

Refugee Health: Making a Difference in Sub-Saharan Africa: A Literature Review

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Abstract

Refugees are among, if not, the most at risk population for undergoing health disparities for a variety of reasons, including their relocation, their poverty, as well as the actual demographics of refugees of which 80% are women and children. Thirty percent of the 9.2 million refugees and 25 million displaced persons in the world are found in Sub-Saharan Africa, however only 10% of literature on refugee health deals with this region. A literature review using Pub Med for the past ten years was conducted to identify publication looking at Sub-Saharan refugees still in the region. The original search found 413 references. This was narrowed to include those that show the way to improvements. Selection criteria involved identification of studies that implemented and/or evaluated intervention programs in this population, rather than merely describing the problems faced. 33 articles were identified dealing with a range of topics, but focused on infectious disease, reproductive health, food and water, and psychological well-being. No other literature review was found for refugee health in Sub-Saharan Africa. Only one article was found showing an intervention for HIV/AIDS and none were found for Tuberculosis intervention in the Sub-Saharan refugee population, despite their high prevalence.

Introduction

The World Health Organization defines refugees as “Persons fleeing to a place of safety, especially those who flee to a foreign country or power to escape danger or persecution in their own country or habitual residence because of race, religion, or political belief.” In 1951 the Geneva Refugee Convention deemed refugees as “vulnerable persons.” In doing so refugees are supposed to be guaranteed special protection under international law (UNHCR, 1951). The World Health Organization even assigned a special subcommittee, the UNHCR, which is responsible for looking out for the health and well-being of refugees worldwide.

As of 2006, there are 9.2 million refugees and 25 million displaced persons in the world (UNHCR, 2006). The difference between a refugee and a displaced person is that refugees are forced to leave their country whereas displaced persons are forced to relocate to a different region of the country due to war. Internally displaced persons (IDP) are not given the same international protections under UN code, but have been shown again and again to be at least as vulnerable as refugees (Moore, 2002). Therefore for the remainder of the paper I have chosen to use the word refugees as inclusive of refugees and IDP by UN definition.

Thirty percent of the refugees in the world are found in the Sub-Saharan Africa region. The refugee population is characterized by 50% females and 45% children. This should make it again obvious that with 80% of refugees being comprised of women and

children, refugees are defined as a vulnerable population. Their actual displacement status resulting from violence, war, and discrimination again serves to set refugees as highly vulnerable. Being the refugees are vulnerable for so many reasons, it should come as no surprise that they suffer from health care disparities.

I choose to focus this paper on looking at refugees in the Sub-Saharan region for several reasons. First of all, it is the 2nd region serving as home to refugees in the world. It has only about 200,000 fewer refugees from the region hosting the most refugees, which combines Central Asia, Southwest Asia, North Africa, and the Middle East all combined (UNHCR, 2006). Also, the percentage of refugees that Sub-Saharan Africa accounts for has remained significantly high across time, while more fluctuations exist in other regions.

Methods

A literature review of the past ten years was done on PubMed using the keywords “refugees Sub-Saharan Africa”. This search produced 413 results preliminary results. Out of all literature published about refugees in the past 10 years, the 413 articles dealing with refugees from Sub-Saharan Africa comprise only 10% of the literature. As noted in the introduction, refugees from the Sub-Saharan Africa region comprise 30% of all refugees. This again points out the disparity in studying refugees from this region of the world.

All 413 abstracts were reviewed in selecting the final set. This review was driven by the perspective that research should focus on improvement of the existing problems and not just description of them. This aim was selected based on a request from the Vice President of Uganda, Gilbert Bukenya MD PhD in Epidemiology, made to Society for Sub-Saharan Health Service Research group last year. He told our group that he wanted to see more research focused on making health improvements in Africa. Too much of the literature simply described health problems and left it at that. Fellow group member Dr. Joseph Babagamura of Uganda backed up this view in saying stating that “We know we have problems. We need solutions.” This view has driven the work of our HSR in SSA group and likewise served in setting the criteria for this literature review. With this serving as the first main criteria, articles that were selected had to describe an intervention either implemented in the study or already existing and review the effectiveness of this in some way. Since few articles actually did this, I decided to also include those that described the problem but offered solid recommendations for how attempt to go about fixing it.

