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Original Research Article

Mental health and burnout among humanitarian aid workers at Kakuma refugee camp in Turkana County, Kenya: analyzing stressors and coping mechanisms – a mixed methods study

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ABSTRACT

Background: Humanitarian aid workers are vital members of the health workforce in all nations globally; however, they work in extreme conditions with little to no mental health support programs. This research aimed to respond to this gap by assessing the mental health and burnout among humanitarian aid workers in Kakuma Refugee Camp, Kenya.
Methods: The study adopted a cross-sectional design combining both qualitative and quantitative methods. A sample of 129 was derived using Fisher's exact test. Bivariate analysis was conducted to assess the objectives, and multivariate analysis was implemented on statistically significant variables ($p<0.05$), as well as controlling for confounders. Qualitative data was analyzed thematically.
Results: The prevalence of burnout was 65.1%, depression 56%, and anxiety was 64.2%. The presence of extreme climatic conditions and poor security (AOR=2.6; 95% CI; 2.32-5.72; p=0.001) increased the odds of depression, while receiving a fair salary reduced the odds (AOR=0.5; 95% CI; 0.03-0.62; p=0.002). Perceived equal access to mental health support programs (AOR=0.5; 95% CI; 0.17-0.65; p=0.03) and awareness of such programs (AOR=0.4; 95% CI; 0.12-0.63; p=0.01) were associated with reduced odds of depression.
Conclusions: The study revealed that aid workers faced significant mental health challenges arising from a combination of organizational and environmental factors. Extreme climatic conditions, poor security, and long working hours heightened psychological distress, whereas fair pay and awareness of support systems acted as protective factors. The study recommends multi-sectoral collaboration, the implementation of mental health programs within the camp, and further research to address aid workers' needs in high-stress settings such as Kakuma Camp.

Keywords: Anxiety, Burnout, Depression, Mental health

INTRODUCTION

We live in times where there are conflicts in almost every country, and aid workers are called to action to serve the afflicted people, with over 450,000 aid workers active globally.[1] This is a significant number of people who are putting their lives on the line for the betterment of the world. In Africa, we have a substantial number of aid organizations operating on the continent and have been active for many years, clearly highlighting the crucial role played by aid workers.[2]

Africa frequently faces complex humanitarian challenges stemming from a confluence of factors, including persistent conflicts, political instability, and the increasing impact of climate change, which manifests as

droughts and floods.[3] These conditions often lead to widespread displacement, food insecurity, and health crises, creating an urgent and ongoing need for humanitarian intervention across vast regions of the continent. The diverse nature of these emergencies, from protracted crises to sudden onset disasters, necessitates a robust and adaptable humanitarian response.

Consequently, humanitarian aid organizations play a key role across Africa, delivering critical assistance and support to millions of affected individuals. These organizations operate in challenging and often high-risk environments, working to provide essential services such as food, shelter, healthcare, and protection.[4] Their presence highlights the significant dedication of aid workers globally, who commit to improving the lives of the most vulnerable and marginalized populations, making the continent a crucial focus area for international humanitarian efforts.

The East African region has two of the biggest refugee camps in the whole continent, namely the Kakuma Refugee Camp and the Dadaab camp.[5] Kakuma refugee camp is located at the heart of Kakuma town under Turkana West Sub-County in Turkana. The study site is located in Kenya's largest county by size in square kilometres (77,5597.8) and as per the 2019 Kenya national census, the county had 926,976 people. The town boasts a vibrant economy characterized by a mix of industrial, agricultural, educational, and commercial activities, making it a key economic hub in northern Kenya.[6] It is home to Turkana County Referral Hospital, serving over 15,000 inpatients and over 300,000 outpatients- a key hub for health care in the region. Turkana County borders various other counties, such as Baringo, West Pokot, Samburu, and Marsabit counties.

Humanitarian aid workers (HAWs) operate in congested and overcrowded refugee camps that are known for their high risk of emotional turmoil.[7] Kakuma Refugee Camp in Kenya hosts around 288,000 refugees, and its geographic setting hugely affects the mental health of aid workers. The extreme environmental conditions in Turkana County, characterized by high temperatures above 40 degrees Celsius, coupled with physical and social isolation, expose the workers to stress. Geopolitics within the camp also adds a burden to aid workers because they are unable to work efficiently due to the politicization of aid delivery.[8] The isolation resulting from the lack of interactions with family and friends, as well as cultural conflicts with host and refugee communities, predisposes the aid workers to burnout, marked by diminished life satisfaction and a perceived decline in effectiveness.[9] Despite their critical role, the psychological needs of aid workers are often overlooked, and this study aims to examine the prevalence of psychological disorders, stressors encountered by humanitarian personnel, and explore existing support systems.

