents were females. In this study, 57.5% (80) respondents were married while 38.1% (53) were single, 2.2% (3) were widowed and 2.2% (3) separated. This means that there were more married respondents in this study. In addition, the results indicate that the majority of the study respondents 76.3 % (106) had attained formal education and only 23.7% (33) were without formal education.

Table 1.1. Socio-demographic characteristics of IDPs (n=139).

| | |
|--------------------------|----------------|
| Gender | |
| Male | 32.4% (45/139) |
| Female | 67.6% (94/139) |
| Level of Education | |
| Post-primary education | 2.2% (3/139) |
| Primary education | 59.7% (83/139) |
| Without formal education | 23.7% (33/139) |
| Marital status | |
| Single | 38.1% (53/139) |
| Married | 57.5% (80/139) |
| Separated | 2.2% (3/139) |
| Widowed | 2.2% (3/139) |

Table 1.2. Depressive Disorder.

| | Prevalence | 95% CI |
|------------------------------|----------------|------------------|
| Depressive Disorder | 63.3% (88/139) | 55.29% to 71.31% |
| Gender | | |
| Male | 57.8% (26/45) | 43.37% to 72.23% |
| Female | 66.0% (62/94) | 56.42% to 75.58% |
| Age | | |
| < 46 years | 53.8% (28/52) | 40.25% to 67.35% |
| > 46 years | 69.0% (60/87) | 59.28% to 78.72% |
| Level of Education | | |
| Post-primary education | 56.5% (13/23) | 36.24% to 76.76% |
| Primary education | 60.2% (50/83) | 49.67% to 70.73% |
| Without formal education | 75.8% (25/33) | 61.19% to 90.41% |
| Marital status | | |
| Single | 67.9% (36/53) | 55.33% to 80.47% |
| Married | 60.0% (48/80) | 49.26% to 70.74% |
| Separated/widowed | 66.7% (4/6) | n/a |
| Duration of stay in the camp | | |
| 6 years and below | 33.0% (3/10) | 3.86% to 62.14% |
| Above 6 years | 65.9% (85/129) | 57.72% to 74.08% |

Table 1.3. Bivariate Analysis of DD and the Associated Socio-demographic Characteristics of the IDPs in Maai Mahiu IDP Camp.

| | No Depressive Disorder | Depressive Disorder | χ^2 statistics | p-value |
|------------------------------|------------------------|---------------------|---------------------|---------|
| Gender | | | | |
| Male | 42.2% (19/45) | 57.8% (26/45) | 0.877 | 0.349 |
| Female | 34.0% (32/94) | 66.0% (62/94) | | |
| Age | | | | |
| < 46 years | 46.2% (24/52) | 53.8% (28/52) | 3.203 | 0.074 |
| > 46 years | 31.0% (27/87) | 69.0% (60/87) | | |
| Level of Education | | | | |
| Without formal education | 24.2% (8/33) | 75.8% (25/33) | 2.994 | 0.224 |
| Primary education | 39.8% (33/83) | 60.2% (50/83) | | |
| Post-primary education | 43.5% (10/23) | 56.5% (13/23) | | |
| Marital status | | | | |
| Single | 32.1% (17/53) | 67.9% (36/53) | 0.892 | 0.640 |
| Married | 40.0% (32/80) | 60.0% (48/80) | | |
| Separated/widowed | 33.3% (2/6) | 66.7% (4/6) | | |
| Duration of stay in the camp | | | | |
| 6 years and below | 70.0% (7/10) | 30.0% (3/10) | 5.147 | 0.023 |
| Above 6 years | 34.1% (44/129) | 65.9% (85/129) | | |

1.2 The Prevalence of the DD among Survivors in Maai Mahiu IDP Camp during the Study Period

In this study, the prevalence of the Depressive Disorder (DD) was determined. Table 1.2 presents the prevalence of the DD among the study respondents. For this sample, the levels were 63.3% (95% CI: 55.29%, 71.31%) and these were comparable across males (57.8%, 95% CI: 43.37%, 72.23%) and females (66.0%, 95% CI: 56.42%, 75.58%). This indicates that traumatic events of human conflicts predispose survivors to develop DD.

Table 1.3 presents the analysis of DD and the associated socio-demographic characteristics of the respondents. The results show duration of stay in the camp had a statistical significance with the development of DD. Those who stayed longer than 6 years had a higher likelihood of having DD (65.9%) as compared to those who stayed there for less than 6 years (30.0%) ($p=0.023$). Gender, age, level of education, marital status had no statistical association with development of the DD among the respondents in Maai Mahiu camp.

Table 1.4 presents Multivariate analysis of DD and the associated socio-demographic characteristics of the respondents. In this analysis, logistic regression was used to model the relationship and strength among the variables. The findings indicate that the duration of stay in the camp revealed association with DD among the survivors during the study period. Respondents who stayed over 6 years in the camp were more likely to have DD as compared to those who stayed for less than 6 years in the camp. This demonstrates that those who stayed longer in the camp were more likely to have DD ($p=0.035$). Gender, age, level of education, marital status had no association with development of the DD among the survivors in Maai Mahiu camp.