The second major criteria for selecting the final set of articles is that the research had to actually be done on Sub-Saharan refugees that were still in the region, not the relatively few that emigrated to industrialized countries. This is because most refugees from Sub-Saharan Africa remain in the region, and the typed of resources and interventions possible in industrialized countries are not feasible in African refugee camps. Thus in offering solutions for dealing refugees in Africa, it is not helpful to see how small

segments of these are cared for in very different environment posed by the US, Western Europe, and Australia.

Results

As anticipated a vast majority of the 413 articles were strictly descriptive in nature and/or performed in refugees that were now located in industrialized nations. In fact, only 33 articles were identified, even with the loose search criteria of allowing for descriptive articles so long as they gave a set of recommendations for how to address the problem. The most prevalent topics were, in order of number of papers found dealing with each issue: infectious diseases (61% of identified articles), reproductive health, nutrition and water sanitation, surveillance and screening, psychological issues, and four articles that did not fit into any other category and will be described individually.

Infectious Diseases

According to the WHO, 75% of all deaths due to infectious diseases occur in Sub-Saharan Africa and southeastern Asia. In fact, southern Africa accounts for 40% of all deaths due to infectious disease worldwide, yet this region only houses 10% of the world's population. The disparities in the burden of disease placed on the Sub-Saharan Africa region reflect on all of its members, and as refugees are a vulnerable population it is implied that they are highly affected. Since infectious disease is the most common cause of death in the region, it makes sense that over half of the articles identified in this literature review deal directly with infectious diseases.

Malaria

The single most prevalent topic addressed was found to be malaria, which was addressed by 6 articles. Malaria, which is predominately spread by the female anopheles mosquito, results in 350-500 million world wide cases yearly and accounts for over 1 million deaths in 2005. Over eighty percent of the malaria deaths occur in Africa. Malaria accounts for 18% of all child deaths in the Sub-Saharan region. Four of the six articles dealt with prevention efforts, while the other two looked at treatment for malaria.

The first article that was looked at is titled "Impact of mosquito proofing of night shelters in refugee camps in Kitgum, northern Uganda." by Medlock, JM et al. The objective of the study was to "test the impact of long-lasting insecticide-treated netting, fitted to cover the eaves and ceilings of refugee shelters, on the incidence of nighttime mosquito biting." This study was conducted in three internally displaced persons camps in Uganda in 2004. As a case-control study, 37 homes shelter were proofed against mosquitoes and 18 were not. The number of blood-fed mosquitoes/person/night was significantly higher in the control group compared with the treatment group of residents with proofed shelters. Multivariate analysis showed that the difference in biting rates was directly related to the mosquito proofing. In conclusion, mosquito proofing of the refugee residences was a successful way of significantly reducing mosquito bites and therefore the risk for malaria associated with these.

The second study looking at malaria in the camps of internally displaced persons was also done in Uganda (Spencer, 2004). The goal of the study was to evaluate the effectiveness of mass distribution of insecticide-treated bed nets (ITN) as means of preventing malaria. The study design was cross-sectional and included 1245 individuals from 835 households. Like the Medlock study, the results from this study showed decreased risk of mosquito bites and malaria in households where the bed nets were used.

The third study found dealing with malaria looked at the effects of indoor spraying with malathion on malaria (Charlwood, 2001). It was conducted in five refugee camps in eastern Sudan. This was a case-control trial where the homes of five refugee camps in the area were sprayed and the malaria rates of these were compared against those in five area refugee camps that were not sprayed. Mortality rated due to malaria were lower in the intervention camps for three months following spraying, but the incidence of malaria was found to be the same in cases and controls.

