Preface to the paper:

This paper represents foundational work for the analyses we intend to present at the PAA conference. During the course of writing this paper, we found an intriguing interaction between age and body mass—only younger obese adolescents (ages 12-14) exhibited significantly worse psychosocial quality of life than their non-obese peers. This interaction was contrary to existing theory, which posits that the psychosocial complications associated with obesity become more acute through adolescence and into young adulthood.

Given this important finding, we believe that it is necessary to explore other interactions among adolescents in more detail. Race, family structure, socioeconomic status and particularly gender may also interact with body mass in their effects on psychosocial quality of life. For instance, we suspect that obese girls are more likely than obese boys to suffer from poor psychosocial quality of life. In light of the stunning rise in obesity rates among adolescents in recent decades, it is critically important for parents, clinicians and policy makers to determine which groups of adolescents are at greatest risk of complications such as depression, poor self esteem and social dysfunction.

Obesity and Quality of Life among Adolescents: The National Longitudinal Study of Adolescent Health

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ABSTRACT

Context Childhood and adolescent overweight and obesity have increased substantially over the last two decades, raising concerns about the health and psychosocial consequences of childhood obesity.

Objectives To validate recent clinically-based observations of poor health-related quality of life (QOL) among obese children and adolescents.

Design, Setting, and Participants Cross-sectional analysis using the 1996 National Longitudinal Study of Adolescent Health (Add Health), a nationally representative sample of 4,743 adolescents in grades 7-12 during the 1994-1995 school year.

Main Outcome Measures Four dimensions of QOL were assessed. *General health* is assessed using self-reported general health. *Physical health* is assessed using the presence of functional limitations and symptoms. *Emotional health* is measured using the Center for Epidemiological Studies Depression Scale (CESD) and Rosenberg's self-esteem scale. S*chool and social functioning* scale also is assessed.

Results We find a statistically significant relationship only for physical dimensions of health. Adolescents who are overweight have significantly worse self-reported health (odds ratio [OR] 2.17; 95% confidence interval [CI], 1.34-3.51), as do obese adolescents (OR 4.49; CI 2.87-7.03). Overweight and obese adolescents are also more likely to have a functional limitation (OR 1.81; CI 1.22-2.68; OR 1.91; CI 1.24-1.95 respectively). Only in the youngest adolescents (ages 12-14) do we find a significant deleterious impact of overweight and obesity on depression, self-esteem, and school/social functioning.

Conclusions Using a nationally representative sample, we cannot replicate the findings of a recent clinically-based study linking childhood obesity to poor QOL. Our results indicate that in the general population, adolescents with higher body mass than is considered normal do not report poorer emotional, school, or social functioning. The long-term negative effects of obesity on psychosocial outcomes may be far less troubling than originally thought. Reasons for the incongruence between clinical and population based estimates are discussed.

INTRODUCTION

The prevalence of childhood and adolescent overweight and obesity has increased substantially over the last two decades [1-2]. Between 1986 and 1998 the prevalence of overweight and obesity increased among children and adolescents by 120% for African Americans and Hispanics and by 50% for whites [1]. Currently one in seven children and adolescents in the US is obese. Given this staggering increase, researchers, primary care physicians and parents have become increasingly concerned about both the short and long term health and psychosocial consequences of childhood and adolescent obesity.

In an important first step towards documenting the short-term impact of BMI on quality of life in today's children, Schwimmer, Burwinkle, and Varni [3] recently reported finding serious adverse consequences of obesity on the physical and psychosocial quality of life (QOL) in a clinical sample of severely obese (mean BMI = 34.7) children and adolescents. The severely obese children and adolescents in their sample had significantly lower self reported QOL than the non-obese; these effects were quite large. Because of the magnitude of the findings and subsequent recommendations [3], it is important that the observed relationship between BMI and QOL be replicated. We tested the effect of BMI on health-related quality of life in a nationally-representative sample of adolescents.

Although observations from clinical populations are often the first to document important relationships, clinical findings must be reproduced in large nationally representative samples. This is particularly true if findings from non-representative clinical samples imply substantial change to health care practice and policy. Previous research has indicated that obese adults seeking treatment had significantly worse health-

related QOL than obese adults who did not seek treatment [4]. Obese children who seek treatment may also have worse QOL than those obese children who do not seek treatment.

