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Socioeconomic Disparities in Emerging Adult Weight and Weight Behaviors

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Abstract

Objectives—To explore weight, weight behaviors, and tobacco and alcohol use among emerging adults by parental education and financial strain.

Methods—Cross-sectional analyses of 2010 survey data from an urban Minnesota public 4-year university and 2-year community college (n=1201).

Results—Low parental education was associated with lower fruit/vegetable consumption and physical activity and more fast food and unhealthy weight control. Financial strain was associated with less physical activity and more unhealthy weight control, binge drinking, and tobacco use.

Conclusions—Unique relationships exist between socioeconomic indicators and emerging adult health behaviors. Additional research is needed to understand financial context among emerging adults.

Keywords

college health; obesity; weight behaviors; socioeconomic factors

Emerging adulthood (typically defined as ages 18-25 years) is a unique developmental period in which habits and behaviors that affect health are formed.¹ This period represents a time when many individuals may be finding their independence and negotiating new responsibilities and life skills as they transition into established adults. As a result, emerging adulthood represents a unique period when the maintenance and development of health behaviors may be influenced by new factors such as management of one's own finances and priority setting. From a health perspective, emerging adulthood is marked as a period of weight gain, decreased physical activity (PA) levels and diet quality,²⁻⁹ increased alcohol use and tobacco use,¹⁰⁻¹² and high rates of unhealthy weight-control behaviors.^{13,14} There has been evidence that these behaviors (ie, weight status, PA, diet, alcohol and tobacco use, and unhealthy weight-control behaviors) may be linked among emerging adults.¹⁵ These behaviors, specifically insufficient PA, poor diet, tobacco and alcohol use, are leading behavioral causes of overall population-level mortality.¹⁶ A consequent condition of insufficient PA and poor diet is obesity, which has been on the rise over the past 3 decades among almost all populations of children, adolescents, and adults.¹⁷⁻¹⁹ Given the public health imperative to address overweight and obesity, insufficient PA, poor diet, and tobacco and alcohol use, emerging adulthood may be a critical period for interventions aimed at addressing the development of these risky health behaviors.

Among young people in the United States, numerous health disparities exist by socioeconomic status (SES) including overweight and obesity, PA, and nutrition,^{8,20-22} as well as alcohol and tobacco use.^{20,23} For example, Nelson and colleagues found that in a gender-stratified analysis of nationally representative sample of 4-year college students, there were significant differences by parental educational attainment, with students whose parents did not attend college having the highest risk of overweight and obesity compared to students whose parents had attended college.⁸ Parental educational attainment can provide information on individuals' general living condition during time periods when they are particularly dependent on their parents; this may be considered by some as an "inherited SES." Therefore, parental educational attainment is often a measure of SES that is used among children, adolescents, and emerging adults in health-related research.^{8,21,23,24} Other common measures of SES, such as income, educational attainment, or occupation, may not be as relevant for emerging adults because they are still in a process of developing the skills and tools necessary to accomplish and establish meaningful levels of income, education, and occupation.

However, among emerging adults, who are transitioning into their own independence, parental educational attainment may capture only a portion of the financial context in which emerging adults exist. Other measures, such as current financial strain, have also been used to assess SES among emerging adult populations like college students. For example, one study examining credit card debt among students at a 4-year university found that having debt over \$1000 in the last month significantly predicted multiple weight-related behaviors including low PA levels and breakfast consumption and high levels of sedentary behavior, fast food consumption, unhealthy weight control, and body dissatisfaction.¹³ In addition, this marker of current financial strain was associated with increased levels of perceived stress.

Overall, many scholars agree that SES is a complex construct that is composed of multiple dimensions.²⁵⁻²⁸ Thus, we believe that current financial strain may capture a different aspect of emerging adults' financial context compared to the SES they inherited from their parents. More specifically, although parental educational attainment reflects the financial experiences during childhood, financial strain captures the current intrapersonal financial experience. Given the importance of weight-related behaviors, tobacco and alcohol use in the prevention of obesity and premature mortality, and the adverse changes in behaviors during emerging adulthood, it is important to understand the role that financial context and financial strain may play in influencing the behaviors of emerging adults.

