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**EMOTION REGULATION IN ADOLESCENT FEMALES
WITH BULIMIA NERVOSA: AN INFORMATION
PROCESSING PERSPECTIVE**

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A THESIS

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August, 2002

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EMOTION REGULATION IN ADOLESCENT FEMALES WITH BULIMIA
NERVOSA: AN INFORMATION PROCESSING PERSPECTIVE

By Leslie Sim

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An Abstract of the Thesis Presented
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Although the increased attention to affect regulation in bulimia nervosa is encouraging, most theoretical models describing the relationship between binge-eating and emotion dysregulation neglect to place their observations in the context of the growing knowledge base on normal emotional development. Because the nature of abnormal functioning is best understood in relation to normal development, integrating these fields of research would identify deficient skills in bulimia nervosa, suggesting new avenues for treatment.

The present study compared 16 adolescent girls with a DSM-IV diagnosis of bulimia nervosa to 16 age- and SES-matched girls without a psychiatric disorder, on three aspects of the information processing model (Garber, Braafladt, & Zeman, 1991) of emotional regulation, a model chosen for its description of the numerous skills that comprise normative emotion regulation. Because they share conceptual characteristics, girls with bulimia were also compared to 16 age- and SES-matched girls with a DSM-IV diagnosis of unipolar depression. Diagnosed girls were recruited from treatment programs at a large Midwestern medical center and nondiagnosed participants were recruited through advertisements in a local newspaper. The study took place over a six

month period. Emotion regulation skills were assessed through questionnaire and interview measures, as well as response latencies to various questions.

Compared to those with depression and those without a disorder, girls with bulimia: described poor awareness of emotional states; displayed difficulty discriminating between emotional states; exhibited nonspecific verbal labels to describe their feelings; displayed a limited repertoire of emotion regulation strategies and ability to access these strategies under high emotional arousal. Compared to girls without a diagnosis, girls with bulimia: reported decreased motivation to express negative emotion to others; took longer to describe their emotional state; evaluated themselves as less competent at implementing strategies to decrease their emotional state; and, rated the expected outcome of their strategies as less effective in decreasing their emotional state. These findings suggest adolescent females with bulimia may rely on binge-eating and purging in an environment of inadequate emotion regulation skills. Treatment implications of these findings include interventions targeted towards remediating deficient skills. Longitudinal research is recommended to clarify the role of these deficiencies.

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Chapter 1

INTRODUCTION

The past decade has witnessed a rapid expansion in our understanding of the role of emotion regulation in the development and maintenance of psychopathology. Overall, this research suggests that individuals who are unable to regulate emotion in an adaptive, flexible manner face a broad range of consequences. These consequences may include a compromised ability for productive and adaptive functioning (Cole, Michel, & O'Donnell-Teti, 1994). Moreover, patterns of emotion dysregulation may become incorporated into the symptoms of psychopathology. Research has detailed the constituent components that comprise competent emotional functioning, and has demonstrated how deviations in these components of emotional functioning result in psychological problems (Cole et al., 1994; Saarni, 1999). The components relevant to the present research include: a) the verbal regulation of emotion (i.e., the ability to label, describe, conceptualize, and understand one's feelings), b) the modulation of the intensity and duration of emotion, and c) access to the full spectrum of emotions.

Although illuminating, most of the findings linking emotion and psychopathology have emerged from the study of a limited area of psychopathology, the internalizing and externalizing disorders (e.g., depression and behavioral disturbances, respectively). Emotional processes in psychological disorders that fall outside of this spectrum (e.g., eating disorders, substance abuse, and thought disorders) remain relatively unexplored. Casey (1996) has suggested that emotion research has been restricted to examining internalizing/externalizing disorders because, at their core, these disturbances have a

strong affective component. Internalizing disorders (e.g., depression or anxiety) are characterized by exaggerated levels of negative affect, coupled with diminished positive affect. Externalizing disorders (e.g., conduct disorder and other behavior problems) also involve prominent difficulties with affect, including intense displays of anger, low frustration tolerance, and generalized difficulties regulating emotion and emotion driven behavior. Although the current focus has yielded important findings, it is also necessary to investigate how emotion functions in disorders for which the overt symptom pattern is not one of emotion, but rather of behavior and/or cognition. Clearly, the notion that “all forms of psychopathology have concomitant symptoms of emotion dysregulation”(Cole et al., 1994; p. 9), suggests that the emotional processes of individuals who manifest nonemotional symptomatology warrants investigation.