In addition, clinical samples often are too small to test for potential confounding effects. The clinical sample [3] could not be stratified by age, race/ethnicity or parental socioeconomic status (SES) because of small sample size. Others have documented that blacks, Hispanics, and those whose parents have lower levels of educational attainment have higher BMI [5]. Social background is related to many childhood health outcomes, including prematurity, low birth weight, and infant mortality [6-8] as well as psychosocial outcomes [9]. Age may also affect quality of life. Previous research indicated that obesity was not associated with psychosocial outcomes in children [10], but during adolescence, obesity became a stronger predictor of poor psychosocial outcomes [11]. The clinical sample was on average just entering adolescence at age 11-12 [3]; thus if adolescence still exacerbates the negative impact of obesity on self-image, then the clinical results may understate the actual impact of obesity on QOL.

We analyzed the relationship between BMI, health and other psychosocial QOL outcomes using the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative sample of adolescents who were in grades 7-12 during the 1994-1995 school year.

METHODS

Study Design and Sample

We used the Wave 2 public use subsample (n=4,827) of the National Longitudinal Study of Adolescent Health (Add Health), which has detailed information on the behaviors and contextual factors that impact the health of adolescents in the U.S. [12]. From the primary sampling units (middle and high schools), a core sample of 12,105 students in grades 7-12 was randomly selected for the 1995 Wave 1 in-home interview (78.9 percent response rate). The Wave 2 interview was conducted a year later in 1996 (88.2 percent response rate). Attrition was heavily influenced by graduation in Wave 2—1995 high school graduates were not reinterviewed. The Wave 2 public use subsample used here randomly selected half of the Wave 2 in-home core sample and half of the black oversample. We selected only respondents who were 20 years old or younger at the time of the Wave 2 interview. Properly weighted, the Wave 2 public use subsample is nationally representative of adolescents who were in school. University of Wisconsin Institutional Review Board approved research using this non-identifiable publicly-available data.

Measures: Predictor Variables

Body Mass Index

Body Mass Index (BMI) is a widely used measure of adiposity that is calculated as the weight in kilograms divided by the height in meters, squared (kg/m^2). Since adolescent girls in particular underreport their weight [13], one key advantage of Wave 2 of Add Health was the inclusion of direct anthropometric measures of height and weight.

When assessed within particular age and gender groups, BMI is a statistically valid measure of overweight among children and adolescents [14]. We used growth charts provided by the Centers for Disease Control to determine BMI percentiles for boys and girls of each age [15]. Previous research has defined overweight as at or above the 95th percentile, and "at risk" for overweight as at or above the 85th percentile but below the 95th percentile [2]. We adopted these categories, and additionally created a category of underweight adolescents (defined at or below the 5th percentile) and a category of "obese" adolescents (defined as at or above the 97th percentile *plus* two BMI units). We added two BMI units to the 97th percentile to achieve a reasonably balanced distribution of overweight and obese adolescents. Table 1 provides the descriptive statistics for the weight categories we use. Mean BMI in the Add Health sample was about 23.

Socio-demographics

Socio-demographic variables included in our analyses are age, gender, race/ethnicity, mother's education, father's education, family structure, whether the adolescent had ever been pregnant, and family income. We included three age groups: 14 and under, 15 to 17, and 18 or older. In addition to including age as simple confounders, we examined the interaction between age and BMI. We did this to examine the assertion that obesity is most detrimental to the psychosocial QOL of older adolescents [16]. We looked at five race/ethnic groups: non-Hispanic white, non-Hispanic black, Hispanic, Asian and "other". We categorized parental education into less than high school (11 years or less), high school graduate (12 years), some college (13-15 years), and college (16 years or more). We created four family structure categories: both parents residing in the same household, single parent arrangement, step family arrangement, and an "other"

household arrangement. “Ever pregnant” was coded as 1 if the respondent female had ever been pregnant, and 0 if never pregnant (or if respondent was male). Descriptive statistics are provided in Table 1.

We also included measures of family income. Roughly one-fifth of the cases had missing data for family income. Since this threatened to introduce biases into our study, we imputed family income for those cases as a linear function of parental education and family structure. Imputed values were then combined with reported values and categorized into less than $20K, $20K to $44.9K, $45K to $74.9K, and $75K or more. Additionally, we created a dummy variable for imputed cases to determine if respondents from these families were advantaged or disadvantaged relative to other adolescents.