Furthermore, to our knowledge, no assessment of perceived financial strain and health has been undertaken in diverse populations of emerging adults, such as those attending 2-year community and technical colleges. Students attending 2-year colleges are more likely to come from racial/ethnic minority groups and low-income backgrounds in which the relationship between financial strain and context and health may be different from that of 4-year college students. With enrollment in postsecondary institutions increasing among emerging adults,²⁹ non-traditional, 2-year colleges are an important setting for intervention delivery, particularly interventions aimed in the development and maintenance of healthy behaviors that lower risk of chronic diseases. A better understanding of financial context and financial strain as related to health behaviors in these settings may be informative in intervention development, because future interventions may need to take into account the availability of resources for young adult college students and consider the financial barriers associated with behavior change.

To address these gaps in the literature, the purpose of this study was to (1) explore the weight status, weight-related behaviors, and alcohol and tobacco use behaviors among a

diverse sample of both 2-year and 4-year college students by financial context (ie, parental educational attainment) and financial strain (ie, how difficult it is to live off of one's current household income) and (2) examine the association between financial context, financial strain, and weight status, weight-related behaviors, and alcohol and tobacco use among college students whose parents had not completed high school or had experienced high financial strain.

METHODS

Survey Design and Study Population

The Student Health and Wellness survey was administered to a sample of students at a public 4-year university and a 2-year community college located in the Twin Cities metropolitan region of Minnesota in the spring of 2010 (March through May). Research study team members approached students on campus and provided students with pass codes to complete an online survey that took approximately 30-35 minutes to complete. The survey assessed multiple nutrition- and weight-related attitudes and behaviors. Accompanying the survey were in-person measurements of height, weight, and body fat percentage. Students who completed the survey and in-person measurements received a \$50 gift card and were entered for a chance to win an Apple iPod Touch. The final number of completed surveys was n=1201 (2-year: n=598, 4-year: n=603). All study protocols were approved by the University of Minnesota Institutional Review Board.

There were several differences between the study sample and overall student enrollment within each school. In the 4-year university study sample, there were more racial/ethnic minorities (52% white, 7% African American, 36% Asian, 9% other), compared to the total enrolled undergraduate population (70% white, 7% African American, 8% Asian, 18% other). The 2-year college study sample also represented more racial/ethnic minorities (40% white, 33% African American, 21% Asian, 11% other) than enrolled students (62% white, 20% African American, 12% Asian, 4% other). Additionally, in the 4-year university sample there were differences in age (11% under 19 years old, 83% 19-24 years old, and 4% over 24 years old) compared to enrolled undergraduate students (10% under 19 years old, 79% 19-24 years old, and 11% over 24 years old). There were also differences in age in the 2-year sample (18% under 19 years old, 59% 19-24 years old, and 20% over 24 years old) compared to enrolled students (6% under 19 years old, 54% 19-24 years old, and 41% over 24 years old). There were not substantial differences in gender between the study sample and the enrolled student populations for either school.

Independent Variables

The following question was used to assess parental educational attainment (ie, financial context): "What is the highest grade in school which your father (or stepfather or male guardian) and mother (or stepmother or female guardian) have completed? (Mark one box for each parent or guardian)." Response options included "Did not finish high school," "Finished high school (or got a GED)," "Went to vocational school (computer/electrician/mechanic)," "Took some college (but did not graduate)," "Graduated from college or a university," "Has professional training beyond a 4-year college degree," and "I don't know." Respondents who reported, "I don't know" were recoded as missing. For respondents who reported educational attainment for both parents, the higher of the 2 was used as the highest level of educational attainment. For respondents who reported educational attainment for only one parent, that response was taken as the highest. In order to facilitate interpretation of parental educational attainment as well as to ensure adequate sample sizes for analysis, parental educational attainment was then dichotomized into "Did not finish high school" and "Completed high school or higher." Self-reported financial strain was assessed using the

following question: “How difficult is it for you to live on your total household income right now?” Response options included “Not at all,” “Somewhat difficult,” “Very difficult or can barely get by,” and “Extremely difficult.” Financial strain was dichotomized into low (not at all difficult and somewhat difficult) and high (very difficult and extremely difficult). The financial strain question used in this study was adapted from a question used in Project EAT (Eating Among Teens)-III, a large 10-year cohort study of adolescents and young adults.³⁰ There was a low but significant correlation between parental educational attainment and current financial strain ($r=0.11$, $P<0.001$).

