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Baseline Socio-Demographic Characteristics and Self-Reported Diet and Physical Activity Shifts among Recent Immigrants Participating in the Randomized Controlled Lifestyle Intervention: “Live Well”

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Abstract

Background—The goal of this paper is to describe the baseline characteristics of Live Well (intervention to prevent weight gain in recent immigrant mother-child dyads from Brazil, Haiti, and Latin America) participants, and to explore self-reported changes in diet and physical activity post-immigration.

Methods—Baseline data from 383 mothers were used for this study. Dyads attended a measurement day, where they completed self-administered surveys collecting information about socio-demographics, diet, physical activity, other psychosocial variables, and height and weight.

Results—Haitian mothers’ socio-demographic profile differed significantly from that of Brazilians’ and Latinas’: They have been in the US for a shorter period of time, have higher rates of unemployment, are less likely to be married, more likely to have 3 children, more likely to be obese, and have immigrated for family or other reasons. In multivariate models, self-reported changes in diet and physical activity since migrating to the US were significantly associated with BMI with non-linear relationships identified.

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Discussion—Future research is needed to understand how shifts in diet and physical activity change in the process of acculturating to the US and explore adoption of both healthy and unhealthy dietary changes.

Keywords

immigrants; obesity; acculturation; changes in dietary and physical activity

Several studies have shown that for immigrants, becoming overweight and obese increases with length of residence in the US[1-6]. It is hypothesized that exposure to the US' "obesogenic" environment, characterized by the pronounced availability of energy dense, palatable, inexpensive foods coupled with limited opportunities for physical activity, likely contributes to this upward shift in weight[1-4, 7-9]. Given that immigration into the US has and is expected to continue to play a critical role in population growth over the next four decades, immigrant health should be a public health priority [10]. The observed weight gain, coupled with projected increases in immigration, underscores the importance of identifying modifiable risk factors that contribute to overweight and obesity among different immigrant groups early in the acculturative process.

Research demonstrates wide differences in risk factors and behaviors leading to obesity and overweight status across immigrant populations. For example, as immigrants acculturate to the US, they may modify their dietary and physical activity behaviors as they adapt to or borrow traits from this new culture [11]. In particular, increased length of exposure to the US environment (e.g., time in country, 1st vs. 2nd generation) leads to greater self-reported dietary change [1] [4], such as decreases in the consumption of traditional foods, and total fiber, and increases in total fat, sugar and calorie intake [12] [13] [14] [15]. Many of these studies, however, have been completed with Mexican/American immigrants and some Asian populations so that results may not be transferable to other Hispanic groups or to other immigrant populations. With respect to physical activity, there appears to be a positive association between length of residence in the US and leisure time physical activity [2, 3, 8, 16, 17]. In contrast, non-leisure time physical activity (occupational, transportation-related and household-related), seems to be negatively associated with acculturation (e.g. English language proficiency, generation in the US, time in country, age at arrival) [7, 9, 18, 19]. Self-reported changes in total physical activity since moving to the US have not been explored.

Despite the weight-related consequences of acculturation and the positive association between weight gain and length of residence in the US, few interventions have targeted recently arrived immigrant mothers. Parents play a critical role in shaping the dietary intake of their children via many pathways, including organizing the home food environment, role-modeling eating behaviors, and offering family meals[20] [21] [22]. Mothers, particularly foreign-born women, spend more time in meal preparation than do men [23], highlighting their ability to influence the household food environment. The Live Well intervention aims to test whether an intervention that addresses behavioral and socio-cultural obstacles in a population of recent immigrants can reduce unhealthy weight gain among mother-child dyads. The goal of this paper is to describe the baseline characteristics of Live Well

participants, and to explore self-reported post-immigration changes in diet and physical activity, as these may help explain the increased prevalence of overweight and obesity among these new immigrants.

