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Examining associations between adolescent binge eating and binge eating in parents and friends

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Abstract

Objective—Binge eating is prevalent among adolescents, but little is known about how parents and friends may influence such behaviors. This study examined associations between adolescent binge eating behaviors, and similar behaviors in their parents and friends.

Method—Participants were 2,770 target adolescent boys and girls who had at least one friend and/or parent who also participated. Logistic regression, stratified by gender, examined associations between parents' and friends' self-reported binge eating, and similar behaviors in target adolescents.

Results—Girls' binge eating was associated with their male friends' (odds ratio=2.33; $p=.03$) and fathers' binge eating (odds ratio=3.38; $p=.02$), but not with their female friends' or mothers' binge eating ($p>.05$). For boys, binge eating was not associated with parents' or friends' behavior.

Discussion—Adolescent girls' binge eating is associated with similar behaviors in their other-sex parents and friends. Results should be replicated, and mechanisms explaining this relation should be further explored.

Keywords

Binge eating; loss of control; social network; interpersonal; parents

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Disclosure of Conflicts

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Binge eating affects 10–15% of community-based youth,¹ and predicts weight gain, eating disorders, and related comorbidities.² A better understanding of its etiology could improve prevention and intervention efforts. Interpersonal factors have been implicated in the onset and maintenance of binge eating: binge eating aggregates in families, and genetics cannot explain all of these effects.⁶ Similarly, some^{3–5} (but not all)^{7,8} studies (including our previous work)⁹ report similar rates of bulimic behaviors in adolescents/young adults and their peers. However, studies often rely on participants' reporting of parent and peer behaviors, and adult studies are mostly retrospective, thus introducing potential reporting biases. Furthermore, few studies have compared the strength of associations between adolescent binge eating, and friend versus family binge eating,⁵ which could inform etiological models.

The current study broadens our previous work, which showed that male adolescents' overeating (i.e., consumption of unambiguously large amounts of food) is associated with their male friends' overeating, but did not examine relations between adolescent and parent eating behaviors.⁹ We specifically examined whether adolescents' *binge eating* (i.e., overeating accompanied by loss of control) was associated with their parents' and/or friends' binge eating. We hypothesized that adolescents whose parents or friends reported binge eating would have greater odds of reporting binge eating themselves, relative to adolescents whose friends and parents did not.

METHODS

Participants

Data were drawn from EAT-2010 (Eating and Activity among Teens),¹⁰ which surveyed eating- and weight-related behaviors among students ($n=2,793$; age range=10–22 years; mean=14.4±2.0 years) from 20 Minneapolis/St. Paul middle schools (6th–8th grade; 46.1%) and high schools (9th–12th grade; 53.9%); and F-EAT (Families and Eating and Activity Among Teens),¹¹ which surveyed their parents/caregivers ($n=3,709$). The sample was 53.2% female; 18.9% White, 29.0% African-American/Black, 19.9% Asian-American, 16.9% Hispanic, 3.7% Native-American, and 11.6% mixed/other; and had a mean BMI of 23.7 ($SD=5.7$; range=13.6–55.6).

Procedures

Adolescents completed surveys in health, gym, or science classes. Students received a \$10 gift card. Assent and parental consent (for students under 18) were completed before data collection. Participants nominated up to six friends^{3,4,9} from a school roster of enrolled students. Data from each participant (the “target” adolescent) were linked to each nominated friend's EAT-2010 data. A dichotomous friend binge eating variable (coded separately by gender) was derived which indicated whether *any* nominated friends reported binge eating. Each EAT-2010 participant who provided binge eating data was therefore a target adolescent in analysis, and, if nominated by another student, provided friend data for that other student.

Adolescents provided contact information for up to two parents or caregivers, who completed a related survey by mail or telephone. Parents received a \$25 gift card.

The University of Minnesota's Institutional Review Board and research boards of participating school districts approved all protocols.

Measures

Binge eating was determined by positive responses to both of the following questions: "In the past year, have you ever eaten so much food in a short period of time that you would be embarrassed if others saw you?" and, "During the times when you ate this way, did you feel you couldn't stop eating or control what or how much you were eating?" (two-week test-retest agreement among 129 adolescents=67%, and among 102 parents=75%). Binge eating assessment was identical for adolescents, friends, and parents, and was based on Yanovski's instrument,¹² which has good psychometric properties in adolescents.¹³

Age, sex, and race/ethnicity were self-reported. Socioeconomic status (SES) was determined primarily by educational attainment by either parent. Height and weight were measured by trained research assistants, using standardized equipment and procedures to calculate body mass index (BMI; kg/m²).