Dependent Variables

Multiple outcomes were assessed including weight status; fruit and vegetable, soda pop, and fast food consumption; light and hard PA; unhealthy weight control; binge drinking; and tobacco use. Weight status was determined using body mass index (BMI) that was calculated from measured height and weight. Weight status categories include underweight/normal ($BMI < 25 \text{ kg/m}^2$), overweight ($BMI \geq 25 \text{ kg/m}^2$), and obese ($BMI \geq 30 \text{ kg/m}^2$).

Fruit and vegetable consumption (in cups) was calculated using reported consumption during the past month of fruitjuice, fruit, salad, French fries, potatoes, beans, vegetables, tomato sauce, and salsa.³¹ Fruit and vegetable consumption was then categorized into “0 to fewer than 2 cups,” “2 to fewer than 4 cups,” and “4 cups or more.”

Soda pop consumption was assessed using the following question: “During the past month, how often did you have regular, carbonated soda, pop, or soft drinks that contain sugar? (do not include diet soda.)” Response options included “never,” “1-3 times last month,” “1-2 times per week,” “3-4 times per week,” “5-6 times per week,” “1 time per day,” “2 times per day,” “3 times per day,” “4 times per day,” and “5 or more times per day.”³² Responses indicating one or more times per day were collapsed into a “1 or more times day” category.

Fast food consumption was assessed using the following question: “During the past 30 days, how often have you eaten something from any of the following types of restaurants (including take-out, delivery, and drive-through)?” Restaurant types included traditional (burger and fries), Mexican fast food, fried chicken restaurant, sandwich or sub shop, pizza parlor or restaurant, Asian fast food restaurant, bakery or doughnut shop, bagel shop, juice bars, and other restaurant where food is ordered at a counter or drive-through window. Response options included “Never,” “1 time total,” “2-3 times total,” “1-2 times per week,” “3-4 times per week,” “5-6 times per week,” “1 time per day,” “2 times per day,” and “3 or more times per day.”³² Students who had missing data for all of the restaurant types were considered missing in the calculation of fast food consumption. Students who had missing data for a few items were included in the fast food consumption calculation with the missing values recoded to zero. Responses were collapsed into the following categories: “0 to less than once per day,” “1 to less than twice per day,” and “2 or more times per day.”

Hard PA was assessed using the following question: “How many times in the past 2 weeks have you done at least 20 minutes of exercise (or physical activity) hard enough to make you breathe heavily and make your heart beat fast? (Hard exercise includes, for example, playing basketball, jogging, or fast bicycling).” Light PA was assessed using a similarly worded question: “How many times in the past 2 weeks have you done at least 20 minutes of light exercise (or physical activity) that was not hard enough to make you breathe heavily and make your heart beat fast? (Light exercise includes, for example, walking or slow bicycling).” Response options for PA questions included “none,” “1 to 2 days,” “3 to 5 days,” “6 to 8 days,” and “9 or more days.”³³

Unhealthy weight-control behaviors were assessed using the following question: “During the past year, have you done any of the following things in order to lose weight or keep from gaining weight? (Mark all that apply.)” Unhealthy weight-control behaviors include fasting, taking diet pills, self-induced vomiting, using laxatives, and using diuretics. Respondents selecting any unhealthy weight-control behavior were combined into one group.

Tobacco use was assessed using the following question: “During the past 30 days, on how many days did you use either smoking tobacco or smokeless/spit tobacco?” Response options included, “0 days,” “1-2 days,” “3-5 days,” “6-9 days,” “10-19 days,” “20-29 days,” and “all 30 days.” Categories for the tobacco use variable were collapsed as follows: “Do not use tobacco,” “0-9 days,” and “10 or more days.” Binge drinking was assessed using the following question: “Think back over the past 2 weeks. How many times have you had 5 or more drinks in one sitting?” Response options included “I don’t drink alcohol,” “none,” “once,” “twice,” “3-5,” “6-9,” and “10 or more.” Categories for binge drinking were collapsed as follows: “Do not drink alcohol,” “None,” and “at least once in the past 2 weeks.”

