Interface of Neighborhood Residence on Obesity Prevention Behaviors and Self-Efficacy in Chinese Americans

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ABSTRACT

The obesity epidemic is a prominent health issue affecting Chinese Americans in the United States. The purpose of this research is to identify if self-reported neighborhood of residence ('high' income versus 'middle-low') elucidate differences in obesity prevention behaviors and self-efficacy in Chinese Americans residing in Los Angeles county and the New York Metropolitan area. A cross-sectional survey design was used where a convenience sample of 650 participants (18-60 years old) completed a validated, self-administered questionnaire. Participants were recruited from universities, cultural institutions, and churches representing a wide range of backgrounds. Nineteen behaviors related to obesity risk reduction were measured with 9 items measuring self-efficacy for these behaviors. Participants indicated adoption of behaviors over the previous month, reflecting food practices, portion size control, and consumption of plant-based foods. Descriptive statistics were conducted for the entire sample and t-tests were applied for categorized neighborhoods. The mean age of the study participants was 36.3 (SD = 14.5) years. T-tests indicated higher frequency of adoption of six health behaviors within the 'high' income group as compared to their counterparts. T-tests also indicated stronger self-efficacy levels in the 'high' income group for 7 out of 9 items, reflecting the performance of dietary behaviors. Nutrition professionals must assess clients' living environments and the adoption of obesity prevention behaviors. In fostering behavioral confidence, investigating the impact of individual's neighborhood and various residential areas are warranted.

RESEARCH QUESTION

Does neighborhood residence ('high income' versus 'middle-low income') elucidate differences in obesity prevention behaviors and self-efficacy in Chinese Americans residing in Los Angeles county and the New York metropolitan area?

METHODS

A cross-sectional survey design. Participants were from Los Angeles County and New York City metropolitan area and between the ages of 18-60 years old. A total of 650 adults were recruited from diverse socio-economic backgrounds. Descriptive statistics were measured for 19 behaviors reflecting food intake and portion size control and 9 items measuring self-efficacy. T- tests were applied for the two categories of living environment.

Sample Obesity Risk Reduction Behaviors: (19 questions total)

In the past month, how often did you engage in the following behaviors?
Food context
"ate steamed foods instead of fried foods?"
Eating behavior context
"ate smaller portion sizes of foods than usual?"
Physical activity context
"exercised at least 30 minutes, on 3 to 5 days/week?"
Psychological context
"took time to relax and improve my emotional well-being?"
Knowledge/awareness context
"learned about obesity risk and prevention?"

Psychosocial Variables Evaluated:

Self-efficacy
"How confident are you in consuming small portion sizes of foods?"

Attitudes
"Eating home-cooked meals instead of restaurant-prepared foods is…" ('favorable' to 'unfavorable')

RESULTS

A total of 1033 surveys were distributed to individuals from diverse cultural, religious, and academic institutions, of which 650 were returned (203 LA + 447 NY), resulting in a 63% response rate. The mean age of the sample was 36.3 years old (SD = 14.5). Sixty-eight percent of the LA sample were female and 37% were never married, as compared to the NY sample (65% were female and 50% were never married). The 'high income group' indicated greater frequency of five behaviors including choosing steamed over fried foods ($p < 0.01$) and using small amounts of oils ($p < 0.05$). Self-efficacy to perform health behaviors were stronger in this group.

Participants living in 'high' income areas reported higher frequency of choosing steamed foods over fried ones, using small amounts of cooking oils or fats, eating at least 3 servings of vegetables per day, eating at least 2 servings of fruit per day, and eating healthful snacks.

Respondents living in 'high' income neighborhoods reported more favorable attitudes toward eating home-cooked meals ($p < 0.001$), choosing small portions of foods ($p < 0.001$), using small amounts of cooking oils or fat ($p < 0.001$), limiting intake of high calorie beverages ($p < 0.01$), choosing steamed foods over fried ones ($p < 0.001$), and eating a lot of fruits and vegetables ($p < 0.001$) (Table 1). Significant differences in self-efficacy were detected in comparing the mean values of individuals living in 'high' versus 'middle-low' income neighborhoods. Higher levels of self-confidence were reported in respondents living in 'high' income areas, particularly for consuming small portions sizes of foods ($p < 0.001$), selecting foods that are not fried ($p < 0.01$), eating a lot of fruits and vegetables ($p < 0.05$), limiting high calorie beverages ($p < 0.05$), making healthful choices at fast food restaurants ($p < 0.01$), and eating healthy snacks ($p < 0.05$).

