Self-Perceived Social Skills Deficits and Negative Life Events Interact to Predict the Onset of Bulimia Nervosa and Eating Disorder Not Otherwise Specified

Kathryn H. Gordon
SELF-PERCEIVED SOCIAL SKILLS DEFICITS AND NEGATIVE LIFE EVENTS
INTERACT TO PREDICT THE ONSET OF BULIMIA NERVOSA AND EATING
DISORDER NOT OTHERWISE SPECIFIED

By

KATHRYN H. GORDON

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The members of the Committee approve the thesis of Kathryn H. Gordon defended on June 9, 2004.

________________________________
Thomas Joiner
Professor Directing Thesis

________________________________
Bryan Loney
Committee Member

________________________________
Colleen Kelley
Committee Member

The Office of Graduate Studies has verified and approved the above named committee members.
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Previous research has established a link between social skill impairment and eating disorders. The current study sought to test the hypothesis that an interaction between self-perceived social skills deficits and negative life events would predict the onset of bulimia nervosa or an eating disorder not otherwise specified. This hypothesis was tested in a large community-based sample of 904 adolescent girls who were assessed for baseline psychopathology and perceived social skills deficits. One year later, 810 participants returned for a second assessment, which included information about psychopathology and negative life events occurrence during the year-long interval. The results were consistent with the hypothesis, such that perceived social skills deficits interacted with negative life events to predict the onset of bulimia nervosa or an eating disorder not otherwise specified. Theoretical and clinical implications are discussed.
INTRODUCTION

According to the Diagnostic and Statistical Manual of Mental Disorders (4th ed., text revision, DSM-IV-TR, American Psychiatric Association, 2000), one to three percent of women will develop bulimia nervosa in their lifetime. Even more women will suffer from a clinically significant eating disorder syndrome that does not meet full criteria for a specific eating disorder, classified by the DSM-IV-TR (American Psychiatric Association, 2000) as an eating disorder not otherwise specified (EDNOS). Existing research has identified a multitude of risk factors that appear to predispose women to the development of eating disorders (see Stice, 2002 for a meta-analytic review). There are multiple studies on genetic (see Klump, Wonderlich, Lehouz, Lilenfeld, & Bulik, 2001 for a twin study review), physiological (see Brewerton, 1995 for a review), and psychological (e.g., Vohs et al., 2001; Stice & Shaw, 2002) risk factors for eating disorders. In addition, much research has focused on the contribution of sociocultural factors, such as the idealization of thinness, to the development of eating disorders (e.g., Striegel-Moore, Silberstein, & Rodin, 1986). Yet, interpersonal risk factors for eating disorders have received less attention.

This is somewhat surprising in light of findings that women with eating disorders frequently report interpersonal impairment and dissatisfaction with their support systems (Grisset & Norvell, 1992; Herzog, Keller, Lavori, & Ott, 1987; Herzog, Norman, Rigotti, & Pepose, 1986; Tiller, et al., 1997). Grisset and Norvell (1992) explored this link in a study comparing two groups of undergraduates: 21 bulimic women and 21 healthy controls. All participants completed self-report measures assessing social skills, as well as other important variables, such as co-morbid symptoms. Bulimic women reported less social competence and more negative interactions and conflict than control participants, differences that remained after controlling for overall symptom severity. In addition, bulimic women were rated as less socially effective than control participants by observers unaware of their group membership. This study affirmed the co-occurrence of bulimia nervosa and social skills problems both as perceived by women suffering from bulimia nervosa and as observed by others. However, this association may reflect the extent to which bulimia impairs social skills rather than the influence of social skills deficits on the development of bulimia nervosa.

Keel, Mitchell, Miller, Davis, and Crow (2000), examined social adjustment among 177 women diagnosed with bulimia more than a decade earlier. At the follow-up assessment, self-report measures of social adjustment suggested continued impairment in interpersonal relationships. In addition, level of interpersonal problems did not differ between women recovered from bulimia nervosa and those still suffering from an eating disorder. The authors concluded that continued difficulties in social adjustment could reflect an underlying vulnerability from which disordered eating developed, and that treatments for bulimia may benefit from including interpersonal skills training.

