

Adolescents' Eating, Exercise, and Weight Control Behaviors: Does Peer Crowd Affiliation Play a Role?

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Objective To examine the association between peer crowd affiliation (e.g., Jocks, Populars, Burnouts, Brains) and adolescents' eating, exercise, and weight control behaviors. The roles of gender and ethnicity were also examined. **Method** Ethnically diverse adolescents ($N = 705$; 66% girls) completed the *Peer Crowd Questionnaire*, eating and exercise items from the *Youth Risk Behavior Surveillance System*, and weight control behaviors from the *Eating Attitudes Test-12*. **Results** Controlling for gender and ethnicity, adolescents affiliating with the Burnouts reported more unhealthful eating and more bulimic behaviors than others; adolescents affiliating with the Brains reported more healthful eating, less unhealthful eating, and more dieting; those affiliating with Jocks and Populars reported engaging in more exercise; and Populars also reported more unhealthful eating. In addition, boys exercised more than girls; girls reported more dieting and bulimic behaviors. Black adolescents reported more unhealthful eating and less dieting than other adolescents. **Conclusions** Along with gender and ethnicity, peer crowd affiliation is related to adolescents' eating, exercise, and weight control behaviors. Prevention programs should consider adolescent peer crowds in developing health promotion and obesity prevention programs.

Key words adolescents; eating; ethnicity; exercise; friendships; peer crowds; weight control.

Many health behaviors are established during the adolescent years that increase one's health risk both during adolescence and later in adulthood (Williams, Holmbeck, & Greenley, 2002). Consequently, examining factors that may affect the development or maintenance of health-risk behaviors in adolescence may be crucial for preventing later health problems. In particular, improper eating and a sedentary lifestyle are significant risk factors for adult-onset diseases such as heart disease, high blood pressure, and cancer (Centers for Disease Control and Prevention, CDC, 2002). Others have noted that many adolescents use faulty weight control methods, such as extreme dieting and excessive exercise (Neumark-Sztainer, Story, Dixon, & Murray, 1998; Neumark-Sztainer, Story, Falkner, Beuhring, & Resnick, 1999), and thus are at risk for health problems such as bone loss and amenorrhea (Hartman et al., 2000).

Given the health significance of establishing proper eating, exercise, and weight control behaviors during adolescence, as emphasized by the CDC (2004), the

present study examined factors that might play a role in the development or maintenance of these behaviors. Specifically, we examined the associations between adolescents' peer crowd affiliations and their eating, exercise, and weight control behaviors. The roles of gender and ethnicity in these behaviors were also examined.

Adolescent Peer Crowds

The choices that adolescents make regarding health behaviors are affected by many factors such as family support and school involvement (Williams et al., 2002), but also by their peer relationships. For example, peers influence girls' attitudes and behaviors around weight and eating (Field, Camargo, Taylor, Berkey, & Colditz, 1999; Stice, 2002). Peers also model poor eating habits, contributing to their friends' adoption of these problem behaviors (Byely, Archibald, Graber, & Brooks-Gunn, 2000).

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An important, but overlooked, aspect of adolescents' peer relations pertains to the larger peer crowds with which adolescents affiliate. Peer crowds are large groups of peers who are defined by their similarity in interests, appearance, or attitudes (Brown, 1990). Although the terms used to identify peer crowds vary, the key peer crowds are similar across diverse school settings and diverse ethnic groups (Brown, 1990). The most frequently observed peer crowds include: *Populars*, those who are socially oriented and outgoing; *Brains*, who enjoy school and academics; *Burnouts*, who often get into trouble; *Jocks*, who are active in sports and athletics; and *Alternatives*, who rebel against mainstream culture through appearance and attitudes (Brown, 1990; La Greca & Prinstein, 1999). Peer crowd affiliations provide important information about an adolescent, as well as provide the adolescent with a sense of identity and belonging, and opportunities for social interactions (Brown, 1990; La Greca & Prinstein, 1999).

Indeed, adolescents' peer crowd affiliations have been associated with several key health-risk behaviors. Across studies (Kobus, 2003; La Greca, Prinstein, & Fetter, 2001; Mosbach & Leventhal, 1988), behaviors such as smoking, alcohol use, and marijuana and other substance use have been found to be most frequent among the Burnouts. In contrast, Brains have the lowest rates of health-risk behaviors, and Jocks appear to be less likely to use substances, but more likely to engage in risky sexual behaviors than other adolescents (La Greca et al., 2001).

