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Undernutrition

IN REFUGEE CHILDREN



The United Nations High Commissioner for Refugees (UNHCR) defines a refugee as an individual who, owing to a well-founded fear of being persecuted for race, religion, nationality, or membership of a particular social group or political opinion, is outside the country of his or her nationality and is unable or unwilling to seek the protection of that country. Refugees from diverse backgrounds are found all around the world, having given up their homes, belongings, friends and, sometimes, families to live out uncertain futures in foreign lands.

In the ongoing refugee crisis, over 4 million Syrians, persecuted for their political opinion and threatened by a war-torn environment, have fled from their country into the neighboring nations of Lebanon, Jordan, and Turkey. Half of these individuals were under the age of 18 and, to date, there have been over 140,000 children born as refugees. In these countries of first asylum, refugees reside in rented accommodation, housing with relatives, informal settlements, and camps.

Over half of them live below national poverty lines, with the percent of Syrian refugees living in poverty rising from 50 to 70% between 2014 and 2015 in Lebanon^[2]. Children, especially those from

resource-poor regions of the world, are particularly vulnerable to these conditions of poverty that often accompany humanitarian crises. As refugees, they are more likely to be born with a low birth weight, less likely to have access to nourishing food, and more prone to mortality due to diarrhea-inducing infectious disease processes^[3,4].

Understanding that poverty-associated undernourishment challenges that begin during a humanitarian crisis continue onwards as refugees migrate to their eventual countries of resettlement, this literature review seeks to elaborate the reasons for and consequences of undernutrition in refugee children.

Nutrition in Camp Settings

In protracted refugee settings, where refugees spend over 5 years in camps, inadequate nutrition and micronutrient deficiencies are usually a product of poor living conditions. Individuals in these situations often find themselves dependent on humanitarian aid, and their access to a balanced diet with adequate micronutrients is greatly hindered by decreased aid agency funding and problems in the food distribution pipeline^[3].

This was the case for Bhutanese refugees of Nepali origin who fled to camps in Nepal and

India in the early 1990s. Fifteen years later, those in camps in southeastern Nepal were still reliant on food assistance. Commissioned by UNHCR and the World Food Program (WFP), a study in these camps assessed the nutritional status of Bhutanese refugee children between 6 and 59 months of age, evaluating five major health challenges of undernutrition. These included acute malnutrition, chronic malnutrition, low weight, anemia, and angular stomatitis.

It found that around 4% of children had acute malnutrition, with the highest prevalence between 1 and 2 years of age^[5]. This is similar to the lowest estimates in Kenyan camps hosting mostly Somali refugees in 2010 (5%) and to Syrian children in Jordan during the current crisis (5.6%)^[3,7]. The study in Nepal also found a much higher prevalence of chronic malnutrition and low weight, each of which was seen in around a quarter of refugee children. The study found that both of these were exacerbated with age, explaining why stunting is a feature commonly seen in Bhutanese refugee children even after resettlement in the United States.

Riboflavin deficiency was also indicated by an increased prevalence of angular stomatitis and almost half of the children in Nepali camps had anemia, although its prevalence decreased

with age^[5]. Anemia is present in a similar proportion of Syrian refugee children currently living in Jordan^[7]. This can be attributed to an inadequate supply of iron-rich foods, poor breastfeeding practices for infants, and a loss of micronutrients due to increased sanitation-associated diarrheal and respiratory illnesses^[5].

Medecins Sans Frontieres (MSF) cited diarrheal and infectious disease to be a major cause of mortality among children in a South Sudan refugee camp. The head of MSF's mission in South Sudan stated that "the majority of our patients in [...] camps are malnourished children who are further weakened when they contract diarrhea, malaria, or respiratory infections^[4]." A study analyzing water, sanitation, and food provision across refugee camps supported this, finding that an integrated approach is necessary to prevent morbidity and mortality secondary to a lack of sanitation and nutritious food^[6].

Nutrition after Resettlement

The poor nutrition and micronutrient deficiencies that occur in refugee children in camps continues to affect them after resettlement in resource-rich countries like the United States. One study evaluating refugees in the state of Georgia who had previously lived in camps that had experienced an over 5%, and sometimes over 15%, prevalence of acute malnutrition found 16% of the pediatric population to have acute malnutrition after resettlement^[8].

Anemia rates, which had been over 40% pre-resettlement, were also comparable at around 36% after resettlement in the United States^[8]. Other studies with larger sample sizes in Massachusetts and Maine found anemia rates to be closer to a quarter of US-resettled children. These analyses also found that resettled children still had intestinal parasites, which could in part explain the ongoing anemia in these individuals^[9, 10].

