Journal of Consulting and Clinical Psychology
2009, Vol. 77, No. 5, 835–844

0022-006X/09/$12.00 DOI: 10.1037/a0015336

Women With Bulimic Eating Disorders: When Do They Receive Treatment for an Eating Problem?

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Variables associated with the use of health services were examined in a prospective, community-based study of women with bulimic-type eating disorders who did (n = 33) or did not (n = 58) receive treatment for an eating problem during a 12-month follow-up period. Participants who received treatment for an eating problem differed from those who did not in several respects, including higher body weight, higher levels of eating disorder psychopathology, general psychological distress, and impairment in role functioning, deficits in specific aspects of coping style, greater awareness of an eating problem, and greater likelihood of prior treatment for a problem with weight. However, the variables most strongly associated with treatment seeking were greater perceived impairment in role functioning specifically associated with an eating problem and greater perceived inability to suppress emotional difficulties. These were the only variables that were significantly associated with treatment seeking in multivariable analysis. The findings suggest that individuals' recognition of the adverse effects of eating-disordered behavior on quality of life may need to be addressed in prevention and early intervention programs for eating disorders.

Keywords: eating disorders, bulimia nervosa, binge eating disorder, health service utilization, prevention

Evidence suggests that the majority of individuals with bulimic eating disorders—namely, bulimia nervosa (BN), binge eating disorder (BED), and variants of these disorders not meeting formal diagnostic criteria—do not receive treatment for an eating problem (Mond, Hay, Rodgers, & Owen, 2007a). In a community-based study of outcome in BN, Fairburn, Cooper, Doll, Norman, and O'Connor (2000) found that 26% of young adult women with a diagnosis of BN had ever received treatment for an eating problem. In the New England Women's Health Project (Striegel-Moore et al., 2001), 40.3% of women with BN had ever received treatment for an eating problem, notwithstanding the fact that most of these individuals had first met criteria for BN some 10 years earlier. In the same study, 17.3% of participants with BED had ever received treatment for an eating problem. In the National Comorbidity Survey Replication Study (Hudson, Hiripi, Pope, & Kessler, 2007), 43.2% of individuals with a lifetime diagnosis of BN and 43.6% of individuals with a lifetime diagnosis of BED had ever received treatment for an eating problem. Similar figures were observed in research conducted by Mond, Hay, et al. (2007a) in a general population sample of women in Australia.

Individuals with BN and related disorders do, however, often receive treatment for a comorbid mental health problem, such as depression, for a problem or perceived problem with weight, or for physical health complications associated with disordered eating, such as gastrointestinal complaints and/or symptoms of dehydration (cf. Mond, Hay, et al., 2007a). Nonspecific treatments of this kind are unlikely to be of sustained benefit in reducing individuals' levels of eating disorder psychopathology but nevertheless place a considerable burden on health services, particularly in the primary care sector (Hudson et al., 2007; Mond, Hay, et al., 2007a;

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The Health and Well-Being Study was funded by grants from Australian Capital Territory Health and Community Care, Australian Capital Territory Mental Health, and the Canberra Hospital Private Practice Fund. The present research was funded by the Australian Rotary Health Research Fund. J. M. Mond is supported by a National Health and Medical Research Council Sidney Sax (Public Health) Fellowship.

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Striegel-Moore et al., 2005). It is therefore important to identify the correlates of treatment seeking among individuals with bulimic eating disorders and to use this information to develop initiatives that facilitate early and appropriate help seeking. Whereas specific psychotherapy for BN and related disorders is not always effective, there is no question that outcome is improved through early intervention (Mitchell, Agras, & Wonderlich, 2007). Further, among obese individuals who binge eat, stabilization of eating behavior may be associated with improved quality of life irrespective of weight loss, and specific psychotherapy is the most effective means by which to stabilize eating behavior (Devlin & Fischer, 2005; Wilson, Grilo, & Vitousek, 2007).

Previously, we found that a brief intervention designed to improve eating disorders *mental health literacy* among women with bulimic-type eating disorders had a number of positive effects on participants' attitudes and beliefs but did not have an impact on treatment-seeking behavior (Hay, Mond, Darby, Rodgers, & Owen, 2007). In particular, and notwithstanding a focus in the information presented on the nature of eating disorder psychopathology and the role of specific psychotherapy in treatment, few individuals in either the intervention or control groups received treatment for an eating problem during the 12-month follow-up period. This finding, in turn, raised the question of what other factors (i.e., factors other than the intervention) might have distinguished between participants who received treatment and those who did not.

Currently, little is known about the factors that predict treatment seeking and type of treatment sought among community cases of individuals with eating disorders (Garvin & Striegel-Moore, 2001). Modules for the assessment of eating disorders were not included in the two large-scale epidemiological studies in which detailed information concerning health service utilization was obtained, namely, the United States National Comorbidity Study (S. J. Katz et al., 1997) and the Australian National Survey of Mental Health and Well-Being (Andrews, Henderson, & Hall, 2001). In these and other studies, impairment in psychosocial functioning was found to be the best predictor of whether professional treatment was received among individuals with affective, anxiety, and substance use disorders, although it was apparent that many individuals who experienced even severe disablement did not receive mental health care (Andrews, Slade, & Issakidis, 2002).