Statistical Analysis

The analytic sample comprised 2,770 adolescents with binge eating data who also had data available for at least one friend ($n=2,110$) and/or one parent ($n=2,362$). Participants nominated 4.9 ± 1.7 friends, on average, of whom 2.0 ± 1.7 participated in EAT-2010 themselves. Approximately 85.3% of adolescents had at least one parent respond to the F-EAT survey; 47.5% had two parents respond. Analyses were stratified by gender because binge eating tends to be differentially related to family and peer factors by gender.¹⁴ Analyses adjusted for target adolescents' age, race/ethnicity, SES, BMI, and school to account for clustering of individuals within schools. Logistic regression tested associations between target adolescents' binge eating, and their parents' and friends' binge eating. Separate regressions tested mothers' behavior, fathers' behavior, female friends' behavior, and male friends' behavior. Analyses including friends' behaviors additionally adjusted for the varying number of nominated friends with available data. We examined the confidence intervals of the odds ratios (overlapping versus not) to assess the relative importance of friends versus parents in relation to target adolescents' behaviors. Low rates of binge eating among adolescents with data from at least one parent *and* one friend precluded using a simultaneous model to partition the variance.

RESULTS

Approximately 9.6% of girls, 6.3% of boys, 4.7% of mothers and 3.9% of fathers reported binge eating. Girls' binge eating (adjusting for demographics, BMI, number of friends, and school) was independently associated with male friends' binge eating ($p=.03$) and fathers' binge eating ($p=.02$; see Table 1): girls whose male friends reported binge eating had 2.33 times the odds of reporting binge eating themselves, while girls whose fathers reported binge eating had 3.38 times the odds of reporting binge eating themselves. The confidence

intervals surrounding these odds ratios overlapped, indicating no meaningful difference in the relative strength of associations between girls' binge eating, and fathers' versus male friends' binge eating. Boys' binge eating was not associated with binge eating in their same-sex or other-sex parents or friends.

DISCUSSION

This study sought to broaden our understanding of interpersonal factors involved in adolescent binge eating^{3-5,14} and to address the commonly posed question of whether parents or friends are more important in relation to this behavior.¹⁵ There were few associations between adolescents' behavior, and their parents' or friends' behavior, and neither parent nor friend behavior showed stronger associations with target adolescents' behaviors, which somewhat contradicts the previous literature.¹⁵ Significant findings applied only to girls, for whom binge eating was associated with male parents' and friends' binge eating.

In our previous study,⁹ boys' overeating was associated with male friends' overeating (odds ratio=1.95), while in the current study, boys' binge eating was not associated with male friends' behaviors (although the odds ratio was similar in size and direction). Conversely, in the current study, binge eating showed more associations with parents' and friends' behavior for adolescent girls. These seemingly discrepant findings may reflect that girls are more susceptible to interpersonal influences on *disordered* eating than boys,¹⁵ perhaps because of Western society's focus on females' regulation of eating, whereas overeating, an arguably less pathological behavior than binge eating,¹⁶ may be more susceptible to interpersonal influence for boys. The importance of other-sex parents' and friends' behaviors in relation to girls' binge eating is novel¹⁷ and may indicate that such symptoms are more salient for girls observing males' behavior, perhaps because males are less distressed by and less likely to hide their binge eating¹⁸ whereas females may be more discreet due to social norms. Alternatively, girls may be more likely to befriend boys who binge eat, as such boys may be more accepting of their female friends' binge eating patterns than boys who do not binge eat. Replication is needed to rule out possible spurious effects.

Study strengths include the large and diverse community-based sample; the standardized measurement of height and weight; and the use of both parent and friend self-report data. Limitations include the cross-sectional design, which precludes speculation about directionality. More generally, it is unclear whether associations reflect shared social pressures, modeling, or other causal factors. Finally, brief, self-report measures were used to assess binge eating, which was characterized in part by eating "so much food... that [one] would be embarrassed if others saw." Although this item has been validated for measuring adolescent binge eating,¹³ the language may be problematic for studying interpersonal associations, since eating in this way might imply that such behavior is secretive and hence not accessible to others. Conversely, episodes in which adolescents and their friends/parents engage in similar eating behaviors might not elicit embarrassment, and hence might not be reported on our survey. Moreover, the definition of binge eating does not directly correspond with that provided in the Diagnostic and Statistical Manual of Mental

Disorders,¹⁹ which could have influenced our findings and may limit generalizability to clinical samples.

In summary, associations between adolescents' binge eating and binge eating in their parents and friends were modest, and pertained solely to girls. Generally, when using data collected directly from friends, as in the current study, associations between friends' and target adolescents' behaviors tend to be modest and inconsistent across studies,^{3,5,7} while stronger and more consistent associations are shown when studying adolescents' perceptions of their friends' behaviors.^{14,20} Varying types of methodology (including both qualitative and quantitative methods) may be needed to capture an accurate picture of adolescent eating patterns. Future studies should clarify the nature of associations between adolescent binge eating and that of parents and friends, including identifying explanatory mechanisms, to optimally inform our understanding of this complex problem.

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