Covariates

Covariates used in these analyses include race/ethnicity, gender, employment, relationship status, number of children, year in school, and self-perception of being an adult. Due to small sample sizes, race was categorized as “white,” “black,” “Asian or other Pacific Islander,” and “Other.” “Other” includes American Indians, Hispanic, students reporting multiple races, and students reporting an “other” race. Self-perception of being an adult was assessed using the following question: “How often do you think of yourself as an adult?” Response options include “Never,” “Seldom,” “Sometimes,” “Most of the time,” and “All of the time.” Employment was measured using the number of hours worked per week for pay. Response options ranged from “0 hours” to “more than 50 hours.” Categories were collapsed into the following “0 hours,” “1-19 hours,” “20-29 hours,” and “30 hours or more.” Response options for relationship status included “single,” “committed relationship,” “married,” “separated/divorced,” and “widowed.” Due to small sample sizes, separated/divorced and widowed were combined. The number of children (including stepchildren and adopted children) had possible response options ranging from 0 to 9. Responses were dichotomized into whether or not the respondent had children.

Statistical Analysis

Due to small sample sizes, transgender (n=3) students were excluded from analysis. Students who reported being pregnant (n=11) were also excluded from analysis. Students with missing values (students who reported “don’t know” for both parents are included in missing value count) for parental educational attainment (n=37) and financial difficulty (n=3) were excluded from analysis. In addition, students with missing values for any of the covariates were dropped from analysis (range of missing data: n=3 for gender to n=19 for self-perception of being an adult). The final analytic sample size was 1117 (n=531 for 2-year students and n=595 for 4-year students). Sample sizes in each model varied slightly due to missing values in dependent variables.

To assess differences in demographic characteristics, weight status, and health behaviors by parental educational attainment (less than high school education vs high school completed or more) and financial strain (low vs high strain), unadjusted logistic regression, accounting for school clustering, was performed. Ordinal logistic regression was used to model the relationship between independent variables and dependent variables. It should be noted that although the proportional odds assumption was violated in a small number of the models that were run, we chose to present only the results from ordinal logistic regression because

of the ease of interpretation of relationships (ie, consistency in measure of association used and clarity in presentation of estimates). Additional model types (ie, multi-nomial logistic regression and linear regression) were initially used to assess some of the relationships; however, interpretation of findings was largely consistent with ordinal logistic regression models.

In modeling the relationship between parental educational attainment and dependent variables, race/ethnicity was included as a covariate. Conceptually, race/ethnicity is the only measured covariate in this analysis that we would expect to confound the relationship between parental educational attainment and the health outcomes of interest (ie, impacting both the exposure and the outcome and not existing on the causal pathway). Given their plausibility as potential confounders, all covariates (ie, race/ethnicity, gender, employment, relationship status, number of children, year in school, and self-perception of being an adult), as well as parental education attainment, were included in the adjusted models examining the relationship between financial strain and dependent variables. All 95% confidence intervals (95% CI) reported are adjusted for clustering. Analyses were performed using STATA 11 (STATA Corporation, College Station, TX, 2010).

RESULTS

Overall, approximately half of respondents were female (52.3%); and the majority of respondents worked less than 20 hours/week (73.1%), were single (63.3%), did not have children (91.2%), were in their first or second year in school (66.3%), and thought of themselves as an adult either most of the time or all of the time (63.9%). Table 1 includes demographic differences by parental educational attainment and financial strain. There were significant differences in gender, race/ethnicity, employment, and having children by parental educational attainment. Compared to participants whose parent had completed high school or more, participants whose parents had not completed high school were more likely to be male (55.4%) and nonwhite (85.0%), work 0 hours/week (38.2%), and have children (14.3%). For stratification by financial strain, compared to participants with low financial strain, participants with high financial strain were significantly more likely to be nonwhite (64.2%), not be single (42.3%), have children (20.0%), and think of themselves as an adult all of the time (34.0%).

