

Review Article

A Review of the Health Problems of the Internally Displaced Persons in Africa

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ABSTRACT Globally, over 40 million people were displaced as a result of wars and violence due to religious and ethnic conflicts in 2015 while 19.2 million were displaced by natural disasters such as famine and floods. In Africa, 12 million people were displaced by armed conflict and violence and there were hundreds of thousands of people displaced by natural disasters. Despite these large numbers of internally displaced persons (IDPs) in Sub-Saharan African countries and the potentially negative impact of displacement on the health of these populations, there is limited information on the health problems of IDPs in the region. The previous studies have mainly focused on the health problems of refugees and single disease entities among IDPs. However, a more comprehensive picture is required to inform the provision of adequate healthcare services for this vulnerable population. The objective of this review was to fill this knowledge gap. Bibliographic databases were searched and screened, and nine studies were selected and reviewed. The major physical health problems and symptoms were fever/malaria (85% in children and 48% in adults), malnutrition in children (stunting 52% and wasting 6%), malnutrition in adult males (24%), diarrhoea (62% in children and 22% in adults) and acute respiratory infections (45%). The prevalent mental health problems were post-traumatic stress disorder (range: 42%–54%) and depression (31%–67%). Most of the studies reviewed focused on mental health problems. Limited evidence suggests that IDPs experience various health problems but more research is required to inform the provision of adequate and comprehensive healthcare services for this group of individuals.

KEY WORDS: Africa, health problems, internally displaced persons

INTRODUCTION

Conflicts and disasters often cause large-scale displacement of people due to destruction of homes and environment, religious or political persecution or economic necessity.^[1] These internally displaced persons (IDPs) are 'persons or groups of people who have been forced or obliged to flee or leave their homes or places of habitual residence, in particular as a result of, or in order to avoid the effects of armed conflicts, situations of generalised violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognised state border'.^[2] They are distinct from refugees who are displaced outside their national borders. Furthermore, IDPs are often more disadvantaged than refugees because they do not benefit from assistance provided by international agencies unless the national government requests such assistance.^[1,3]

Global estimates indicate that the number of people displaced annually by conflict and violence has increased since 2003.^[4] On the average, 5.2 million have been displaced annually in the past 13 years due to insurgency, political instability and terrorist activities of groups such as ISIS and Boko Haram, particularly in the Middle East and Sub-Saharan Africa. As of December 2015, the global

estimate of IDPs due to the conflict was 40.8 million.^[4] Three-quarters of these IDPs reside in ten countries of the world, and five of these are located in Sub-Saharan Africa. The total number of people displaced by conflict in the region is almost 12 million.^[4,5]

In Nigeria, the insurgent activities of Boko Haram in the past 6 years have forced over a million people to flee their homes. This has resulted in an unprecedented humanitarian crisis in the North-eastern part of the country and the Lake Chad region.^[4] Furthermore, inter-communal clashes resulting from ethno-religious disputes, tensions between Fulani herdsmen and farmers have resulted in over 700,000 people being displaced from the Middle Belt region of Nigeria.^[4] In Central Africa, conflict and violence have resulted in over a million displacements of people in the Democratic Republic of Congo.^[4] Other African countries which have had large numbers of IDPs in the past decade are Somalia, Sudan, Uganda, Kenya and Sudan.^[6]

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Apart from conflicts and violence, natural disasters resulting from floods, storms, wildfire, earthquakes and droughts have caused the displacement of 203.4 million people globally in the past 8 years. In 2015, 19.2 million people in 113 countries were displaced by natural disasters. Most of these displacements occurred in South and Eastern Asian countries while slightly over a million occurred in Sub-Saharan Africa.^[4]

Internal displacement has significant effects on public health and the well-being of the affected populations. These impacts may be categorised as direct due to violence and injury or indirect such as increased rates of infectious diseases and malnutrition.^[7-10] Several risk factors, which promote communicable diseases, work in synergy during displacement. These factors include movement of mass populations and resettlement in temporary locations, overcrowding, economic and environmental degradation, poverty, inadequacy of safe water, poor sanitation and waste management.^[7] These conditions are further compounded by the absence of shelter, food shortages and poor access to healthcare.^[7,11] Depending on the location in Sub-Saharan Africa, the combined effects of these factors result in increased risk of diseases such as acute respiratory infections (ARI) (4%),^[12] diarrhoeal diseases (18%–22%)^[12,13] and scabies (77%–86%).^[14] Furthermore, malnutrition has been reported among under-five children. In the region, the spectrum includes stunting (38.6%), underweight (28.4%) and wasting (7.2%).^[15] Diarrhoeal diseases are major causes of morbidity and mortality among IDPs and mainly result from substandard or inadequate sanitation facilities, poor hygiene and scarcity of soap.^[11]