MATERIALS AND METHODS

The data analyzed for this paper were collected at baseline in two waves of recruitment. The first wave was between March and June 2010, and the second wave was between May and June 2011. Participants were enrolled in Live Well, a community-based participatory research randomized controlled lifestyle intervention. The central premise of Live Well is that an appropriately timed intervention, co-created by community partners and academic researchers, can prevent excess weight gain in recently arrived immigrants. Mother-child dyads were eligible to be enrolled if the mother met the following criteria: resides for <10 years in the US, is of Brazilian, Haitian, or Latino descent, 20-55 years of age, not pregnant or >6 months postpartum, has a child between 3-12 years of age, lives in the Greater Boston area, and is willing to be randomized. Community partners and the project staff worked together to develop the recruitment strategy for this project. Outreach included: Broad community awareness through radio advertising, flyers and poster dissemination, community outreach to market, churches, beauty salons, community organizations, clinics and hospitals, and one-to-one referrals by friends and participants. Some barriers for participation were inherent to the criteria of selection such as place of residence and length of stay in the country. Mother-child dyads were compensated \$200 for participating in the study. Informed consent was obtained from all mothers; assent was obtained for children >7 years of age and written permission for children < 7 years of age. Mother-child dyads attended a measurement day held at one of several community facilities to complete baseline measurements; data from enrolled children were not analyzed for this paper. The study protocol was co-designed and approved by the Live Well Steering Committee, and approved by the Tufts University Social, Behavioral, and Educational Institutional Review Board.

Measurements

At baseline, all mothers completed a self-administered (or interpreter-assisted) survey, which was offered in English, and translated into each of three languages (Portuguese, Haitian-Creole and Spanish). The survey included questions about socio-demographics (i.e., age, race, ethnicity, and marital status), education level, household size and composition, household income (reported on a yearly or weekly basis), employment status, number of jobs, acculturation, and changes in diet and physical activity. The reporting of acculturation, changes in diet and physical activity, and height/weight measurement procedures are described in more detail below.

Acculturation Questions

Information was collected on country of birth, number of years and/or months the participant has lived in the US, reasons for moving to the US (i.e., economic opportunities, educational opportunities, family in the US, seeking political asylum), and whether the participant moved to the US from an urban or rural setting. Perceived level of acculturation was rated using the following statement: "When you think about your daily life now, where

would you place yourself?” Participants answered using a 10-point Likert scale (1 being “More American” and 10 being “More Brazilian/Haitian/Latino”).

Self-reported Changes in Diet and Physical Activity Questions—To measure changes in diet and physical activity following arrival in the US, participants were asked, “Using the scale below, how would you compare the food you normally eat in the United States with the food you normally ate in your home country?” [24] and “Using the scale below, how would you compare your physical activity in the United States with the physical activity you did in your home country? Some examples of physical activity could be walking, cleaning, running, biking, walking up stairs”. Participants answered using a 10-point Likert scale (1 being “Exactly the same” and 10 being “Completely different”).

Body Mass Index (BMI)

Height and weight measurements were taken in triplicate following standardized procedures [25]. Height was measured, without shoes, to the nearest eighth of an inch using a portable The Shorr Board vertical stadiometer (Shorr Production, Olney, MD). Weight was measured in light clothing, without shoes, to the nearest tenth of a pound on a portable digital scale (Befour PS-6600 Portable Scale; Befour Inc., Saukville, WI). Body Mass Index (BMI) was calculated from the average of the three body weight and height measurements (kg/m^2). Maternal weight status was classified based on BMI; categories were as follows: underweight (<18.5), normal weight ($18.5\text{--}24.9$), overweight ($25.0\text{--}29.9$), and obese (≥ 30.0), as recommended by the US Centers for Disease Control and Prevention (CDC) [26].

Data Analysis

We examined the frequency distributions of participant characteristics, and evaluated the distributions by ethnicity and weight status using chi-square tests or Fisher's Exact Tests. Associations between exposures, self-reported changes in diet and physical activity, and the outcome, BMI, were estimated in separate models using multivariable regression analysis, treating the 10-level scale of self-reported changes as a continuous variable. We also included the quadratic form of the exposures into the regression model to account for non-linear associations revealed during exploratory data analysis.

Based on prior literature, the following variables were adjusted for in the final model: ethnic group, age, education, number of children, duration of residence in the US, reason for moving to the US, and moving from a rural or urban area[4]. The quadratic term in the regression model for dietary change was significant, and thus retained in the final model. For physical activity change, the quadratic term was not significant and was subsequently removed. The interaction between time of residence in the US and ethnicity was also tested, but was found to be non-significant. Statistical analyses were conducted using SAS 9.2 software by SAS Institute Inc. (Cary, North Carolina). Statistical significance was determined based on a Type I error rate of 0.05. As there were only three underweight women, they were excluded from the analysis.