Despite the importance of peer crowds for health-risk behaviors, no studies have examined the associations between peer crowds and adolescents' eating, exercise, and weight control behaviors. Thus, the main goal of the current study was to evaluate how adolescents' peer crowd affiliations were linked with several aspects of eating and exercise behaviors, including healthful eating (e.g., eating fruits, vegetables), unhealthful eating (e.g., eating fast food and sweets), and exercise. In addition, the study examined the associations between peer crowd affiliation and potentially problematic weight control behaviors, such as dieting and bulimic/food preoccupied behaviors.

First, we expected adolescents affiliating strongly with certain peer crowds to show *comprehensive* patterns of healthful or unhealthful eating, exercise, and weight control behaviors. Specifically, adolescents affiliating with the Burnout peer crowd were expected to report *more* unhealthful eating, sedentary behaviors, and problematic weight control behaviors, and those affiliating with the

Brains were expected to report *less* unhealthful eating, sedentary behaviors, and problematic weight control behaviors than other adolescents. Tendencies toward an unhealthful or healthful lifestyle (for Burnouts and Brains, respectively) would likely extend to multiple aspects of health behaviors, including eating, exercise, and weight control.

Second, aside from comprehensive lifestyle patterns, we expected adolescents affiliating with other peer crowds to show *selected* areas of healthful or unhealthful eating, exercise, and weight control behaviors. Specifically, those affiliating with the Jocks were expected to report high levels of exercise, as by definition these teens enjoy sports and athletic activities. Otherwise, those affiliating with the Jocks were not expected to differ from other adolescents. In addition, adolescents affiliating with the Populars were expected to report more exercise and more faulty weight control behaviors than adolescents identifying with other peer crowds, perhaps reflecting an attempt to regulate their appearance and body weight. The Popular peer crowd is partly defined by their sociability and concern about appearance (e.g., Brown, 1990; La Greca & Prinstein, 1999), and this might contribute to these adolescents' efforts to maintain a slim physical appearance either through high levels of exercise or problematic weight control behaviors.

Gender and Ethnic Differences in Eating, Exercise, and Weight Control

The present study also examined the roles of gender and ethnicity in adolescents' eating, exercise, and weight control. Boys appear to consume more fat and sugar than girls (Cusatis & Shannon, 1996), suggesting more *unhealthful* eating for boys. Yet, data from the CDC (2004) indicate that adolescent boys may have more *healthful* eating behaviors than girls, as boys eat more fruits and vegetables and consume milk more often than girls. Boys also engage in more exercise than girls, especially vigorous exercise (CDC, 2004; Lewinsohn, Seeley, Moerk, & Striegel-Moore, 2002). In terms of weight control, girls report more dieting than boys (CDC, 2004; Drownowski, Kurth, & Krahn, 1995; Neumark-Sztainer et al., 1999), and use more problematic weight control strategies, such as bingeing and purging (Neumark-Sztainer & Hannan, 2000).

Regarding ethnicity, problems such as obesity and overweight are high among Black and Latino youth (e.g., Caldwell, Brownell, & Wilfley, 1997; Fitzgibbon et al., 1998; French et al., 1997). Black adolescents have more unhealthful eating patterns (i.e., consume

more fats; are less likely to eat a regular breakfast) than other adolescents (Affenito et al., 2005; Lytle et al., 2002). For exercise, Black adolescents have the highest rates of “insufficient physical activity” (41.2%) compared with Hispanic (36.5%) or White adolescents (31.0%) (CDC, 2004). In addition, Black adolescent girls are less physically active than White girls, and are less likely to engage in a range of physical activities (e.g., calisthenics, jogging, rollerblading, swimming) and more likely to report sedentary activities like watching television (e.g., Dowda et al., 2004). Black adolescent girls are also more accepting of being overweight than White girls (French et al., 1997), suggesting that Black girls may be less inclined to diet or use weight control strategies than other adolescent girls.

Given the above findings, the current study evaluated gender and ethnic differences in adolescents’ eating and exercise behaviors and use of faulty weight control strategies. The study analyses also considered potential gender by ethnicity interactions.

Method

Participants

Participants were 705 adolescents (66% girls), 14–19 years of age ($M = 15.51$; $SD = 1.03$), from six public high schools within a large metropolitan area in the Southeast. The ethnic composition was 55% Hispanic/Latino, 27% Black (African-American and Caribbean-American), and 16% White. This ethnic mix reflected the diversity of the larger urban area within which the adolescents reside. Of these participants, 28.4% came from schools considered to be of low socioeconomic status (SES), 23.8% from middle SES schools, and 47.8% from higher SES schools.