Discussion

Each refugee registered with UNHCR receives food rations of around 2166 Kcal every day from the WFP^[3]. This is slightly more than the average woman needs to maintain her weight and slightly less than the average man needs to maintain his weight. Because food is often brought to camps over long distances, most fortified and perishable foods, such as fruits and

vegetables, cannot logistically be distributed to refugees. Oftentimes, this leads to food rations that are deficient in micronutrients such as iron, riboflavin, and Vitamin C^[5].

For refugees in Kenyan camps, rations were a primary source of income to be sold and traded for food with a greater variety of nutrients as well as basic necessities, such as clothing and soap, that were not provided regularly^[3]. In Nepal, it was found that restricting refugees' movements to forage for supplemental foods diminishes their ability to access micronutrients that are not available in food rations. Restricting their employment decreased their ability to buy the commodities that those in Kenyan camps traded their rations for^[5].

To offset calorie deficits caused by this type of bartering, MSF staff distributed survival essentials, such as soap, and emergency food rations in the South Sudan camps to which they traveled^[4]. Educating mothers on how to breastfeed also decreased iron deficiency and anemia in infants^[5]. Other interventions to improve water and sanitation infrastructure in camps helps minimize the loss of micronutrients to improve outcomes for those who may already be undernourished^[6].

A study analyzing feeding programs provided for refugees in protracted situations found that 5% of refugee children under the age of five were enrolled in supplementary feeding programs. These programs provide dry, take-home supplementary food rations for individuals with moderate acute malnutrition. 80% of the individuals enrolled in these programs recovered.

However, because of ration sharing, children in the program likely consumed less than adequate calories from the supplement, taking longer than expected to recover. In camp situations where ration selling or trading is preferred, faster recovery can be promoted through more time-consuming and expensive feeding programs that utilize wet or ready to use foods^[11].

Protracted humanitarian crises yield not only refugees, but also internally displaced people (IDP), who face similar challenges with undernutrition. Ugandan IDPs were found to have protein energy undernutrition, susceptibility to diarrheal diseases, and chronic malnutrition resulting in stunting^[12]. However, IDPs do not qualify for large scale humanitarian aid, including food rations provided by the WFP, because they are not granted refugee status.

In the current crisis, more than 7.6 million Syrians have been internally displaced^[2]. And it is not difficult to imagine that many of them, in an already undernourished state, will enter refugee camps in the near future. At some point, several of them, in addition to several of the 4 million individuals who are already refugees, will be in the care of public health programs and health professionals in the United States. Refugee children who are undernourished will most likely come to the United States undernourished, making it imperative that we screen for and address nutritional challenges that could otherwise stunt the physical and cognitive growth of the youngest members of our society.

References

- [2] Sirin SR, Rogers-Sirin L. (2015). The Educational and Mental Health Needs of Syrian Refugee Children. *Washington DC: Migration Policy Institute.*
- [3] International Rescue Committee. (2011). Reducing Malnutrition in Hagadera & Kakuma Camps.
- [4] Medecins Sans Frontieres. (2012). Catastrophic malnutrition in refugee camps. (2012). *Website: Medecins Sans Frontieres.*
- [5] CDC. (2008). Malnutrition and micronutrient deficiencies among Bhutanese refugee children – Nepal, 2007. *Morbidity & Mortality Weekly Report*, 57(14), 370-373.
- [6] Cronin AA, Shrestha D, Cornier N, Abdalla F, Ezzard N, Aramburu C. (2008). A review of water and sanitation provision in refugee camps in association with selected health and nutrition indicators – the need for integrated service provision. *Journal of Water and Health*, 6(1), 1-13.
- [7] UNICEF. (2014). Interagency Nutrition Survey on Syrian Refugees in Jordan.
- [8] Lutfy C, Cookson ST, Talley L, Rochat R. (2014). Malnourished Children in Refugee Camps and Lack of Connection with Services After US Resettlement. *Journal of Immigrant and Minority Health*, 16(5), 1016-1022.
- [9] Hayes EB, Talbot SB, Matheson ES, Pressler HM, Hanna AB, McCarthy CA. (1998). Health status of pediatric refugees in Portland, ME. *Archives of Pediatrics & Adolescent Medicine*, 152(6), 564-568.
- [10] Gelman PL, Radin M, Zhang Z, Cochran J, Meyers AF. (2001). Growth Status and Related Medical Conditions Among Refugee Children in Massachusetts, 1995-1998. *American Journal of Public Health*, 91(11), 1800-1805.
- [11] Doocy S, Tappin H, Haskew C, Wilkinson C, Spiegel P. (2011). Performance of UNHCR nutrition programs in post-emergency refugee camps. *Conflict and Health*, 5, 23.
- [12] Olwedo MA, Mworozzi E, Bachou H, Orach CG. (2008). Factors associated with malnutrition among children in internally displaced person's camps, northern Uganda. *African Health Sciences*, 8(4), 244-252.



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