Food Security and Child Hunger among Refugees Recently Resettled in the USA

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--DRAFT NOT FOR CITATION--

The United States will accept thousands of new African refugees for resettlement this year, many of them from Liberia (Coulibaly 2004). These refugees are often escaping civil instability or conflicts in their home countries and are unable to return because of fear of persecution (UNHCR, 2003). This process is frequently associated with marginalization, impoverishment, physical and mental disorders, exposure to violence, and loss of social and support networks. As a consequence, refugees' ability to solve novel challenges, such as new food environments, is often undermined. Resettlement forces families to confront new foods, new meals, and new places to purchase foods, among other things. Difficulties in adjusting to these new food-related practices may arise because of transportation challenges, language difficulties that hinder the acquisition of information, and limited social networks. Refugee families are also frequently resettled in the poorest neighborhoods and have limited economic opportunities. For these reasons, concern has been raised that refugees may experience a high prevalence of food insecurity and health-related problems after resettlement (Palinkas, et al. 2003; Potocky-Tripodi 2002; Sellen and Tedstone 2000) Despite such concern, there have been few studies of how refugees, particularly African refugees, cope in their new environments. This

paper focuses on Liberian refugees living in the USA who have fled the continuing (although currently improving) conflict situation in Liberia (UNHCR 2003). As population pressures and conflicts increase globally, the need to assess how refugees adapt to their new homes becomes increasingly important. Assessing the food security situation among these newly arrived families is a step towards that goal.

Food security is a critical component of a healthy and productive population. A household is considered food secure when all of its members are "assured access to enough food for an active, healthy life." In contrast, food insecurity occurs "whenever the availability of nutritionally adequate and safe foods or the ability to acquire them is limited or uncertain" (Life Sciences Research Organization, 1990). A growing number of studies have shown that household food insecurity and child hunger are indicators of poor dietary practice and morbidity, and that households experiencing insecurity, or its more severe form, hunger, are associated with limited social capital, depressive and behavioral disorders among household members, and, paradoxically, overweight (Alaimo, et al. 2001a; Alaimo, et al. 2001b; Himmelgreen, et al. 2000; Kendall, et al. 1996; Kleinman, et al. 1998; Nord, et al. 2002; Rose 1999; Townsend, et al. 2001; Vozoris and Tarasuk 2003). These effects typically are independent of household income. Given the pervasive effects of food insecurity on health, a clear understanding of its prevalence and its causes and consequences is important among recently arrived refugees.

Study objectives and hypotheses

Objectives of this pilot study were to estimate the prevalence of food insecurity and child hunger among a sample of recently-arrived Liberian refugee families living in Providence, Rhode Island (USA), and compare these estimates against local and national estimates and

estimates from other refugee and immigrant populations in the USA and UK. Secondary objectives were to relate the occurrence of child hunger to measures of children's intake of several food items and household economic success. It was hypothesized that the prevalence of child hunger would be greater among families of lower economic standing. Similarly, child hunger was hypothesized to be more prevalent among families where the primary food purchaser reported difficulties locating stores with preferred foods, distinguishing between items in grocery stores, and who reported limited knowledge of non-Liberian meals or recipes, as well as difficulty in understanding the language of people with whom they interacted (which may hamper information acquisition). Finally, child hunger was expected to be associated with lower reported intakes of milk, fruits, vegetables, and meats and fish.

Methods

During a period of formative research, the ethnographic approach outlined by Sellen et al (2002) was adopted to ensure data collection instruments were appropriate for and accepted by the target population. Briefly, one of us sat in on weekly health meetings held at a local resettlement center, conducted two focus groups on dietary practices, and held in-depth interviews with refugees, a nurse, and caseworkers active in the community. Several themes emerged from these activities including a preference for in-home and family oriented meals, concerns over "chemicals" found in foods commonly consumed in the USA, and that living in "bad" neighborhoods and cold weather were perceived barriers to physical activity for women and children. It also became clear that at least some members of the Liberian refugee community were experiencing food anxiety and that this was associated with families finishing their food stamps early in the food stamp cycle. Families were adopting various coping strategies including

consuming the same meal for numerous days in a row. Through this work it also became clear that many recently-arrived refugees were experiencing difficulty distinguishing between items in large supermarkets, and preferred to shop in smaller, specialty stores.