Differences in weight status and health behaviors by parental educational attainment and financial strain are presented in Table 2. Compared to students whose parent had completed high school or more, students whose parents had not completed high school consumed fewer fruits and vegetables (52.4% consumed 0 to <2 cups), engaged in hard and light PA fewer days in the past 2 weeks (19.7% and 13.0% engaged in zero days of hard and light PA, respectively), did not drink alcohol (58.2%), and were more likely to engage in unhealthy weight-control behaviors (17.9%). For financial strain, compared to students with low financial strain, students with high financial strain were more likely to be overweight or obese (43.2%), engage in hard and light PA fewer days in the past 2 weeks (19.3% and 12.8% engaged in zero days of hard and light PA, respectively), and engage in unhealthy weight-control behaviors (19.1%).

Table 3 details unadjusted and adjusted odds ratios of health behaviors by parental educational attainment. In unadjusted models, compared to participants whose parents completed high school or higher, participants whose parents had not completed high school had significantly lower odds of consuming fruits and vegetables [odds ratio (OR) (95% CI): 0.67 (0.53-0.84)], engaging in hard PA [OR: 0.66 (0.57-0.76)], light PA [OR: 0.50 (0.34-0.74)], and higher odds of engaging in unhealthy weight-control behaviors [OR: 1.45

(1.14-1.85)] and binge drinking [OR: 0.54 (0.48-0.62)]. After adjustment for race/ethnicity, relationships continued to be significant (except for binge drinking).

Table 4 includes unadjusted and adjusted odds ratios of health behaviors by financial strain. In unadjusted models, participants who had high financial strain had significantly lower odds of engaging in hard PA [OR: 0.79 (0.72-0.85)] and light PA [OR: 0.71 (0.59-0.87)] and higher odds of engaging in unhealthy weight-control behaviors [OR: 1.57 (1.56-1.57)] than did students with low financial stress. After adjustment for parental educational attainment, gender, race/ethnicity, hours worked for pay, relationship status, having children, year in school, and self-perception of being an adult, relationships remained significant as well as the association between high financial stress and binge drinking [Adjusted (OR) (95% CI): 1.34 (1.05-1.71)], and tobacco use [AOR: 1.92 (1.29-2.87)].

Discussion

The findings from this study suggest that emerging adults whose parents who did not complete high school consumed fewer fruits and vegetables, engaged in fewer days of PA, and engaged in more unhealthy weight-control behaviors than did their counterparts (ie, parents completed high school or more). In contrast, emerging adults who currently felt financially strained engaged in less PA and more unhealthy weight-control behaviors, binge drinking, and tobacco use. These associations are consistent with another existing study examining credit card debt and health risk behaviors in emerging adults.¹³

Overall, although many of our findings are consistent with previous literature,⁹ we did not find a significant relationship between parental educational attainment or financial strain and overweight and obesity in emerging adults, which to some extent conflicts with previous research.⁸ These inconsistent findings could be due to several factors. First, the size of our sample size (n=1117) was smaller than, for example, the sample size reported by Nelson et al (n=12,786), who found significant associations between parental educational attainment and weight.⁸ Despite our use of objectively measured height and weight (instead of self-report), this resulted in wider confidence intervals in our study compared to those previously reported. Second, our sample was more diverse, given that both 2-year and 4-year students participated in the study, compared to previous studies that have surveyed 4-year students only.⁸ Our previous work has shown that there are robust weight-related disparities between 2-year and 4-year students that are not entirely explained by SES, but may rather be attributable to other, unmeasured individual and/or environmental influences.³⁴

It should be noted that in our sample there was some concordance between parental educational attainment and current financial strain for PA and unhealthy weight-control behaviors. Given the low, but significant, correlation between parental educational attainment and current financial strain, it is not surprising that some behaviors were statistically significant for both measures of SES. This finding suggests that there may be some relationships that can be captured by either parental educational attainment or a current measure of financial strain. Other significant relationships were discordant between parental educational attainment and financial strain. This discordance suggests that in this transitional emerging adulthood population, different measures of SES may capture varying behavioral disparities. Existing literature highlights the complexity of measurement of SES, the multitude of dimensions that compose SES,^{25,26,35} and how various factors of SES may be associated obesity in particular.²⁵