In theory, a number of different types of factors might affect whether treatment is received for a mental disorder, as well as the type of treatment received (Anderson & Newman, 1973). These include variables related to the disorder itself, such as its severity and chronicity and the extent of associated disability; sociodemographic variables, such as age and gender; socioeconomic/environmental variables, such as access to and affordability of treatment; and variables particular to the individual, such as the ability to recognize symptoms of a disorder, beliefs concerning the effectiveness of treatment, and perceived stigma associated with disclosure of symptoms. Variables involving individuals' beliefs and knowledge about mental disorders and their treatment have been referred to as *mental health literacy variables,* following the work of Jorm and colleagues (Jorm, 2000; Jorm, Angermeyer, & Katschnig, 2000; Jorm, Korten, Jacomb, et al., 1997). Personality traits that may be associated with both psychopathology and treatment-seeking behavior (e.g., Lilenfeld, Wonderlich, Riso, Crosby, & Mitchell, 2006) would also be included among individual-level variables.

It is reasonable to assume that among individuals with eating disorders, the likelihood of treatment being received is related to the severity of the eating disorder and comorbid psychopathology, the associated functional impairment, and, in turn, the perceived need for treatment. Consistent with this hypothesis, Keel et al. (2002) found, in a clinical sample of individuals with eating disorders receiving specialist treatment, that higher levels of eating disorder psychopathology and functional impairment, as well as the presence of comorbid personality disorders, were the best predictors of the type of treatment subsequently received. However, these were primarily cases of anorexia nervosa and the purging subtype of BN with high rates of health service utilization. It is therefore unclear whether these findings might generalize to community samples, in which cases of BN-type eating disorder that do not meet formal diagnostic criteria predominate and specialist treatment is uncommon (cf. Mond, Rodgers, et al., 2004).

A community-based study of barriers to treatment among women with eating disorders in the United States found that financial difficulties and lack of adequate health insurance were the most frequently cited reasons for not seeking treatment (Cachelin, Rebeck, Veisel, & Striegel-Moore, 2001). However, the authors were led to question the validity of their findings, because there were no differences between individuals who had sought treatment and those who had not with respect to socioeconomic status or insurance coverage. Interpretation of the findings of this study is further complicated by the recruitment of a sample of ethnically diverse—that is, Hispanic and Mexican American—women (Becker, Franko, Speck, & Herzog, 2003). In a qualitative study of help seeking among women with current or past bulimic eating disorders, also recruited directly from the community, Hepworth and Paxton (2007) found that increased symptom severity, general psychological distress, interference with life roles, and health problems were the most salient prompts to help seeking, whereas fear of stigma, poor mental health literacy, fear of change, and cost were most often cited as barriers to help seeking.

In research conducted by Mond, Hay, et al. (2007a), impairment in psychosocial functioning was the best predictor of treatment seeking among community cases of women with bulimic eating disorders, although only half of those participants who reported marked impairment associated with an eating problem had ever received treatment for such a problem from a health professional, and fewer than 1 in 5 had received such treatment from a mental health professional. A strength of this study was that the role of variables potentially associated with treatment seeking was examined directly, thereby avoiding a reliance on participants' self-reported reasons for seeking or not seeking treatment. A limitation of the study, however, was the use of a cross-sectional design, in which associations between the prior use of health services and current levels of eating disorder psychopathology, functional impairment, and other variables were examined.

The Current Study

The goal of the current study was to add to the understanding of health service utilization for eating disorders by conducting a prospective analysis of variables associated with treatment seeking among women with bulimic eating disorders, who were recruited

from the same community sample used in our previous research (Mond, Hay, et al., 2007a). Specifically, we sought to identify the determinants of receiving treatment for an eating problem. The study design permitted inclusion of a range of predictor variables, including sociodemographic characteristics, coping (defense) style, generic and disease-specific measures of health-related quality of life (impairment in role functioning), and several mental health literacy variables. In view of the paucity of existing evidence, our only a priori hypothesis was that the degree of impairment in psychosocial functioning at baseline would be a strong predictor of whether treatment was received during the (12-month) follow-up period.

Method

Study Design and Participants

The research was conducted as part of the Health and Well-Being of Female ACT Residents Study, a two-phase epidemiological study of disability, health-service utilization, and mental health literacy associated with community cases of the more commonly occurring (BN-type) eating disorders (Mond, Hay, et al., 2007a; Mond, Hay, Rodgers, & Owen, 2008). The study was carried out in the Australian Capital Territory (ACT) region of Australia (population 314,000 in 2002), a highly urbanized region that includes the city of Canberra. All aspects of the study design were approved by the ACT Human Research Ethics Committee.