Measures: Outcome Variables

The Pediatric Quality of Life Inventory (PedsQL) was used to assess the health-related QOL of children and adolescents in the clinical sample [3]. All twenty-three items in the PedsQL provided a general measure of health-related QOL. Additionally, the PedsQL was separated into the following dimensions; physical health, emotional functioning, social functioning and school functioning. Although Add Health included questions that overlapped reasonably well with the PedsQL, it was not possible to duplicate the PedsQL. We approximated the approach used in the clinical sample [3] by using one measure of general health, two measures of physical health (physical limitations and illness symptoms), two measures of emotional functioning (depression and self-esteem) and one combined measure of school and social functioning. With the exception of general health and physical limitations, all of our outcomes were dichotomized using a one standard deviation distributional approach. This threshold was chosen because it

identifies adolescents who are substantially different from the norm and also because it was used by the clinical sample [3] to identify respondents with low QOL. Table 2 provides the descriptive statistics for the six outcome measures we used.

General Health

Adolescents were asked to assess their general health status by responding to the question, "In general, how is your health?" This measure was dichotomized into "good" (i.e., excellent, very good and good) and "poor" (i.e., fair and poor).

Physical Health

Wave 2 included a set of questions on physical limitations (limitations attending school, difficulty performing household chores, limitations doing strenuous acts, and difficulty with personal care and hygiene) that were not asked during Wave 1. If a respondent answered "yes" to any of these questions, she was categorized as "limited." Otherwise, the respondent was categorized as "not limited."

An index with possible values ranging from 0-52 was created using a set of 13 questions about illness symptoms. Respondents were asked how many times each symptom was experienced in the past year. A high level of illness symptoms was defined as one standard deviation or more above the mean—thus adolescents reporting 15 or more symptoms were considered to have many symptoms.

Emotional Health

Emotional health was assessed using the Center for Epidemiological Studies Depression Scale (CESD) [17] and Rosenberg's self-esteem scale [18]. Nineteen items from the CESD were used to assess depression [17]. The CESD has been previously validated in adolescents [19]. An index with possible values ranging from 0-57 was constructed and then

dichotomized at 19, a number between the adult validated score of 16 [20] and the 24 that predicted severe depression in adolescents [21].

The six items from Rosenberg's self-esteem scale [18] included in Add Health asked respondents whether they have good qualities, have a lot to be proud of, like themselves as they are, always do things right, feel socially accepted, and feel loved and wanted. A reverse-coded self-esteem index with possible scores ranging from 6-30 was created and dichotomized at 9. Higher scores in this index indicate lower self-esteem.

School and Social Functioning

Insufficient items on school and social functioning were present in Add Health to permit the construction of separate indexes for these domains. Therefore, a single index consisting of eight items was created. Four items asked whether the adolescent had trouble getting along with teachers, getting along with other students, paying attention, and getting homework done. The other four items asked respondents whether they felt close to people at school, part of their school, safe at school, and happy at school. The potential range of the index was 0-32, and it was dichotomized at 14.

Data Analyses

SAS for Windows, version 8.02 was used to manage data and generate descriptive statistics [22]. The effect of BMI (and other predictors) on QOL was estimated via logistic regression analysis. Models were estimated in Stata/SE, version 8.1 because its survey logistic regression program enabled us to correct for both sampling probabilities and clustering in the primary sampling units [23]. Accounting for these survey design effects permitted us to produce unbiased estimates of standard errors.

RESULTS

We considered six dichotomous outcomes—general health, physical limitations, illness symptoms, depression, self-esteem, and school/social functioning. Table 3 presents the results for body mass alone regressed upon these outcomes. We found a statistically significant relationship only for general health and physical limitations. Adolescents who were either overweight or obese were significantly more likely to report poor health than were normal weight adolescents. Overweight and obese adolescents—as well as underweight adolescents— were also more likely to report one or more physical limitation.

Table 4 presents the results for body mass regressed upon the six outcomes; in addition, we controlled for social and demographic characteristics of the adolescents, including age, gender, race/ethnicity, socioeconomic status, family structure, and previous pregnancy. The results for body mass were essentially unchanged with the addition of these additional control variables, although the point estimates varied slightly. In the full models, overweight and obesity were still only significantly predictive of general health and physical limitations. Underweight adolescents remained significantly more likely to be physically limited. Importantly, none of the emotional or social outcomes were linked with body mass.