Procedure

Study approval was obtained through the University Institutional Review Board and the local school board. Adolescents were given consent forms (in English and Spanish) to take home for parents to provide active consent for participation. Overall, ~50% of the adolescents returned signed consent forms, and of these adolescents, 94% had permission to participate. At the beginning of the group testing sessions, adolescents were asked for their assent to participate; 99% of the them provided assent. Adolescents completed questionnaires anonymously; several research assistants were available to answer questions and explain directions.

In addition to the 705 participants, 80 adolescents identified themselves as of Mixed or Other ethnicity;

these adolescents were not included in the study sample, as it was difficult to characterize their ethnic background accurately. Compared to the 705 participants, these 80 adolescents were more likely to be boys (40% and 34%, respectively) and to be younger (15.1 and 15.5 years, respectively) (p 's $< .01$ based on t -tests), but the two groups did not differ on other study variables.

Measures

Background Information

A questionnaire was used to obtain demographic information regarding age, gender, and ethnicity. Adolescents classified their ethnicity as White/Caucasian, Black (African American, not Hispanic; Caribbean-American, such as Haitian, Jamaican), Hispanic or Latino (e.g., Cuban, Columbian, Puerto Rican, Mexican), Asian, or Mixed ethnicity/Other.

SES Proxy

Information was obtained from the public school database regarding the percentage of students qualifying for free lunch in each school, and was used to create a variable, School SES. Although not an exact measure of SES, this variable has been used to estimate family income and neighborhood income in research by the Department of Education (e.g., National Assessment Governing Board, 2003). Low SES schools had 40% or more of the students qualifying for free lunch, and high SES schools had $< 20\%$ of the students qualifying for free lunch; middle SES schools were those in between. School SES (low, middle, and high) was used as a proxy variable for adolescent SES in supplementary analyses (see ‘Results’ section).

Peer Crowd Affiliation

Adolescents were asked how much they identified with each peer crowd using a revised peer crowd affiliation measure (La Greca et al., 2001). Common peer crowds were listed and adolescents were asked if these crowds existed in their school. All the key peer crowds were identified in each of the schools: Jocks (athletic, on school team), Burnouts (skip school, get into trouble), Brains (do well in school, enjoy academics), Populars (involved in activities, concerned about image), and Alternatives (rebel against the norm in clothing or ideas, do not conform to social ideals). Adolescents then rated *how much they identify* with each crowd on a 5-point scale (1 = not at all, 5 = very much). Studies have shown good correspondence between adolescents’ self-identification and peers’ assignment to crowds (e.g., Brown, Eicher, & Petrie, 1986). In addition, studies indicate that

adolescents are able to identify their membership in a peer crowd accurately, with 93% inter-rater reliability (Sussman et al., 1990).

Eating Behaviors

Healthful eating was assessed by five items from the *Youth Risk Behavior Surveillance System* (YRBSS; Centers for Disease Control and Prevention, 2003) that assessed the frequency of eating fruits and vegetables in the past week, specifically green salad, potatoes, carrots, fruits, and vegetables. The YRBSS assesses these dietary behaviors because they are related to lower rates of cancer and to a low risk for being overweight (CDC, 2003). No items on the YRBSS assessed frequency of *unhealthful* eating. Thus, three items were created, using the same format as the YRBSS, to assess the frequency of eating fast foods (which are typically high in fat and often fried), non-diet sodas (which are high in sugar), and sweets. For each item, adolescents rated the frequency of consumption on a 7-point scale, ranging from 0 (never in the past week) to 6 (four or more times per day). The scores were summed across items to obtain a total score for each scale (possible range = 0–30 for healthful eating, 0–18 for unhealthful eating).

Internal consistencies were .74 for healthful eating and .52 for unhealthful eating. The lower reliability for unhealthful eating appeared to be primarily due to the low correlation between “eating sweets” and “drinking sodas” ($r = .26$); adolescents who consume sugary sodas may not also consume sweets and vice versa. This suggests that unhealthful eating does not occur “across the board” but may be limited to certain types of unhealthful foods.

Exercise

Adolescents completed four items from the YRBSS (CDC, 2003) that have evaluated adolescents’ health behaviors in national samples. The items asked about the number of days during the past week that the adolescent engaged in heavy, light, and toning exercise, and on how many sports teams the adolescent played during the past month. Items were summed to create the exercise scale. Scores could range from 0 to 24, with higher scores indicating more exercise. This scale demonstrated adequate internal consistency in this sample (Cronbach’s $\alpha = .66$).