Although eating disorders are often associated with depressive symptoms and syndromes (e.g. Viesselman & Roig, 1985), eating disorders do not conveniently fit into the internalizing/externalizing spectrum. Instead, they often demonstrate symptoms in common with both internalizing and externalizing problems. Both bulimia and anorexia nervosa have high rates of comorbidity with depression and anxiety (e.g., Johnson, Stuckey, Lewis, & Schwartz, 1982; Laessle, Wittchen, Fichter, & Pirke, 1989; Piran, Kennedy, Garfinkel, & Owens, 1985). Sufferers with bulimic symptomatology also have been found to exhibit externalizing types of symptomatology, such as impulsivity, deficits in self-regulation, and behaviors associated with conduct disturbance (e.g., sexual promiscuity and substance abuse) (e.g., Garfinkel, Moldofsky, & Garner, 1980; Johnson, Lewis, Stuckey, & Schwartz, 1982; Weiss & Ebert, 1983). In addition, affect has not been considered a unique diagnostic marker of eating disorders. Rather, the observed

symptom pattern appears more consistent with problems of behavior (e.g., dieting, binge-eating, purging, body-checking) and/or cognition (e.g., unrealistic ideals of weight and shape, distorted body-image, irrational beliefs regarding food) than affect related issues. Indeed, the only symptom of eating disorders that appears to involve affect is the disorder's characteristic fear of gaining weight, a symptom that has been conceptualized as a cognitive distortion, rather than an affective feature.

Although not central to the diagnostic profile, eating disorders (especially those that involve binge-eating) do seem to involve difficulties in emotional functioning. A considerable body of research has linked negative affective states to bulimic symptomatology (for a review see Heatherton & Baumeister, 1991; Polivy & Herman, 1993). For example, the most frequently mentioned trigger of a binge-episode is negative affect or stress (see Polivy & Herman, 1991 for a review). Moreover, researchers have documented a systematic variation in emotion and mood throughout the binge-purge episode (Cooper et al., 1988; Kenardy, Arnow, & Agras, 1996). In experimental investigations, patients with bulimia nervosa report that their binges are triggered by some sort of emotional distress (Elmore & De Castro, 1990; Johnson & Larson, 1982). In light of these findings, many theorists have postulated that individuals who exhibit binge eating behavior experience specific difficulties regulating negative emotions (Heatherton & Baumeister, 1991; Polivy & Herman, 1993).

As such, the present study investigated a model of emotion regulation in bulimic, depressed, and normal adolescent girls. The study addressed the following questions: (a) Do girls with bulimia nervosa display differences in particular skills of emotion regulation compared to their non-eating disorder counterparts? If so, (b) is their

characteristic pattern of emotion regulation distinct from girls exhibiting internalizing psychopathology? The answers to these questions provides useful information to help identify patterns underlying the development and maintenance of eating disorders in adolescent girls. The study also contributes to research examining the emotional processes of disorders in which the manifest difficulties present as cognitive and behavioral rather than as affective features. Ideally, these findings have implications for both intervention and prevention efforts directed at eating disorders by highlighting targets of intervention (i.e., deficient emotional functioning) and by basing treatment goals on a clear understanding of normative emotion regulation abilities in adolescent girls.

The introduction will present the theoretical foundation for the present study, briefly survey the research with respect to emotion regulation skills and eating disorders, review pertinent literature regarding adolescence, emotion, and disordered eating, and finally, describe the study and present hypotheses.

Theoretical Foundation

Emotion regulation

Given the considerable conceptual ambiguity concerning emotion regulation, a comprehensive definition will be provided before delving into the theoretical foundation for the present study. One of the most widely recognized definitions of emotion regulation is offered by Thompson and Calkins (1996). They suggest that “emotion regulation consists of the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal

features to accomplish one's goals" (p. 271). This definition clearly underscores the multidimensional, complex, and dynamic nature of the emotion regulation process. Several assumptions regarding the nature of emotion regulation are implied in this definition.

First, rather than viewing emotion regulation as some form of restraint or dampening of emotion, the authors recognize that regulation entails an effort to maintain or even accentuate affect in order to meet certain goals. According to this assumption, not only do individuals seek to maintain or amplify positive emotional states (e.g., calm, pleasure, joy, etc.), but they must at times sustain or enhance what are commonly perceived of as negative emotions (e.g., anger). For example, assertive behavior typically involves enhancing or sustaining anger or indignance. This example illustrates that emotion regulation extends beyond simply ending distress to the process of adjusting or altering an emotion experience. This process serves to promote adaptation of the individual to the ongoing challenges and circumstances of life.

Second, in addition to framing the actions of the self that define emotion regulation, Thompson and Calkins (1996) suggest a variety of ways in which emotion can be regulated by others. Indeed, there is an interactional nature to emotion and its regulation, as individual emotional experience is frequently monitored and regulated by others. For example, parents often provide their children with reassuring emotional cues in circumstances of perceived threat. Peers also help to manage one another's emotional state by providing support or comfort in times of distress.

Third, emotion regulation involves ongoing efforts to monitor and evaluate emotional experience. Before individuals can modify their affect, they must first

determine that they are experiencing a specific type of emotion. Then, they must appraise whether the emotion needs to be modified. As such, individuals must continually monitor and evaluate their emotional state if they are to engage in continued regulation attempts to meet ongoing and changing environmental demands.