METHODS

Study design

The study adopted a cross-sectional design. Both qualitative and quantitative data were collected in this study in order to combine the strengths of each method and also for the purposes of triangulation. Licenses for data collection were granted between June 1st 2024, to August 2024.

Study area

Kakuma refugee camp is located at the heart of Kakuma town under Turkana West Sub-County in Turkana. The study site is located in Kenya's largest county by size in square kilometers (77,5597.8), and as per the 2019 Kenya national census, the county had 926,976 people. The town boasts a vibrant economy characterized by a mix of industrial, agricultural, educational, and commercial activities, making it a key economic hub in northern Kenya.[6] It is home to Turkana County Referral Hospital, serving over 15,000 inpatients and over 300,000 outpatients- a key hub for health care in the region. Turkana County borders various other counties, such as Baringo, West Pokot, Samburu, and Marsabit counties.

Study population

The target population was humanitarian aid workers currently employed at the Kakuma Refugee Camp in Kenya.

Sample size

In this study, the sample size was determined using Fisher's formula for sample size calculation; a total of 129 individuals were selected to participate.

Sampling technique

This study used both purposive and systematic random sampling to select the aid workers who then filled out the questionnaires. Additionally, for the in-depth interviews, five aid workers were purposively selected to participate in the study, ensuring gender representation, diverse job roles, and different levels of experience.

Data collection tools and procedures

They employed the use of a structured questionnaire, standardized psychological tools, namely the Maslach burnout inventory to assess burnout, and the patient health questionnaire 9 to capture both depression and anxiety. Reliability and validity tests were conducted to ensure the tools captured the right information. The tests were run on SPSS version 29, yielding a Cronbach alpha value of 0.81. In-depth interviews were conducted with five purposively selected aid workers, and after receiving

consent from participants, the interviews were audio-recorded, and the transcripts were derived afterwards.

Data analysis

Quantitative data were cleaned, modified, and validated using Microsoft Excel to check for missing values, outliers, and internal consistency. The data were then exported to Statistical Package for the Social Sciences (SPSS), version 29, for analysis. Descriptive statistics, including frequencies and percentages, were used to summarize the data. Bivariate analysis- binary logistic regression was done to check for the relationship between independent and dependent variables. Variables with statistically significant p values <0.05 were then subjected to multivariate logistic regression to control for confounders. Data were presented in the form of tables and figures for clarity. For qualitative data, thematic analysis was employed, and findings were organized and presented in narrative form based on emerging themes.

Ethical consideration

Permission to conduct this study was obtained from relevant ethical bodies both in Germany and in Kenya. The University of Freiburg ethics committee granted ethical approval with ERC application number- 25-1127-S2. In Kenya, the Mount Kenya University ethics committee approved with certificate number- 3358, followed by the National Commission for Science, Technology and Innovation license number- NACOSTI/P/25/414882. At the county level, relevant bodies approved the study, first the Office of the President of Kenya under the Ministry of Internal and National Administration- ADM.15/29 VOL.1V / (27) and Turkana County research committee license number- MOH/RC/VOL 3/25.

RESULTS

Response rate

This study administered 129 questionnaires to eligible study respondents. Of the 129 study respondents, only 109 were eligible for data analysis, giving a response rate of 84.5%. The 29 questionnaires that were not eligible for data analysis resulted from double and missing entries.

Sociodemographic characteristics

According to this study, 58.7% of the study subjects were aged 25-31 years (n=64), and only a few (n=3, 2.8%) were aged 39-45. The proportion of males in the study was 59.6% (n=65), while 40.4% were females (n=44). Close to a third (n=35, 32.1%) were single, while a few (n=2,1.8%) were divorced. Regarding level of education, 55% of the study subjects had obtained a diploma (n=60), 39.4% had a bachelor's (n=43), and 5.5% had a master's (n=6). 44% of the study respondents had 4-6 years' experience (n=48), more than a third (n=41, 37.6%) had 1-3 years' experience, while only a few (n=8, 7.4%) had more than 10 years' experience. Most of the study participants (n=89,81.7%) were local humanitarian aid workers, while only a few (n=20,18.3%) were expatriate humanitarian aid workers. Table 1 provides the sociodemographic characteristics of the study respondents.

Table 1: Sociodemographic characteristics of the study respondents.