In support of these interpretations, interpersonal psychotherapy represents an effective treatment for bulimia nervosa, and has demonstrated lasting effects at both one-year (Agras, Walsh, Fairburn, & Wilson, 2000) and six-year (Fairburn, Norman, Welch, O’Connor, Doll, & Peveler, 1995) follow-up, even though its emphasis is not on weight-, shape-, and appearance-related attitudes, but on general interpersonal issues such as social skills and role transitions. In addition, Strober, Freeman, and Morrell (1997) conducted a follow-up study of weight-recovered patients hospitalized for anorexia nervosa, in which relapse was defined as either return to full
anorexia or development of bulimia, and found that retrospective reports of poor social relating prior to eating disorder onset increased the probability of chronically ill outcome. Collectively, the findings of these studies suggest that social skills problems may be a risk factor for eating disorder development, and encourage prospective work in which social skills are assessed as predictors for the onset of eating disorders.

Unfortunately, research investigating the possibility that social skills impairment precedes the onset of eating disorders appears to be limited to retrospective report. For example, Troop and Bifulco (2002) interviewed eating disorder patients, and found that women with a history of anorexia binge/purge subtype or bulimia nervosa reported significantly higher levels of shyness in adolescence than did women without a history of an eating disorder, even after controlling for recovery from the eating disorder and current depressive disorders. Interestingly, differences in shyness between eating disordered individuals and non-eating disordered individuals were not evident in reports of earlier childhood. In contrast, Fairburn, Welch, Doll, Davies, and O’Connor (1997) found that bulimic women were more likely to report having no close friends during childhood (18%) than general psychiatric controls (10%), and healthy controls (5%). Although the difference between women with bulimia nervosa and general psychiatric control subjects was not significant, the direction of findings suggests that impoverished social networks (perhaps due to poor social skills) may have a greater impact on the development of bulimia nervosa than some other psychiatric illnesses. These studies suggest that preexisting social skills deficits may be involved in the development of eating disorders, but they are limited by methods that may have involved retrospective reporting biases.

Interpersonal support and adequate social skills may be particularly crucial to an individual’s mental health when a negative life event occurs. One of the earliest population-based twin studies of bulimia nervosa (Kendler, MacLean, Neale, Kessler, Heath, & Eaves, 1991) indicated that heritability of bulimia under both narrow and broad definitions ranged from between 50% and 55%. The narrow definition included only those women who met full Diagnostic and Statistical Manual of Mental Disorders, 3rd edition, revised (DSM-III-R; American Psychiatric Association, 1987) criteria for bulimia nervosa, while the broad definition included women who met most but not all diagnostic criteria and had a clinically significant syndrome, in other words, an EDNOS. The remaining variance in these models was explained by non-shared environment. Within twin studies, non-shared environment includes any specific life events that impact only one twin in a twin pair. Thus, similar to findings for major depressive disorder in this sample (Kendler et al., 1995), negative life events likely played a key role in the onset of eating disorders.

In another study, Fairburn et al. (1997) utilized a retrospective community-based case-control design to evaluate whether disruptive events were more likely to have occurred prior to the onset of bulimia nervosa (or prior to that age in the case-control) in bulimic women, healthy controls, or general psychiatric control participants. The following putative risk factors occurred at a higher frequency among bulimic women as compared to healthy controls: separation from parents and frequent house moves. However, neither of these factors differentiated women with bulimia from general psychiatric controls, suggesting that these may represent general risk factors for psychopathology rather than specific risk factors for bulimia nervosa.

Shatford and Evans (1986) examined whether stressful events in combination with coping difficulties (cf. social skills deficits) were associated with bulimic symptoms. They used structural equations modeling to test a causal model of bulimia nervosa. In their model, environmental stressors (life events and daily hassles) were framed as source variables, which influenced bulimia through their impact on coping mechanisms. In two studies of undergraduates, the model provided a reasonable fit to the data. However, there were two main
limitations to Shatford and Evans’ study. First of all, their focus was on non-clinical levels of bulimic symptoms among undergraduates. Secondly, the study was not longitudinal, so the results did not indicate the direction of the association.