Results

Approximately equal numbers of participants from each of the three ethnic groups were enrolled: 138 Brazilians, 131 Haitians and 114 Latinas. The mean age was 36.1 ± 6.4 yrs. One-third of participants completed less than high school. Twenty-four percent (24%) were employed fulltime, 25% were employed part-time, 26% were unemployed and looking for work, and the remaining 25% were employed seasonally, were a student, or homemaker. Of those employed, seventy percent were employed at two jobs. Overall, 55% of women were married and 43% have two children. Mothers have been in the country an average of 6.0 ± 3.3 years. Approximately 50% of mothers came to the US for economic opportunities, and more than 80% immigrated from urban environments (Table 1). In response to the question, “When you think about your daily life now, where would you place yourself on a scale of 1 (more like an American) to 10 (more like a Brazilian//Haitian/Latino) the mean was 7.9 ± 2.2 . The mean degree of self-reported dietary change since immigrating (1 being “Exactly the same” and 10 being “Completely different”) was 6.8 ± 2.8 , and the mean physical activity change was 7.5 ± 2.8 , suggesting substantial differences since moving to the US.

In bivariate analyses, socio-demographic variables including income, employment status, number of jobs, marital status, and number of children differed significantly by ethnicity, with Haitian women's socio-demographic profile differing from that of Brazilians' and Latinas'. Haitian women reported lower incomes (60% reported making $< \$200$ a week vs. 33% of Latinas and 5% of Brazilians), and a higher degree of unemployment. This difference in income across groups remained significant even when only analyzing employed mothers, with 11% of Haitians vs. 6% of Latinas and 3% of Brazilians earning $< \$200$ a week. Slightly less than half of Haitian mothers (47%) reported never being married, compared to 31% of Latinas and 15% of Brazilians; 75% of Brazilians were married, compared to 51% of Latinas and 37% of Haitians. A higher proportion of Haitian women also report having more than three children 34% vs. 22% of Latinas and 13% of Brazilians. A higher percentage of Haitian women were obese (50%) compared to Latinas (39%) and Brazilians (25%). In bivariate analyses, weight status differed significantly by income, employment status, number of jobs, ethnic group, number of children and acculturation level (Table 2). Twelve percent of obese and 17% of overweight women reported household incomes of $> \$600$ a week, compared to 29% of normal weight women; a larger percentage of obese women (31%) reported being unemployed, as compared to normal weight women (14%). Thirty-six percent of obese women reported having one job, as compared to 27% of overweight and 15% of normal weight women, and 15% of normal weight women reported having equal to or more than three children compared to 25% of overweight and 27% of obese women. Post-hoc analyses revealed that obese women reported a greater change in their diet since immigrating to the US (7.5 ± 2.8) compared to normal weight women (6.1 ± 2.4). Obese women also reported a greater change in their physical activity since immigrating to the US (8.2 ± 2.4), as compared to overweight women (6.9 ± 3.1).

In multivariable linear regression, self-reported physical activity change was positively associated with a higher BMI ($\beta=0.3$, $p=0.01$), after controlling for known covariates (Table 3). The quadratic term for dietary change was significant, suggesting non-linearity ($\beta=0.1$, $p=0.05$). Therefore, we calculated the expected change in BMI along the dietary change

scale (Figure 1). When moving along the scale from “Exactly the same” to “Somewhat the same/somewhat different,” the expected change in BMI was 0.11. The association between length of time in the US and degree of dietary change did not differ by ethnicity (p-value for interaction term = 0.15).

Discussion

The goal of this paper was to describe the baseline socio-demographic and weight status characteristics of the Live Well study population, and to explore associations between self-reported changes in diet and physical activity since immigrating to the US among mothers from three distinct ethnic groups. We found that, overall, there were low levels of education and high rates of unemployment; yet, among those who work, the majority of participants had multiple jobs. In multivariate models using the entire sample, we found that the degree of self-reported changes in diet and physical activity since immigrating to the US were significantly associated with BMI, after accounting for important covariates including ethnicity.