Weight Control Behaviors

The *Eating Attitudes Test*, the 12-question version (*EAT-12*; Garner & Garfinkel, 1979; Lavik, Clausen, & Pedersen, 1991) assessed weight control behaviors. The *EAT-12* asks about restrictive eating behaviors in order to gauge the

extent to which adolescents under-eat, regulate their food intake, or deprive themselves of nutrients. The *EAT-12* has adequate reliability and validity (Wichstrom, 2000). The longer *EAT-26* has been found to be reliable and valid for use with ethnic minorities (Rosen, Silberg, & Gross, 1988). The *EAT-12* consists of three subscales: dieting (e.g., “I engage in dieting behavior”), bulimia and food preoccupation (e.g., “I vomit after I have eaten,” “I give too much time and thought to food”), and oral control (e.g., “I cut my food into small pieces”). Only dieting and bulimia/food preoccupation were used in this study. Items were scored on a 6-point scale from Never (1) to Always (6). To our knowledge, the *EAT-12* has not been evaluated previously with minority populations; in the current sample, the factors that emerged following a principal components factor analysis were identical to those obtained in prior research (Engelsen & Hagtvet, 1999). The dieting and bulimia/food preoccupation subscales each contained four questions, with totals ranging from 4 to 24, and showed good internal consistency (dieting = .79, bulimia/food preoccupation = .71).

Results

Analytical Plan

First, descriptive information is provided to understand the extent to which eating, exercise, and weight control behaviors were problematic for the adolescents. Second, the role of peer crowds was evaluated, controlling for gender and ethnicity, using hierarchical linear regression; healthful eating, unhealthful eating, exercise, dieting, and bulimia/food preoccupation were the five dependent variables. For each analysis, gender (boys = 1) was entered on the first step, ethnicity (dummy coded in reference to White adolescents) was entered on the second step, and the five items assessing identification with each peer crowd were entered on the third step. In addition, supplementary analyses were run controlling for School SES (as a proxy for adolescent SES) and School Attended (in steps 3 and 4, respectively, prior to entering peer crowds) to ensure that these demographic variables did not affect the findings. However, none of the results for peer crowds were affected by including School SES and School Attended; below, the findings for School SES and School Attended are described *only* when they are significant. Finally, a MANOVA was used to evaluate the effects of gender, ethnicity, and their interaction for the five key study variables (healthful eating, unhealthful eating, exercise, dieting, and bulimia/food preoccupation). Following a significant effect, ANOVAs evaluated group

differences, and significance was determined using Bonferroni-corrected comparisons to control for type I error.

Descriptive Information

For healthful eating, adolescents' mean total score was 6.00 ($SD = 4.4$), which reflects eating each fruit and vegetable (green salad, potatoes, carrots, vegetables, and fruits) one to three times in the past week. For unhealthful eating, adolescents' mean total score was 5.97 ($SD = 3.4$), which reflects consuming non-diet soda, fast food, and sweets about four to six times per week (i.e., almost daily). For exercise, adolescents' mean total score was 9.24 ($SD = 5.8$), which reflects exercising two to three times per week. The scores obtained for healthful eating and exercise were similar to those obtained in a recent national sample of adolescents (CDC, 2003).

For dieting and bulimic behaviors, the means on the EAT-12 for dieting ($M = 8.16$, $SD = 4.40$) and bulimic behaviors ($M = 6.42$, $SD = 3.26$) were similar to other adolescent samples (Englesen & Hagtvet, 1999). The means also were comparable to other samples examining very restrictive dieting behaviors, which found that ~15% of adolescents reported engaging in behaviors such as fasting or use of diet pills to control weight (Forman-Hoffman, 2004).

Peer Crowd Affiliations as Predictors of Eating, Exercise, and Weight Control Behaviors

The primary study goal was to examine the associations between adolescents' peer crowd affiliations and their

eating, exercise, and weight control behaviors, controlling for gender and ethnicity. These results are presented in Table I and described below.

Healthful Eating

Adolescents' peer crowd affiliations significantly contributed to the prediction of healthful eating (R^2 change = .02, see Table I). As expected, adolescents identifying more highly with the Brains reported more healthful eating than other adolescents. There was a trend for adolescents identifying more highly with the Populars to report more healthful eating ($p = .08$).