CONCLUSION

This study reflects a multi-state approach investigation dietary behaviors conducive to obesity among Chinese Americans, focusing on individuals' living environment and psychosocial factors, such as attitudes toward behavior and self-efficacy. In general, the sample of Chinese Americans living in 'high income' neighborhoods reported a higher frequency of behaviors (e.g. limiting portion sized of foods, replacing fried foods with steamed alternatives) related to healthy eating as compared with those living in 'middle-low' income areas.

Nutrition professionals must assess client's living environments in the adoption of obesity behaviors and the fostering of behavioral confidence. Nutrition educators, dietitians, and health professionals working with Chinese Americans living in middle-low income neighborhoods need to assess their confidence and ability to practice portion size control and select nutrient-dense foods in lieu of high-fat and high-sugary options. In promoting favorable attitudes toward these dietary behaviors, creating a sense of empowerment and confidence to enact these behaviors can be reinforced by familial role models and community leaders.

Future studies can elucidate the environmental impacts of neighborhoods, albeit the accessibility of fresh produce or the competitive marketing of junk foods in specific regions and cities in the U.S. A longitudinal study design can be instrumental in determining the stability of behaviors, attitudes and self-efficacy in preventing obesity, especially in this minority population group of Chinese Americans. Future applications of psychosocial models in explaining health behaviors in other large urban areas and older Chinese American adults are recommended.

TABLE 1. T-Test Comparison on Obesity Prevention Behaviors between 'High' and "Middle-Low" Neighborhoods

Category	High Income Mean	SD	Middle-Low Income Mean	SD	Sig. (2-tailed)
Psychological					
Took time to decrease the amount of stress I feel	2.71	0.89	2.57	0.91	0.058
Took time to relax and improve my emotional well-being	2.85	0.92	2.72	0.91	0.076
Physical Activity Context					
Engaged in at least 1 physically active leisure activity	2.62	1.09	2.48	1.09	0.092
Exercised at least 30 minutes, on 3-5 days/week	2.57	1.12	2.42	1.10	0.094
Eating Context					
Ate home-cooked meals instead of restaurant-prepared meals	3.11	0.84	3.05	0.91	0.39
Limited my portion sizes of foods	2.51	0.97	2.40	0.94	0.15
Used portion size control methods to help decide how much to eat	2.19	1.04	2.03	0.99	0.06
Followed traditional healthful Chinese food patterns	2.93	0.97	2.73	1.00	0.009**
Food Context					
Ate steamed foods instead of fried foods	2.79	0.91	2.58	0.92	0.003**
Used small amounts of oils or fat when preparing or cooking foods	3.08	0.93	2.88	0.99	0.010*
Ate at least 3 servings of vegetables per day	2.84	0.91	2.66	0.92	0.012*
Ate at least 2 servings of fruit each day	2.72	0.95	2.55	0.98	0.020*
Ate at least 3 1-oz servings of whole grains per day	2.67	0.98	2.58	0.97	0.247
Made healthier choices at fast food restaurants	2.48	1.07	2.38	1.05	0.246
Ate healthful snacks	2.82	0.95	2.66	0.93	0.027*
Ate healthful pre-packaged foods	2.32	1.02	2.19	0.99	0.126
Limited intake of high-calorie beverages	3.07	1.06	2.97	1.06	0.203
Knowledge Awareness Context					
Monitored my weight	2.65	1.07	2.49	1.04	0.059
Learned about obesity risk and prevention	2.02	1.05	1.99	1.05	0.732

*   p< 0.05 level
**   p< 0.01 level
*** p< 0.001 level