D.A. Marciano, MD J.A. McSherry, MD A.S. Kraus, ScD

Abnormal Eating Attitudes: Prevalence at a Canadian University

SUMMARY

The authors conducted a survey of the prevalence of abnormal eating attitudes and behaviours among all women undergraduates living in on-campus residences at Queen's University and systematic samples of men and women undergraduates living in off-campus residences, using the Eating Attitudes Test-26 (EAT-26) as the study instrument. The results, although comparable to those of similar studies at other universities and colleges, are unusual in that they identify a group of high scoring respondents who did not return to Queen's University the year following the study.

Of 1,982 students surveyed, 1,082 were women living in on-campus residences, 450 were women living in off-campus accommodation and 450 were men also living off-campus. The off-campus groups were matched with the on-campus groups for program and year.

The response rate was 50.6%. Of these respondents, 14.7% had scores of 20 or more on the EAT-26; scores typical of those reached by persons sufferering from eating disorders. Both groups of women had the same prevalence of high scorers (16.8%), while the prevalence of high scores in male students was 2.7%. Of 16 high scorers clinically interviewed, 13 (81.3%) fulfilled diagnostic criteria for eating disorders. (*Can Fam Physician* 1988; 34:75–79.)

RÉSUMÉ

Les auteurs ont procédé à une enquête sur la prévalence des attitudes alimentaires anormales et des comportements chez toutes les étudiantes de niveau prégradué demeurant dans les résidences du campus de l'Université Queen et chez des échantillons systématiques de garçons et de filles de niveau prégradué demeurant hors des résidences du campus. On s'est servi du test des attitudes alimentaires-26 (EAT-26). Les résultats, bien que comparables à ceux d'enquêtes semblables effectuées dans d'autres universités et collèges, se sont avérés inhabituels parce qu'ils ont identifié un groupe de répondants dont les résultats étaient élevés sur l'échelle de mesure et qui ne sont pas revenus à l'Université Queen l'année suivante.

Le groupe des 1,982 étudiants ayant fait l'objet de cette étude était constitué de 1,082 femmes vivant dans les résidences universitaires, de 450 femmes vivant dans des résidences à l'extérieur du campus et de 450 hommes vivant aussi à l'extérieur du campus. Les groupes hors campus ont été pairés avec les groupes vivant sur le campus quant au programme et à l'année.

Le taux de réponse fut de 50.6%. De ces répondants, 14.7% ont obtenu un résultat de 20 ou plus sur l'échelle de mesure EAT-26; ces résultats sont typiques des personnes souffrant de désordres alimentaires. La prévalence des répondants ayant des résultats élevés (16.8%) fut la même dans les deux groupes de femmes, alors que la prévalence de résultats élevés chez les étudiants de sexe masculin était de 2.7%. Des 16 répondants à résultats élevés qui ont fait l'objet d'une interview, 13 (81.3%) répondaient aux critères diagnostiques des désordres alimentaires.

Key words: eating disorders prevalence, anorexia nervosa, bulimia, Eating Attitudes Test-26, EAT-26

Dr. Marciano is a graduate student in the Department of Community Health and Epidemiology at Queen's University. Dr. McSherry is Director of the Student Health Service and an associate professor of Family Medicine at Queen's University, Kingston, Ontario. Dr. Kraus is a professor in the Department of Community Health and Epidemiology at Queen's University. Requests for reprints to: Dr. J. McSherry, Student Health Services, Queen's University, Kingston, Ont. K7L 3N6

ANOREXIA NERVOSA and bulimia are psychiatric disorders characterized by disturbed eating be-

haviour.[1] Anorexia nervosa is a syndrome where "the relentless pursuit of a thin body size" is associated with exaggerated dread of weight gain and fatness.[2] Bulimia, a term derived from the Greek and meaning 'ox eating', is defined as an eating disorder in which sufferers indulge in repeated episodes of rapid ingestion of large amounts of food, "binge-eating", are aware that their eating behaviour is abnormal, display fear of being unable to stop eating voluntarily, experience depressed mood and self-deprecating thoughts after eating binges, and do not suffer from anorexia nervosa or other identifiable medical disorder.[3]