To summarize, there are studies affirming a link between eating disorders and social skills deficits (e.g., Grisset & Norvell, 1992; Keel et al., 2000), and there is intriguing evidence that a therapeutic focus on interpersonal functioning is effective in the treatment of bulimia nervosa (e.g., Fairburn et al., 1995). However, there is a need for prospective work evaluating social skills deficits as a risk factor for the development of eating disorders. Regarding the present study, it was predicted that young women who reported social skills deficits at one point in time would be vulnerable to the future onset of bulimia nervosa or an EDNOS\(^1\), particularly if they were faced with negative life events. In other words, it was hypothesized that social skills deficits would interact with negative life events to predict the onset of bulimia nervosa or an EDNOS (see Figure 1). In addition, the specificity of this interaction in the prediction of initial eating disorder onset was evaluated by comparing the predictive value of the interaction for other forms of psychopathology.

![Figure 1. Negative life events and social skills deficits interact to predict onset of bulimia nervosa and eating disorders not otherwise specified.](image)

The current study assessed the predicted interaction between negative life events and social skills deficits in a prospective longitudinal study of female adolescents. Adolescents are a particularly relevant sample for the study of risk factors in the initial onset of eating disorders because the typical age of onset for eating disorders is during adolescence (American Psychiatric Association, 2000). Comprehensive assessment data were used to establish participants’ baseline self-perceived social skills and psychopathology. One year later, follow-up assessments were used to determine the occurrence of negative life events and psychopathology over the year-long interval. In addition, data on participant psychopathology from each of the two assessments was used to assess the model’s specificity to the prediction of the onset of bulimia nervosa and

\(^1\) Because of the low base rate of anorexia nervosa (~0.5%; American Psychiatric Association, 2000), the study exclusively focused on participants who developed bulimia or an EDNOS. However, it is possible that some individuals with subthreshold anorexia nervosa were included the EDNOS group.
EDNOS. In summary, the current study had two major aims: to assess the predictive value of the proposed interaction between social skills deficits and negative life events, and to evaluate the specificity of the model to bulimia nervosa and EDNOS.
METHOD

Participants and Procedures

Oregon Adolescent Depression Project (OADP). The study utilized data collected from participants in the OADP, a large-scale project designed to examine the epidemiology of depression and other psychiatric disorders in a community-based high school population. The current study focused exclusively on the females in this dataset, because 90% of individuals afflicted with eating disorders are female (American Psychiatric Association, 2000). In three randomly selected cohorts from several high schools in Oregon, a total of 904 adolescent girls completed the Time 1 (T1) assessment (the overall participation rate was 61%; see Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993 for more detailed description of the sample, including its representativeness of the larger population, which was considerable). Participants’ average age at T1 was 16.6 years (SD = 1.2). Of these participants, 89% were Caucasian. Approximately 90% (n = 810) of the sample returned for a readministration of the assessment instruments about one year later (mean interval between Times 1 and 2 was 13.8 months, SD = 2.3). There were minor differences between the sample and the larger population from which it was drawn, participants and decliners, and Time 2 responders versus non-responders (see Lewinsohn et al., 1993).

Multiple studies have been conducted utilizing the OADP database, including three other studies on eating disorders. Previous studies on eating disorders in this sample include a description of gender differences in eating disorder symptoms (Lewinsohn, Seeley, Moerk, & Striegel-Moore, 2002), the psychosocial adjustment in young adulthood of women who experienced an eating disorder in adolescence (Striegel-Moore, Seeley, & Lewinsohn, 2003), and the natural course of eating disorders from adolescence to young adulthood (Lewinsohn, Striegel-Moore, & Seeley, 2000). The current study is unique in that it sought to identify preexisting risk factors for the development of eating disorders. In fact, adolescents with history of an eating disorder were excluded, in order to rule out social skills deficits that were a consequence of a preexisting eating disorder rather than an antecedent to the initial onset.

Fewer than 2% of the female participants experienced bulimia (n = 8) or an EDNOS (n = 8) onset between baseline and one-year follow-up. Therefore, as is often the case in research on risk for mental disorders in community samples, important outcome variables (i.e., bulimia onset, EDNOS onset) were skewed. It is important to note, however, that the logistic regression procedures used in this study are usually resilient under such conditions (cf. Long, 1997). For instance, Beck et al. (1999) successfully used such techniques in the prediction of approximately 30 completed suicides from a sample of several thousand people, a situation in which the outcome occurred in less than 1% of the participants.