The disruption in public health services also hinders prevention and control programmes consequently resulting in the rise of vector-borne diseases such as malaria and yellow fever.^[11] Similarly, routine immunisation services are disrupted, thus increasing the number of individuals susceptible to diseases and the risk of epidemics of vaccine-preventable diseases (VPDs). Depending on the geographical location, outbreaks of VPDs which have been reported among IDPs include measles (20%–30%) and meningococcal meningitis (0.3%).^[16] Similarly, epidemics of cholera,^[17,18] yellow fever^[19] and recently discovered hepatitis E^[20] have been reported in IDP and refugee camps across Africa. Furthermore, global polio eradication activities have been hampered in three countries in three conflict-torn countries which have large numbers of refugees and IDPs in Afghanistan, Pakistan and Nigeria.^[10] Epidemics of infectious diseases are quite common in IDP camp settings due to inadequate water and sanitation facilities combined with overcrowding.^[21]

Women and children constitute over 70% of internally displaced populations,^[4,5,13] and they experience a wide range of health risks. They are extremely vulnerable to physical and mental health problems, and they also have unique health needs.^[3] A number of studies have also reported that women and girls were victims of physical and sexual violence in IDP camps.^[22-26] Women are at higher risk of unwanted pregnancies, unsafe abortions, maternal morbidity and mortality.^[27] The negative impacts of sexual violence are significant and long term. These may include physical injuries, sexually transmitted

infections including HIV, unwanted pregnancies and mental health effects.^[27-30]

Moreover, IDPs, particularly those affected by conflict, are at a high risk of mental health problems. The commonly reported psychological reactions are post-traumatic stress disorders (PTSDs) in reaction to violence and depression as a reaction to loss.^[13,31,32] Other types of mental health problems which have been reported are panic attacks and anxiety disorders.^[33] The psychological distress occurring in the post-conflict environment also contributes to harmful health behaviours such as hazardous drinking and increased smoking. These behaviours are linked to an increased burden of non-communicable diseases such as hypertension, chronic obstructive pulmonary disease and cancers.^[34]

Despite the increasing numbers of IDPs in African countries and the burden of various health problems in these populations, most studies thus far have focused on specific health problems such as PTSD^[13,35] depression,^[35,36] malnutrition^[8,9,37] and infectious diseases.^[9,12] These prior studies have, however, not really provided a complete picture of the health problems of IDPs in the region. This information is essential for the planning and delivery of comprehensive healthcare to cater for the full complement of health problems of IDPs rather than instituting fragmented vertical programmes. The objective of this review was to provide evidence of the health problems of IDPs in Africa.

METHODS

SEARCH STRATEGY AND SELECTION CRITERIA

Seven electronic databases were searched to identify studies from published and grey literature on health problems of IDPs. The populations of interest were persons who had been internally displaced. The search was limited to a time frame between January 1, 2000 and May 31, 2016. The bibliographic databases searched were PubMed, PsycINFO, CINAHL, Sociological Abstract, EMBASE, Cochrane Review and African Journal Online. The search terms adopted include: ('Health Problems'); ('Health Outcome' OR 'health difficulty' OR 'health complication'); ('Health status' OR 'health challenges' OR 'diseases'); ('internally displaced persons' OR 'Forced migration' OR 'conflict-affected persons' OR 'armed conflicts'); #1 AND #2 AND #3 AND #4. Reference listings of identified articles were also independently hand-searched for more specific articles. The numbers of articles/abstracts generated from the various databases are indicated in Table 1.

Table 1: Databases searched and number of articles generated

Name of database	Number of articles
PubMed	10,521
Cochrane Review	586
African Journal Online	65
PsychINFO	15
Sociological Abstracts	0
EMBASE	0
CINAHL	0

STUDY SCREENING AND SELECTION

A four-stage screening process was undertaken for the selection of literature for the study. Initially, the authors (Eme Theodora Owoaje, Obioma C Uchendu, Tumininu Ajayi, Eniola O Cadmus) conducted independent searches based on the aforementioned search terms. Secondly, title and abstract were screened using the inclusion and exclusion criteria to identify potentially relevant articles. Afterwards, the available full texts of the selected articles were reviewed to confirm that the studies met the pre-determined inclusion criteria and methodology. Finally, all the four authors independently screened the titles and content of the articles to assess their eligibility for inclusion in the review. The articles that needed clarity were jointly assessed, and a consensus for articles to be included was made.