Neither anorexia nervosa nor bulimia are single discrete clinical entities. An anorectic may be classified as either primarily a restrictor or a bulimic,[2] and a bulimic may be categorized as suffering from bulimia nervosa, situational, stress relieving, or hedonic bulimia,[4] depending on the dominant abnormal eating attitudes and behaviour displayed. If the eating disorders are thought of as a spectrum of disease, other sub-groups of affected individuals can be identified: subclinical anorectics, occasional dieters, occasional purgers, chronic dieters, bulimic dieters, and non-compensatory bulimics or overweight-to-obese persons whose eating behaviour and attitudes share the common central feature of preoccupation with body weight and shape.[5-9]

Prevalence studies suggest that eating disorders are particularly common in college and university women. Anorexia nervosa has been found to affect from 1% to 11% of university women,[5, 7, 10] depending on the population studied, while bulimia has been found to affect from 3.8% to 13%.[11-14] The instrument most widely used to identify abnormal eating attitudes within university and college communities has been the Eating Attitudes Test (EAT), of which two versions have been developed and authenticated: the EAT-40 and the EAT-26.[15, 16] Both are self-evaluation instruments in which the respondent is asked to rate statements about attitudes and behaviours relating to weight and eating. Responses are assigned a numerical value, and the respondent's total score is compared to validated normal standards.

The present study was undertaken because of the perception among caregivers that eating disorders were a common problem in women students at Queen's University. Since a number of agencies are available to students seeking advice and treatment for eating-related concerns, no single one had any clear picture of the prevalence of abnormal eating attitudes and behaviours among students, although all reported increasing numbers of women seeking help with eating disorders. A prevalence study was the logical first step in the development of an institutional response to the health needs of women students.

The EAT-26, a 26-item self-reporting questionnaire, was chosen as the test instrument because of its previously proven validity as a screening tool; because its relative simplicity and the speed with which it can be completed by respondents were thought likely to enhance the response rate; and because the ease with which it can be scored would facilitate analysis of completed questionnaires. These features were considered to be highly desirable in view of the study's secondary goal of case finding and of the need for rapid notification of abnormal scores to respondents who had voluntarily disclosed their identities.

The EAT-26 asks the respondent to rate the proportion of time or the frequency of the behaviour or attitude which applies to each item, as either "always", "usually", "often", "sometimes", "rarely" or "never". Examples of items are: "1. Am terrified about being overweight", "9. Vomit after I have eaten", and "15. Take longer than others to eat my meals." Each "always" response is scored as a 3, each "usually" response is scored as a 2, each "often" response is scored as a 1, and other responses get no score (except for question 25, "I enjoy trying new rich foods," for which the answer "never" gets the maximum score.)

Methodology

Subjects

The study population comprised 1982 undergraduates enrolled at Queen's University. Included in this total were all women undergraduates living in on-campus residences (1082 Res-students), a group of women undergraduates (450 Fem-students) living in off-campus residences, for comparison with the on-campus group, and an equal number of male undergraduates (450 Mal-students) living in off-campus residences, for comparison with the female off-campus group. Both off-campus groups were representative samples selected by systematic sampling from the directory of Queen's students, and were matched with the Res-students by year and program.

Procedure

Each participant received a letter explaining the purpose of the study and its potential benefits; an EAT-26 questionnaire; another questionnaire designed for the purposes of the study and requesting information on demographic variables; and an envelope marked "Confidential" and addressed to JMcS, which could be used for return of completed questionnaires, at no cost, through campus mail. Participants had the option of either completing the study materials anonymously or identifying themselves; if they chose the latter option, they were assured that they would be advised of their scores if they proved to be abnormal.

Returned questionnaires were scored and analysed. Respondents who scored 20 or more on the EAT-26 Test received a personal and confidential letter from JMcS telling them of their scores, describing the potential implications, recommending an individual assessment, and listing available medical and mental health resources.

The study was approved by an Ethics Review Committee of Queen's University Faculty of Medicine and supported enthusiastically by student government. Other agencies providing health-care services to students were informed of the study during the planning stage, in the expectation that the study would provoke an increase in the number of students seeking advice and treatment for eating disorders.

Outcome was based on the results of the assessment of high scorers who sought advice from the Student Health Service and on a follow-up questionnaire distributed to high scorers six months after the study began. The Student Health Service used the Pathology of Eating Group diagnostic criteria for anorexia nervosa[17] and the DSM III diagnostic criteria for bulimia.[3]

Results

The overall response rate to the study's questionnaire was 50.6%.