Recruitment of participants at the first phase of the study has been detailed previously (see Mond, Hay, Rodgers, & Owen, 2006a; Mond, Hay, Rodgers, Owen, Crosby, & Mitchell, 2006). In brief, self-report questionnaires were completed by 5,255 female residents of the ACT region, ages 18 to 42 years. The questionnaire included measures of eating disorder psychopathology (Fairburn & Beglin, 1994), health-related quality of life (Ware, Kosinski, & Keller, 1996), general psychological distress (Kessler et al., 2002), height and weight, and sociodemographic information. Body mass index (BMI; kg/m^2) was calculated from self-reported height and weight (Mond, Hay, Rodgers, Owen, & Beumont, 2004d). The sample comprised approximately 10% of the total population of women ages 18 to 42 in the region and was representative of this population on a range of sociodemographic variables (Mond, Hay, Rodgers, & Owen, 2006a; Mond, Hay, Rodgers, Owen, & Beumont, 2004c; Mond, Hay, Rodgers, Owen, Crosby, & Mitchell, 2006).

Respondents who met screening criteria for a clinically significant eating disorder (Mond, Hay, et al., 2004d) were approached to participate in the second phase of the study, which involved a face-to-face interview that included diagnostic items of the Eating Disorder Examination (EDE; Fairburn & Cooper, 1993), along with questions that we developed to address health service utilization, mental health literacy, and impairment in role functioning specific to eating-disordered behavior (Mond, Hay, et al., 2007a; Mond, Hay, Rodgers, & Owen, 2008). A self-report measure of defense style (Andrews, Singh, & Bond, 1993) was also administered at interview. Interviews were completed with 324 individuals, which represented a response rate of 76.6% at the second phase. Individuals interviewed were more likely to be married than those not interviewed (38.2% vs. 29.8%; $\chi^2 = 9.58$, $p < .05$). There were no other differences between these subgroups. The interval between questionnaire and interview assessment ranged from 4 days to 104 days, with a median of 28 days.

Interviewers received weekly training in the administration of the interview from J. M. Mond over a period of several months. During these sessions, tapes of interviews from previous research (Hay, Marley, & Lemar, 1998; Mond, Hay, et al., 2004d) were reviewed, and practice interviews were conducted. Each interviewer also conducted pilot interviews and received detailed feedback on each. This process of individual and group feedback continued during the assessment phase of the study. All interviews were audiotaped, except where the participant requested that taping not be conducted, and all tapes were reviewed by J. M. Mond. Where necessary, tapes were forwarded to P. J. Hay, and a consensus was reached on ratings of specific items. Interviewers, all female, had completed a minimum of 4 years of tertiary education, and all had relevant clinical experience.

Women identified as having a probable eating disorder on the basis of a preliminary inspection of the interview data were approached to participate in a follow-up study, one part of which involved a randomized controlled trial of a targeted intervention package. Participants assigned to the intervention condition received a package about mental health literacy for eating disorders, which included information about the nature and treatment of eating disorders, how to get help, and a list of local service providers, whereas individuals assigned to the control condition received only the list of service providers (Hay et al., 2007). Of the 185 individuals included in the randomized controlled trial, 144 were subsequently confirmed as having an eating disorder. Participants in the present study were 95 individuals (66.0% of those approached) who met the study criteria for a clinically significant eating disorder, on the basis of the EDE assessment, and who completed both baseline and follow-up (12-month) assessments. There were no significant differences between individuals who completed the follow-up ($n = 95$) and those who did not ($n = 49$) on any of the study variables (all ps $> .05$).

The mean (*SD*) age of participants at baseline was 28.8 (6.6) years. Their mean (*SD*) BMI was 27.1 (7.0) kg/m^2. Approximately half (54.2%) of the participants were employed full time. An additional 14.8% were employed part time, whereas 12.9% of participants nominated caring for children as their main activity, and 13.5% of participants nominated full-time study as their main activity. Approximately half (53.5%) of participants were married (38.2%) or living as married (15.3%), 43.3% were single, and 3.2% were separated or divorced; 40% had one or more children. Reflecting the demographic profile of the ACT population (Mond, Hay, Rodgers, & Owen, 2006a; Mond, Hay, Rodgers, Owen, Crosby, & Mitchell, 2006), the vast majority of participants were born in Australia (90.5%) and had English as a first language (94.9%). Most (89.1%) had completed 12 or more years of formal education, 29.1% had completed an undergraduate degree or diploma, and 8.2% had completed a postgraduate qualification.

Eating disorder diagnoses were assigned according to the operational criteria for the *Diagnostic and Statistical Manual for Mental Disorders* (4th ed.; American Psychiatric Association, 1994) outlined in the EDE manual (Fairburn & Cooper, 1993). Hence, for the diagnoses of BN and BED, 12 or more episodes of binge eating over the past 3 months were required. In addition, cessation of menstruation was not required for the diagnosis of anorexia nervosa (Mitchell, Cook-Myers, & Wonderlich, 2005). Participants

who reported extreme weight or shape concerns and any regular eating-disorder behavior and who did not meet criteria for anorexia nervosa, BN, or BED were assigned the diagnosis of eating disorder not otherwise specified (Hay, Fairburn, & Doll, 1996). Baseline diagnoses were as follows: for BN, $n = 18$ (for the nonpurging subtype, $n = 13$; for the purging subtype, $n = 5$); for BED, $n = 15$; and for eating disorder not otherwise specified, $n = 62$. The latter subgroup was comprised primarily of individuals of normal or above average weight who reported extreme weight or shape concerns, regular extreme weight-control behaviors and/or subjective bulimic episodes, but not objective bulimic (binge eating) episodes (Hay et al., 1996, 1998). Consistent with findings from other epidemiological studies (Hudson et al., 2007; Wells et al., 2006; cf. Mond, Hay, et al., 2004c), no participants met criteria for anorexia nervosa at the time of the study.