Although immigrants may share some of the same experiences of adapting to a new country and culture, the immigrant sub-groups participating in Live Well differed in their socio-demographic profiles. The Haitian women in this study, in particular, differed markedly from the Brazilians and Latinas. Haitians have been in the US for a shorter period of time, exhibited higher rates of unemployment, were less likely to be married, more likely to have three or more children under the age of 18 living in the household, more likely to be obese, have moved here for family or other reasons (i.e., after the 2010 Haitian earthquake), and have greater changes in self-reported levels of diet and physical activity. It is important to note that recent arrival to the US and displacement due to the earthquake for Haitians may have an effect on residential status, unemployment and other self-rated variables. Previous research in the Boston area found that Haitian immigrant women were less likely to have graduated from high school than African American, Latina, non-Hispanic white, or English-speaking Caribbean women ($p < 0.01$ for each comparison) [27]. However, in this study, 36% Latinas were without a high school diploma compared to 32% of Haitians and 26% of Brazilians. Although approximately 50% of Haitian women reported not being married, 70% reported attending religious services at least one or more times a week. Anecdotally, our Haitian research staff believes that Haitian women may be misreporting socio-demographic information given their fear of immigration laws or benefits concerns. Within the Haitian community, it is well known that it is easier for women with children without a husband to gain easier access to public benefits including housing, food stamps and other mean tested benefits. It is conceivable that women may choose to underreport their marital status in this study perceived as a governmental project. The discrepancy between women who report never being married 50% and 70% attending religious services one or more times a week, further supports this underreporting since regular participation in religious services in this community contains the constraint of being married. Future studies should examine the differences among distinct immigrant populations with regards to lifestyles in their countries of origin and the specific changes in dietary patterns and physical activities that occur upon immigrating to the US.

A previous study among immigrants in the US found that, compared to those with lesser changes, those with greater changes in self-reported diet were more likely to exhibit overweight/obesity [4]. That study categorized dietary change as low, moderate and high, rather than on a more continuous scale. We found similar results in that higher dietary change was associated with a higher BMI, while we also found this to be true even with lower levels of dietary change. Therefore, it suggests that a modest change in an immigrant's diet (to that of an American diet) may have some health benefits. Although much of the literature has indicated that acculturation is associated with a lower consumption of fruits and vegetables and a higher consumption of fat and sugar, this literature has been largely focused on Mexican/Mexican American and some Asian populations. The extant literature has also generally relied on proxy measures of acculturation such as place of birth or language preference [28]. In this study, we found that recent immigrants retained a strong identity with their ethnic group. Consequently, food preferences are clearly connected to ethnic food choices. However, the availability of ethnic food and the structural conditions of acculturating to the US, including changes in spoken language, job limitations, and a decreased support system may make it more difficult for immigrants to maintain their pre-arrival diet.

It is increasingly recognized that acculturation is a complicated and individualized process. It may also be “selective” in that individuals make personal choices about both the extent and the areas in which they will change [29]. As bicultural women, they may retain certain dietary choices and food patterns from their original “home” culture but also adopt other dietary behaviors from the new culture; such changes may have real benefits. It also may be that within different subgroups this response varies; for example Von Rompey and colleagues found that among Puerto Rican adults, acculturation was associated with lower dietary glycemic index and starch intake, and greater fruit and non-starchy vegetable intake – a finding in stark contrast to findings obtained from Mexican American participants [30].

We found that women who reported greater changes in physical activity since immigrating had a higher BMI, even after adjusting for associated covariates. Although to our knowledge, self-reported changes in physical activity have not been explored across immigrant populations, our findings are consistent with previous research suggesting that as women acculturate to the American “obesogenic” environment they may become less physically active and more sedentary [31] [32] [33] [34, 35]. A 2012 study of recently immigrated Latinas found that, in the US, they routinely prioritize family responsibilities above their own health needs, leaving little time for physical activity [33]. Socioeconomic pressures and the need to work multiple jobs represent major factors that may limit time for physical activity [36]. In formative research for Live Well, women identified work-related time pressures and limited ability to control personal schedules as important barriers to increased physical activity and healthful eating [37]. At the same time, immigrants, including a sample living and working in Somerville, MA, are frequently over-represented in low-wage jobs that may be more physically demanding. The relationship between acculturation and overall physical activity remains inconclusive; some studies show increases in leisure-time physical activity and others show decreases in non-leisure physical activity [2, 3, 7-9, 16-19] [32], which means the overall effect on total physical activity is uncertain. Future longitudinal studies would benefit from measuring changes in different

types of physical activity (such as leisure, transportation, or work-related), before (in their country of origin) and after immigrating to the US in order to fully understand how each change potentially influences weight gain.

Our findings should be interpreted within the context of the limitations of our work. Although our sample represents a diverse group of immigrants, generalizability may still be limited given the small sample size and the focus on families from Brazil, Haiti and Latin America (predominately originating in Central and South America). As a cross-sectional study, one can neither discern the direction of influence, nor look at change over time. Although we asked about changes in diet and physical activity, we did not have information about which specific aspects were changed and in which direction, preventing us from knowing how these patterns changed and how they differ from before migration. We do, however, have preliminary findings from focus groups where women expressed how opportunities for physical activity are limited in the US[37]. Finally, given our anecdotal knowledge that Haitian women may be misreporting due to fear of immigration law or benefits, our results that their socio-demographic profiles differ from the Brazilian and Latino, may be biased.