The findings from this study may facilitate the understanding of relationships between SES and a variety of health indicators among emerging adults. This information can be used in the efforts to reduce SES health inequalities. More specifically, the findings from this study

may be applicable to multiple levels of interventions. The findings for parental educational attainment allude to a systemic problem that would be addressed at a population level, whereas the findings for current financial strain highlight potential areas for intervention development and improvement at the individual and community level. For example, educational attainment has implications for economic opportunities that may influence indicators of SES and related health outcomes. Therefore, health disparities by educational attainment could be due to existing macro-level economic policies.²⁷

In contrast, the particular measure of financial strain used in this study highlights an individual's subjective perception of the availability of resources and related expenditures. Existing literature highlights various approaches to change food purchasing behaviors through financial manipulation, such as price decreases of healthy items.³⁶⁻³⁸ In the same vein, areas such as tobacco and alcohol use prevention, use taxing (ie, price increases) of these unhealthy items as a means to keep the general population from initiating or at least limiting the use. These interventions aim to address a financial barrier, namely price, associated with purchasing items related to certain behaviors. However, financial barriers may be more than just pricing of items. For example, the findings from our financial strain data, may be indicative of problems related to financial management, financial literacy, or access to economic resources. Thus, altering pricing schemes alone may not be effective in changing behavior, particularly among those experiencing high financial strain. This may be most apparent with the tobacco use and binge drinking findings from our study, where those experiencing high financial strain have higher odds of engaging in these risky behaviors. As a result, interventions that may be aimed at the individual level, such as improving individual financial literacy or access to financial resources around management for students on campus, may be beneficial in improving financial and health outcomes.

One of the strengths of this study is that it uses more than one measure of SES. Socioeconomic status is a complex construct that requires multiple measures in order to gain a more complete picture of its influence on health,^{25,26} particularly among emerging adults for whom traditional measures of SES may not be as predictive of health outcomes.²⁵ However, one of the limitations of this study is the cross-sectional design, which limits the ability to determine direction and temporality between financial strain and behaviors. An example of this would be the positive association between high financial strain and alcohol and tobacco use. It is not possible to determine if young people are using alcohol and tobacco as a coping mechanism for experiencing financial strain or if they are experiencing high financial strain because they are spending money on alcohol and tobacco. Longitudinal data are needed in order to overcome this limitation and to gain a better understanding of the relationship between financial strain and health behaviors. Despite this need for longitudinal data, designing a feasible longitudinal study is difficult given that meaningful fluctuations in SES are hard to capture, particularly over a limited period of time (ie, the duration of most current studies). An additional limitation is the use of self-reported data, which may yield biased results. However, given the nature of the study design and topics covered, self-report is the most reasonable method of data collection. The findings from this study may also be somewhat limited in their generalizability, given that the sample was drawn from an urban setting and the study sample was not representative of the source population. However, our study sample was more racially/ethnically diverse than the overall enrolled student population at each of our participating institutions, and thus this may be viewed as a strength. Despite these differences, our findings provide important information on the relationship between parental educational attainment, financial strain, and health in a unique emerging adult population.

To our knowledge, this is among the first studies of its kind to examine the relationship between financial context and strain with a broad variety of health indicators in a diverse

population of emerging adults. Although the relationship between SES and health has been well established, this study highlights potential unique differences among emerging adults. More specifically, this study highlights some of the concordance and discordance between parental educational attainment, current financial strain, and health behaviors. The impact of different SES indicators on health can be informative in the development of interventions at the individual, community, and institutional levels. Additional research on the various components of financial context and other measures of SES among emerging adults may be needed in order to more effectively develop and tailor interventions that aim to improve the health of emerging adults.

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	Parental Educational Attainment				Financial Strain			
	\geq HS (n=837) ^a		<HS (n=280) ^b		Low (n=902)		High (n=215)	
	N	%	N	%	N	%	N	%
5th year or more	51	6.1%	5	1.8%	43	4.8%	13	6.0%
Think of Self as Adult								
Never	10	1.2%	12	4.3%	20	2.2%	2	0.9%
Seldom	52	6.2%	13	4.6%	50	5.5%	15	7.0%
Sometimes	237	28.3%	79	28.2%	270	29.9%	46	21.4%
Most of the time	346	41.3%	103	36.8%	370	41.0%	79	36.7%
All of the time	192	22.9%	73	26.1%	192	21.3%	73	34.0%
				0.692				0.001

Note.