Study (Baseline) Measures

Eating-disorder psychopathology. The occurrence and frequency of objective bulimic episodes, subjective bulimic episodes, extreme dietary restriction, and excessive exercise were assessed with the relevant items of the EDE interview (Fairburn & Cooper, 1993). The occurrence and frequency of purging behaviors, namely, self-induced vomiting and/or misuse of laxatives or diuretics, was assessed by relevant questions of the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994), a self-report measure derived from the EDE. This was because our research and that of others has indicated that self-report assessment of purging behaviors may be more accurate than interview assessment (Keel et al., 2005; Mond, Hay, Rodgers, & Owen, 2007b). The EDE-Q global score, which is derived from the 22 items of the EDE-Q assessing attitudinal aspects of eating-disorder psychopathology, was used to measure participants' overall symptom levels. Scores range from 0 to 6, with higher scores indicating greater symptom frequency and/or severity (cf. Mond, Hay, Rodgers, Owen, Crosby, & Mitchell, 2006). High levels of agreement between EDE-Q and EDE assessment of the items comprising the global score have been observed in both community and clinical samples (cf. Mond, Hay, et al., 2004d, Mond, Hay, Rodgers, & Owen, 2007b). Cronbach alpha in the present study was .77.

Impairment in role functioning. Impairment in role functioning associated with any physical or mental health problem was assessed with the Medical Outcomes Study–Short Form disability scale (SF-12; Ware et al., 1996). This scale is a 12-item self-report generic measure of health-related quality of life derived from the 36-item form (Ware, Kosinki, & Keller, 1994). Items in the SF-12 are summarized into two weighted scales (the Physical Component Summary scale and the Mental Component Summary scale) designed to assess impairment in everyday functioning associated with physical and mental health problems. Each scale is scored to have a mean of 50 and standard deviation of 10 (in the U.S. population), with lower scores indicating higher levels of impairment. The SF-12 has robust psychometric properties (Ware et al., 1996), and its validity in the Australian population has been demonstrated (Sanderson & Andrews, 2002b). A score of 40 or less on the Mental Component Summary scale is considered indicative of moderate impairment, whereas a score of 30 or less indicates severe impairment (Sanderson & Andrews, 2002a). Cronbach's alpha in the present study was .82. An additional (generic) measure of functional impairment was obtained as the number of days in the past 4 weeks on which participants' were unable to complete work, study, or household responsibilities because of any (physical or emotional) health problem (Mond & Hay, 2007).

Impairment in role functioning associated with an eating problem. In the absence of any validated measure of health-related quality of life specific to eating disorders at the time of the study (cf. Mond, Hay, Rodgers, Owen, & Beumont, 2005), we developed questions concerning impairment in role functioning associated with an eating problem and added them to the baseline EDE interview. Specifically, a series of questions assessed the extent to which functioning in each of four domains—main activity, home life, social life, and overall quality/enjoyment of life—was currently or had ever been adversely affected by any problem relating to eating attitudes or behaviors. Participants who reported that functioning in at least one of the domains mentioned earlier was currently affected *very much* or *extremely* by such a problem were considered to have impairment related to an eating problem. This measure was found to have good convergent and discriminant validity in our previous research (Mond, Hay, et al., 2007a).

General psychological distress. General psychological distress was assessed with the Kessler Psychological Distress Scale (K-10), a 10-item self-report measure initially designed to screen for cases of anxiety and affective disorders in general population samples (Kessler et al., 2002). In Australia, it is also used as an outcome measure among individuals treated within mental health services (Andrews & Slade, 2001). The frequency of each of 10 symptoms is measured on a scale from 1 to 5, such that total scores range from 10 to 50, with lower scores indicating higher symptom levels. A total score of 30 or below indicates a high probability of clinically significant symptoms of anxiety and/or depression (Andrews & Slade, 2001). The K-10 has demonstrated reliability and validity (Andrews & Slade, 2001; Kessler et al., 2002), and it has been used in several of our studies (Mond et al., 2005; Mond, Hay, et al., 2004c; Mond, Rodgers, et al., 2004). Cronbach's alpha in present study was .91.

