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RESEARCH

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Acculturation, Education, Nutrition Education, and Household Composition Are Related to Dietary Practices among Cambodian Refugee Women in Lowell, MA

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ABSTRACT

Refugees in the United States have higher rates of some chronic diseases than US-born residents or other first-generation immigrants. This may be partially a result of dietary practices in the United States. There is limited information about which factors are related to dietary practices in refugee populations, particularly those who have been in the United States for 10 to 20 years. Research with Cambodian communities may be useful for examining the relationship between refugee characteristics and dietary practices. Two focus groups (n=11) and a survey (n=150) of Cambodian refugee women were conducted in Lowell, MA, from 2007 to 2008. χ^2 analyses, *t* tests, and analysis of variance tests were used to describe differences in dietary practices (24-hour recall and a targeted qualitative food assessment) by group characteristics. Higher acculturation was related to higher likelihood of eating brown rice/whole grains, and to lower likelihood of eating high-sodium Asian sauces. Higher education was related to higher likelihood of eating vegetables and fruits and to eating white rice fewer times. Nutrition education and receiving dietary advice from a health care provider were related to higher likelihood of eating whole grains/brown rice. Having a child at home was related to a higher likelihood of eating fast food. Among Cambodian refugees who have been in the United States for 10 to 20 years, dietary practices appear to have a relationship with acculturation (positive association), the interrupted education common to refugees (negative association), nutrition education from either programs or health care providers (positive association), and having a child at home (negative association).

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More than 500,000 refugees have been resettled in the United States since 2000, with tens of thousands more expected each future year (1). Compared with US-born residents and other first-generation immigrants, refugees have high rates of heart disease, hypertension, and type 2 diabetes (2-4). The refugee experience and its associated trauma and stress increase risk of chronic disease (5,6). Postmigration changes in lifestyle might also contribute.

As a subgroup of immigrants, refugees may have postmigration dietary changes similar to those of nonrefugee immigrants. A large body of research documents health-related lifestyle changes among immigrants in the United States, although actual changes differ by ethnic group (7-15). Research using varied measures of acculturation or exposure to US culture has shown that as acculturation increases, dietary practices change in both potentially harmful (9,11,16-20) and beneficial (7,11,16,18,21) ways. Having a child at home can influence family eating through interactions with American-style foods (22,23). Past educational experience may also influence eating (24,25). Nutrition education, whether through a nutrition education class/program (26-28) or as advice from a health care provider (29) may improve dietary practices.

Compared with other immigrants, refugees have distinct experiences and personal characteristics that may influence how they react to the US food environment. Many refugees come from war and trauma (30) and have low education/literacy (18,30,31), which may impact interaction with host culture and food (32-34). To date, there are limited data on refugee dietary practices and

personal characteristics, and most focus on the first few years after resettlement (18,19,32,33,35-38).

Research with Cambodian refugee communities can serve as a refugee model. Cambodian refugees survived trauma, food insecurity, interrupted education, and social upheaval, all common refugee experiences (39,40). Many Cambodian refugees have been in the United States since the mid-1980s (30), allowing an assessment of long-term dietary changes. This article presents a description of dietary practices of Cambodian refugee women nearly 20 years postmigration to the United States, and investigates how acculturation, education, exposure to nutrition information/education, and family composition are associated with specific dietary practices linked to health outcomes.

METHODS

Design

In conjunction with Cambodian Community Health 2010 (a Centers for Disease Control and Prevention program to reduce health disparities [30]), the Cambodian Mutual Assistance Association of Greater Lowell, Inc (a Cambodian Community Health 2010 partner) and the Lowell Community Health Center (the Cambodian Community Health 2010 lead agency) examined dietary practices of Cambodian women aged 35 to 60 years from 2007 to 2008 in Lowell, MA. Because a main goal of the study was a detailed description of foods and because Cambodian women are the primary food preparers, only women were included.