Table 1.4. Multivariate Analysis of DD and the Associated Socio-demographic Characteristics of the IDPs in Maai Mahiu IDP Camp.

| | <i>OR</i> | <i>95% CI; p-value</i> |
|-------------------------------------|-----------|--------------------------|
| <i>Gender</i> | | |
| <i>Male</i> | 1 | |
| <i>Female</i> | 0.706 | 0.341-1.465; $p=0.350$ |
| <i>Age</i> | | |
| <i>Less than 46 years</i> | 1 | |
| <i>Above 46 years</i> | 0.525 | 0.258 – 1.067; $p=0.075$ |
| <i>Level of Education</i> | | |
| <i>Without formal education</i> | 1 | |
| <i>Primary education</i> | 2.404 | 0.764 – 7.562; $p=0.134$ |
| <i>Post-primary education</i> | 1.166 | 0.458 – 2.967; $p=0.748$ |
| <i>Marital status</i> | | |
| <i>Single</i> | 1 | |
| <i>Married</i> | 1.059 | 0.176 – 6.359; $p=0.950$ |
| <i>Separated/widowed</i> | 0.750 | 0.130 -4.339; $p=0.748$ |
| <i>Duration of stay in the camp</i> | | |
| <i>6 years and below</i> | 1 | |
| <i>Above 6 years</i> | 0.222 | 0.055 – 0.900; $p=0.035$ |

Discussion

The above findings clearly revealed that DD was highly prevalent among the IDPs in this study at 63.3%. The studies among Guatemalan refugees in Mexico and Karenina refugees living in the Thai-Burma border and Southern Sudan showed the lifetime prevalence of depression at 38.8%, 41.8% and 49.9% respectively (Cardozo, 2003; Roberts, Damundu, Lomoro & Sondorp, 2009; Sabin, Cardozo, Nackerud, Kaiser & Varese, 2003). This rate is lower compared to the findings of our study. However, studies conducted among refugees in Uganda indicated a higher

prevalence of depression at 67.4% (Roberts, Ocaka, Browne, Oyok & Sondorp, 2008). These rates are significantly higher when compared to the rates of 9.8% and 20% reported among Ethiopian and Vietnamese refugees in Toronto and United States respectively (Fenta, Hyman & Noh, 2004). These differences might be as a result of more psycho social support, post migration growth, feelings of insecurity, difference in study instruments, more pre and post migration stressful life events and environmental factors such as economic pressure among the different populations in the camps.

The prevalence of DD among IDPs resident at Maai Mahiu found in our study is higher than the rates of depression (22.8%) among Kenyan refugees resident in Mulanda transit center as reported by Magoba, Nabwire, Kuhumura, and Mawoko (2010). Similarly, this result is higher than the rate for major depressive disorder (31%, 390 of 1253) found by Kim, Torbay and Lawry (2007) in different set of IDPs displaced by a different conflict in Nyala Province, South Darfur, Sudan. Also, it is higher compared with rates for symptoms of depression in Gulu and Adjumani districts of 31% and 26% recorded in previous studies (Steel, Chey, Silove, Marnane, Bryant, & van Ommeren, 2009). However, it is lower than the rates of depression (70%) recorded in a previous study of elderly IDPs in Georgia (Makhashvili, Chikovani, McKee, Bisson, Patel, & Roberts, 2014).

In this study, the findings affirm high levels of depression among the IDPs in Maai Mahiu. The rates of depression within this population are consistent with findings from other post-conflict populations (Kinyanda & Musisi, 2002; Kinyanda et al., 2002; Onyut et al., 2009). The high rates of depression observed in this study point to a need for early mental health screening and initiation of early interventions to prevent the occurrence of full blown mental disorders after occurrences of violence.

Previous studies have suggested that females have higher rates of depression among conflict-affected IDPs (Andrew, Ray, Tracy & Francesca, 2012; Bastin, Rossel, Melgar & Jones, 2012; Marina, Tanja & Metin, 2011; Shafique & Tareen, 2015). Similarly, Feyera, Mihretie, Bedaso, Gedle, and Kumera (2015) results indicated that over one third (38.3%) of respondents met the symptoms criteria for depression. Being female, divorced, deprived of shelter and witnessing the murder of family members were most determinants of depression among Somali refugees in Melkadida camp. In addition, Somali women were more likely to be exposed to adverse mental health consequences of migration and settlement stressors compared with men (Fenta, Hyman & Noh, 2004). The study recommended the strengthening of the clinical set up and establishing good referral linkage with mental health institutions (Feyera, Mihretie, Bedaso, Gedle, & Kumera, 2015). According to Johnson (2014) over thirty percent of respondents met major depressive disorder (MDD) and PTSD symptom criteria; however, symptoms of MDD were higher for females (females, 63.3%; males, 36.7%; $p=.01$). It's worth to note that in the present study, the socio-demographic variables were not protective factors for the development of DD among the study population. Therefore, among the respondents there was no difference in gender DD prevalence. In conclusion, this study found a high prevalence of DD among IDPs resident at Maai Mahiu. The adverse situations and ongoing stressors faced by these survivors in the camp could

substantially impact their mental health hence, the high prevalence.

Conclusions

The findings of this study indicate elevated rates of DD among the study population. Probably, it could be that the survivors have not been given adequate psychosocial support. And if so, there is need for specific mental health interventions for this post-conflict population. Therefore, it was recommended that the Government agencies and other interested stakeholders should provide adequate psychosocial and support services for PEV survivors or other vulnerable groups in order to help them re-build their lives. Thus, mental health evaluation, the identification and treatment of not only depression but also other psychosocial needs among survivors of traumatic events should be of paramount importance.

Declarations

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Competing interest

The author declares that there are no commercial or other associations that might pose a conflict of interest.

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