Total response rate and response rates by study groups are presented in Table 1. Fifty-three (5.3%) of the respondents reported that they had previously sought help for an eating disorder, and of this sub-group, 73.6% had consulted a physician.

Demography

The mean age of respondents was 20.4 years. Most of the respondents were either nineteen (39.9%) or twenty (23.0%) years of age. No respondent was aged less than seventeen, and 5.4% were aged twenty-five or older. Since the largest sample of participants was drawn from on-campus residences, which are occupied primarily by first-year students, and since off-campus groups were matched with the on-campus group for year and program, most respondents (70.6%) were in their first year of university.

EAT-26 Score Distribution

Table 2 records the distribution of the EAT-26 scores of the 994 respondents. The mean score was 9.3, comparable to the score of 9.6 obtained by Mann and his colleagues[18] and to the 9.9 reported by Garner and his coworkers[16] in a study of first- and second-year psychology students in a Canadian university. It is also similar to the 9.9 mean score obtained by Vanderheyden[19] in her 1985 comparative analysis of eating disturbances among normal eaters, binge eaters, and binge purgers who were female psychology students attending Queen's University. Of the respondents, 85.2% had normal scores, and 147 (14.8%) had high scores of 20 or more.

Of the Res-students and Fem-students, 16.8% had scores of 20 or higher, and 2.7% of Mal-students had comparable scores; the difference between men and women living off campus was statistically significant ($\chi^2 = 27.48$; p less than 0.0001.)

The Seeking of Care after the Survey

Of the 147 high-scoring respondents (those with scores of 20 or more), 131 identified themselves. It would have been desirable to send all the students in this group a follow-up questionnaire approximately six months after the study began. However, two high-scoring respondents had graduated, and 12 had neither graduated nor re-registered at Queen's University when the follow-up was conducted. The terms of the original approval of the Ethics Review Committee prohibited further efforts to contact these participants at their homes. Of the remaining 117 high-scoring respondents who returned to Queen's the following year, and who could therefore be contacted again, 46 (39.3%) replied to the follow-up survey. Of these, 25 had sought professional help after the survey, 16 from the Student Health Service and nine from their medical attendants at home, over the summer vacation that intervened between the original study and the follow-up survey of high scorers.

Of the 16 students who had sought assistance from the Student Health Service after their original survey response, three were found to have anorexia nervosa, 10 were discovered to have bulimia, and three were thought to have had abnormal scores on the basis of dieting behaviour without disordered attitude at the time of completing the questionnaire. The prevalence of eating disorders was therefore very high (81.3%) among the high scorers who sought medical attention, and for whom the diagnostic outcome became known to the authors.

Discussion

Information obtained by self-report questionnaires must be interpreted with caution, and the EAT-26 is no exception to this rule. Its limitations are well recognized by its originators, and although the EAT-26 may indicate the presence of attitudes common to persons with anorexia nervosa and other eating disorders, it is inappropriate to assume that high EAT-26 scores are diagnostic of the presence of those disorders.[15, 16] The EAT-26 is more accurately viewed as an instrument to measure concerns about weight and food intake rather than as a diagnostic test for the identification of clinical eating disorders. A high EAT-26 score reflects disturbed eating habits and abnormal attitudes to food, eating, body weight, and shape. The present study indicates that 17.4% of first-year women undergraduates attending Queen's University have serious concerns about eating, body shape, and weight. This finding is comparable to the results obtained in other prevalence studies on women psychology students

Table 1
Response Rates by Respondent Groups

Respondent Group	Number of Questionnaires Sent	Number of Responses	Response Rate (%)
Res-student	1,082	659	60.9
Fem-student	450	184	40.9
Mal-student	450	147	37.7
Total	1,982	994[a]	50.6

a. Four respondents did not indicate where they lived.

Table 2
Distribution of the EAT-26 Scores

Score Category	Frequency	Per Cent (%)
0	47	4.7
1–4	392	39.5
5–9	228	23.0
10–14	107	10.8
15–19	73	7.3
20–24	58	5.8
25–29	33	3.3
30–34	27	2.7
35–59	29	2.9
Totals	994	100.0

Note: Mean: 9.3.

in their first and second years.[5–7, 16] This study also indicates that 5% of women students coming to Queen's for their first year at university have already experienced an eating disorder.