INCLUSION AND EXCLUSION CRITERIA

All the studies that reported the health problems of IDPs in Africa were included. Furthermore, studies with different study designs were included as long as they had data on the magnitude of health problems of persons who were internally displaced in African countries. Studies with no data on health problems were excluded alongside books, reports and online articles that were not scholastic in nature. Studies, which utilised qualitative methods, were also excluded from this review. Age and sex were not factors considered for exclusion in this study.

DATA EXTRACTION

The eligible studies for this review were independently abstracted by the four authors (Eme Theodora Owoaje, Obioma C Uchendu, Tumininu Ajayi, Eniola O Cadmus). Information about the author, country in which the study was carried out, study design, objectives, study population, outcomes measured, key study results were extracted from the studies.

The quality of cross-sectional studies was assessed using the Strengthening the Reporting of Observational Studies in Epidemiology statement: guidelines for reporting observational studies.^[38] We also assessed the sources and methods of selection of participants, efforts to control for potential sources of bias, statistical methods used including controlling for confounding. Likewise, a checklist was used for the review of the articles.^[39] In addition, we assessed for the extent to which the design and conduct of the reviews protected against bias, clear reporting of the study design, objectives, study population, outcomes of interest reported and key findings from the study and other quality assessment used to limit bias. The authors who conducted the quality assessment for the studies selected were Obioma C Uchendu and Tumininu Ajayi.

As shown in Figure 1, the screening process yielded a total of 11,187 citations/abstracts (Stage 1). The titles and the abstracts were reviewed, and a total of 10,867 of these were rejected either because they had unrelated themes or they did not provide information about the health problems of the IDPs. Stage 2 involved the further screening and review of 320 titles and the abstracts. Subsequently, 269 articles were rejected

because the study populations were done in either refugees or unrelated populations. A total of 51 articles were left for the full-text review (Stage 3). Subsequently, 42 studies were discarded because they did not meet the inclusion criteria or due to methodological weaknesses.

Finally, nine studies met the criteria for the final in-depth review (Stage 4) (Roberts *et al.*, 2008, Olwedo *et al.*, 2008, Roberts *et al.*, 2009, Singh *et al.*, 2015, Guerrier *et al.*, 2009, Getanda *et al.*, 2015, Kim *et al.*, 2007, Gbakima *et al.*, 2012 and Sheikh *et al.*, 2014), The summaries of the characteristics, methodology and findings of the selected studies are shown in Table 2. The dates of publication of the studies fell within the period of interest, January 1, 2000–May 31, 2016. The study populations were IDPs in Chad, Kenya, Nigeria, Sierra Leone, Sudan and Uganda.

The instruments used for the assessment of mental health problems are enlisted. Two studies used the Harvard Trauma Questionnaire Hopkins Symptom Checklist-25 for the assessment of PTSD while one of the two studies used this tool for the assessment of depression; a study used the Composite International Diagnostic Interview for the assessment of depression while the Physical and Mental health component summary measures (PCS; MCS) was used in another study for the assessment of mental health status.

Physical health status was assessed in a study using the short form 8 (SF-8) while other studies used the General Health Questionnaire 12 (GHQ-12). Furthermore, the satisfaction with Life Scale and WHO Quality of Life-BREF was used for the assessment of physical health and quality of life as well as life satisfaction. A study assessed wasting and stunting among children under 5 years of age, using the weight for height and height for age indices while another study used a proxy - the individual dietary diversity score for other nutritional status assessment.

DESCRIPTION OF SELECTED STUDIES

Roberts *et al.*, (2008) (Uganda): This was a cross-sectional study that explored the social determinants of overall physical and mental health of IDPs. The study also included the response strategies used by IDPs to support their health needs. Information was obtained from adult males and females (≥ 18 years old) living in the officially recognised IDP camps in Gulu and Amuru districts, in Uganda. About 54% of the respondents showed symptoms of PTSD, and 67% met with the symptom criteria for depression. Multivariate analysis revealed that the factors which were significantly associated with PTSD and depression included being female, no longer married, being displaced and living at a distance more than 5 miles from home. Other factors included experiencing ill health without medical care, experiencing rape or sexual abuse, experiencing a lack of food or water and being tortured or beaten.