This ethnographic work greatly facilitated the design of the final data collection instrument, which was pretested with three women from the Liberian community. A convenience sample was used whereby subjects were recruited through word of mouth at the resettlement center and in several community groups, and all subjects were interviewed if they met the following inclusion criteria: Liberian mother, living in the USA for less than five years, currently had a child less than five years of age, and had refugee or asylee status. An effort was made by the interviewers to locate both employed and unemployed respondents. All participants signed a consent form and were paid $10 for the approximately one hour long interview. Interviews were conducted privately at the resettlement center or in a few cases at the home of the respondent. Interviewers were Liberian women who were well known in the Liberian community and who underwent several training sessions during which interviewing skills and research ethics were covered**.** Interviewers regularly met with the PI to discuss the interviews and resolve any problems. Brown University's IRB approved all study procedures.

The interview consisted of a structured questionnaire that contained information on socio-demographics, migration history, social support, food security, dietary intake, shopping patterns, and acculturation. Following the interview, each mother was weighed and measured for height. Several of the sections on the interview were adapted from a previous questionnaire used by Sellen et al (2000), and the food security section was based on the Radimer/Cornell food insecurity scale (Kendall, et al. 1996). This is a 10-item scale used for assessing different stages of food insecurity. The tool follows a progression that begins with food insecurity at the

household, which is followed by reductions or alterations in the adult diet. In the last stage, the child experiences reductions in dietary quality or quantity. The focus of this paper is on child hunger, which was defined on the basis of a positive response to at least one of the following two statements: "My child(ren) is/are not eating enough because I just cannot afford enough food," or "I know my child(ren) is/are hungry sometimes, but I just cannot afford more food." The food frequency questionnaire asked how often (per day, week, and month) various foods from common food groups were consumed; these were converted to number of times consumed per day for each food group. Portion sizes were not estimated.

Chi-square, t-tests, Spearmans correlation, and logistic regression were used to assess differences in outcomes between households with and without child hunger. Statistical analyses were conducted with SPSS. Results were considered significant at the 5% level and marginally significant at the 10% level.

Results

Sample characteristics

Table 1 shows characteristics of the sample. Each woman had a child under the age of five living in her household, but one mother was a grandparent and reported the age of her youngest living child, which explains why only 97% of respondents are reported as having a child less than five years. Approximately half of the respondents were married and half were single; and one respondent was divorced and one was widowed. 45% of respondents had no school or elementary schooling, while 51% had high school or higher. Respondents had lived in the USA for an average of two years, and were living in households with approximately five individuals, 1-2 of whom were children. Most (80%) had spent time in a refugee camp prior to

arriving in the USA. Approximately half of respondents reported currently working for pay (48%) and half reported currently participating in the Food Stamp Program (FSP, 51%) and/or Women, Infants, and Children (WIC, 54%). Of those participating in the Food Stamp Program, 90% reported that their food stamps were finished before they were able to get more (e.g., all food stamps used up but unable to get more for a week or two). Most (60%) respondents reported their monthly household income as <$1000.

Food insecurity and child hunger

The majority of families had experienced food insecurity (85% 95%CI 6%, 31%; Table 2), and the prevalence of child hunger was 42% (95%CI, 27%, 59%). Adult-level and household-level food insecurity were both indicated in one out of five households (21%, 95%CI 10%, 37%).