Mental health literacy. The assessment of mental health literacy has been described in a number of previous publications (cf. Mond et al., 2008). In brief, a vignette describing a fictional person suffering from BN (purging type) is presented, followed by a series of questions concerning the nature and treatment of the problem described. For the present study, four variables that were considered most likely to be associated with treatment-seeking behavior were included, namely (a) recognition of BN as an eating problem, as opposed to a problem of low self-esteem or negative affect more generally (Mond, Hay, Rodgers, Owen, & Beumont, 2004a); (b) self-recognition of a current eating problem (Mond, Hay, Rodgers, & Owen, 2006b); (c) perceived stigma associated with disclosure of an eating problem (Cachelin et al., 2001; Hay, de Angelis, Millar, & Mond, 2007; Hepworth & Paxton, 2007); and (d) perceived desirability of eating-disorder features (Mond, Hay, Rodgers, Owen, & Beumont, 2004b). Dichotomous outcomes were created to indicate the presence or absence of each of these variables.

Although the questions in the various sections of the mental health literacy survey (e.g., beliefs about treatment, beliefs about causes, beliefs about prognosis, etc.) were not designed to constitute scales in the psychometric sense of this term, some evidence

supports the validity of these questions. Thus, findings reported by Jorm, Korten, Rodgers, et al. (1997) demonstrating consistency of belief systems across different mental disorders might be considered to support the construct validity of the mental health literacy paradigm, whereas differences in responses to specific questions as a function of age, education, recognition of the problem, and actual symptom levels might be considered to support the discriminant validity of the paradigm (Jorm, Angermeyer, & Katschnig, 2000; Mond, Hay, et al., 2004a, 2004b; Mond, Marks, et al., 2007). There is also some evidence that individuals' responses to specific questions are stable over a 6-month period (Jorm et al., 2003).

Defense style. The Defence Style Questionnaire (DSQ; Andrews et al., 1993) is a 40-item self-report measure of individuals' perceived defense mechanisms or coping styles. In the *Diagnostic and Statistical Manual for Mental Disorders* (4th ed.; American Psychiatric Association, 1994), defense mechanisms are defined as "automatic psychological processes that protect the individual against anxiety and from the awareness of internal or external dangers or stressors" (p. 751). Participants indicate their level of agreement, on a 9-point Likert-type scale, with each of 40 statements (2 statements assessing each of 20 different mechanisms). Scores on each mechanism are then calculated as the average of scores on the two items concerned. Alternatively, scores on each of three habitual defense styles—mature, neurotic, and immature—may be obtained as the average of scores on the mechanisms comprising each, as follows: A mature defense style comprises sublimation, humor, anticipation, and suppression; a neurotic defense style comprises undoing, pseudoaltruism, idealization, reaction formation; and an immature defense style comprises projection, passive aggression, acting out, isolation, devaluation, autistic fantasy, denial, displacement, dissociation, splitting, somatization, and rationalization (Andrews et al., 1993). The DSQ was included in the Health and Well-Being Study because findings from a number of earlier studies suggested that it might be of interest (cf. Bond, 2004). In the present study, and in the absence of any a priori hypotheses, mechanisms were considered in preference to styles because of the more detailed information provided. The reliability and validity of the DSQ have been demonstrated in a range of study populations (Andrews et al., 1993; Bond, 2004). Cronbach's alpha in the present study was .78.

Assessment of health service utilization. For the present study, health service utilization was defined as treatment from a health professional for an eating problem during the follow-up period. Health professionals included general practitioners, dieticians, social workers, counselors, psychologists, and psychiatrists but not providers of complementary or alternative medicine. Similar questions addressed treatment prior to baseline (baseline assessment) and treatment during the follow-up period (follow-up assessment; Mond, Hay, et al., 2007a). Participants were first asked about treatment received specifically for a problem with eating, such as "eating too much in one go," "feeling out of control with your eating," or "being preoccupied with what or when you should eat." Where such treatment was received, the person or persons from whom treatment had been received were noted. Similar questions followed in which participants were asked about advice or treatment received for "other emotional problems, such as being anxious or depressed," and problems with weight, such as "wanting to lose weight." In this way, it was possible to take prior treatment seeking for all three types of problem into account when evaluating predictors of treatment for an eating problem during the follow-up period.

Statistical Analysis

We used *t* or Mann–Whitney *U* tests to assess differences between participants who received treatment for an eating problem during the follow-up period and those who did not on continuous predictor variables, whereas we use chi-square tests for categorical variables. Preliminary analysis confirmed that there was no association between randomized controlled trial assignment and treatment for an eating problem during follow-up ($\chi^2 = 0.80$, $p = .37$), reflecting the fact that the intervention had not been successful in influencing treatment-seeking behavior. Bivariate associations between predictor variables were calculated with the Pearson correlation coefficient. For correlations between dichotomous and continuous variables, the point-biserial coefficient is given. Multivariable logistic regression was used to identify baseline characteristics associated with treatment during the follow-up period. A forward variable selection procedure was used because the number of predictor variables was large in relation to sample size (M. H. Katz, 2006). In the regression model, we included all independent variables that differed between treatment-receiving and non-treatment-receiving subgroups at a p value of less than or equal to .05 in bivariate analysis, using the methods suggested by Tabachnick and Fidell (2006) to test for multivariable multicollinearity. To minimize the influence of missing data on specific variables, the analysis was rerun with only those variables that entered the model included. Results are presented as odds ratios (ORs) and 95% confidence intervals (CIs). All analysis was conducted with SPSS Version 14.0. Power analysis was not conducted because the study was designed to generate, rather than to test, hypotheses.