Olwedo *et al.*, (2008) (Uganda): This study tried to estimate the prevalence and associated risk factors for protein-energy malnutrition among 672 children under 5 years old living in IDPs camps in Omoro County, Gulu district. Chronic malnutrition was present in more than half (52.4%) of the children. The most prevalent symptoms among children in

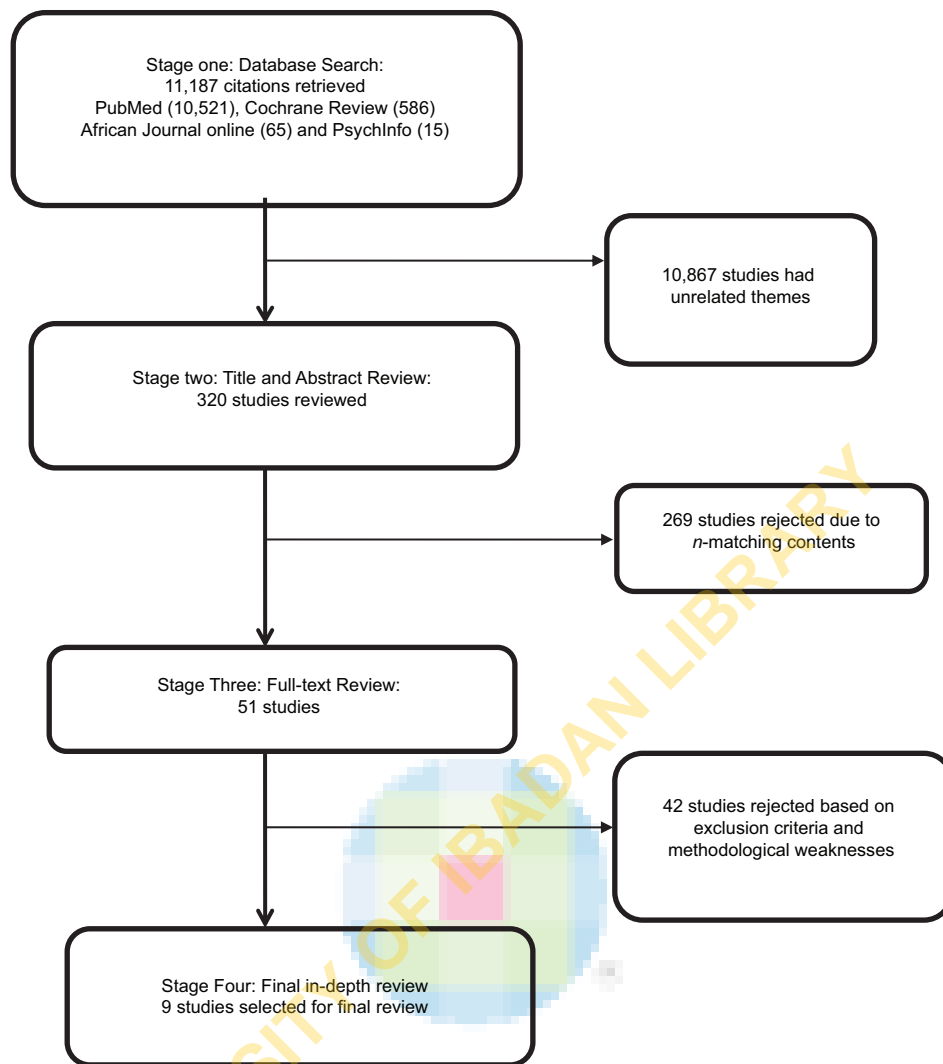


Figure 1: Results of screening process for review

the IDP camps were fever, cough and diarrhoea. Being a male child, aged between 3 and 24 months, and the presence of fever were positively associated with malnutrition.

Roberts *et al.*, (2009) (Uganda): This cross-sectional study investigated the factors associated with poor mental and physical health status of IDPs in Northern Uganda. Fever/malaria, respiratory problems and watery or bloody diarrhoea were the three main physical health conditions reported among the IDPs. Furthermore, common mental health challenges among IDPs were PTSD and depression. Factors significantly associated with physical and mental health included gender, age, marital status, income, distance of camp from home areas, food security and soap availability. In addition, a sense of safety in the camp was significantly associated with physical or mental health status.

Kim, Torbay and Lawry (2007) (Sudan): This study assessed basic health, women's health and mental health among Sudanese IDPs in South Darfur. A household survey of IDP camps revealed a high prevalence of depression (31%). Two

per cent of households reported that a member had committed suicide in the previous year. The majority of the women used no birth control and reported at least one unattended birth. In addition, respondents reported that they had limited rights regarding marriage, free movement and access to healthcare.

Singh *et al.*, (2015) (Kenya): This study assessed the nutritional status of men and the food security status of their household in the displaced person's camps. A cross-sectional study with a respondent-driven sampling technique was utilised. The result showed that the mean BMI of men was 20.3 kg/m² and about 23.9% of the respondents were underweight. Furthermore, three-quarters of the households assessed had severe food insecurity. The dietary assessment showed that a higher proportion of the respondents consumed starchy staple foods, 24 h before the study. Furthermore, household earning was found to be <25 dollars/month.