The fourth study that dealt with malaria prevention used insecticide treated clothing and was conducted in the form of a randomized control trial (Kimani, 2006). The study was conducted in Kenya refugee camps with 197 participants that were randomized to receive the treatment insecticide permethrin or water sprayed onto their clothes. Laboratory blood tests were used to detect malaria pre and post intervention, and spraying of insecticide onto the clothes of the refugees was shown to reduce malaria infection by 70 percent. The four malaria prevention studies show that there are successful low budget ways to reduce malaria infection in the refugees within the region. These interventions should be adopted in all refugee camps.

The other two articles looking at malaria focused on treatment. The both of these studies looks at re-infection rates in Zambia refugee children up to age 5 who are being treated for malaria with the combination of sulfadoxine/pyrimethamine and artesunate (Depoortere, 2005 and Depoortere, 2005). Efficacy and effectiveness were compared for the treatment as half of the patients were assigned to receive it supervised and the other half unsupervised. There was a significant difference in therapeutic response between the two groups, indicating that lack of patient adherence to treatment is a major risk factor in lack of effectiveness. These studies highlight the serious nature of needing to monitor patient adherence to malaria treatment.

In conclusion, the infection of malaria can be reduced in refugee camps through simple and inexpensive means including providing mosquito nets and use of insecticide treated clothes. When malaria does occur, it is crucial to ensure patient adherence to treatment in order to ensure good cure rates.

Dysentery / Diarrhea

Dysentery / Diarrhea is the second most written about contagious disease in this sample. Two of the article found deal with prevention, while one focuses on treatment for diarrhea. Seven point seven percent of total deaths in Africa are caused by diarrhea and

its related fatalities (Reuters Foundation, 2006). Diarrhea is a symptom of infection from bacterial, viral and parasitic organisms primarily spread through contamination of water and food. Most deaths result from dehydration, and children are at far higher risk than adults (Black, 2003). Most treatments include the oral re-hydration and can be a low cost effective therapy.

The most recent study on diarrhea came from a refugee camp in Sudan (Walden, 2005). High rates of diarrhea were reported, yet the water supply was tested as clean. A massive disinfectant campaign for all water storage containers was launched in the camp as a result. The rates of diarrhea dropped rapidly and significantly, as testimony to the disinfection campaign. This study therefore showed a cost-effective way to combat diarrhea effectively if the main water supply itself is not found to be at fault.

A study done in Malawi refugees also looked at the water source for risk of diarrhea (Roberts, 2003). A randomized trial was conducted in refugees who were believed to have gotten cholera and diarrhea due to water contamination from their homes. Different intervention techniques were attempted, and it was concluded that water chlorination is the cheapest and most effective way to reduce contamination because refugees did not like to use specifically designed water storage containers to fit the same purpose.

Another way of successfully reducing diarrhea in a refugee setting was written about by Peterson et al. in 1998. This study was done in a Malawi refugee camp and consisted of evaluating 402 households through for episodes of diarrhea and diarrhea risk factors for a period of 4 months. After the initial observatory period, 200g of soap per person were distributed to these households monthly. The availability of soap led to a 27% decrease in diarrhea outbreaks within the studied population. Thus giving refugee populations soap is a cheap and effective way to reduce diarrhea outbreaks, even without behavioral intervention.

The third study identified deals with using dysentery as treatment for dysentery (Laureillard, 1998). This describes a dysentery caused by type I *Shigella dysenteriae* among Rwandan refugees. There was resistance to normally given antibiotics, and 326 refugees were given ciprofloxacin. This treatment was effective in almost all patients, however it is notably expensive.

In conclusion, diarrhea and dysentery can be prevented in refugee camps through decontamination of water storage containers and wide spread availability of soap. Antibiotic resistant dysentery can effectively be combated with the use of dysentery, though this is not ideal due to high cost.