Assessment Materials

Diagnostic interviews. A version of the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS) was used to assess participant psychopathology. This version combined features of the epidemiologic version (K-SADS-E; Orvaschel, Puid-Antich, Chambers, Tabrizi, & Johnson, 1982) and the present episode version (K-SADS-P), as well as additional items to assess past and current psychiatric diagnoses as outlined in the DSM-III-R (American Psychiatric Association, 1987).

At Time 2 (T2), participants were interviewed using the Longitudinal Interval Follow-Up Evaluation (LIFE; Keller, Lavori, Friedman, Nielsen, Endicott, & McDonald-Scott, 1987),
which provides detailed information about the course of psychiatric disorders and symptoms since earlier interviews, with rigorous criteria for recovery from a disorder (i.e., symptom-free for 8 or more weeks). Diagnostic information was therefore available regarding occurrence of disorders prior to, and during the course of the study, as well as regarding recovery from disorders.

All interviewers were thoroughly trained and supervised, and all interviews were videotaped or audiotaped. A second interviewer reviewed recordings of approximately 12% of interviews, and inter-rater reliability (kappa) was computed. The lowest kappa occurred for T1 lifetime anxiety disorder (.53); the majority of kappas exceeded .80.

Social skills measure. The index of social skills was the Self-Perceived Social Skills Scale (Lewinsohn, Mischel, Chaplin, & Barton, 1980), a self-report scale that has amassed adequate validity and psychometric data in past research (alpha coefficients = .89 and .91 in Lewinsohn et al., 1980), and has been used successfully in this sample in previous research on the relations between loneliness and depression (Joiner, Lewinsohn, & Seeley, 2002). The scale asks the participant to rate themselves on 17 desirable attributes having to do with interpersonal competency (e.g., friendly, assertive, humorous) on a 7-point scale (1 = not at all characteristic of me to 7 = extremely characteristic of me). Perceived social skills were assessed at T1; lower scores indicated poorer self-perceived social skills.

Life events measure. The occurrence of 14 negative life events during the year-long interval was assessed at T2. These items were selected from the Schedule of Recent Experiences (Holmes & Rahe, 1967) and the Life Events Schedule (Sandler & Block, 1979), both of which have accrued adequate psychometric and validity data. Importantly, respondents completed the scale in the presence of an interviewer, who thoroughly ascertained whether or not negative events should be rated as such (e.g., that events had actually occurred during the relevant time frame; that a particular event had occurred at all; etc.). In addition, events were chosen which were likely to be salient and severe (e.g., illness or accident requiring hospitalization, being arrested, moving), which should have minimized reporting biases.
RESULTS

A logistic regression equation was constructed in order to test the hypothesis that negative life events in the context of social skills deficits would predict the onset of bulimia nervosa or an EDNOS\(^2\). Thus, onset of either bulimia or an EDNOS during the interval of T1 to T2 was used as the dependent variable. The occurrence of major depressive disorder (MDD), anxiety, substance use, and disruptive behavior disorders during the year-long interval, as well as past history of bulimia, EDNOS, MDD or dysthymia, anxiety, substance use, and disruptive behavior disorders were entered in the first step, in order to control for variance accounted for by these variables. History and co-occurrence of these disorders were included in the analysis in order to evaluate the possibility that the relationship between predictor variables--negative life events and social skills deficits--and bulimia or EDNOS was spurious (i.e., better accounted for by a third variable; such as occurrence of major depression, which may be related both to current bulimia and predictor variables).

Next, in step 2, negative life events occurring between T1 and T2, and T1 perceived social skills deficits were entered in the equation in order to test for a main effect of each variable. Finally, in step 3, an interaction variable was entered (negative life events occurring between T1 and T2 X perceived social skills at T1) in order to test the key prediction that the interaction of both variables would predict bulimia or EDNOS onset.

As displayed in Table 1 below, there was a nonsignificant trend for negative life events as a predictor of future bulimia or EDNOS onset (β = .06, \(t(781) = 1.66, p < .10\)). In contrast, perceived social skills at T1 was a significant predictor of bulimia or EDNOS onset (β = -.10, \(t(781) = -2.67, p < .01\)). Finally, the interaction of negative life events and perceived skills deficits, which was the crucial analysis of the prediction, was a significant predictor of bulimia or EDNOS onset from T1 to T2 (β = -.62, \(t(780) = -2.77, p < .01\)).