Of the potential confounding factors considered, gender appeared the most important. Gender was a significant predictor of every outcome. Girls were significantly more likely than boys to report poor general health, physical limitations, many illness symptoms, depression, and low self-esteem. However, girls were more likely than boys to report high school/social functioning. Respondents who had previously been pregnant,

also all female, were more likely to report poor general health, more physical limitations, elevated illness symptoms, and poor school/social functioning.

Age generally was not an independent predictor of these outcomes for our sample, although younger adolescents were less likely to be depressed and more likely to report high self-esteem. The oldest adolescents also were less likely to report many illness symptoms. Since there were some indications [10-11, 16] that the impact of obesity may alter quality of life in an age-specific fashion, we also tested the impact of obesity among three groups of children. Surprisingly, we found that only in the youngest group of adolescents (ages 12-14) did body mass exert any particular effect on quality of life. The 12-14 year olds were significantly more likely to be depressed if overweight (OR = 3.04, 95% CI 1.19, 7.76) or obese (OR = 2.83, 95% CI 1.25, 6.41), controlling for all other confounders. The obese 12-14 year olds were also significantly more likely to report low self-esteem (OR = 3.47, 95% CI 1.30, 9.24) and poor school/social functioning (OR = 2.33, 95% CI 1.15, 4.72) compared with normal weight 12-14 year olds.

Race/ethnicity was only occasionally important in predicting QOL, and very heterogeneous in its effect. Hispanics were more likely than whites to report poor health, depression and low self-esteem. Asians also were more likely than whites to report depression and low self-esteem. Blacks, on the other hand, were much more likely than whites to report high self-esteem. Finally, adolescents in the "other race" category were more likely than whites to report many illness symptoms.

Family structure was generally not important for the physical outcomes, but was a significant predictor of many of the psychosocial outcomes. Adolescents residing in single-parent, step-parent or "other" type families were more likely to be depressed, have

low self-esteem and poor school functioning relative to their peers in two-parent families. Except for depression and illness symptoms, which were higher among adolescents from low income families, familial socioeconomic status was not significant. Parental education was also not linked to any outcome, except for the finding that adolescents with fathers who attended some college reported marginally poorer general health.

DISCUSSION

In the 1996 public-use sample of Add Health respondents, we found that body mass was linked only to physical aspects of health in adolescents. Mirroring previous research on adults [24], we found that physical functioning decreased as BMI moved away from normal limits. There was no apparent link between body mass and depression, self-esteem, or school/social functioning in the largest nationally-representative survey of American adolescents available, except in one proscribed age range. Thus, we suspect that the findings from the clinical sample [3] recently reported were largely due to sample selection and not representative of the general American adolescent experience.

The clinical sample [3] probably was select in two important ways. 1) They were on average extremely obese children, and 2) they were seeking clinical treatment for obesity. The mean body mass index reported was almost 35 [3]—an extremely high BMI for a non-adult population. We attempted to create a select group of the most obese adolescents in Add Health by creating a category of "obese" adolescents defined as at or above the 97th percentile *plus* two BMI units. However, even this group of the most obese adolescents was not more likely to report poor emotional, school or social functioning compared with their normal weight peers.

Thus, we argue that it is the nature of the clinical sample that created the strong effect of obesity on QOL—particularly psychosocial QOL [3]. In the clinical study, all of the children had been referred for treatment. In general, we know that it is true that persons attend medical clinics because they believe they have symptoms indicating a health problem [25-26]; the more well-educated and well-off are more likely to get preventive medical care [27]. We know that obese adults also have unrealistic weight loss goals when attending weight loss clinics [28]. Failure to achieve weight loss goals may worsen psychosocial QOL and undermine future weight loss efforts, thereby exacerbating the physical complications associated with obesity. Thus, it would be unusual if a clinical sample of obese patients did not report QOL that is substantially worse than a non-clinical sample of obese respondents. The authors reporting on the clinical sample [3] call in their discussion for a replication of their results in the non-clinical population. We tried—but using a large, nationally-representative sample, we could not replicate their results.

