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BRIEF REPORT

SUBSTANCE USE AND IMPULSIVE BEHAVIORS AMONG ADOLESCENTS WITH EATING DISORDERS

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Abstract — Results of past research suggest that the existence of bulimic behaviors (binge eating and/or purging) may be an indicator of increased likelihood of substance use. We investigated incidence of substance use among adolescent girls (mean age = 15.4 years) with anorexia nervosa ($n = 59$) or bulimia nervosa ($n = 58$). The incidence of substance use among girls with anorexia nervosa was low, particularly after removing those anorexic adolescents with bulimic symptoms. Nearly one-third of girls with bulimia nervosa had smoked tobacco cigarettes, had used marijuana, and were drinking alcohol at least weekly. Among those exhibiting bulimic symptoms, increased experience with use of different substances was related to increased incidence of attempted suicide, stealing, and sexual intercourse but was unrelated to age or incidence of intentional self-harm behavior. Our findings are discussed in relation to the results of past research and the clinical implications of our data.

Several studies with adults have highlighted the co-morbidity of substance use and eating disorders. Reviews of the literature indicate that, in general, individuals with bulimia nervosa appear to be more likely to use alcohol and other drugs when compared to individuals with anorexia nervosa, and that anorexics with bulimic symptoms may be more likely than exclusively restricting anorexics to indulge in substance use (Holderness, Brooks-Gunn, & Warren, 1994; Krahn, 1991). It appears that bulimia may be an indicator of increased likelihood to use drugs, or vice versa.

Among adolescents, most of the relevant studies have involved nonclinical samples and generally revealed positive relationships between bulimic behaviors and substance use (e.g., Crowther & Chernyk, 1986; Krahn, Kurth, Demitrack, & Drewnowski, 1992; Post & Crowther, 1985; Timmerman, Wells, & Chen, 1990). With regard to a clinical sample, Strober, Freeman, Bower, and Rigali (in press) performed a 10-year follow-up study of 95 adolescents who had been hospitalized for anorexia nervosa and who had not abused substances up to the point of hospitalization. The presence of binge eating either at initial evaluation or subsequent to hospitalization predicted later incidence of substance-use disorder.

Results of past research suggest that eating-disordered individuals with bulimic symptoms may evidence greater rates of substance use. The primary objective of the current study was to investigate the incidence of substance use in a clinical sample of adolescent girls diagnosed with either anorexia nervosa or bulimia nervosa. Also, the results of research on women with bulimia nervosa indicate that there may

be a subgroup of "multi-impulsive" bulimics who evidence impulsive behaviors in addition to binge eating and purging (Fahy & Eisler, 1993; Fichter, Quadflieg, & Rief, 1994; Lacey, 1993; Lacey & Evans, 1986). Among these women, substance abuse is frequently a problem. We also investigated whether greater experience with substances was related to incidence of other impulsive, problematic behaviors among bulimic adolescents as it appears to be among bulimic adults.

M E T H O D

Subjects

Participants were 117 adolescent girls (mean age = 15.44 years; $SD = 1.35$; range = 12–17) who were evaluated at a university-based eating disorders clinic and subsequently met diagnostic criteria (DSM-III-R; American Psychiatric Association, 1987) for anorexia nervosa ($n = 59$) or bulimia nervosa ($n = 58$). In line with current diagnostic practices (American Psychiatric Association, 1994), those who met criteria for both anorexia nervosa and bulimia nervosa were diagnosed with anorexia nervosa. All but three (2.6%) of the girls were Caucasian.

Measures

Substance use. Participants completed the Diagnostic Survey for Eating Disorders–Revised (DSED-R, Johnson, 1985), a 24-page instrument that included information on substance usage. Each respondent was asked to indicate how frequently she had used each of eight substances: alcohol, amphetamines, barbiturates, hallucinogens, marijuana, tranquilizers, cocaine, and cigarettes.

Impulsive behaviors. The DSED-R contains items measuring self-reported history of attempted suicide, self-injurious behavior, stealing, and whether the respondent had had sexual intercourse. Specifically, respondents were asked the following questions: "Have you ever made a suicide attempt?" "Have you ever tried to physically hurt yourself (i.e., cut yourself, hit yourself with intent to hurt, burn yourself with cigarettes)?" "Have you ever stolen items related to eating or weight (i.e., laxatives, food, etc.)?" "Have you ever engaged in sexual intercourse?"