All procedures were approved by the Institutional Review Board of the University of Massachusetts Lowell, to which the Institutional Review Board of Tufts University deferred. Informed consent was obtained from all participants. All materials were made available to participants in English and Cambodian.

Instruments, Sample Selection, and Survey Administration

Two focus groups were conducted to describe general dietary practices. Participants were recruited through community organizations in Lowell.

Results of the focus groups were used to develop questions and wording for a survey, which was administered to a random sample of women from a comprehensive list (estimated 70% to 90%) of Cambodian households in Lowell. Full details on sampling frame construction, sample selection, and survey testing were reported previously (34).

Five female and one male bilingual, biliterate Cambodian Americans administered the survey. Administrators received 40 hours of presurvey training and weekly training throughout survey administration. Administrators contacted households in person and made follow-up visits when eligibility was not determined or an eligible woman was unavailable. They read survey questions to participants and recorded answers. No financial incentive was provided, but all ineligible Cambodian households and, on completion of the survey, all participants, received Cambodian-focused Cambodian Community Health 2010 nutrition education materials.

Dietary Assessment

Culturally important dietary practices were described by focus group participants. In the survey, dietary practices were measured through a targeted qualitative food assessment and a 24-hour dietary recall.

The targeted assessment included foods identified in focus groups and in experiences through Cambodian Community Health 2010 that may be consumed less frequently than one time per week, but which may have health implications when consumed regularly. It was not intended to estimate nutrients. Participants were asked how often they eat foods in eight categories, including fast food, which was then broken down by McDonald's (Oak Brook, IL), Burger King (Miami, FL), Wendy's (Dublin, OH), Kentucky Fried Chicken/KFC (Atlanta, GA), and other (described by each participant); chicken and other birds with skin, including cultural examples; foods made with coconut milk; diet soda; regular soda; eggs; meat with fat, including cultural examples; and brown rice. Responses were categorized as never, less than once a month, once a month, two to three times a month, once a week, twice a week, three to four times a week, five to six times a week, every day, and two or more times a day. Participants were also asked to describe the foods within the categories. Results are reported for whether the respondent ate fast food two or more times a month and brown rice one or more times a month because for these foods survey participants reported a frequency of consumption that may have considerable health consequences.

The 24-hour dietary recall included all foods and beverages consumed the day before the survey. Participants estimated ingredient amounts and portion sizes using standard bowls, cups, and measuring cups and spoons provided by survey administrators. To address the concern that dietary recalls may distort amounts through standardized recipes (41), all ingredients were recorded and number of eating instances, rather than amounts eaten, were calculated. Reference day dietary practices were derived from the 24-hour dietary recall. Reference day practices reported are: ate white rice, ate any whole grain, ate an Asian sauce, and ate a vegetable or fruit at least once. Mean±standard deviation is reported for times eating white rice, times eating an Asian sauce, and times eating a vegetable or fruit.

Personal Characteristics

Acculturation was measured with the 10-question Psychological Acculturation Scale, developed by Tropp and colleagues (42) to measure how cultural identification influences behaviors. It was translated/adapted and validated for use in this population (43). Cronbach's α was used to test reliability (score of .87, indicating high internal reliability). Validity was assessed through Spearman rho correlations with measures of exposure to US culture that have previously been used to assess acculturation. Measures and correlations were years living in the United States ($r=0.35$, $P<0.01$), age at immigration ($r=-0.30$, $P<0.01$), whether the participant ever speaks English at home ($r=0.36$, $P<0.01$), whether the participant reads English easily ($r=-0.25$, $P<0.01$), and whether the participant graduated from high school in the United States ($r=0.24$, $P<0.01$). On the 5-point scale, 1 represents identifying entirely with Cambodians, 5 represents identifying entirely with Americans, and 3 represents identifying equally with Cambodians and Americans. For analysis, acculturation was divided into low (bottom half, ≤2.11) and high (top half, >2.11).