Unhealthful Eating

Peer crowd identification contributed significantly to the model (R^2 change = .03; Table I). As expected, those identifying more highly with the Brains reported eating *less* unhealthful foods than other adolescents, and those identifying with the Burnouts and the Populars reported eating *more* unhealthful foods than other adolescents. When the supplementary analyses were run, School SES (R^2 change = .03, F change = 11.07, $p < .001$) and School Attended (R^2 change = .02, F change = 3.72, $p < .05$) were significant predictors of adolescents' unhealthful eating. Specifically, adolescents from schools with a higher representation of low SES students reported more unhealthful eating than those from schools with primarily middle ($\beta = .12$, $p < .05$) or high SES ($\beta = .23$, $p < .001$). In addition, one school had students who reported more unhealthful eating than the reference school ($\beta = .12$, $p < .01$). Even when controlling for these

Table I. Hierarchical Regression Analyses Predicting Eating and Exercise Behaviors

Variables	Healthful eating			Unhealthful eating			Exercise			Dieting			Bulimia		
	β	R^2 ch.	F ch.	β	R^2 ch.	F ch.	β	R^2 ch.	F ch.	β	R^2 ch.	F ch.	β	R^2 ch.	F ch.
Gender ^a	.01	0.00	0.07	.02	.00	0.30	.31*	.09*	72.43*	-.18*	.03*	22.51*	-.07	.00	2.97
Ethnicity ^b		.01	2.40		.02**	7.67**		.00	1.06		.03*	10.17*		.01***	3.08***
Black	-.11***			.14**			-.07			-.09			.03		
Hispanic	-.05			-.01			-.04			.09***			.11***		
Peer crowds		.02***	2.71***		.03**	4.11**		.10*	17.81*		.02***	2.48***		.01	1.69
Jocks	.00			.03			.28*			-.05			-.04		
Brains	.09***			-.11**			-.02			.08***			.03		
Burnouts	-.03			.09***			-.06			-.01			.08***		
Populars	.08 [†]			.08 [†]			.09***			.06			.01		
Alternatives	.05			-.04			.02			.06			.05		
Total R^2	.03			.06			.20			.08			.03		
Model F	2.40***			4.04*			21.57*			7.04*			2.21***		

^aGirls coded as 0, boys as 1.

^bDummy coded in reference to White non-Hispanic adolescents.

* $p < .001$, ** $p < .01$, *** $p < .05$, [†] $p < .10$.

demographics, peer crowd affiliation remained significant (R^2 change = .024, F change = 2.98, $p < .01$), and the pattern of results were identical to the initial model (Table I).

Exercise

Peer crowd affiliation contributed significantly to the prediction of exercise (R^2 change = .09, see Table I). As expected, adolescents affiliating with the Jocks and the Populars reported exercising significantly more than other adolescents. In the supplementary analyses, only School Placement was significant (R^2 change = .016, F change = 4.17, $p < .01$); again the same school differed from the reference school, with students reporting more exercise ($\beta = .14$, $p < .001$). After controlling for these additional demographics, peer crowd affiliation remained significant (R^2 change = .10, F change = 14.11, $p < .0001$), with the same pattern of results as indicated in Table I.

Dieting

Peer crowd affiliation contributed significantly to the model for dieting (R^2 change = .02; Table I). Specifically, adolescents affiliating with the Brains reported dieting *more* than other adolescents, contrary to expectations. No other effects were observed.

Bulimia/food preoccupation behaviors

Peer crowd affiliation was not a significant predictor of these behaviors (Table I). However, with all variables in the regression equation, the results revealed that adolescents affiliating with the Burnouts reported more bulimic/food preoccupied behaviors than other adolescents ($\beta = .08$; Table I), consistent with expectations. In supplementary analyses, School SES contributed to the model (R^2 change = .02, F change = 5.31, $p < .01$), with adolescents from low SES schools reporting fewer

bulimic behaviors than those from middle SES schools ($\beta = -.11$, $p < .05$).

Gender and Ethnic Differences

A second goal was to examine gender and ethnic differences in eating, exercise, and weight control behaviors. A MANOVA evaluated gender, ethnicity, and their interactions; in part, these results replicate the regression analyses. Significant main effects for gender [$F(5, 695) = 19.08$, $p < .001$] and Ethnicity [$F(5, 696) = 5.49$, $p < .001$] were observed. The Gender by Ethnicity interaction was not significant [$F(5, 696) = 2.07$, $p > .05$]. Univariate follow-up ANOVAs are reported in Table II.

Contrary to expectations, the only significant finding for eating was that Black adolescents reported more unhealthful eating than both White and Latino adolescents (Table II). (It is important to note that the higher rates of unhealthful eating among Black adolescents were significant even when School SES and School Attended were included in supplementary regression analyses, as described above.)