We suspected that selection on sociodemographic factors might also have influenced the results from the clinical sample. We found that female gender was a strong negative predictor of most outcomes, as was non-nuclear family structure. Race, age and socioeconomic status, which are predictive for low QOL among adults, were not statistically significant in general among adolescents. However, we did find that obesity was more associated with poor social and emotional functioning in the youngest group of adolescents. Since the clinical sample [3] was closest to this group in age, these results may most closely replicate the clinical sample. The results are intriguing since previous research seemed to indicate that older adolescents were more devastated by high BMI [10-

[11, 16]. Combining our results with the clinical sample [3], it appears that body mass may be a more important marker for low social and emotional functioning in early adolescence rather than in late adolescence.

The long-term effects of childhood obesity also need more study. Among adults, current BMI is related to both current SES [29-31] and social background [32]. One study in young Americans [16] also demonstrated that education, income and marital rates were all lower among women who had been obese during adolescence and early adulthood. The impact adolescent obesity on earnings was also seen in a British study [33]. The importance of education and weight loss programs at various ages should be assessed, as should the need for pharmacological or surgical interventions [34]. Eventually, we intend to compare the experience of the Add Health cohort with that of the National Longitudinal Study of Youth cohort [16].

Ideally, a large nationally-representative sample would be available with PedsQOL and body mass information, but we found no such survey. We used the Add Health survey, the largest current nationally-representative sample of adolescents that includes anthropometric measures of BMI and standard measures of health outcomes. We tried to capture each of the domains included in the PedsQOL by creating or utilizing separate measures for each domain. Each of our measures has its own limitations, but on the whole, we believe we compiled a comprehensive set of outcomes similar to the domains in PedsQOL.

Our results indicate that modern American children in junior high and high school do not report poorer emotional, school, or social functioning if they have higher body mass than is considered normal. Among adults, we see that experience with

discriminatory treatment is linked with poor psychosocial QOL [35]. While previous reports have noted bias and discrimination against the obese [36-37], the results from Add Health indicate that obesity has not led to poor outcomes for these adolescents. It is interesting to note that other social factors that also are linked with discrimination (e.g. race) also do not always translate into poorer QOL among these adolescents, although it is clear that the experience of adolescent girls remains troubled. Perhaps the new cohort of young Americans are more tolerant of weight differences than previous cohorts; previous research has demonstrated more tolerance of political and sexual non-conformity among younger Americans [38-39].

We note that overweight and obese adolescents do report worse general health and more physical limitations than adolescents with normal body mass. The evidence is unequivocal that elevated body mass is bad for physical health, even among adolescents [3, 40-41]. How body mass is related to non-physical outcomes, however, is far from clear. While we do find some detrimental effects of higher BMI on psychosocial functioning in early adolescence we fail to find similar effects among older adolescents. This is in contrast to previous empirical work that would suggest the opposite—increasing effects of BMI with age [10-11; 16]. Contrary to previous research, our findings suggest that obese adolescents may actually "grow out of" the psychosocial complications associated with elevated BMI. Perhaps this link will reemerge later in the life course, or perhaps these adolescents have developed a degree of psychosocial resiliency. Either way, researchers should continue to follow and assess the outcomes associated with body mass, including physical and non-physical QOL.

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Table 1. Descriptive statistics for AddHealth, Wave 2 (1996).

Variable	n	Mean	Percentage	Standard Deviation
Body Mass Index	4743	23.05		5.04
Weight Categories	4659			
Underweight	163		3.44	
Normal Weight	3189		67.24	
Risky Weight	766		16.15	
Overweight	333		7.02	
Obese	292		6.16	
Age	4827	16.02		1.61
Gender	4827			
Male	2311		52.12	
Female	2516		47.88	
Ever Pregnant Females	227		9.02	
Race/Ethnicity	4827			
White	2833		58.69	
Black	1030		21.34	
Hispanic	563		11.66	
Asian	149		3.09	
Other Race	252		5.22	
Family Structure	4798			
2-parent family	2554		53.23	
Step Family	662		13.8	
Single Parent Family	1271		26.49	
Other Family	311		6.48	
Income	4521	48,697		52,354
<20K	823		18.2	
20-45K	1667		36.87	
45-75K	1399		30.94	
75K +	632		13.98	
Imputed	932		19.31	

Table 1. Continued

Variable	n	Mean	Percentage	Standard Deviation
Parental Education				
Father's Education	4540			
<HS	786		17.31	
HS Graduate	1413		31.12	
Some College	1013		22.31	
College Graduate	1328		29.25	
Mother's Education	4788			
<HS	760		15.87	
HS Graduate	1481		30.93	
Some College	1291		26.96	
College Graduate	1256		26.23	

Table 2. Descriptive statistics for six outcome variables.