^aHS: High School

^bP-values were generated using unadjusted logistic regression

Table 2
Prevalence (N, %^a) of Health Behaviors by Parental Educational Attainment and Financial Strain (N=1117)

	Parental Educational Attainment				Financial Strain				P-value ^c	
	>=HS (n=837) ^b		<HS (n=280) ^b		Low (n=902)		High (n=215)			
	N	%	N	%	N	%	N	%		
Weight Status									0.304	0.014
Underweight/ normal (BMI >25.0) ^d	554	67.0%	176	63.3%	609	68.3%	121	56.8%		
Overweight (BMI<30.0) ^d	194	23.5%	62	22.3%	204	22.9%	52	24.4%		
Obese (BMI>=30.0) ^d	79	9.6%	40	14.4%	79	8.9%	40	18.8%		
Fruit and Vegetable Consumption									0.005	0.207
0 to <2 cups	344	42.4%	140	52.4%	375	42.9%	109	53.2%		
2 to <4 cups	329	40.5%	94	35.2%	356	40.7%	67	32.7%		
4+ cups	139	17.1%	33	12.4%	143	16.4%	29	14.1%		
Soda Pop Consumption									0.732	0.494
Never	197	23.7%	60	21.8%	211	23.6%	46	21.8%		
1-3 times last month	215	25.9%	60	21.8%	224	25.1%	51	24.2%		
1-2 times/week	167	20.1%	68	24.7%	191	21.4%	44	20.9%		
3-4 times/week	104	12.5%	36	13.1%	115	12.9%	25	11.8%		
5-6 times/week	51	6.1%	19	6.9%	50	5.6%	20	9.5%		
1+ times/day	96	11.6%	32	11.6%	103	11.5%	25	11.8%		
Fast Food Consumption									0.153	0.863
0 to <once/day	675	80.6%	208	74.3%	713	79.0%	170	79.1%		
1 to <twice/day	102	12.2%	47	16.8%	122	13.5%	27	12.6%		
2+ times/day	60	7.2%	25	8.9%	67	7.4%	18	8.4%		
Hard Physical Activity									0.001	0.001
None	117	14.0%	54	19.7%	130	14.5%	41	19.2%		
1-2 days	223	26.8%	83	30.3%	243	27.2%	63	29.6%		
3-5 days	245	29.4%	80	29.2%	271	30.3%	54	25.4%		

	Parental Educational Attainment				Financial Strain			
	>=HS (n=837) ^b		<HS (n=280) ^b		Low (n=902)		High (n=215)	
	N	%	N	%	N	%	N	%
6-8 days	124	14.9%	32	11.7%	127	14.2%	29	13.6%
9+ days	124	14.9%	25	9.1%	123	13.8%	26	12.2%
Light Physical Activity								
None	57	6.9%	36	13.0%	66	7.4%	27	12.8%
1-2 days	207	24.9%	87	31.5%	237	26.4%	57	27.0%
3-5 days	212	25.5%	84	30.4%	238	26.5%	58	27.5%
6-8 days	134	16.1%	33	12.0%	136	15.2%	31	14.7%
9+ days	222	26.7%	36	13.0%	220	24.5%	38	18.0%
Binge Drinking								
Do not drink	355	42.5%	163	58.2%	430	47.7%	88	41.1%
None in past 2 weeks	198	23.7%	53	18.9%	198	22.0%	53	24.8%
At least once in past 2 weeks	283	33.9%	64	22.9%	274	30.4%	73	34.1%
Tobacco Use								
Do not smoke	648	78.1%	219	78.2%	719	80.2%	148	69.2%
0-9 days	122	14.7%	44	15.7%	124	13.8%	42	19.6%
10 or more days	60	7.2%	17	6.1%	53	5.9%	24	11.2%
Unhealthy Weight Control	109	13.0%	50	17.9%	118	13.1%	41	19.1%
								0.001
								0.107
								0.789
								0.003

Note.