As expected, boys reported more exercise than girls. Although no ethnic effects emerged for exercise, results of the prior regression analyses (Table I) indicated that a suppression effect might have been operating that masked ethnicity effects. Specifically, when peer crowd affiliations were entered in the regression for exercise, and in particular affiliation with the Jock peer crowd, a significant ethnic effect emerged; Black adolescents reported significantly less exercise than Whites ($\beta = -.09$, $p < .05$). Thus, when Black adolescents who participate in athletics (i.e., Jocks) are taken into account, in general, Black adolescents exercise less than Whites. For dieting and bulimia/food preoccupation, consistent

Table II. Means and Standard Deviations of Measures by Gender and Ethnicity

Measure	Gender Mean (SD)		Ethnicity Mean (SD)			F gender	F ethnicity
	Girls (n = 421)	Boys (n = 284)	White (n = 127)	Black (n = 188)	Latino (n = 390)		
Youth Risk Surveillance Items							
Healthful eating	5.96 (4.4)	6.05 (4.3)	6.50 (3.5)	5.45 (4.3)	6.10 (4.6)	$F(1, 699) = 0.01$	$F(2, 699) = 1.68$
Unhealthful eating	5.91 (3.5)	6.05 (3.1)	5.73 (2.9) ^a	6.77 (3.5) ^b	5.66 (3.3) ^a	$F(1, 699) = 2.24$	$F(2, 699) = 6.65^*$
Exercise	7.80 (5.3) ^a	11.38 (5.8) ^b	9.65 (6.0)	8.67 (5.7)	9.39 (5.7)	$F(1, 699) = 59.05^{**}$	$F(2, 699) = 1.08$
Eating Attitudes Test-12							
Dieting	8.79 (4.9) ^a	7.21 (3.4) ^b	7.96 (4.4)	7.13 (3.7) ^a	8.72 (4.6) ^b	$F(1, 699) = 22.39^{**}$	$F(2, 699) = 8.92^{**}$
Bulimia/food preoccupation	6.60 (3.4) ^a	6.17 (3.0) ^b	5.97 (2.6)	6.21 (3.1)	6.68 (3.5)	$F(1, 699) = 4.32^{***}$	$F(2, 699) = 3.78^{***}$

^{a,b}Items marked with different superscripts are significantly different from one another.

* $p < .01$, ** $p < .001$, *** $p < .05$.

with expectations, girls reported significantly more of these behaviors than boys (Table II).

Discussion

Proper eating, exercise, and weight control behaviors are crucial for adolescent health.

The present study examined the relationship between peer crowd affiliation and adolescents' eating, exercise, and weight control behaviors, and in doing so, extended our understanding of the health risks associated with certain peer relations.

Adolescent Peer Crowd Affiliation

Consistent with predictions, the more the adolescents affiliated with the Burnout crowd, the more they reported eating unhealthily, and being preoccupied with food (bulimia/food preoccupation), relative to other adolescents. These findings extend previous research that found that Burnouts are generally more likely to smoke, drink, and engage in other health-risk behaviors than other teens (La Greca et al., 2001; Mosbach & Leventhal, 1998; Sussman et al., 1990). Together these findings indicate that adolescents who identify with the Burnout crowd are at very high risk for multiple future health problems and are a critical group to target in health promotion efforts *in a comprehensive manner*, including efforts to improve eating and weight control behaviors as well as to reduce smoking and alcohol and substance use (La Greca et al., 2001).

In contrast, and as expected, adolescents identifying more with the Brains reported more healthful and less unhealthful eating than other adolescents, similar to the low rates of other health-risk behaviors for Brains that have been observed previously (e.g., La Greca et al., 2001). Although adolescents affiliating with the Brains appear to have a healthy lifestyle overall, unexpectedly, adolescents who affiliated with the Brains reported more dieting behaviors than other adolescents. Further investigation is necessary and desirable in order to determine whether this higher rate of dieting among the Brains reflects a reasonable and healthful way to regulate weight, or in contrast, reflects the potential for using extreme weight control behaviors, such as restrictive dieting. It is worth noting that, in this study, adolescents who affiliated with the Brains did not differ from other teens in their rates of bulimia/food preoccupation. It is possible that adolescents who affiliate with the Brains engage in dieting to keep their weight in check, without resorting to extreme behaviors.

In addition to the *comprehensive* patterns of health-risk (for Burnouts) or positive health behaviors (for Brains), selected differences in health behaviors emerged for adolescents affiliating with other peer crowds. Specifically, and consistent with expectations, adolescents affiliating with the Jocks reported substantially higher rates of exercise than other adolescents, but did not differ in their eating or weight control behaviors. In addition, as expected, adolescents who affiliated with the Popular crowd reported more exercise than other adolescents. However, these adolescents did not differ in their use of weight control strategies, although they did report a trend towards more unhealthful eating than other teens. Because the Popular peer crowd is partly defined by being concerned with appearance, it is surprising that no differences were obtained for weight control behaviors; perhaps adolescents affiliating with the Populans engage in exercise to control their weight rather than using faulty weight control methods. These patterns of findings for those affiliating with the Popular peer crowd will be important to examine further in future research.