Variable	n	Mean	Percentage	Standard Deviation
General Health				
(1=Excellent; 5=Poor)	4825	2.07		0.89
Excellent/Very Good/Good	4531		93.91	
Fair/Poor	294		6.09	
Physical Limitations	4819	0.14		0.49
No Limitations	4340		90.96	
Any Limitations	479		9.94	
Illness Symptoms	4821	9.73		4.82
Few Symptoms (<15)	4113		85.31	
Many Symptoms (>=15)	708		14.69	
Depression (CESD)	4798	10.78		7.48
Not Depressed	4117		85.81	
Depressed (>=18.26)	681		14.19	
Self-Esteem (Rosenberg)	4807	4.81		3.48
High Esteem	4218		87.75	
Low Esteem (>=9)	589		12.25	
School and Social Functioning	4436	8.73		4.76
High Function	3741		84.33	
Low Function (>=14)	695		15.67	

Table 3. Results of logistic regression models for body weight, AddHealth 1996.

Variable	Outcome	Odds Ratio	95% CI	95% CI
	General Health			
Underweight		0.76	0.34	1.70
Normal Weight		1.0	--	--
Risky Weight		1.18	0.81	1.71
Overweight		**1.90**	1.21	2.98
Obese		**3.85**	2.45	6.02
	Physical Limitations			
Underweight		**1.96**	1.20	3.19
Normal Weight		1.0	--	--
Risky Weight		1.24	0.96	1.62
Overweight		**1.59**	1.08	2.34
Obese		**2.07**	1.42	3.03
	Illness Symptoms			
Underweight		0.71	0.43	1.18
Normal Weight		1.0	--	--
Risky Weight		0.89	0.68	1.16
Overweight		1.01	0.71	1.44
Obese		1.02	0.67	1.54
	Depression			
Underweight		0.88	0.51	1.51
Normal Weight		1.0	--	--
Risky Weight		0.87	0.65	1.15
Overweight		1.26	0.93	1.72
Obese		0.97	0.64	1.46
	Self-Esteem			
Underweight		0.73	0.40	1.33
Normal Weight		1.0	--	--
Risky Weight		0.85	0.64	1.12
Overweight		0.71	0.48	1.05
Obese		1.22	0.79	1.88
	School/Social Functioning			
Underweight		1.13	0.64	1.98
Normal Weight		1.0	--	--
Risky Weight		0.85	0.61	1.16
Overweight		1.23	0.90	1.68
Obese		1.10	0.77	1.59

Table 4. Results of logistic regression models for body weight controlling for other factor, AddHealth 1996.

Variable	Outcome	Odds Ratio	95% CI	95% CI
	General Health			
Underweight		0.92	0.40	2.11
Normal Weight		1.0	--	--
Risky Weight		1.07	0.72	1.61
Overweight		**2.17**	1.34	3.51
Obese		**4.49**	2.87	7.03
	Physical Limitations			
Underweight		**2.10**	1.25	3.54
Normal Weight		1.0	--	--
Risky Weight		1.29	0.98	1.71
Overweight		**1.81**	1.22	2.68
Obese		**1.91**	1.24	2.95
	Illness Symptoms			
Underweight		0.91	0.54	1.56
Normal Weight		1.0	--	--
Risky Weight		0.84	0.63	1.12
Overweight		0.98	0.66	1.46
Obese		1.05	0.67	1.65
	Depression			
Underweight		0.91	0.50	1.65
Normal Weight		1.0	--	--
Risky Weight		0.80	0.58	1.10
Overweight		1.24	0.85	1.82
Obese		0.99	0.60	1.62
	Self-Esteem			
Underweight		0.70	0.37	1.31
Normal Weight		1.0	--	--
Risky Weight		0.79	0.58	1.08
Overweight		0.73	0.46	1.16
Obese		1.36	0.87	2.15
	School/Social Functioning			
Underweight		1.26	0.72	2.20
Normal Weight		1.0	--	--
Risky Weight		0.80	0.56	1.15
Overweight		1.20	0.84	1.71
Obese		1.11	0.75	1.64