Cholera

Cholera is tied with measles and meningitis as the third most represented infectious disease with two articles addressing it within this sample. Sub-Saharan Africa accounted for 95% of cholera cases worldwide in 2005, a number that increased by 31% since 2004 (WHO, 2005). The most recent study was conducted by Legros et al. in 1999. This study

was designed to assess the feasibility of providing a two-dose oral cholera vaccine in a Sudanese refugee camp in Uganda. Over 60,000 doses were administered covering 83% and 75.9% of refugees the first and second round of vaccination in accordance. Cost may serve as a barrier to future vaccination. However, this study demonstrates that it is feasible to successfully vaccinate a large refugee population, and recommendations are given that this technique may likewise be of use in urban slum dwellers.

The other study found is a cost-effective analysis of treatment and vaccination strategies in Sub-Saharan Africa refugee camps (Naficy, 1998). The study was designed based on probabilities of cholera outcomes from epidemiologic data collected in a Malawi refugee camp. The researchers come up with a hypothetical model of 50000 refugees hypothetically followed over the course of two years. The cost of providing rehydration therapy vs. vaccination was analyzed for this derived sample. Preemptive therapy was found to be the most cost effective unless the vaccine would drop to below \$0.22 per dose, in which case this would become the most cost effective option. In conclusion, vaccination is achievable in large refugee settings, though this may not necessarily be the most cost-effective way of dealing with cholera.

Measles

Africa accounts for over a third of the annual deaths associated with measles. This virus causes 345,000 worldwide deaths annually, most of whom are children. More than 20 million people are affected with this virus every year (WHO, 2007). This type of viruses causes blindness, brain damage and induces children's susceptibility to pneumonia and diarrhea. It is highly contagious and spreads mostly through coughing and sneezing. Vaccination is extremely effective. Since the cost of immunization is approximately \$1 for each child in Africa, The Measles Initiative and the WHO/UN Children's Fund (UNICEF) Strategy for Sustainable Measles Mortality Reduction aims to reduce measles deaths with comprehensive vaccination programs. Since its implementation Africa in 1999 there has been an overall drop of 60 percent in all documented measles cases (WHO, 2007).

Both articles found on measles dealt with immunization. The most recent was a study conducted in internally displaced persons living in northern Uganda. Mass immunizations provided in 1997 and 2000 lead to a 91% reduction of measles cases and 93% reduction of mortality. As a result, mass measles immunization is recommended for refugee settings. The second article was released by the CDC in 2004 and looks at measles in the conflict displaced. This report emphasizes the need for widespread immunization in setting of internally displaced persons. Therefore, in conclusion, the rapid and widespread immunization against measles is of crucial importance to refugee settings.

Meningitis

The "Meningitis Belt" has the world's highest rates of patients infected with the disease (WHO, 2001). Primary geographical stretch includes Senegal in western Africa to

Ethiopia in the east. Meningitis is a frequently fatal bacterial disease infecting the membranes of brain and spinal cord. Burkina Faso was the first African country to experience an epidemic of a new strain of meningitis known as W135 (WHO, 2006). Current world price of the vaccine ranges from \$4 to \$50, which is unaffordable to many African states, WHO and other global health organizations are currently negotiating to bring the price of vaccination down to an affordable level (WHO, 2005).

Two articles were found, one dealing with prevention and another with diagnosis techniques. An outbreak of meningitis took place at a Sudanese refugee camp in Northern Uganda in the early 1990's (Santaniello-Newton, 2000). A mass immunization campaign followed with 37 547 doses of meningococcal vaccine administered. Though no cases were registered for two weeks preceding this, an outbreak occurred again following an influx of new arrivals into the camp. A second immunization campaign ended this. This study was intended to highlight the need for continual immunization efforts with new refugees entering camps. The second study, conducted in a refugee camp in Zaire, found the latex agglutination test as the most useful in diagnosing meningitis, and recommend this test for general use in refugee camps (Heyman, 1998).