Results

Data concerning use of health services during the follow-up period were missing for 4 participants. Of the 91 participants for whom complete data were available, 33 (36.3%) received treatment for an eating problem during the follow-up period. Of these, 12 (13.2% of all participants) received such treatment from a mental health professional, namely, a psychologist or psychiatrist.

.In Table 1 it can be seen that participants who received treatment for an eating problem during the follow-up period differed from those who did not in a number of ways, including higher BMI; higher levels of eating-disorder psychopathology, general psychological distress, and out-of-role days; greater perceived impairment in role functioning associated with an eating problem; lower scores on the Suppression subscale of the DSQ (indicating greater perceived inability to suppress emotional difficulties); higher scores on the Projection subscale of the DSQ (indicating greater perceived mistreatment by others); greater likelihood of recognizing an eating problem; and greater likelihood of prior treatment for a problem with weight. It also is apparent that lower scores on the Suppression subscale of the DSQ and greater perceived impairment in role functioning associated with an eating problem were the variables most strongly associated with treatment seeking. Correlations between predictor variables are given in Table 2.

Results of the regression analysis are given in Table 3. It can be seen that greater perceived impairment in role functioning associated with an eating problem (OR = 4.87; 95% CI: 1.74, 13.61; $p < .01$) and lower scores on the Suppression subscale of the DSQ (OR =

Table 1
Characteristics of Women With Eating Disorders Receiving (N = 33) and Not Receiving (N = 58) Treatment for an Eating Problem Over a 12-Month Period

Characteristic	No treatment	Treatment	p[a]	ES[b]
Demographic characteristics				
Mean (*SD*) age	28.3 (6.1)	28.4 (7.5)	.965	.015
Mean (*SD*) body mass index	**25.5 (6.1)**	**28.9 (7.8)**	**.027**	**.486**
% married	44.8	27.3	.098	.378
% with children (one or more)	44.8	27.3	.098	.378
% employed full-time	51.7	48.5	.766	.060
% with a bachelor's degree or higher	39.7	25.0	.161	.322
% country of birth/first language[c]	84.5	97.0	.067	.447
% with private health insurance	53.6	53.1	.968	.020
Prior treatment (treatment prior to the baseline assessment)				
% prior treatment for an eating problem	37.9	45.5	.493	.163
% prior treatment for a weight problem	**63.8**	**84.4**	**.039**	**.464**
% prior treatment for a general mental health problem	67.2	78.8	.241	.272
Eating-disorder psychopathology				
% binge eating (objective bulimic) episodes (at least weekly)	37.9	30.3	.464	.169
% subjective bulimic episodes (at least weekly)	39.7	48.5	.413	.182
% purging (self-induced vomiting or laxative misuse; any occurrence)	20.7	36.4	.103	.335
% extreme dietary restriction (≥3 times per week)	13.8	18.2	.577	.109
% excessive exercise (≥3 times per week)	13.8	15.2	.859	.028
% diet pills (any occurrence)	8.6	12.1	.591	.098
Mean (*SD*) EDE-Q global score	**3.7 (0.8)**	**4.1 (0.8)**	**.034**	**.500**
Functional impairment				
Mean (*SD*) SF-12 Physical Component Summary scale	49.7 (10.4)	47.7 (9.8)	.377	.198
Mean (*SD*) SF-12 Mental Component Summary scale	40.0 (12.0)	35.9 (11.3)	.120	.352
Median (IQR) days out of role	**0 (0, 4.5)**	**3 (0, 5)**	**.050**	**.002**
% impairment associated with an eating problem	**19.0**	**60.6**	**<.001**	**.891**
Median (IQR) K-10	**41 (34, 45)**	**37 (30, 42)**	**.024**	**.002**
Mental health literacy variables				
% (self-) recognition of a current eating problem	**43.1**	**66.7**	**.031**	**.488**
% recognition of bulimia nervosa as an eating problem	44.2	42.9	.91	.021
% perceived stigma associated with disclosure of an eating problem	54.4	48.5	.59	.100
% eating-disordered behavior perceived as desirable	29.3	24.2	.60	.113
Defense style[d]				
Mean (*SD*) Defence Style Questionnaire Suppression subscale	**5.2 (2.0)**	**3.9 (2.0)**	**.002**	**.650**
Mean (*SD*) Defence Style Questionnaire Projection subscale	**3.4 (1.8)**	**4.5 (2.3)**	**.020**	**.533**

Note. EDE-Q = Eating Disorder Examination Questionnaire; SF-12 = Medical Outcomes Study–Short Form disability scale; IQR = interquartile range; K-10 = Kessler Psychological Distress scale.
[a] Significance of the difference between groups according to a *t* test, Mann–Whitney *U* test, or chi-square test. Differences significant at the .05 level are shown in bold. [b] Effect size (ES): Cohen's *d* (continuous variables) or *h* (dichotomous variables; Cohen, 1988). [c] Not born in Australia and/or English not first language (0); born in Australia and English first language (1). [d] None of the remaining (18) subscales of the Defence Style Questionnaire were significant at the .05 level.