### Table 1: Summary of the Logistic Regression Analysis for Variables Predicting the Onset of Bulimia Nervosa or Eating Disorder Not Otherwise Specified (N = 810)

<table>
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<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
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<td></td>
<td></td>
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<tr>
<td>Past Bulimia Nervosa</td>
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<td>.07</td>
<td>-.02</td>
</tr>
<tr>
<td>Past Eating Disorder NOS</td>
<td>.01</td>
<td>.08</td>
<td>.01</td>
</tr>
<tr>
<td>Past MDD or Dysthymia</td>
<td>.04</td>
<td>.01</td>
<td>.14**</td>
</tr>
<tr>
<td>Past Anxiety Disorder</td>
<td>-.02</td>
<td>.02</td>
<td>-.05</td>
</tr>
<tr>
<td>Past Substance Use Disorder</td>
<td>-.02</td>
<td>.02</td>
<td>-.04</td>
</tr>
<tr>
<td>Past Disruptive Behavioral Disorder</td>
<td>.01</td>
<td>.03</td>
<td>.01</td>
</tr>
<tr>
<td>Major Depressive Disorder T1-T2</td>
<td>.01</td>
<td>.02</td>
<td>.02</td>
</tr>
<tr>
<td>Anxiety Disorder T1-T2</td>
<td>.05</td>
<td>.02</td>
<td>.07*</td>
</tr>
<tr>
<td>Substance Use Disorder T1-T2</td>
<td>-.01</td>
<td>.02</td>
<td>-.02</td>
</tr>
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</table>

\(^2\)The possibility that T1 perceived social skills would predict the occurrence of negative life events between T1 and T2 was tested using a logistic regression. The results were not significant, (β = .04, \(t(793) = 1.09, p = ns\).
In order to evaluate if the model was specific to either bulimia or EDNOS onset, we conducted separate follow-up analyses. The first regression equation used bulimia onset during the T1 to T2 interval as the dependent variable. There was a nonsignificant trend for negative life events to predict future bulimia onset ($\beta = -.06$, $t(793) = 1.71$, $p < .10$). Meanwhile, perceived social skills at T1 was not a significant predictor of bulimia onset one year later ($\beta = -.02$, $t(793) = -.41$, $p = ns$). However, the interaction of negative life events and social skills deficits ($\beta = -.46$, $t(793) = -2.02$, $p < .05$) emerged as a significant predictor for bulimia onset from T1 to T2.

The second follow-up analysis used EDNOS onset during the T1 to T2 interval as the dependent variable. There was no main effect for negative life events as a predictor of EDNOS onset ($\beta = .02$, $t(793) = .61$, $p = ns$). In contrast, perceived social skills at T1 was a significant predictor of EDNOS onset ($\beta = -.12$, $t(793) = -3.30$, $p < .001$). Finally, the interaction of negative life events and perceived skills deficits, approached significance ($\beta = -.42$, $t(793) = -1.85$, $p < .07$) in predicting EDNOS onset from T1 to T2.

Regression analyses identical to those above were conducted, but the dependent variable was replaced with each of the other psychological disorders (e.g., MDD onset between T1 and T2 was the dependent variable, while controlling for concurrent and prior diagnoses of disruptive behavior disorders, anxiety disorders, substance use disorders, EDNOS, and bulimia) in order to test the specificity of the prediction to bulimia and EDNOS onset. The regression yielded a main effect for negative life events in the prediction of MDD onset ($\beta = .08$, $t(793) = 2.30$, $p < .05$), a main effect for perceived social skills ($\beta = -.09$, $t(793) = -2.68$, $p < .01$), and a nonsignificant interaction ($\beta = .11$, $t(793) = .51$, $p = ns$). Regarding onset of anxiety disorders, negative life events ($\beta = .04$, $t(793) = 1.14$, $p = ns$), perceived social skills deficits ($\beta = -.05$, $t(793) = -1.27$, $p = ns$), and the interaction of both variables ($\beta = .18$, $t(793) = .82$, $p = ns$), were not significant. Similarly, in the prediction of substance use disorders, there was no main effect for negative life events ($\beta = .03$, $t(793) = .91$, $p = ns$), perceived social skills deficits ($\beta = .01$, $t(793) = .07$, $p = ns$), and the interaction was not significant ($\beta = -.09$, $t(793) = -.41$, $p = ns$). Finally, with regard to disruptive behavioral disorders, there was a main effect for negative life events ($\beta = .08$, $t(793) = 2.09$, $p < .05$), no main effect for perceived social skills ($\beta = .01$, $t(793) = .58$, $p = ns$), and the interaction ($\beta = .24$, $t(793) = -1.05$, $p = .26$) was not significant. Therefore, the analyses