Procedure

Upon presentation at the university-based outpatient eating disorders clinic, 2-hour diagnostic assessments were conducted by clinicians experienced in the evaluation and treatment of eating disorders, including separate semistructured interviews conducted by a psychologist and a psychiatrist. Eating-disorder diagnoses were based on the 2-hour diagnostic evaluation and were consensually derived among members of the clinical team who had participated in the evaluation. Finally, participants completed the paper-and-pencil measures.

R E S U L T S

The percentage of adolescents who had used each of the substances is reported in Table 1 by diagnostic group. Among the anorexic adolescents, alcohol, cigarettes, and marijuana were the only substances endorsed by any of the girls.

Of the 59 anorexic girls, 13 reported bulimic symptoms. These bulimic anorexics constituted a minority of the total anorexic group (22%) yet accounted for most of

Table 1. Incidence of substance use and other behaviors for girls with anorexia nervosa ($n = 59$) vs. girls with bulimia nervosa ($n = 58$)

Behaviors	Anorexia nervosa (%)	Bulimia nervosa (%)
Substance (Ever Used)		
Alcohol	18.6	67.2
at least weekly	1.7	29.3
Amphetamines	0	12.1
Barbiturates	0	6.9
Hallucinogens	0	8.6
Marijuana	8.5	31.0
Tranquilizers	0	3.4
Cocaine	0	8.6
Cigarettes	13.6	29.3
Other behaviors		
Attempted suicide	10.2	31.0
Intentional self-harm	14.6	29.3
Stealing	11.9	32.8
Sexual intercourse	11.9	63.8

the substance use in that group. Of the 11 anorexics who reported ever using alcohol, 6 had bulimic symptoms. Of the 8 anorexics who reported cigarette use, 4 evidenced bulimic symptoms. And finally, of the 5 anorexics who reported marijuana use, 3 also reported bulimic symptoms. If bulimic anorexics are removed from the sample, the corresponding incidence of alcohol, cigarette, and marijuana use among exclusively restricting anorexics was 10.9%, 8.7%, and 4.3%, respectively.

Bulimic symptoms also appeared to be related to attempted suicide and sexual experience. Of the 6 anorexics who reported suicide attempts, 3 evidenced bulimic symptoms. Of the 7 anorexics who had had sexual intercourse, 5 were in the bulimic group. Removing bulimic anorexics, the incidence of attempted suicide and sexual intercourse among restricting anorexics ($n = 46$) was 6.5% and 4.3%, respectively.

To investigate whether incidence of substance use was related to incidence of other problematic behaviors, the adolescents with bulimic symptoms were categorized as more experienced with drugs (having used three or more different substances) or less experienced with drugs (having used two or fewer different substances). Of the 71 girls thus categorized, 15 (21%) were more experienced and 56 (79%) were less experienced, and the two groups did not differ in mean age (15.80 vs. 15.75), $F(1, 69) = .02$, $p < .89$. Results of group comparisons are presented in Table 2.

Table 2. Incidence of problematic behaviors among bulimic girls with more ($n = 15$) or less ($n = 56$) experience with use of different substances

Problematic behaviors	More experienced (%)	Less experienced (%)	χ^2 ($df = 1$)	$p <$
Attempted suicide	66.7	19.6	12.56	.0004
Self-harm	40.0	25.0	1.32	.26
Stealing	60.0	21.4	8.45	.004
Sexual intercourse	100.0	48.2	13.13	.0003

Note: The More Experienced group is defined as having used three or more substances; the Less Experienced group is defined as having used one or two substances. The analyses reported in the table were also conducted using only the adolescents with bulimia nervosa, and the results were comparable to those in Table 2.

DISCUSSION

Similar to past research with adults, we found relatively low rates of substance use among exclusively restricting adolescents with anorexia nervosa. The large majority of adolescents who reported substance use evidenced bulimic symptoms. Among bulimic adolescents, use of multiple substances was related to increased likelihood of attempted suicide, stealing, and sexual intercourse. Based on a large body of research, it appears that consistent personality differences exist between individuals with anorexia nervosa versus bulimia nervosa, the latter group being characterized as relatively less constrained (see Vitousek & Manke, 1994, for review). It may be the less inhibited and more impulsive personality style of those with bulimia nervosa that leads to relatively greater incidence of substance use.

Our findings extend earlier research on eating-disordered adults into the realm of adolescent girls. The potential existence of a subgroup of bulimic adolescents who evidence a cluster of impulsive, problematic behaviors is useful to clinicians as "multi-impulsive" adults with bulimia nervosa have been found to display poor response to treatment (Fichter et al., 1994). Further research is needed to investigate the links among bulimia, substance use, and other impulsive behaviors, particularly with regard to the question of why some eating-disordered adolescents engage in substance use whereas others do not.

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