Guerrier *et al.*, (2009) (Chad): This cross-sectional comparative study assessed and compared the mortality and nutritional pattern among displaced and non-displaced

persons in Chad. The child mortality rate was 1.8/10,000/day in the IDP settlements and 0.3/10,000/day in the non-IDP settlements. Acute malnutrition rate was about 20.6% among IDP children while non-IDP children had a malnutrition rate of about 16.4%.

Getander *et al.*, (2015) (Kenya): This study employed the mixed methods design with the use of a multi-stage sampling technique to select males and females in IDP camps. It assessed the mental health, quality of life and life satisfaction among IDPs in Kenya. The results showed that many of the respondents had poor mental health status, and life satisfaction scores were low.

Gbakima *et al.*, (2012) (Sierra Leone): This study was a cross-sectional survey aimed at estimating the prevalence of stunting, wasting and underweight among children <10 years of age, living in IDP camps. The results revealed that 20% of the children living in all camps studied were stunted and 6.8% were severely stunted. Wasting was found in all the age groups studied except for the 8–9-year age group.

Sheikh *et al.*, (2014) (Nigeria): This was a cross-sectional survey that used a systematic sampling to select the study respondents to estimate the prevalence of the PTSD, types of psycho-trauma experienced by the IDPs and to determine socio-demographic factors associated with PTSD and

Table 2: Characteristics and findings of studies on health problems of internally displaced persons in Africa

Author (year)	Country	Study design	Objectives	Outcomes measured	Key study results	Quality assessment
Roberts <i>et al.</i> , (2008) ^[36]	Uganda	Cross-sectional study using multi-stage cluster sampling was used to survey 1210 adults (males and females) living in the officially recognised IDP camps in Gulu and Amuru districts, Uganda	To measure the rates and determinants of PTSD and depression amongst IDPs	PTSD and depression were measured using the HTQ Hopkins Symptom Checklist-25, respectively	More than half of the respondents (54%) met symptom criteria for PTSD, and over two-thirds (67%) of respondents met symptom criteria for depression. Factors including being a female, no longer married, being displaced >5 miles from home, experiencing ill health without medical care, experiencing rape or sexual abuse, experiencing lack of food or water and being tortured or beaten were significantly associated with PTSD and depression at multivariate analysis	The failure to consistently match the gender of interviewer and respondents may have resulted in underreporting of other associated variables as well as introduced some form of social desirability bias. Besides, the cross-sectional design may not satisfactorily establish strong association/causality
Olwedo <i>et al.</i> , (2008) ^[8]	Uganda	Cross-sectional survey of 672 caretakers of children aged 3-59 months living in IDP camps in Omoro County, Gulu district, multi-stage cluster sampling was used to select eligible participants	To estimate the prevalence of protein-energy malnutrition and associated risk factors among children living in IDP camps	Weight for height and height for age indices were used to assess wasting and stunting respectively	Acute malnutrition (wasting) was present in 6.0% of the children while chronic malnutrition (stunting) was present in more than half (52.4%) of the children. The most prevalent diseases among children in the IDP camps were fever/malaria (84.8%), cough (81.7%) and diarrhoea (61.9%). Significant predictors of malnutrition were being a male child and the presence of fever	The FGDs conducted with a mix of the sexes may have introduced social desirability bias since most FGDs are expected to be conducted amongst same sex and socio-demographics

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Table 2: Contd...