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**Table 1 – continued.**

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<td>Negative Life Events T1-T2</td>
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<td>.06</td>
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<td>-.01</td>
<td>.01</td>
<td>-.10**</td>
</tr>
<tr>
<td><strong>NLE T1-T2 X SPSS T1</strong></td>
<td>-.01</td>
<td>.01</td>
<td>-6.2**</td>
</tr>
</tbody>
</table>

Note. $R^2 = .04$ for Step 1; $\Delta R^2 = .01$ for Step 2 ($p < .01$); $\Delta R^2 = .01$ for Step 3 ($p < .01$). NOS = Not Otherwise Specified; MDD = Major Depressive Disorder; T1 = Time 1; T2 = Time 2; NLE = Negative Life Events; SPSS = Self-Perceived Social Skills.

* $p < .05$. ** $p < .01$. 

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In order to evaluate if the model was specific to either bulimia or EDNOS onset, we conducted separate follow-up analyses. The first regression equation used bulimia onset during the T1 to T2 interval as the dependent variable. There was a nonsignificant trend for negative life events to predict future bulimia onset ($\beta = -.06$, $t(793) = 1.71$, $p < .10$). Meanwhile, perceived social skills at T1 was not a significant predictor of bulimia onset one year later ($\beta = -.02$, $t(793) = -.41$, $p = ns$). However, the interaction of negative life events and social skills deficits ($\beta = -.46$, $t(793) = -2.02$, $p < .05$) emerged as a significant predictor for bulimia onset from T1 to T2.

The second follow-up analysis used EDNOS onset during the T1 to T2 interval as the dependent variable. There was no main effect for negative life events as a predictor of EDNOS onset ($\beta = .02$, $t(793) = .61$, $p = ns$). In contrast, perceived social skills at T1 was a significant predictor of EDNOS onset ($\beta = -.12$, $t(793) = -3.30$, $p < .001$). Finally, the interaction of negative life events and perceived skills deficits, approached significance ($\beta = -.42$, $t(793) = -1.85$, $p < .07$) in predicting EDNOS onset from T1 to T2.

Regression analyses identical to those above were conducted, but the dependent variable was replaced with each of the other psychological disorders (e.g., MDD onset between T1 and T2 was the dependent variable, while controlling for concurrent and prior diagnoses of disruptive behavior disorders, anxiety disorders, substance use disorders, EDNOS, and bulimia) in order to test the specificity of the prediction to bulimia and EDNOS onset. The regression yielded a main effect for negative life events in the prediction of MDD onset ($\beta = .08$, $t(793) = 2.30$, $p < .05$), a main effect for perceived social skills ($\beta = -.09$, $t(793) = -2.68$, $p < .01$), and a nonsignificant interaction ($\beta = .11$, $t(793) = .51$, $p = ns$). Regarding onset of anxiety disorders, negative life events ($\beta = .04$, $t(793) = 1.14$, $p = ns$), perceived social skills deficits ($\beta = -.05$, $t(793) = -1.27$, $p = ns$), and the interaction was not significant ($\beta = .18$, $t(793) = .82$, $p = ns$), were not significant. Similarly, in the prediction of substance use disorders, there was no main effect for negative life events ($\beta = .03$, $t(793) = .91$, $p = ns$), perceived social skills deficits ($\beta = .01$, $t(793) = .07$, $p = ns$), and the interaction was not significant ($\beta = -.09$, $t(793) = -.41$, $p = ns$). Finally, with regard to disruptive behavioral disorders, there was a main effect for negative life events ($\beta = .08$, $t(793) = 2.09$, $p < .05$), no main effect for perceived social skills ($\beta = .01$, $t(793) = .58$, $p = ns$), and the interaction ($\beta = .24$, $t(793) = -1.05$, $p = .26$) was not significant. Therefore, the analyses
support the hypothesis that negative life events in the context of perceived social skills deficits predict the onset of bulimia or EDNOS, but not other psychological disorders.
DISCUSSION