In conclusion, we found that in this population of recently immigrated women, self-reported dietary change and physical activity change were associated with changes in BMI. It appears that both lower and higher self-reported dietary change is associated with higher weight status. Future research is needed to understand how shifts in diet and physical activity manifest themselves among several distinct immigrant groups in the process of acculturating to the US. In particular, future studies should explore the adoption of both healthy and unhealthy dietary changes. If these findings are confirmed, then future interventions and programs targeting immigrant populations should be better able to understand and address the variable socio-demographic profiles among different immigrant groups, and how changes in diet and physical activity may influence weight status.

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Figure 1.
Predicted maternal BMI versus dietary change scale.

Table 1

Characteristics of the Live Well Study Population by Ethnicity

		Total Population (n=383)		Brazilian (n=138)		Haitian (n=131)		Latino (n=114)	
		N	%	N	%	N	%	N	%
Socio-demographic Variables									
Age (mean, SD)		36.1	6.4	34.1 ^b	5.9	38.6 ^a	6.0	35.4 ^b	6.6
Education	Less than high school	119	31.5	37	26.8	42	32.6	40	36.0
	High school, trade/technical school	170	45.0	71	51.5	57	44.2	42	37.8
	Some college/college graduate/graduate	89	23.5	30	21.7	30	23.3	29	26.1
Income**									
	<\$200/wk	82	28.9	6	5.1	47	60.3	29	32.6
	\$200-\$600/wk	148	52.1	69	59.0	30	38.5	49	55.1
	>\$600/wk	54	19.0	42	35.9	1	1.3	11	12.4
Employment Status**									
Employment Status	Employed Full Time >35hrs/wk	89	24.0	47	34.8	24	19.2	18	16.2
	Employed Part Time <35hrs/wk	93	25.1	43	31.9	20	16.0	30	27.0
	Employed Seasonally	34	9.2	11	8.2	9	7.2	14	12.6
	Unemployed/looking for work	97	26.2	7	5.2	65	52.0	25	22.5
	Student	4	1.1	0	0.0	1	0.8	3	2.7
Number of current jobs**	Homenaker	54	14.6	27	20.0	6	4.8	21	18.9
Marital status**	1	76	26.2	2	2.0	51	50.5	23	29.0
	2	201	69.3	100	90.9	50	49.5	51	64.5
	3	13	4.5	8	7.3	0	0.0	5	6.3
Marital status	Never married	115	30.8	21	15.2	60	47.6	34	31.2
	Married	205	55.0	104	75.4	46	36.5	55	50.5
	Separated/Divorced/Widowed	53	14.2	13	9.4	20	15.9	20	18.4

	Total Population (n=383)		Brazilian (n=138)		Haitian (n=131)		Latino (n=114)	
	N	%	N	%	N	%	N	%
Number of children in the household < 18 ^{**}								
1	124	34.4	59	43.7	30	25.4	35	24.6
2	156	43.2	59	43.7	48	40.7	49	45.4
3	81	22.4	17	12.6	40	33.9	24	22.2
Acculturation Variables								
Years of residence in US (Mean, SD) ^{**}								
	6.0	3.3	7.4 ^a	2.5	3.5 ^b	3.2	7.0 ^a	2.5
Reasons for moving to US ^{**}								
Economic opportunities	193	54.1	97	71.9	29	24.2	67	65.7
Educational opportunities	19	5.3	10	7.4	4	3.3	5	4.9
Family	77	21.6	13	9.6	48	40.0	16	15.7
Political reasons	9	2.5	0	0.0	9	7.5	0	0.0
Other (including earthquake)	59	16.5	15	11.1	30	25.0	14	13.7
Before coming to the US, what environment did they live in ^{**}								
Rural	69	18.6	15	10.9	15	12.3	39	35.1
Urban	302	81.4	123	89.1	107	87.7	72	64.9
When you think about your daily life now, here you would place yourself? [*]								
mean, sd	7.9	2.2	7.3 ^a	2.1	8.1 ^b	2.2	8.5 ^b	2.3
How would you compare the food you normally eat in the US vs. what you ate in your home country? ^{**}								
	6.8	2.8	5.8 ^a	2.3	8.0 ^b	2.3	6.9 ^c	3.4
How would you compare your physical activity in the US vs. in your home country?								
	7.5	2.8	7.5	2.5	7.6	2.8	7.4	3.2
BMI Categories (kg/m ²) ^{**}								
Normal weight 18.5-24	106	28.1	62	45.9	20	15.5	24	21.2
Overweight 25-29	129	34.0	39	28.9	45	34.9	45	39.8
Obese > 30	142	37.5	34	25.2	64	49.6	44	38.9

Sample sizes vary slightly due to missing data

P-values generated from Chi-square tests and Fisher's exact for cells that have expected counts < 5

1000
p<0.0001
**
*
d
b

^a superscripts signify significant difference (P<0.05).