Table 3 reports bivariate relationships between selected hypothesized risk factors and child hunger. Families who had resided in the USA for less than one year were more likely to experience child hunger than those living in the USA for more than one year (p=0.039). Education and employment status were also associated with child hunger. For respondents with little or no education, 73% were in households experiencing child hunger, whereas the prevalence of child hunger was indicated in only 17% of respondents with educational achievement at the high school level or higher (p=0.001). Only 14% of those respondents currently working reported child hunger, compared with 86% of women not currently working (p<0.0001). Women reporting greater incomes and higher monthly rent (which were positively associated, r=0.59, p=0.001) were also less likely to have responded positively to the statements on child hunger (p=0.001). The prevalence of child hunger was significantly greater among recipients of food stamps (p=0.001) but not among those using WIC (p=0.461). Perceived ability

to borrow food or money from friends or relatives was not related to child hunger (p=0.539). Interestingly, mothers and children in households characterized by child hunger reported consuming significantly more meals at other peoples' homes (Children, p=0.014; mothers, p=0.031).

It was hypothesized that child hunger would be more pronounced among those families who lacked food-related information in the new environment (such as where to shop and what to buy) and who might experience difficulty in acquiring this information because of language difficulties and limited social networks. To test these informational hypotheses, associations were examined between child hunger and respondents' (1) difficulty understanding people, (2) perceived difficulty in locating stores to purchase foods, (3) difficulty differentiating between food items in stores, and (4) knowledge of recipes. The results, shown in Table 4, show that the prevalence of child hunger was greater in households where mothers reported difficulty in understanding people in their new environment (p=0.013), when they had difficulties locating stores (p<0.013) and identifying foods within stores (p<0.001) and had limited knowledge of non-Liberian food recipes (p=0.005). Four logistic regressions were fit that included a term for the number of months resident in the USA, and one each of the four variables mentioned above as potential predictors of whether a household was experiencing hunger. In no case was the variable for time in the USA significant, although the informational variables were significant or marginally significant in each case (all p<0.06), suggesting that the significant associations shown in Table 4 are not merely the result of limited time in the USA.

Dietary intake and maternal overweight

We assessed the association between child hunger and children's reported daily intake of fruits and vegetables, milk, and meats and fish. Reported daily intakes were marginally significantly lower among households with hunger for milk (p=0.10) and for fruits (p=0.07). There were no significant differences in the reported intakes of vegetables (p=0.23) or meats (p=0.90) or fish (p=0.79).

The prevalence of overweight among study mothers was 48% and the average body mass index was 26.4 (SD 4.1) but there was no association between child hunger and maternal BMI (p=0.31) or overweight (p=1.0).

Discussion

The primary limitations of the study include the small sample size, cross-sectional study design, and the sampling strategy. The small size and the convenience sample strategy certainly limited the generalizability of these findings to the larger Liberian population. And the cross-sectional study design makes causal attribution difficult. For example, time in the USA is negatively related to food stamp use, which could optimistically be interpreted as showing that refugees are relatively short-term users of the FSP (as suggested by Bollinger and Hagstrom 2003). The alternative explanation is that those individuals who arrived earlier to the USA were better off economically or had characteristics that made them more employable; indeed, they may never have been participants in the FSP at all. A positive correlation between length of time in the USA and educational attainment (p=0.008) offers support for this latter self-selection hypothesis, although the lack of data on where schooling was completed obscures interpretation of this relationship (i.e., many refugees enroll in school programs once in the USA). Clearly, causal pathways would be better illuminated with a longitudinal study.

The high prevalence of food insecurity and child hunger are directly related to the use of the Radimer/Cornell scale, and it therefore follows that the results are only as valid as the tool. Confidence in the validity of the Radimer/Cornell scale as a valid indicator of food insecurity is gained by the strong associations between measures of socio-economics and the measure of child hunger. These associations, which are in the direction expected, suggest that the Radimer/Cornell tool can be used with refugee populations to rapidly assess refugee well-being and food security (see also Sellen et al 2002). Similar associations between socio-economic and food stamp use have been reported in other studies using the Radimer/Cornell tool (Himmelgreen, et al. 2000) or other assessment tools (Nord, et al. 2002). That children in households experiencing child hunger were consuming fewer fruits and dairy products also supports the validity of the tool, and the lower intake of milk is consistent with the findings of Kaiser et al (2002). Proper validation, however, awaits further analyses that assess the impact of food insecurity on dietary intake and other indicators of dietary practice and health and well-being. The use of food frequency questionnaires without indication of portion size is a serious limitation of the study. This, coupled with an inability to pinpoint where a family was in their current food stamp cycle, undermines our ability to detect differences in dietary intake between those households with hunger and those without.