The primary aim of the current study was to test the hypothesis that young women who reported social skills deficits at one point in time would be at increased risk for the onset of bulimia nervosa or an EDNOS, particularly if they were faced with negative life events. The results were consistent with this hypothesis, such that the interaction of perceived social skills deficits at T1 and the occurrence of negative life events in the following year, significantly predicted the onset of bulimia nervosa or an EDNOS, as assessed at T2, one year later. A second aim was to evaluate the specificity of the interaction of self-perceived social skills deficits X negative life events to the prediction of bulimia nervosa or EDNOS onset. Negative life events and social skills deficits each predicted the onset of MDD as main effects, but the interaction was not significant. Perceived social skills deficits did not predict the onset of any other psychological disorders measured in the study, and negative life events only predicted the onset of disruptive behavioral disorders. Therefore, specificity of the interaction (negative life events X social skills deficits) in the prediction of the onset of bulimia or EDNOS, but not other psychological disorders such as mood, anxiety, substance use, or disruptive behavioral disorders was supported.

The finding that major depression shared common risk factors with bulimia nervosa and EDNOS in this sample is not surprising considering the frequent comorbidity between depression and bulimia (Strober & Katz, 1988), and the overlap of symptoms (e.g., body dissatisfaction; see Joiner, Wonderlich, Metalsky, & Schmidt, 1995). In addition, social skills deficits have been implicated as a risk factor for depression, though there are mixed findings about the directionality of the link between depression and social skills problems (see Segrin, 2000 for a review). Also, stressful life events have been found to be a risk factor for depression in adults, children, and adolescents (Garber, 2000). The investigation of factors that determine whether an individual develops an eating disorder or major depression (or both) offers an interesting area for future research.

The findings provide empirical support for the potential risk associated with social skills deficits, especially in combination with negative life events, for the development of bulimia or an EDNOS. Future research aimed at clarifying exactly how these two variables interact to predict bulimia or EDNOS onset could inform etiological models, and potentially aid in the prevention of these serious psychological disorders. For example, it would be interesting to evaluate if certain types of negative life events (e.g., interpersonal events) are more likely to predict bulimia or EDNOS onset in the context of social skills deficits.

The results should be interpreted in light of the study’s strengths and weaknesses. Regarding strengths, the hypotheses were tested in a prospective longitudinal study that utilized a large community sample. Furthermore, baseline social skills and psychopathology at Times 1 and 2 were evaluated with reliable and valid assessment tools. In addition, there was a relatively low attrition rate: 90% of the participants returned for the second assessment one year later. Finally, the proposed interaction of social skills deficits and negative life events as risk factors for bulimia and EDNOS onset were tested against stringent criteria, in that the analyses controlled for the variance accounted for by the history of and co-occurrence of many other psychological disorders.

An additional strength of the current study is that it adds to the literature by identifying a risk factor (perceived social skills deficits) that appears to be relatively specific to eating
disorders (with the exception of MDD). Both retrospective (e.g., Fairburn et al., 1997) and prospective studies (e.g., Leon, Fulkerson, Perry, Keel, & Klump, 1999) of risk factors for eating disorders have identified a number of variables associated with increased probability of eating pathology. However, many of these, such as negative affect (Leon et al., 1999) and low self-esteem (Button, Sonuga-Barke, Davies, & Thompson, 1996; Fairburn et al., 1997) are likely to be risk factors for several different forms of psychopathology. Furthermore, many factors that appear to be specifically associated with eating disorders, such as dieting (Patton, Johnson-Sabine, Wood, Mann, & Wakeling, 1990) or weight concerns (Killen et al., 1996) may simply reflect an aspect of the pathology one is trying to predict (Leon, Keel, Klump, & Fulkerson, 1997). Therefore, the identification of an interpersonal risk factor (social skills deficits) that is distinct from DSM-IV-TR eating disorder symptomatology, and that is relatively specific to eating disorder development (as well as depression, according to the findings) rather than a general risk factor for psychopathology, may provide important information in the areas of etiology and prevention.