Although 81.3% of high-scoring respondents who sought assistance from the Student Health Service after their initial survey response fulfilled diagnostic criteria for eating disorders, it cannot automatically be assumed that this rate applies to the whole group of high scorers. The low response rate to follow-up, the lack of information on the medical outcome when assistance was sought elsewhere than from the Student Health Service, and the low response rate to advice to seek professional assessment all limit the generalizability of the finding.

If the results of the study show a prevalence of abnormal eating attitudes which is broadly similar to that identified at other institutions, they also indicate possible consequences which the researchers in this study have not seen reported previously. Of the 131 high-scoring self-identified respondents, 12 neither graduated nor registered in the next academic year. This attrition rate of 9.2% contrasts with the overall attrition rate of 3.3% which applied to all first year undergraduates at Queen's in the year of the study. The difference is statistically significant (p = less than 0.001). This statistic may be the most important finding of the whole study, and it offers a tantalizing glimpse of the clinically significant effects of stress on first-year women students. It is unfortunate that follow-up of these particular individuals was impossible within the time frame and terms of reference of the study, since this high attrition rate among EAT-26 high scorers conjures up images of students whose abnormal eating attitudes were of such clinical significance that withdrawal from university was necessary. This is clearly an important area for further research.

Another enigmatic result of the study is the fact that 89.1% of respondents identified themselves to the investigators, inviting advice regarding their eating attitudes and behaviours, but only 54% of high scorers who responded to the follow-up survey had sought professional assessment. It may be that the relatively low response rate to follow-up obscures correct appreciation of the actual number of high scorers who sought assistance at home over the summer vacation, and interpretation of this aspect of the study is difficult and open to conjecture.

The methodological limitations of the study design deserve consideration. The overall response rate to the first questionnaire was 50.6%, and while this is by no means low for a survey in which only a single mailing could be used, a higher response rate would have increased the power of the study. Possible differences between responders and non-responders are always of concern. Were students without disturbed eating attitudes, for instance, less interested in returning questionnaires, biasing the results towards a high prevalence of high scorers? Did students with eating disorders refuse to participate by completing and returning questionnaires, thus influencing results in the opposite direction? There are no firm answers to these questions without clinical interviews for non-responders and low scorers to assess the accuracy of the self-reporting system.

Since the results of the study are based on the answers to a self-report questionnaire chosen because its brevity would encourage response, complex eating attitudes and behaviours could not be explored, and "sub-clinical" eating disorders could not be differentiated from overt disorders. A "sub-clinical" eating disorder is one which cannot be categorized by means of strict diagnostic criteria, but nonetheless seems to be clinically significant and beyond the scope of normal dieting. Sub-clinical eating disorders can be detected by high EAT-26 scores,[5–7] but the relatively small number of high scorers who sought clinical investigation at the Student Health Service permitted insufficient opportunities for diagnosis and for drawing any conclusions about the respective proportions of clinical to subclinical eating disorders.

The overall findings indicated no statistically significant association between the EAT-26 score and the variables included in the analysis: age, year of enrollment, on-campus or off-campus living accommodation, particular on-campus residence. The preponderance of high-scoring women respondents over men is a common finding[5, 7] and represents differences between the sexes in expression of the frequent preoccupation with body shape and weight. Men tend to emphasize muscle development, whereas women emphasize slimness.[20]

The three high scorers found to be engaging in normal dieting activity demonstrate the fallibility of the EAT-26 as the sole criterion for diagnosis of eating disorders.

If 5% of first-year university women have already been treated for an eating disorder, and if 17.4% have abnormal eating attitudes and behaviour, they must constitute such a fertile pabulum of individuals at risk for eating disorders that knowledge of the reasons behind the withdrawal from Queen's of 9.2% of high-scoring respondents to the original questionnaire becomes critical if the implications of all this information are to be understood. Further studies will examine the significance of eating disorders in the decisions of women to leave university without completing their degree requirements.

Acknowledgements

The authors wish to thank Dr. J.A. Bennett, Vice Principal Services at Queen's University at the time of study, for his encouragement and for so generously funding the project; the administrative staff of the Student Health Service for the many ways in which they enabled the study to achieve its goals; and Lucy Briceland of the Registrar's Office for information on the first-year undergraduate attrition rate.

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