Variables	Categories	Frequency	Valid %
Age (years)	18-24	6	5.5
	25-31	64	58.7
	32-38	36	33
	39-45	3	2.8
Gender	Male	65	59.6
	Female	44	40.4
Marital status	Single	35	32.1
	Married	72	66.1
	Divorced	2	1.8
Education level	Diploma	60	55
	Bachelors	43	39.4
	Masters	6	5.5
Work experience	1-3	41	37.6
	4-6	48	44
	7-10	12	11
	>10 years	8	7.4
Type of aid worker	Local	89	81.7
	Expatriate	20	18.3

Prevalence of mental health conditions and burnout

As provided in Table 2, More than half (n=71, 65.1%) of the study respondents had burnout, while more than a third (n=38, 34.9%) of the study subjects had no burnout. More than half (n=70, 64.2%) of the study respondents had anxiety, while more than a third (n=39, 35.8%) of the study subjects had no anxiety. In addition, more than half (n=61, 56%) of the study respondents had depression, while slightly close to half (n=48, 44%) had no depression.

Table 2: Prevalence of mental health disorders and burnout.

Variables	Categories	N	Valid %
Burnout	Yes	71	65.1
	No	38	34.9
Anxiety	Yes	70	64.2
	No	39	35.8
Depression	Yes	61	56
	No	48	44

Stressors encountered by aid workers

Table 3 provides stressors encountered by aid workers. 73.4% reported working for long hours (n=80). 65.1%

reported experiencing harsh climatic conditions and poor security (n=71), whereas over half of the participants (n=61, 56%) reported limited social interaction. 54.1% reported experiencing emotional exhaustion (n=59), while close to half (n=50, 45.9%) reported not experiencing emotional exhaustion. More than a third (n=39, 35.8%) of the study respondents felt they were fairly paid for their work.

Table 2: Stressors encountered by aid workers.

Variables	Categories	Frequency	Valid (%)
Working for long hours	Yes	80	73.4
	No	29	26.6
Climate/security	Yes	71	65.1
	No	38	34.9
Limited social interaction	Yes	61	56
	No	48	44
Experience emotional exhaustion	Yes	59	54.1
	No	50	45.9
Fairly paid for the job done	Yes	39	35.8
	No	70	64.2

Influence of stressors on depression

As provided in Table 4, when bivariate analysis was done, working for long hours showed no significant association with depression (COR=0.83; 95% CI; 0.26-1.98; p=0.75). Extreme climatic conditions and poor security revealed a significant association with depression during bivariate analysis (COR=3.4; 95% CI; 2.83-4.54; p=0.003). This was also corroborated by multivariate analysis, where respondents who reported the presence of extreme climatic conditions and poor security were 2.6 times more predisposed to depression than their peers (AOR=2.6; 95% CI; 2.32-5.72; p=0.001).

These results were consistent with the in-depth interviews where one of the key informants said;

"*Here in Kakuma, as you can see, this is an arid region where the temperature reaches up to 40 centigrade; you can feel it yourself. Most of the time, the extreme temperatures make us have less movement and even social interaction amongst us, which makes us prone to overthinking, stress, and depression….*" (II2, Social worker, 2025).

As provided in Table 4, during bivariate analysis, depression was significantly associated with limited interactions. Also, participants who reported limited social interaction had a fourfold likelihood to have depression relative to their counterparts (COR=4; 95% CI; 1.12-14.33; p=0.03). However, after adjusting for the confounder, the association was no longer statistically significant (AOR=2.2; 95% CI; 0.75-7.43; p=0.23). In addition, experiencing emotional exhaustion revealed no significant association with depression (COR=1.3; 95% CI; 0.13-3.56; p=0.56).

These findings differed from the in-depth interviews, where one of the key informants noted;

"*Mental and emotional exhaustion are very rampant here, where we serve a vast number of refugees, and we are understaffed to cater to their needs; you can see the majority are mothers, children, and the elderly; they need our services. Sometimes, I feel bad when I am unable to meet all their needs. I always find myself in deep thought, even almost breaking down in tears, but we always hope for the best despite the mental anguish we endure….*" (II1, psychologist, 2025).

Salary/remuneration demonstrated a significant association with depression during bivariate analysis (COR=0.8; 95% CI; 0.72-0.97; p=0.03). This finding remained consistent during the multivariate analysis, where study respondents who reported better remuneration had 50% lower odds of having depression as compared to their counterparts (AOR=0.5; 95% CI; 0.03-0.62; p=0.002).