Regarding limitations, there were few cases of bulimia or EDNOS in the sample, which makes the generalization of the results limited. However, this small number of cases could easily have worked against our predictions because of reduced power, yet the effects were significant. A second limitation is that the diagnostic category EDNOS likely consists of a heterogeneous group of women. For example, a woman who meets all of the criteria for anorexia nervosa minus the amenorrhea criterion and a woman who meets the criteria for bulimia, yet only binges once a week (rather than the required twice a week to meet full criteria) would both be diagnosed with an EDNOS. Yet, these clinical presentations appear quite different from one another. Future research evaluating whether social skills deficits and negative life event predict certain types of eating disorder symptom profiles more than others could serve to further differentiate eating syndromes from each other. The proposed interaction could not be evaluated in terms of its prediction of anorexia nervosa in the current study because of the low base rate of the disorder (only two participants in this sample developed anorexia nervosa over the one year period). Future prospective studies should evaluate whether social skills deficits and negative life events also predict the onset of anorexia nervosa, given prior research findings (e.g., Strober et al., 1997).

Finally, a third limitation may be that social skills deficits were measured through a self-report questionnaire. In response, previous research has yielded support for utilizing self-report as a measure of social skills deficits. For example, Grissett and Norvell (1992), found that bulimic women not only reported having an impoverished social network more often than controls, but observers who were unaware of group membership also rated bulimic women as significantly less socially effective. Furthermore, it is not uncommon that variables involving the individual’s perception have a greater impact or predictive value on psychological processes and behavior than actual measures or ratings by others (e.g., Lewinsohn, Mischel, Chaplin, & Barton, 1980; Joiner, Heatherton, Rudd, & Schmidt, 1997).

The results may have theoretical and clinical implications. The findings suggest that negative life events in combination with social skills deficits may be a particularly potent risk factor for the development of bulimia or an EDNOS. Grissett and Norvell (1992) have suggested that women who face stressors and lack social support may turn to binge and purge behaviors in order to avoid negative affect and feelings of isolation. This is a plausible hypothesis that is consistent with Heatherton and Baumeister’s (1991) escape theory of binge eating and Bardone, Abramson, Vohs, Heatherton, and Joiner’s (2004) expanded escape theory of binge eating which predict that individuals will binge eat as a means of escaping distress. Another possibility is that people with impoverished social networks receive less corrective feedback about their disordered
eating behavior (e.g., a friend’s expressed concern about restricted eating), and thus are more likely to continue on the trajectory to eating disorder development.

In terms of clinical implications, it has already been demonstrated that interpersonal psychotherapy, which targets social relationships, is an effective treatment for bulimia nervosa (Fairburn et al., 1995). However, the current findings suggest that bulimia or EDNOS might be prevented if social skills deficits are targeted early, before the initial onset of the disorder. Providing social support to at-risk people could be particularly important when negative life events occur. In addition, cognitive-behavioral therapy for eating disorder patients (which is also considered an effective treatment for bulimia; Fairburn et al., 1995) may be enhanced by specifically targeting cognitive distortions revolving around perceived social support. In general, developing a repertoire of coping strategies (e.g., strengthening social support systems) to access in the face of negative life events might prevent an individual from resorting to bulimic behavior as a coping strategy. Clearly, these speculations are empirical questions, and should be addressed through future prospective longitudinal studies.

In conclusion, it was proposed that social skills deficits interact with negative life events to predict the initial onset of bulimia nervosa or an EDNOS. The data supported the predictions, and corroborated past research indicating a connection between eating disorders and poor social skills. The current study adds to the research base in that no study, to our knowledge, has prospectively looked at the effects of social skills deficits in the prediction of the onset of bulimia or an EDNOS. Therefore, the current findings provide unique information about temporal onset, and may even imply a causal link. Future studies examining the interrelations of these variables may offer valuable insight into the treatment and prevention of eating disorders.
REFERENCES


BIOGRAPHICAL SKETCH

Educational Institutions

Florida State University, 1997-2001

Major: Psychology

Minor: Women’s Studies

Degree: B.S., Cum Laude, 2001

Honors Thesis: The impact of racial stereotypes on eating disorder recognition. (Supervisor: Thomas Joiner, Ph.D.)

Florida State University, 2002-present

Major: Clinical Psychology Doctoral Program

Professional Positions


Psychological Trainee, Florida State University Psychology Clinic, Tallahassee, Florida, August 2003-present.