Parasites

Parasites are a wide spread problem in the crowded conditions of refugee camps. One article looked at intestinal parasitic infections among Somalian refugees (Mangoud, 2000). 10,000 Somali refugees were exposed to intense health education in close collaboration with the local community leaders. This proved to be a cost effective way to dramatically reduce the intensity of *Ascaris lumbricoides* and *Trichuris trichiura* infection. Therefore, this study can be used to reduce parasite infections in scarce resource situations.

The second study looks at malacologic-schistosomal in refugee camps within the Democratic Republic of Congo (Baluku, 1999). This described the high levels of water snails found in the water supplies of three refugee camps, which are directly attributed to the disease malacologic-schistosomal. The authors then proposed ways to control the water stain population as a means of preventing person infections.

Other Contagious Diseases

Yellow fever, *sarcoptes scabiei*, and malacologic-schistosomal were each addressed by one article. The study on yellow fever was designed to evaluate the effectiveness of a mass immunization campaign conducted in a camp of internally displaced persons in Liberia (Huhn, 2005). Mass interviews were conducted and the vaccination cards for refugees were also looked at. The study identified that the vaccination campaign was effective with 90% reporting vaccination and 80% having proof of this on the vaccination card. Since the vaccination was deemed successful by this study reviewing it, this same vaccination strategy may have broader impact for other vaccines and/or vaccinating for yellow fever in other refugee camps.

The final study was done on scabies and was conducted among children in a displacement camp in Sierra Leone (Terry, 2001). This was observational in nature, and found a huge incidence rate of 67%. This is directly attributed to the children's refugee status by the authors, who suggest reduction of overcrowding, improved health education and personal hygiene, as well as better treatment and surveillance programs as key to reducing scabies in refugee children.

Reproductive Health

The second most prevalent topic addressed by the assembled articles was reproductive health. One article deals with cost of reproductive health, another with safe motherhood, one with HIV, and the last with emergency contraceptive use.

The study on cost of reproductive health in the refugee population displaced to Uganda. The study revealed, with fluctuation, that refugees were receiving better reproductive health than the locals. The authors suggest "policy recommendations for improving the capacity, financing, organization and the performance of host health system in the refugee-affected settings" (Orach, 2007).

A UN refugee agency reviewed safe motherhood in Tanzania refugees (O'heir, 1999). The results were favorable in that antenatal care and labor and delivery services were available to refugee women. However, postpartum care was identified as being neglected within the programs. This review of the UN initiative demonstrated that safe motherhood can be provided in refugee settings.

The HIV/AIDS study was conducted in Tanzania refugees (Mayaud, 2001). This consisted of a rapid needs assessment, a review of literature, a review of the policy and health infrastructure, an assessment of STD's, intervention in the form of education and condom provision, and follow up on STD rates monitoring. Although sexual behavior did not appear to change following intervention, more refugees did do in for STD treatment. The study is inconclusive whether the intervention was effective in reducing HIV infection.

The last article found on refugee reproduction both dealt with emergency contraception and was done in Tanzania (Goodyear, 1998). This illustrates the general lack or extreme scarcity of emergency contraception in refugee camps which in opposition to the high demand for these posed especially by female victims of sexual violence. Increased supplies and education are clearly needed according to the authors.

Food and Nutrition

Food and nutrition levels of refugees tied as the third most prevalent issue written about as food security and nutrition level continue to be prevalent issues in Sub-Saharan camps. Anemia is the topic of two of the articles, while the fourth deals with malnutrition.

The most recent study on nutrition was cross sectional in nature and conducted in five refugee camps (Seal, 2005). Children, adolescents, and women are most affected by anemia and vitamin A deficiency. Areas where Vitamin A distribution programs were in affect fared better, but with wide discrepancies based on the program. The authors recommend strengthening of nutrition programs in refugee camps based on the found high levels of micronutrient deficiencies.