Finally, adolescents' affiliation with the Alternative peer crowd was not related to eating, exercise, or weight control behaviors; nor were these adolescents expected to differ from other teens. Nevertheless, it is noteworthy that the sample as a whole reported eating behaviors that included low rates of healthful eating (fruits and vegetables) and high rates of unhealthful eating (fast foods, sodas, and sweets). Thus, although adolescents identifying with Alternatives and also with the Jocks did not display problematic patterns of eating and exercise relative to other adolescents, it can be argued that because adolescents *in general* report poor eating and exercise behaviors, all adolescents, including those identifying with the Alternatives and the Jocks, might profit from efforts to improve their healthful eating.

Because the current study examined relationships between peer crowd identification and eating, exercise, and weight control behaviors at one time point, the mechanisms underlying these relationships could not be explored. Future research should focus on potential mechanisms, such as socialization and selection processes. Research suggests that adolescents gravitate toward friends who have similar beliefs about weight and appearance (e.g., Paxton, Schutz, Wertheim, & Muir, 1999), possible evidence of selection being important in the link between peer crowd identification and eating behaviors. Research has also found that friends influence

adolescents' eating and weight control behaviors through socialization processes, such as modeling and social reinforcement (e.g., Field et al., 1999). Future research might examine whether selection or socialization processes mediate the relationship between peer crowd identification and adolescents' eating, exercise, and weight control behaviors.

Although not a key focus of the study, there were some differences across schools in reports of unhealthful eating and exercise. It may be the case that food choices available in school cafeterias, physical education requirements, and school culture are also important for understanding adolescents' eating and exercise behaviors. In addition, with regard to SES, findings revealed that adolescents attending low SES schools reported more unhealthful eating, but were less likely to engage in bulimic and food preoccupied behaviors than adolescents from more affluent schools. Future research should evaluate the ways in which adolescents' SES may affect their eating, exercise, and weight control behaviors.

Gender and Ethnic Differences

The current study also provided an opportunity to evaluate potential gender and ethnic differences in adolescents' eating, exercise, and weight control behaviors. Such findings are of interest, given the gender and ethnic differences in the risk for being overweight (CDC, 2004).

With respect to gender, consistent with previous findings (e.g., CDC, 2004; Lewinsohn et al., 2002; McCabe & Ricciardelli, 2003), boys reported exercising at a significantly higher level than girls, and girls reported significantly more dieting and more bulimia/food preoccupation behaviors than boys. This suggests that existing health promotion and obesity prevention programs might be enhanced by encouraging girls *both* to exercise more *and* to use fewer problematic ways for controlling weight (e.g., restrictive dieting, bulimic behaviors), rather than focusing on just exercise or weight control alone. For ethnicity, the findings were also consistent with prior research (e.g., CDC, 2004; French et al., 1997; Neumark-Sztainer et al., 1999) indicating that Black adolescents are an important population to target for health promotion and obesity prevention programs (CDC, 2004; Lytle et al., 2002).

Conclusions, Limitations, and Future Directions

The findings identified a potentially important area of influence on adolescent eating, exercise, and weight control behaviors—that of their peer crowd affiliation.

As such, the findings have implications for efforts to improve adolescent health and reduce their health-risk behaviors. For example, health promotion strategies aimed at improving nutrition and exercise have been used in multiple settings including primary care (e.g., Ma, Wang, & Stafford, 2005), schools (e.g., Engels, Gretebeck, Gretebeck, & Jimenez, 2005), and the media (e.g., Huhman et al., 2005). Prevention programs in each of these arenas might be improved by using adolescents' peer crowd affiliation in order to target potentially high-risk individuals. For instance, in primary care, researchers have noted that health promotion would be improved if pediatricians were able to target groups of adolescents at higher risk (Ma et al., 2005); asking about peer crowd affiliation could give health care providers insight into the specific health risks that an adolescent might encounter.