Bearing the study limitations in mind, it is important to assess how the levels of food insecurity and child hunger identified in this sample compare with other studies of food security in the USA and the UK. In 2000, the prevalence of overall food insecurity among households within the USA was 11%, and food insecurity with hunger was indicated in 3.3% of these households. A national-level study on food insecurity showed that within Rhode Island, the site of this study, the prevalence of food insecurity in all households was 10.1% (±1.49) and the

prevalence of hunger was 3.4% (±0.66) (Nord, et al. 2002). That same study showed considerable variation by class and ethnicity within the USA. For instance, food insecurity was experienced by 26.5% of Black households with children, and hunger by 2.5% of households with children in the lowest income bracket (Nord et al 2003). Because a different set of questions were used to categorized households as food insecure in this national study, the results are not directly comparable, although they do give some idea of the magnitude of the child hunger problem in the present study.

Studies using the Radimer/Cornell also report tremendous inter-population variation in food security and child hunger. For instance, a study by Kendall et al (1996) found that only 11% of rural New York households were experiencing child hunger and 47% of households were food secure. In a very different sample, Himmelgreen et al (2000) reported an overall prevalence of food insecurity of 87.7% and a prevalence of child hunger of 21% among low-income Hispanics living in Hartford, Connecticut, one of the poorest cities in the USA. They suggested that the results might reflect the high level of poverty and language and cultural barriers that confront members of the Hartford Hispanic community. This hypothesis is supported by our finding that child hunger was greater among those reporting difficulty in understanding people. The results of a study by Kaiser et al (2002) among Mexican-Americans offers similar support for this argument. A study among recently resettled Sudanese refugees in Atlanta, Georgia estimated the overall prevalence of food insecurity at 73%, and child hunger was indicated in 21% **[check with Dan]** of families (Sellen and Hadzibegovic, 2003). A similar study conducted among several refugee families newly resettled in London also showed high levels of food insecurity and child hunger. In that study, 100% of households were food insecure, and the prevalence of child hunger was 60% (Sellen et al 2002).

Why the high prevalence of child hunger among recently resettled refugees? Clearly employment and income play a role, and programs that accelerate the transition into the labor force are obviously needed. Poor shopping practices may also be partly responsible for the results of this pilot study. Shopping practices influence both spending and food choices such that they could plausibly influence both food security and dietary intake (Hersey, et al. 2001). If the associations shown in Table 4 between difficulties in food-related practices and child hunger are causal, then programs designed to improve knowledge of these deficiencies are clearly warranted. Such programs might take the form of shopping guides and recipe books, which could include modified, inexpensive and healthy versions of Liberian meals.

Other hypotheses that address the high levels of food insecurity focus on the role of cultural attitudes towards food practices. The foods that people eat are critical in defining them and are an integral part of shaping ethnic identity (Caplan 1997; Kerhsen 2002).We might expect, therefore, that in situations of forced relocation maintain food-related practices from one's homeland may play an important psychological role by continually reconfirming ties to one's culture and traditions. This sentiment was expressed in our in-depth interviews, for instance, when a woman mentioned: "When we are eating our foods we feel like we are in our country again." These same attitudes may encourage the use of foods found at more expensive specialty shops, which, when coupled with low monthly income, may predispose families to food insecurity. It is perhaps noteworthy that we failed to identify a difference in reported consumption of meat and fish in households with and without hunger, which may reflect a cultural preference for these foods. This is line with the hypothesis that a tension exists between some food preferences and the budget constraints imposed by the low-income poverty. Indeed, modeling efforts have shown quite convincingly that imposing costs constraints quickly leads to

a reduction in the amount of meat and fish that are included in the diet suggesting an inherent incompatibility between high levels of meat and fish consumption and low income (Darmon, et al. 2004; Darmon, et al. 2002). It is also possible that a preference for specialty foods combined with the challenge of transportation access, leads to shoppers frequenting only a limited number of stores. Such specialty stores may offer a limited selection of fruits and vegetables, and may have higher prices on other items. Our future studies will explore these hypotheses in more detail through surveys and ethnographic methods.