The second study looking at anemia was a randomized intervention study in Tanzanian refugee children under the age of five (Tomashek, 2001). Anemic children treated for malaria and helminth infection were randomly assigned to receive oral iron and folic acid or placebo. Monthly SP and thrice-weekly VAC improved iron stores in the treated children. This treatment regime is recommended for moderate anemia.

The third study identified looked at malnutrition in supplemental feeding programs set up during food emergencies in Liberia, Burundi and Congo (Vautier, 1999). The study concluded that it is feasible to enroll large numbers of children in supplementary feeding programs with a 75% recovery rate. Supplementary feeding programs do not however improve the nutritional status of the whole population.

Psychiatry

Both studies found in the area of psychiatry dealt with Post-Traumatic Stress Disorder (PTSD) in refugees that were at the time in Uganda. The first study looks at 6 Somali refugee children (Onyut, 2005). Pre and post intervention measurements were looked at for PTSD with a therapy intervention offered. Narrative Exposure Therapy was found to be an effective way to treat refugee children suffering from war related PTSD. The second study looked at 43 Sudanese refugees suffering from PTSD. The NET counseling approach was used with this group as well. This study also confirmed that the NET approach is an inexpensive and effective way of combating PTSD in refugees living in unsafe conditions.

Other Topics Addressed

A total of four articles were found that do not fit in the already existing categories. The topics of these are disease screening, foster care, eye disease/blindness, and oral health.

A screening and disease detection mechanism for epidemic-prone diseases was evaluated in 54 internally displaced person camps in Darfur (Pinto, 2005). This warning system was implemented by the World Health Organization to record the number of consultations and deaths per week of 12 specifically chosen health events among those younger than five and over five. 179,795 consultations occurred in a two month period with 18.7% for acute respiratory infections, 15% for malaria, 8.4% for bloody diarrhea and 1% for severe acute malnutrition. This surveillance tool was useful in detecting outbreaks and keeping track of the number of consultations required to trigger actions, but was not useful for estimating mortality.

A study done in Rwandan refugees was aimed at evaluating whether foster care is appropriate in emergency settings (Duerr, 2003). Weight gain and acute illness was evaluated in a sample of children living with biological vs. foster parents. There was no relationship found between health status of the child and type of family, thereby suggesting that fostering unaccompanied children during a refugee crisis is recommended.

Eye disease and causes of blindness were assessed among 700 Sudanese refugees in 18 camps across Uganda (Kawuma, 2000). Medical treatment and surgical correction was offered. It was discovered that trachoma and xerophthalmia were the major causes of blindness. This study shows that refugees have a much higher prevalence of eye disease and blindness than the local population, and thus intervention for eye disorders is crucial.

The final study identified looks at oral health of Liberian refugees in Ghana (Mickenautsch, 1999). The goal was to promote community involvement in the provision of oral health services by training 12 refugees from the camp. The refugees then spread the information to others within the camp. Dental problems were frequent within the camps with almost all refugees suffering from caries in the very least. Treatment was also provided for 846 patients over a twelve month period. The researchers conclude that relief programs must focus on prevention for oral health and on getting the community involved.

Significance

Refugees are among, if not, the most at risk population for undergoing health disparities for a variety of reasons, including their relocation, their poverty, as well as the actual demographics of refugees of which 80% are women and children (WHO, 2006). Thirty percent of the world's refugees can be found in Sub-Saharan Africa. Rather than doing a literature review to study the problems health associated with refugees in a strictly observational manner, I believed it was more important to study the different ways in which health concerns were dealt with in the refugee population of Sub-Saharan Africa. It is common place to find a problem and write about it, but it is far more unusual to actually offer an intervention for the problem and then evaluate this. By researching studies from the past 10 years focused at improving refugee health, I hope to have created a widely accessible reading list for anyone interested in doing health improvement work in this region of the world. The wheel does not need to be reinvented every time a problem is spotted in a camp. Thus if a problem was successfully addressed in a certain way in one refugee camp, it may be worth while studying and modifying this approach to deal with slightly different regions in the same continent.

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