Another clinical implication is that most teens, and especially minority youth, might profit from learning better eating, exercise, and weight control strategies, given the relatively low levels of healthful eating and exercise levels that were observed. In addition, in pediatric and other health care settings, it may be important to ask adolescents specifically about their unhealthful eating behaviors; the relatively low internal consistency of the unhealthful eating items indicates that adolescents who reported high levels of unhealthful eating (e.g., Black adolescents, Burnouts) may not be engaging in *all* the areas of unhealthful eating that were assessed (drinking sodas, eating fast foods, eating sweets), but may be selective in their consumption of unhealthful foods and beverages. From a clinical standpoint, this means that interventions aimed at reducing adolescents' consumption of unhealthful foods need to consider a wide range of such foods, as adolescents may have poor eating habits in some areas but not others.

Finally, it should be noted that promising interventions for adolescent obesity that are conducted in schools or pediatric settings often focus on improving knowledge of healthy eating and exercise (Doak, Visscher, Renders, & Seidell, 2006). Our findings suggest that such interventions might benefit from consideration of peer crowd affiliations. For instance, adolescents affiliating with the Burnouts may be less likely to implement these changes if their peers display contrary behaviors, thereby undermining the intervention's effectiveness. In such cases, involving adolescents' close friends and others from the same peer crowd in the intervention might help to offset the potentially competing influences of the peer crowd.

Although the present study made important contributions to understanding the association between peer crowds and adolescents' eating, exercise, and weight control behaviors, and additionally provided important information on minority adolescents, several limitations should be considered. First, the results are best generalized to adolescents from ethnically diverse high schools in major urban areas. Although this represents a substantial number of adolescents who are at risk for health problems, it would be useful to examine the potential influence of peer crowd affiliations in other samples of adolescents as well. In addition, future research might also address the role of school culture in eating, exercise, and weight control behaviors, as our findings and others' suggest that these behaviors may be influenced by the school environment (Eisenberg, Neumark-Sztainer, Story, & Perry, 2005).

Second, information was collected through self-report measures. In future studies, multiple sources of information, such as diaries or behavioral logs of eating and exercise behaviors, might help to provide an objective measure of adolescents' eating and exercise. In addition, in future studies it would be useful to include physical health indicators, such as body mass index (height and weight), blood pressure, or cholesterol levels, which may be direct indicators of adolescents' health status. In the present study, we examined eating, exercise, and weight control, because the CDC has identified unhealthy dietary behaviors and physical inactivity as *priority health-risk behaviors* among youth that contribute to adult morbidity and mortality (e.g., Grunbaum et al., 2004).

Third, one of the measures of weight control, the *EAT-12*, had not been validated previously with ethnic minority populations, and thus the results using this measure should be interpreted with caution. However, in the current study, the same factor structure emerged as in previous studies with predominately white participants (e.g., Engelsens & Hagtvet, 1999), and the findings also replicated the gender differences found in previous research (Engelsens & Hagtvet, 1999). Nevertheless, it is possible that the longer version of the scale may have yielded more or different findings.

Fourth, the study obtained information from adolescents at a single point in time; future research that addresses adolescents' eating and exercise patterns over time might provide a better indication of how eating and exercise habits develop, influence each other, and are related to subsequent health problems. These important types of research questions can best be answered with longitudinal research designs.

Fifth, with the exception of exercise (10%), the amount of variance accounted for by peer crowd affiliations was relatively small (2–3%), but significant. Nevertheless, crowd affiliations accounted for at least as much as or more variance in adolescents' eating and exercise behaviors than did gender, ethnicity, or school attended (0–3%). Only for dieting did the effects of gender and ethnicity outweigh those of peer crowd affiliation. In general, these effect sizes indicate that additional influences on adolescents' eating, exercise, and weight control behaviors should also be examined. Such influences might include the eating and exercise behaviors of best friends and family members, as well as economic and demographic variables (i.e., SES, local climate). For example, socioeconomic status, a potentially important contributor to *access* to various types of foods, was examined with a proxy variable in the current study (School SES); evaluating adolescents' SES directly is an important consideration for future research. By examining such influences on eating, exercise, and weight control in a comprehensive manner, future research will contribute to a better understanding of the complex, multiple factors that are important for adolescent health.

In conclusion, this study identified patterns of eating, exercise, and weight control behaviors that are associated with adolescents' peer crowd affiliations and, as such, represents an important step toward greater understanding of which adolescents may display different patterns of health-risk behaviors that contribute to poor health outcomes in adolescence and adulthood. Further, as prevention efforts attempt to reduce levels of unhealthy eating, it is important to keep in mind that, although adolescents may choose to eat some unhealthy foods, they may not eat unhealthily across the board; therefore, assessing specific unhealthy eating behaviors is important. Future research that examines the *mechanisms* of peer crowd's influence, as well as the other multiple sources of influence on adolescents' eating, exercise, and weight control behaviors, would be important and desirable.

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