Influence of stressors on anxiety

Working for long hours indicated no significant association with anxiety (COR=0.3; 95% CI; 0.13-1.52; p=0.12). Similarly, limited social interactions showed no meaningful association with anxiety (COR=0.2; 95% CI; 0.01-1.35; p=0.06). In addition, salary/remuneration was also not significantly associated with anxiety (COR=2.2; 95% CI; 0.83-3.35; p=0.21). Experiencing emotional exhaustion revealed a significant association with anxiety during bivariate analysis (COR=5.2; 95% CI; 4.37-7.02; p=0.02). This was supported by the multivariate analysis, where study respondents who reported experiencing emotional exhaustion were 4.2 times more likely to have anxiety relative to their peers (AOR=4.2; 95% CI; 2.92-5.88; p=0.01).

These findings correlated with the in-depth interviews where one of the key informants noted;

"*Emotional exhaustion here is a public health concern often accompanied by reduced emotional resilience among us; this often leads to a sense of loss of control, leading to anxiety among aid workers…*" (II3, Camp Manager, 2025).

Respondents in the study who reported the presence of extreme climatic conditions and poor security were 2.3 times more likely to have anxiety relative to their counterparts (COR=2.3; 95% CI; 1.13-3.22; p=0.004). However, after adjusting for the confounder, the association lacked statistical significance (AOR=1.4; 95% CI; 0.22-3.81; p=0.43).

Table 3: Bivariate and multivariate logistic regression analyses on the influence of stressors on mental health and burnout.

Variables	Depression		Anxiety		Burnout	
	COR (95%CI) p value	AOR (95%CI) p value	COR (95%CI) p value	AOR (95%CI) p value	COR (95%CI) p value	AOR (95%CI) p value
Working for long hours						
Yes	0.83 (0.26-1.98) 0.75	-	0.3 (0.13-1.52) 0.12	-	3.5 (2.82-4.73) 0.003*	3.1 (2.25-5.77) 0.01*
No	Ref		Ref		Ref	Ref
Climate/security						
Yes	3.4 (2.83-4.54) 0.003*	2.6 (2.32-5.72) 0.001*	2.3 (1.13-3.22) 0.004*	1.4 (0.22-3.81) 0.43	0.7 (0.31-1.92) 0.42	-
No	Ref	Ref	Ref	Ref	Ref	
Limited social interaction						
Yes	4 (1.12-14.33) 0.03*	2.2 (0.75-7.43) 0.23	0.2 (0.01-1.35) 0.06	-	1.2 (0.37-2.52) 0.73	-
No	Ref	Ref	Ref		Ref	
Experience emotional exhaustion						
Yes	1.3 (0.13-3.56) 0.56	-	5.2 (4.37-7.02) 0.02*	4.2 (2.92-5.88) 0.01*	4.3 (2.53-5.52) 0.003*	2.2 (0.52-3.54) 0.13
No	Ref		Ref	Ref	Ref	Ref
Salary/Remuneration						
Yes	0.8 (0.72-0.97) 0.03*	0.5 (0.03-0.62) 0.002*	2.2 (0.83-3.35) 0.21	-	0.4 (0.21-1.65) 0.32	-
No	Ref	Ref	Ref		Ref	

*statistically significant.

Influence of stressors on burnout

As provided in Table 4, during the bivariate analysis, extreme climatic conditions and poor security showed no significant association with burnout (COR=0.7; 95% CI; 0.31-1.92; p=0.42). Similarly, limited social interactions revealed no significant association with burnout (COR=1.2; 95% CI; 0.37-2.52; p=0.73). In addition, salary/remuneration also revealed no association with burnout during bivariate analysis (COR=0.4; 95% CI; 0.21-1.65; p=0.32). In the multivariate analysis, study respondents who reported working for long hours had 3.1 times increased odds of burnout compared to their colleagues (AOR=3.1; 95% CI; 2.25-5.77; p=0.01).

During the bivariate analysis, respondents who experienced emotional exhaustion had 4.3 times increased odds of burnout as compared to their counterparts (COR=4.3; 95% CI; 2.53-5.52; p=0.003). However, after adjusting for the confounder, the association lacked statistical significance (AOR=2.2; 95% CI; 0.52-3.54; p=0.13).

DISCUSSION

Burnout was experienced by over 50% of the study participants. An alarmingly high rate that qualifies as a public health concern. Burnout is also recognized as a predisposing factor for psychological disorders. A study carried out in Saudi Arabia recorded a higher (83.2%) prevalence of burnout; however, two other studies carried out in Brazil and Tanzania recorded a slightly lower prevalence of burnout as compared to our study, 54.5% and 53.9% respectively.[11-13] These findings correlate with the jobs demands-resources model (JDR), where harsh working conditions like those of Kakuma with limited recovery opportunities predict emotional exhaustion and depersonalization.[14] This research advances existing literature by extending the JDR model to the unique context of aid workers in refugee camps, an area that has been underexplored in burnout research.