0.71; 95% CI: 0.55, 0.93; $p < .05$) were the only significant predictors of treatment seeking. The final model classified the treatment status of 78.0% of participants correctly.

As an additional check of the stability of the model, the analysis was repeated with a manually driven backward variable selection procedure, in which the analysis was rerun with each deletion of a variable (M. H. Katz, 2006). The findings were unchanged.

Discussion

We examined factors associated with treatment for an eating problem among women with bulimic eating disorders recruited from a community sample and followed over a 12-month period. In bivariate analysis, participants who received treatment for an eating problem during the follow-up period differed from those who did not in several respects, including higher BMI, higher levels of eating-disorder psychopathology, higher levels of general psychological distress, greater impairment in role functioning, deficits in specific aspects of coping style, greater likelihood of (self-) recognition of an eating problem, and greater likelihood of prior treatment for a problem or perceived problem with weight. However, the variables most strongly associated with treatment seeking during the follow-up period were perceived impairment in role functioning specifically associated with an eating problem and greater perceived inability to suppress emotional difficulties, and these were the only variables that were significantly associated with treatment seeking in multivariable analysis.

Recruitment of participants directly from the community, the use of a prospective study design, and assessment of a wide range of variables potentially associated with treatment-seeking behavior are notable strengths of the present study. Although findings from

Table 2
Bivariate Correlations (Pearson or Point-Biserial Correlation Coefficient) Between Predictor Variables

Variable	BMI	Prior treatment for weight	EDE-Q global score	Days out of role	Impairment due to eating	General psychological distress	(Self-) recognition of eating problem	DSQ Suppression subscale	DSQ Projection subscale
BMI	—								
Prior treatment for weight	.48	—							
EDE-Q global score	.26	.16	—						
Days out of role	.10	.08	.19	—					
Impairment due to eating	.37	.27	.36	.36	—				
General psychological distress	−.12	−.05	−.38	−.48	−.39	—			
(Self-) recognition of problem	.20	.24	.35	.14	.31	−.18	—		
DSQ Suppression subscale	−.21	−.28	.13	−.12	−.16	.00	−.05	—	
DSQ Projection subscale	.31	.17	.20	.10	.28	−.25	.24	.04	—

Note. For a sample size of $n = 95$, a correlation of .20 is significant at the .05 level, and a correlation of .26 is significant at the .01 level for a two-tailed test. BMI = body mass index; EDE-Q = Eating Disorder Examination Questionnaire; DSQ = Defence Style Questionnaire.

a number of recent studies have confirmed that the vast majority of individuals with bulimic-type eating disorders do not receive treatment for an eating problem, this is, to our knowledge, the first community-based study to examine factors associated with treatment seeking with a prospective study design. This was possible because the research was conducted as part of a two-phase epidemiological study in a high-risk population.

The main limitation of the study is that sample size was small in relation to the number of predictor variables. Hence, the findings should be viewed as preliminary and subject to confirmation in suitably planned future research. Findings from the multivariable analysis in particular should be interpreted with caution. However, the fact that the same results were achieved with different selection methods and the fact that the same variables emerged as the best predictors of treatment seeking in both bivariate and multivariable analysis lend credence to the findings. A second limitation of the present study is that we did not assess some potentially important variables, such as access to and affordability of treatment and aspects of personality other than defense style. It may be noted, however, that access to and/or cost of treatment are unlikely to have been factors in treatment uptake in the present study, because a government-funded outpatient treatment facility operated in the ACT region for the duration of the study (Mond, Hay, et al., 2007a). In addition, there was no association between treatment seeking and possession of private health insurance, which in Australia is a proxy for income.

In interpreting the findings of the present study, one should also consider that the ACT is a highly urbanized region and that stronger effects of sociodemographic variables, such as country of birth and first language, may have been observed in a more heterogeneous and/or ethnically diverse population (Becker et al., 2003). Finally, participants in the present study were adult women with bulimic-type eating disorders. A different pattern of associations would likely be observed in a younger sample or in a sample comprised primarily of individuals with disorders more closely resembling anorexia nervosa.

Table 3
Variables Associated With Treatment for an Eating Problem

Variable	Relative risk	95% CI	*p*
Impairment associated with eating	4.87	1.74–13.61	.003
DSQ Suppression subscale	0.71	0.55–0.93	.011
DSQ Projection subscale	1.25	0.97–1.61	.090

Note. Categorical covariates and treatment received were both coded 0 (*no*) or 1 (*yes*). CI = confidence interval; DSQ = Defence Style Questionnaire.