^b superscripts signify significant difference (P<0.05).

Table 2

Characteristics of the Live Well Study Population by weight status

	Normal (n=106)		Overweight (n=129)		Obese (n=142)	
	N	%	N	%	N	%
Socio-demographic Variables						
Age (mean, SD)	34.9	6.5	36.5	6.2	36.5	6.4
Education						
Less than high school	27	25.5	41	32.3	48	34.3
High school, trade/technical school	50	47.2	56	44.1	63	45.0
Some college/college graduate/graduate	29	27.4	30	23.6	29	20.7
Income *						
< \$200/wk	14	16.9	34	35.8	33	32.4
\$200- \$600/wk	45	54.2	45	47.4	57	55.9
> \$600/wk	24	28.9	16	16.8	12	11.8
Employment Status *						
Employed Full Time >35hrs/wk	29	27.9	25	20.2	35	25.4
Employed Part Time <35hrs/wk	33	31.7	36	29.0	21	15.2
Employed Seasonally	13	12.5	9	7.3	11	8.0
Unemployed/looking for work	15	14.4	38	30.7	43	31.2
Student	1	1.0	1	0.8	2	1.5
Homemaker	13	12.5	15	12.1	26	18.8
Number of current jobs *						
1	13	14.6	26	26.8	36	36.4
2	70	78.7	65	67.0	62	62.6
3	6	6.7	6	6.2	1	1.0
Marital status						
Never married	26	25.0	43	34.7	45	32.1
Married	66	63.5	60	48.4	76	54.3
Separated/Divorced/Widowed	12	11.5	21	16.9	19	13.6
Number of children in the household <18 *						

	Normal (n=106)		Overweight (n=129)		Obese (n=142)		
	N	%	N	%	N	%	
Acculturation Variables	1	46	44.7	42	34.7	35	26.1
	2	42	40.8	49	40.5	63	47.0
	3	15	14.6	30	24.8	36	26.9
	Years of residence in US (Mean, SD)						
	Reasons for moving to US						
	Economic opportunities	65	64.4	65	54.2	61	46.6
	Educational opportunities	5	5.0	6	5.0	7	5.3
	Family	17	16.8	22	18.3	36	27.5
Political reasons	2	2.0	3	2.5	4	3.1	
Other (including earthquake)	12	11.9	24	20.0	23	17.6	
Before coming to the US, what environment did they live in							
Rural	18	17.1	24	19.1	26	19.3	
Urban	87	82.9	102	81.0	109	80.7	
When you think about your daily life now, where you would place yourself?							
	7.6	2.1	8.1	2.1	7.9	2.4	
How would you compare the food you normally eat in the US vs. what you ate in your home country? **	6.1 ^a	2.3	6.7 ^{ab}	3.0	7.5 ^b	2.8	
How would you compare your physical activity in the US vs. in your home country? **	7.4 ^a	2.6	6.9 ^a	3.1	8.2 ^b	2.4	

Sample sizes vary slightly due to missing data

P-values generated from Chi-square tests and Fisher's exact for cells that have expected counts < 5

* p<0.01

** p<0.0001

^a superscripts signify significant difference (P<0.05).

^b superscripts signify significant difference (P<0.05).

Table 3

Beta estimates for self-reported diet and physical activity change

	Unadjusted			Adjusted +		
	B	SE	p-value	B	SE	p-value
BMI						
How would you compare the food you normally eat in the US vs. what you ate in your home country?						
Original value	-1.0	0.5	0.06	-0.9	0.6	0.12
squared	0.1	0.0	0.01	0.1	0.0	0.05
How would you compare your physical activity in the US vs. in your home country?						
Original value	0.3	0.1	0.01	0.3	0.1	0.01

Adjusted for ethnic group, education, number of children in the household, time of residence in US, reason for moving US, Moving from rural/urban, age