Depression was experienced by slightly more than half of the participants. This could be linked to humanitarian aid workers serving high-risk populations. Findings from this study are within the range of a study conducted in Bangladesh.[15] However, another study done in Kenya recorded a slightly lower (43.1%) prevalence of depression.[16] Similarly, another study carried out in Uganda among medical students recorded a lower (21.5%) prevalence of depression.[17] The variations observed may be attributed to differences in assessment tools used as well as to variations in study populations and geographic contexts. More than half of the respondents had anxiety. This could result from the high workload at the campsites and the demand for high performance; in addition, inadequate mental health support can result in higher anxiety levels. However, a different study carried out in Egypt reported a higher prevalence of anxiety.[18] Similarly, another study carried out in unstable and developing countries documented a 42.2% prevalence of anxiety.[19]

Respondents who reported better remuneration had 50% lower odds of having depression than those with lower remuneration. These findings contradict a systematic review indicating that higher income inequality correlates with poorer adult mental health (depression). Similarly, another scoping review conducted in the US reported a similar finding where there was a correlational relationship between monetary pressure and depression in America.[20] This study found no relationship between emotional exhaustion and depression. One possible explanation is that this study adopted a cross-sectional design; exhaustion may be temporal, while depression may be cumulative and gradual, making the association undetectable. These results were contrary to those of a systematic review and meta-analysis, where a significant association was observed between exhaustion and depression.[21]

Study respondents who reported experiencing emotional exhaustion were 4.2 times more likely to have anxiety as compared to their peers. These findings agreed with those of a 2019 systematic review and meta-analysis.[21] This also aligned with the cognitive activation theory of stress (CATS), which posits that uncontrolled and prolonged activation leads to anxiety; thus, the study provides a novel understanding of the link between stressors and anxiety to address both workload and emotional exhaustion.[22] The presence of extreme climatic conditions raised the likelihood of anxiety by 2.3. Extreme climatic conditions like high temperatures can lead to reduced social, physical interaction as well as disrupted sleep patterns, all of which may contribute to anxiety. Results were concurrent with those of an investigation carried out in the UK.[23] However, the multivariate analysis found the association insignificant, suggesting that other factors, such as emotional exhaustion, may have accounted for the observed association.

Study respondents who encountered emotional exhaustion were 4.3 times more predisposed to burnout than their peers. A possible explanation for this is that emotional exhaustion constitutes the initial phase of burnout, and frequently results in alienation from work, which then leads to a decline in job morale. Findings agreed with those of an investigation conducted among nurses.[24] The association was no longer significant after adjusting for confounders, indicating other factors such as isolation and harsh climatic conditions may have accounted for the observed association. Respondents who reported working long hours were 3.1 times more susceptible to experiencing burnout than their counterparts. A similar cross-sectional study among healthcare workers reported the same findings.[25] The possible explanation is that working long hours is associated with exhaustion, physical and mental fatigue, contributing to burnout.

This study employed a mixture of in-depth interviews and the use of standardized tools to assess the psychological well-being and burnout among humanitarian personnel. The cross-sectional design of the study restricts its capacity to establish causal links between identified stressors, coping mechanisms, and the mental health outcome. The study findings illustrate an association observed during a specific moment and do not capture changes in psychological state over time. Utilizing self-reported data introduces the potential for both recall, self-reporting, and social desirability biases, especially when addressing delicate areas such as mental health. The use of standardized tools aimed to ensure consistency, but they may not fully capture the local or cultural expressions of mental distress in the Kenyan setting.

CONCLUSION

The study revealed that aid workers experienced mental health challenges, including anxiety, depression, and burnout. These issues are not isolated occurrences but are instead a combination of both organizational and environmental aspects. While factors such as extreme climatic conditions, poor security, and long working hours exacerbate psychological distress, elements such as fair pay and awareness of support systems were found to be protective. The findings highlight the paradox within the aid sector where those providing aid are often neglected in systems designed to provide it and by framing aid workers wellbeing not just as a personal issue but systemic and policy level concern, this research calls for a multi-sectoral collaboration and reforms such as implementing mental health awareness in operation protocols, strengthening organization resilience and addressing workload imbalance and mitigating environmental hardships.

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