Author (year)	Country	Study design	Objectives	Outcomes measured	Key study results	Quality assessment
Roberts <i>et al.</i> , (2009) ^[50]	Uganda	Cross-sectional study using multi-stage cluster sampling was used to survey 1206 adults (males and females) living in the officially recognised IDP camps in Gulu and Amuru districts, Uganda	To determine factors associated with mental and physical health status of IDPs in northern Uganda	The SF-8 was used to measure physical health and mental health (with the PCS, physical health component summary measures physical health status (PSC) and mental health status (MCS)	Overall, PCS and MCS scores were lower than the norm for a standardised population with men having higher PCS and MCS scores than women. Fever/malaria (48%), respiratory problems (45%) and watery or bloody diarrhoea (22%) were the three main physical health conditions reported among the IDPs. Common mental health challenges among IDPs were PTSD and depression. Factors including gender, age, marital status, income, distance of camp from home areas, food security, soap availability and sense of safety in the camp were significantly associated with physical or mental health	The use of a 4-week recall tool to assess both physical and mental health parameters may have led to recall bias. The analysis also did not take into account the duration respondents have stayed in these camps, including migration from one camp to the other. No account of previous post-traumatic intervention has been previously carried out on the respondents which may affect results hence hinder generalizability to other IDPs in similar camps
Singh <i>et al.</i> (2016) ^[40]	Kenya	A cross-sectional study of 267 men aged 18 years and above from IDPs camps in Rongai district, Nakuru County Kenya. A respondent-driven sampling technique (a variant of chain-referral sampling) was utilized, where 5 men were selected by the camp chief and each of them and others subsequently selected recruited three other participants	To determine the nutritional status of men and the food security status of their households in IDPs camp in Kenya	Nutritional status of men was measured using a proxy-the IDDS. Household access to food (food security) was measured with the HFIAS. HHS was used to assess the prevalence of household hunger. Biometric measurements were done with BMI and MUAC	The mean BMI of men in the camp was 20.3 (SD=2.5) with 23.9% of the participants being underweight. Almost three-quarters of the households were severely food insecure, 46.6% of households had moderate hunger and dietary diversity showed that 92% of participants consumed starchy staple foods in the 24 h preceding the study. Households earning <\$US 25/month (OR=7.3; 95% CI: 2.1%-25.7%) and those with than three children (OR=1.9; 95% CI: 1.001%-3.5%) were more likely to be categorised as severely food-insecure	This study involved only one IDP camp, which also happened to have been well established. As such findings from the study may not be representative of other IDPs in Kenya with a less organised structure in place The cross-sectional nature of the study makes it difficult to draw direct causal relationships The study did not take into consideration female-headed households as only men were targeted. Previous studies have shown greater food insecurity among female-headed households

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Table 2: Contd...

Author (year)	Country	Study design	Objectives	Outcomes measured	Key study results	Quality assessment
Guerrier <i>et al.</i> (2009) ^[9]	Chad	Cross-sectional comparative study using two-staged cluster sampling to select 898 households living in IDP camps in Ouaddai NDPs living in 42 villages in Ouaddai (901 households) and Salamat (901 households) regions	To assess and compare the mortality and nutritional patterns among displaced and NDPs in Ouaddai (villages) and Salamat (towns) regions of Chad	Retrospective mortality rate was used to report mortality rates and prevalence of wasting (weight-for-height Z-score) among children aged 6–59 months was used to assess malnutrition	The CMR among IDPs was 1.8 (95% CI: 1.2%-2.8%)/day, while in NIDP, villages and towns settlements were 0.3 (95% CI: 0.2%-0.5%)/10,000/day, respectively. Acute malnutrition rates among 904 IDP children was 20.6% (95% CI: 17.9%-23.3%), while for NDPs children, malnutrition among children living in a village (956) was 16.4% (95% CI: 14.0%-18.8%) and those living in towns (901) was 10.1% (95% CI: 8.1%-12.2%)	The cross-sectional nature of the study makes it difficult to draw direct causal relationships
Getanda <i>et al.</i> (2015) ^[13]	Kenya	Mixed methods design using multi-stage sampling was used to select 100 male and female in IDPs camps in four regions of the Nakuru County Kenya	To assess the mental health, quality of life and life satisfaction among IDPs living in Nakuru Kenya	GHQ-12, satisfaction with Life Scale and WHO Quality of Life-BREF	Quality of life and life satisfaction scores were poor Mental health levels were found to be poor as were quality of life and life satisfaction among the IDPs studied Older widowed IDPs and those who do not receive support from friends or the government were at higher risk of poor health and well-being	A mixed method design gives a better purview of the real situation regardless of the sample size
Kim <i>et al.</i> (2007) ^[12]	Sudan	Systematic random sampling was used to conduct a household survey of females in 1293 households in 6 IDP camps in Nyala district of South Darfur, Sudan	To assess basic health, women's health and mental health among Sudanese IDPs in South Darfur	Respondents' mental health, opinions on women's rights and health status of household members	Prevalence of major depression was 31%, with 2% of households reporting a member who had committed suicide in the previous year. The majority of the women used no birth control and reported at least one unattended birth. They had limited rights as to marriage, movement and access to healthcare	Privacy of interviews could not be guaranteed in the households that make up the IDP camps Information was gotten by self-reports, with a high possibility of social desirability bias

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Table 2: Contd...