It is also interesting to note that the measure of social support and the ability to borrow food or money from others was not related to the prevalence of child hunger. This is in line with results obtained by Sellen et al (2002), and should not suggest that support networks are unimportant, only that our measure of support may not have specified the appropriate measures. Indeed, the finding that mothers and children in households with child hunger were more likely to report eating meals at other people's homes suggests an alternative strategy to coping with child hunger. Rather than borrowing food or money, obtaining meals at others' households may be a culturally appropriate means to buffer periods of insufficient food in the household. We hope to explore this finding in more detail.

This pilot study was conducted to assess the overall prevalence of food insecurity and child hunger among recently arrived Liberians who have been displaced from Liberia because of ongoing conflict. As predicted, the prevalence of food insecurity and child hunger were considerably higher than national and state figures, but comparable to other studies on disadvantaged populations, including refugees. Measures of child hunger were related to socio-economic indicators and some measures of dietary intake. Future studies in this population

should investigate a range of functional outcomes in more detail to assess the full impact of child hunger on children's health and well being.

Table 1. Characteristics of the sample (n=33)

	N (%)	Mean ± SD
Mother's age (years)		35.9 ± 9.4
Child less than five years of age	32 (97)	
Months in USA		24.9 ± 16.6
Number in household		4.8 ± 1.7
Number less than five years		1.5 ± 0.9
Marital status		
Single	16 (48)	
Married	15 (45)	
Divorced	1 (3)	
Widowed	1 (3)	
Spent time in refugee camp?	26 (79)	
Education		
No school	5 (15)	
Elementary	10 (30)	
Junior high	1 (3)	
High school	7 (21)	
College or higher	10 (30)	
Current monthly income		
$0-500	16 (48)	
$500-1000	4 (12)	
$1000 - 1500	6 (18)	
$1500-2000	6 (18)	
Don't know	1 (3)	
Receive food stamps?	17 (51)	
Receive WIC?	18 (54)	
Working for pay?	16 (48)	

Table 2. Prevalence of food insecurity in the sample (n=33)		
	N	%
Food secure	5	15
Food insecure	28	85
Household insecure	7	21
Adult-level insecure	7	21
Child hunger	14	42

Table 3. Bivariate associations between child hunger and select socio-demographic variables

	Child hunger?		
	No (n=19)	Yes (n=14)	p
Time in USA			
Less than one year	21%	57%	
More than one year	78%	42%	0.039
Mother's age (years)	33	38	0.154
Child's age (years)	2.9	3.0	0.791
Household size	4.8	4.9	0.891
Marital status			
Single	50%	50%	
Married	66%	33%	0.271
Education			
None – little	26%	73%	
High school – college	83 %	17 %	0.001
Income			
$0-500	21%	92%	
$500-1000	21%		
$1000 - 1500	26%	8%	
$1500-2000	31%		0.001
Could borrow money or food from friends or relatives if needed?			
Yes	47%	43%	
No	53%	57%	0.539
Working for pay			
Yes	83%	14%	
No	17%	86%	<0.0001
Food stamps			
Yes	29%	70%	
No	82%	12%	0.001
Monthly rent	$614.88	$308.45	<0.0001
Amount spent on food/person/week	$19.90	$14.03	0.070

Table 4. Bivariate associations between child hunger and informational variables			
	Child hunger?		
	No (n=19)	Yes (n=14)	P*
I find it difficult to understand people here.			
Agree	42%	85%	
Disagree	57%	14%	0.013
I think it is difficult to shop in the USA because I'm not sure what all the choices are.			
Agree	10%	78%	
Disagree	90%	21%	<0.0001
I cook Liberian foods because I don't know any other recipes			
Agree	21%	71%	
Disagree	79%	28%	0.005
I have difficulties finding stores with foods that I like			
Agree	21%	64%	
Disagree	79%	35%	0.015
Fisher's test, one tailed			

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