As expected, the likelihood of treatment being received was related to the severity of eating-disorder and comorbid psychopathology, levels of general psychological distress, and impairment in role functioning (Mond, Hay, et al., 2007a). It is notable, however, that the best predictor of treatment seeking, in both bivariate and multivariable analysis, was the occurrence of functional impairment associated with an eating problem. This latter finding suggests that the nature of the problem to which impairment is attributed may play an important role in the nature of the treatment received. Given the high levels of comorbidity between eating disorders and anxiety and affective disorders, the question of the extent to which individuals with eating disorders attribute impairment in psychosocial functioning to disordered eating, as opposed to comorbid mental health problems, is of interest (Mond & Hay, 2007; Mond, Rodgers, et al., 2004). Where eating-disordered behavior and overweight coexist, the attribution of poor quality of life to overweight rather than to disordered eating may raise similar issues (Brody, Masheb, & Grilo, 2005; Mond, Hay, et al., 2007a). From a clinical perspective, the use of disease-specific quality-of-life measures in conjunction with generic measures may be a useful means by which to assess the extent to which individuals with eating disorders attribute impairment in psychosocial functioning to disordered eating, as opposed to comorbid mental health problems and/or overweight (Mond et al., 2005; Mond & Hay, 2007). From a public health perspective, the findings suggest that individuals' recognition of the adverse effects of eating-disordered behavior on quality of life may need to be addressed in prevention and early intervention initiatives for eating disorders (Mond, Rodgers, et al., 2004).

The only other variable that was associated with treatment seeking in both bivariate and multivariable analysis was a specific aspect of coping style, namely, scores on the Suppression subscale of the DSQ. Participants who received treatment for an eating

problem had lower scores on this scale than those who did not. In the terminology of the DSQ, suppression is one of a number of defense mechanisms comprising a mature defense style. It encompasses the ability to "keep problems out of ones mind until there is time to deal with them" and "keep a lid on feelings if letting them out would interfere with what I am doing" (Andrews et al., 1993, p. 249). Thus, participants who received treatment for an eating problem perceived themselves to be less able to prevent emotional problems from interfering with their functioning. This finding might be seen as further evidence that individuals with eating disorders are most likely to seek treatment for an eating problem when they perceive an adverse effect of their eating behaviors on quality of life. Future research might consider, first, whether scores on this measure similarly predict treatment-seeking behavior among individuals with other mental health problems and, second, whether the present findings might be placed in a theoretical framework. For example, considerable attention has been given to the role of affect regulation in the onset and maintenance of bulimic behaviors (Chen & Le Grange, 2007; Heatherton & Beumesiter, 1991; Stice & Agras, 1999) but not, to our knowledge, to its role in the use of health services.

Of the four mental health literacy variables that we hypothesized might be associated with treatment seeking, only participants' recognition of their own eating-disordered behavior differed by treatment status. Previously, in a larger sample of women with bulimic-type eating disorders, we found that close to half (48.1%) of participants did not believe that they currently had an eating problem (Mond, Hay, Rodgers, & Owen, 2006b). Recognition was, in turn, related to the severity of eating-disorder and comorbid psychopathology as well as the occurrence of specific eating-disorder behaviors, most notably, self-induced vomiting. The finding, in the present study, that recognition of an eating problem was not independently associated with treatment seeking, in contrast to perceived impairment in role functioning associated with an eating problem, suggests that individuals' recognition of the effect of their disordered eating on quality of life may be a better predictor of treatment seeking than recognition of an eating problem per se.

It is possible that other aspects of mental health literacy may be associated with treatment seeking only in certain subgroups of individuals. For example, the effects of some variables may be most evident among individuals with eating disorders who experience marked impairment in role functioning but nevertheless do not seek treatment. In any case, it needs to be remembered that even when treatment is received for an eating problem, it is likely to be received from a primary care practitioner in most cases (Mond, Hay, et al., 2007a). In the present study, only one third of participants who received treatment for an eating problem during the follow-up period—approximately 10% of all participants—received this treatment from a mental health specialist. Poor mental health literacy almost certainly contributes to the low uptake of specialist treatment among individuals with mental disorders (Andrews, Sanderson, Slade, & Issakidis, 2000; Jorm et al., 2000).

Finally, it is notable that participants who had previously received treatment for a weight problem (and/or who had higher BMI) were more likely to receive treatment for an eating problem during the follow-up period than those who had not, given that individuals with bulimic eating disorders often seek treatment for a problem, or perceived problem, with weight rather than for a problem with eating per se (Mond, Hay, et al., 2007a). One possible explanation for this finding is that individuals with eating disorders who have previously received treatment in relation to a weight problem, but not for an eating problem, may be more likely to recognize that a greater focus on eating-disordered behavior is warranted. Therefore, they may be more motivated to seek treatment of this kind. Participants who had previously received treatment for an eating problem, on the other hand, may have been discouraged from seeking further treatment of this kind, given that they remained highly symptomatic.

Conclusions

In summary, we found, in a prospective, community-based study of women with bulimic-type eating disorders, that impairment in role functioning associated with an eating problem and the perceived inability to suppress emotional difficulties were the best predictors of whether treatment was received for an eating problem. Given that most individuals with BN and related disorders do not receive appropriate treatment, it may be important to address individuals' recognition of the adverse effects of eating-disorder psychopathology on quality of life in prevention and early intervention initiatives for eating disorders.

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Received July 1, 2008
Revision received December 29, 2008
Accepted January 5, 2009 ■