Author (year)	Country	Study design	Objectives	Outcomes measured	Key study results	Quality assessment
Gbakima <i>et al.</i> (2012) ^[37]	Sierra Leone	Cross-sectional survey of 454 children <10 years living in the four IDPs camps in Freetown	To estimate the prevalence of stunting, wasting and underweight among children <10 years living in IDP camps	Weight for age (underweight), weight for height (wasting), height for age (stunting) were used to assess nutritional status of the children	Overall, about one-fifth (21.2%) of children in all the four camps were stunted while 6.8% of them were severely stunted. Wasting was reported in all the age groups except for those aged 8-9 years	The cross-sectional nature of the study makes it difficult to draw direct causal relationships
Sheikh <i>et al.</i> (2014) ^[51]	Nigeria	Cross-sectional survey using systematic sampling to select 258 adults (males and females) in IDP camps located in Kaduna city	To estimate the prevalence PTSD, types of psycho-trauma experienced by the IDPs and to determine socio-demographic factors associated with PTSD and their psychosocial adjustment	The CIDI was used to assess depression and the HTQ was used to assess PTSD among the respondents. The modified version of the communal traumatic events inventory and the social provision scale were adapted to assess conflict-related trauma and the psychosocial adjustment of IDPs, respectively	PTSD was reported by 109 (42.2%), 204 (79.1%) reported living in poor conditions and 12 (4.7%) of them had poor social provision. The most common psycho-trauma was the destruction of personal property (96.1%), followed by being evacuated from their town (96%) and witnessing violence (88%). The odds of having PTSD were 3.5 times higher among respondents with depression (95% CI: 1.7%-7.5%) and 3.7 times higher among those who witnessed the death of a family member (95% CI: 1.2%-11.5%)	The cross-sectional nature of the study makes it difficult to draw direct causal relationships

PTSD: Post-traumatic stress disorder, IDPs: Internally displaced persons, IDDS: Individual dietary diversity score, HFIAS: Household Food Insecurity Access Scale, HHS: Household Hunger Scale, NDPs: Non-displaced persons, NIDP: Non-IDP; GHQ-12: General Health Questionnaire-12, CIDI: Composite International Diagnostic Interview, HTQ: Harvard Trauma Questionnaire, CMR: Crude mortality rate, FGDs: Focus group discussions, PCS: Physical Health Component summary measures, CI: Confidence interval, OR: Odds ratio, BMI: Body mass index, MUAC: Mid-upper arm circumference, SD: Standard deviation

their psychosocial adjustment. Results showed that the most common psychological trauma experienced was the destruction of personal property, followed by being evacuation from their communities, and witnessing violence. The odds of having PTSD were 3.5 times higher among the respondents with depression and 3.7 times higher among those who had witnessed the death of a family member.

DISCUSSION

In view of the increasing numbers of IDPs in the African region and their vulnerability to a myriad of infectious and non-communicable diseases, it is essential to provide detailed information on the burden of various health problems in these populations. To the best of our knowledge, this is the first review of studies on health problems among IDPs in

Africa. The key observation is that there is limited literature on the health problems of this population though several studies have focused on the health problems of refugees in the continent. The disproportionately high focus on refugees could be due to their international status and availability of assistance from international agencies and governments of other nations. Furthermore, these organisations usually place a great deal of emphasis on research and documentation.

Despite the dearth of studies for the review, it was observed that IDPs in Africa experience a myriad of health problems. The main health problems identified were physical health and mental health problems.^[8,9,40] Health problems reported by the studies were mostly communicable and non-communicable diseases as well as other health-related problems such as sexual abuse and substance use.^[12,41]

From our review, the prevalent communicable diseases reported among children and adults, respectively, were fever/malaria (84.8% vs. 48%), cough/respiratory problems (81.7% vs. 45%) and diarrhoea (61.9% vs. 18.5%).^[8,42] The high prevalence rates of the prevalent communicable diseases reported could be attributed to environmental factors such as poor waste disposal and environmental sanitation, overcrowding, inadequate access to water supply and healthcare services.^[10] Furthermore, the prevalence of communicable diseases was higher among children indicating that children are most vulnerable among IDP camps. Surveillance was conducted by Ahmed *et al.* to measure the incidence of ARIs among children between 2 months and 5 years in two refugee camps in Kenya.^[43] The proportion of children who had ARI was lower than the prevalence reported from our review and ranged between 46% and 51%. This lower prevalence may have been due to the fact the study focused on viral causative agents of ARI. Secondly, the difference could be attributed to the more organised nature of refugee camps compared with IDP camps. Another prevalent physical health problem observed from our review was malnutrition^[8,9,30,37] These studies were conducted among children between 3 months and <10 years. The findings showed that acute malnutrition (wasting) ranged between 6% and 21% in the Chad Republic while chronic malnutrition (stunting) ranged from 2.2% in Sierra Leone^[37] to 52.4% in Uganda.^[9] Furthermore, the study by Singh *et al.* on the nutritional status of men aged 18 years and above in Kenya^[40] reported that 23% of men were underweight. These authors, however, noted that the prevalence was similar to the national estimates of malnutrition. This suggests that the finding of their study may have been related to the prevailing socio-economic and environmental conditions rather than the displacement. In addition, the use of BMI and mid-upper arm circumference to assess malnutrition may have also contributed to the high prevalence.^[40]