^aDenominators may vary due to missing data

^bHS: High School

^cP-values were generated from unadjusted logistic regression

^dBMI: body mass index

Table 3
Unadjusted and Adjusted3 Ordinal Logistic Models for Parental Educational Attainment (N=1117)

	Parental Educational Attainment: Less Than High School								
	Unadjusted				Adjusted ^d				
	N	OR	95% CI	P-value	PO-test ^b	OR	95% CI	P-value	PO-test ^b
BMI^c	1105	1.23	(0.67 - 2.26)	0.495	0.14	1.19	(0.70 - 2.03)	0.527	0.04
Fruit and Vegetable Consumption	1079	0.67	(0.53 - 0.84)	0.001	0.90	0.80	(0.76 - 0.84)	0.001	0.29
Soda Pop Consumption	1105	1.14	(0.61 - 2.15)	0.675	0.59	0.91	(0.67 - 1.23)	0.537	0.04
Fast Food Consumption	1117	1.42	(0.97 - 2.08)	0.069	0.53	0.98	(0.83 - 1.15)	0.77	0.001
Hard Physical Activity	1107	0.66	(0.57 - 0.76)	0.001	0.86	0.81	(0.70 - 0.93)	0.004	0.13
Light Physical Activity	1108	0.50	(0.34 - 0.74)	0.001	0.22	0.66	(0.58 - 0.75)	0.001	0.39
Unhealthy Weight Control	1117	1.45	(1.14 - 1.85)	0.003	—	1.41	(1.00 - 1.99)	0.049	—
Binge Drinking	1116	0.54	(0.48 - 0.62)	0.001	0.50	0.69	(0.35 - 1.34)	0.272	0.07
Tobacco Use	1110	0.98	(0.61 - 1.57)	0.927	0.45	1.14	(0.59 - 2.21)	0.688	0.0004

Note.

^a Adjusted: Race/ethnicity [95% CI adjusted for clustering]

^b PO-test: Test of proportional odds assumption; missing for unhealthy weight control, which was dichotomous

^c BMI: body mass index

Table 4
Unadjusted and Adjusted^a Ordinal Logistic Models for Financial Strain (N=1117)

	Financial Strain: High						
	Unadjusted			Adjusted ^a			
	N	OR	95% CI	P-value	PO-test ^b	P-value	PO-test ^b
BMI^c	1105	1.77	(0.94 - 3.31)	0.076	0.05	1.52	(0.90 - 2.59) 0.120 0.01
Fruit and Vegetable Consumption	1079	0.70	(0.41 - 1.20)	0.190	0.26	0.65	(0.34 - 1.24) 0.190 0.001
Soda Pop Consumption	1105	1.14	(0.82 - 1.57)	0.442	0.52	1.14	(0.89 - 1.48) 0.306 0.17
Fast Food Consumption	1117	1.01	(0.58 - 1.75)	0.970	0.56	0.85	(0.42 - 1.73) 0.655 0.002
Hard Physical Activity	1107	0.79	(0.72 - 0.85)	0.001	0.69	0.85	(0.75 - 0.96) 0.008 0.20
Light Physical Activity	1108	0.71	(0.59 - 0.87)	0.001	0.43	0.77	(0.65 - 0.91) 0.002 0.42
Unhealthy Weight Control	1107	1.57	(1.56 - 1.57)	0.001	—	1.61	(1.50 - 1.74) 0.001 —
Binge Drinking	1116	1.25	(0.96 - 1.64)	0.103	0.49	1.34	(1.05 - 1.71) 0.017 0.0001
Tobacco Use	1110	1.83	(0.92 - 3.65)	0.085	0.64	1.92	(1.29 - 2.87) 0.001 0.03

Note.

^a Adjusted: parental educational attainment, gender, race/ethnicity, hours worked, relationship status, number of children, year in school, adult self-perception [95% CI adjusted for clustering]

^b PO-test: Test of proportional odds assumption; missing for unhealthy weight control, which was dichotomous

^c BMI: body mass index