Although IDPs are susceptible to VPDs, there was a paucity of literature on these diseases among IDPs in Africa. However, humanitarian agency reports and research has shown a high prevalence of diseases such as measles, polio and meningitis among refugee populations.^[10,44] In our review, only the study in Chad by Guerrier *et al.*^[9] reported a measles vaccination coverage of 18% in IDP camps compared with 76% urban non-IDP camps. The urban non-IDP camps had significantly higher coverage rates compared to IDP camps.^[9] These findings are of public health significance because it is one of the few studies that have documented the heightened risk of measles outbreak among IDPs. In contrast, several studies have reported measles outbreaks in African refugee camps.^[44-46] Similarly, outbreaks of other VPDs such as meningococcal meningitis^[16,47] cholera^[17,48] and hepatitis A and E^[10] have been reported among refugees in Sub-Saharan African countries. Further, there have been reports of the re-emergence of polio infection among IDPs in Nigeria, which have been documented by United Nations agencies; however, these could not be reviewed because of the absence of specified methodology. However, the paucity of literature on measles and other VPDs among IDPs does not deter from the fact that these populations are also susceptible to these

diseases. Both refugee populations and IDPs are vulnerable to VPDs due to lowered immunity, lack of access to routine health services and inability to receive the complete series of recommended vaccinations by virtue of displacement. Therefore, the provision of timely and high immunisation coverage against the prevalent VPDs for IDPs is essential.

Surprisingly, this review did not identify any eligible study on gender-based violence among IDPs. This is probably as a result of the paucity of studies on the subject among IDPs in Sub-Saharan Africa. However, we were able to identify qualitative studies which were conducted among IDP women and children who have experienced sexual violence during conflict situations.^[36,41,49] These were not included in the review because the eligibility criteria for the selection of the studies required quantitative assessments. Conversely, a number of studies have reported sexual violence among women in refugee camps in Sub-Saharan Africa. These survivors were shown to have a higher risk of sexually transmitted infection including HIV and as well other reproductive and mental health consequences of forced sexual activity.^[25,28,41]

The commonly reported non-communicable diseases identified among IDPs in this review were mental health such as depression, anxiety and PTSD.^[13,36,50,51] Studies have shown that mental health effects following conflicts tend to be worse than those from natural disasters.^[14,52-54] The findings from this review showed that more research had been conducted on the mental health outcomes such as PTSD and depression compared to the physical health outcomes of IDPs. This finding may not be unconnected to the difficulties associated with making diagnoses of physical health conditions such as infectious diseases in such situations. In the absence of a standard algorithm, making a diagnosis of physical health conditions requires the opinion of a doctor or another health worker who is trained to do so as well as laboratory facilities. In many IDP camps in Africa, there are inadequate numbers of trained health professionals and absence of the necessary diagnostic tests to confirm the presence of specific diseases. Conversely, the diagnosis of mental health status can be made to some level with or without a health personnel trained in the field of mental health or psychiatry. Several tools including instruments or scales have been developed and used both clinically and during surveys to determine the mental health status of individuals and communities. Some of such instruments used for assessing mental health include: the GHQ,^[55] SF-36 survey,^[56] Patient Health Questionnaire^[57] and the Strengths and Difficulties Questionnaire.^[12,13,36,58]

RECOMMENDATIONS

The paucity of literature on VPDs, skin problems, violence and other health problems among IDPs in Africa has been elucidated from this review. We, therefore, recommend that more detailed research on the health problems of this vulnerable group of individuals is urgently required. The findings from these studies will inform the provision of appropriate comprehensive healthcare services as required. Furthermore, these studies will assist in decision-making by policy makers for efficient planning, implementation and

evaluation of interventions required to reduce the physical and mental health problems experienced by IDPs.

LIMITATIONS OF THE REVIEW

Although this review provides much-needed information on the health problems of IDPs in Africa, it has some limitations. For instance, most of the studies were conducted using small samples; hence findings are not generalizable. Furthermore, there was no information about non-communicable diseases such as hypertension, diabetes and coronary heart diseases. Considering the fact that a large number of IDPs are adults and as such are at risk, therefore, it is necessary for surveys to be conducted to provide information about these diseases. The findings of these surveys provide evidence-based information for developing appropriate healthcare services for adult IDPs. Similarly, we did not identify any study that specifically addressed gender-based violence among female IDPs which is quite unexpected judging from its prevalence among refugees and other conflict-affected populations.

Consequently, the available studies do not fully portray the health problems of IDPs, but it, however, brings to fore the research needs among this growing number of vulnerable population group.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

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