Fourth, Thompson and Calkins (1996) suggest that regulation must always be considered in relation to one's goals. For example, emotional expressions and experiences may be managed in order to receive social support, to protect other people's feelings, or to present oneself in a positive light. The diverse and overlapping nature of the goals one can pursue highlights the complex nature of emotion regulation. Adding to this complexity are the occasions when goals are in conflict with each other. For example, an employee who feels unjustly treated by his or her employer may feel conflicted between speaking his or her mind and keeping his or her job. A child who has a fight with his or her best friend may experience conflicting desires between winning the argument and keeping the friendship. Among other factors operating in these conflicts are the particulars of the situation, the child's relationship to other parties in the situation, the values of the child, and the short- and long-term consequences of each immediate goal.

Last, Thompson and Calkins' (1996) definition addresses the need for individuals to regulate the intensity and duration of emotion. Although efforts to manage emotion occasionally involve changing the discrete nature of the feeling state, more often efforts focus on reducing or amplifying the intensity of the emotion or its persistence over time. Given the multitude of features included in their definition, Thompson and colleagues stress the importance of considering emotion regulation as an extensive and dynamic

process. Thus, emotion can be managed in a multitude of ways including physiological mechanisms, cognitive appraisals, attentional processes, and behavioral responses.

The information processing model of emotion regulation

One theoretical perspective that recognizes the multifaceted dimensions of emotion regulation is the information-processing model proposed by Garber, Braafladt, and Zeman (1991). This model is based on research and theory on social information processing and its relationship to children's social competence (Dodge, 1986; Dodge, 1991). In contrast to Thompson and Calkins (1996), however, Garber and colleagues focus largely on the individual rather than relational aspects of emotion regulation. Their model also concentrates on negative emotion rather than positive emotion, as well as cognitive features over the physiological, behavioral, and affective qualities of emotion regulation. Nevertheless, in their focus on the monitoring, evaluation, and appraisal processes, and the individual's goals for regulation, their model underscores the dynamic and diverse nature of emotion regulation and dysregulation as suggested by Thompson and Calkins.

According to Garber and colleagues' information-processing model of emotion regulation, competent emotion regulation requires skills at several processing steps. Correspondingly, it suggests that emotion dysregulation can result from deficits at one or more of these steps. The authors depict the stages in the process as follows: 1) *Perception*, the recognition that affect is aroused; 2) *Interpretation*, determining the cause of the emotional arousal and who is responsible for altering the negative affect; 3) *Goal-Setting*, deciding what needs to be done, if anything to alter one's affect; 4) *Response*

Generation, developing a list of appropriate responses that may serve to regulate emotion; 5) *Response Evaluation*, the appraisal of each response with respect to its perceived efficacy and whether individuals perceive themselves as having the skills to successfully produce the response, and 6) *Enactment*, implementing the chosen response.

The first step of this model, *Perception*, involves the recognition that a particular emotion is aroused and needs to be regulated. This step corresponds to Thompson and Calkins' (1996) assumption that emotion regulation involves ongoing attempts to monitor and evaluate emotional experience. In order to engage in strategies for regulating negative emotion it first becomes necessary to recognize that one is experiencing distress. Second, it is important to identify which particular emotion is being experienced because this has implications for further management decisions. For example, counting to ten may be helpful if one is experiencing anger, but probably is not that useful if one is sad. Given these implications, perceiving and acknowledging one's emotional state is a fundamental component of most emotion regulation processes.

According to Garber and colleagues (1991), there are several ways in which deficits in perceptual processes may appear. Individuals may either misperceive or actively ignore their emotional distress. Further, individuals may confuse the basis of their emotional distress, ascribing physiological rather than emotional origins, as commonly observed in children with recurrent somatic complaints (e.g., Apley, 1975; Walker, Zeman, & Garber, 1991). Another perceptual problem occurs when emotions are mislabeled. Although often overlooked, a host of common symptoms of psychopathology exhibit the signs of some type of emotion perception deficiency. For example, aggressive behavior occurs frequently in those who mislabel emotional states

such as jealousy, sadness, or fear as anger (Ganley, 1981; Gondolf, 1985). Individuals with anxiety are thought to over interpret benign physical symptoms, to which they ascribe feelings of fear and apprehension (Clark, 1986). Surprisingly, the relationship between emotion identification ability and psychopathology in children and adolescents has received little empirical attention. This lack of attention is likely due to the inability of currently available methodologies to adequately assess internal emotional states.

Emotion dysregulation can be compromised at the *Interpretation* stage, or the assignment of causal origin to emotion (Garber et al., 1991). Individuals who experience deficits at this second level of processing may misattribute the cause of the problem associated with the emotional distress. For example, an individual who experiences sadness may attribute the cause of his or her feelings to internal and unchangeable deficits within him or herself. Strong support has been found for the link between interpretational deficits and emotion dysregulation (e.g., Abramson, Seligman, & Teasdale, 1978). A large body of research links depression with the tendency to attribute negative events to internal, stable, and global causes (for a review see Abramson et al., 1978). Furthermore, research has found attributional errors to be a contributing factor to aggressive behavior, largely because these individuals tend to consistently attribute the causes and consequences of their emotions to external factors (Holzworth-Monroe, 1988). In addition to the misattribution of the cause of emotional arousal, Garber and colleagues propose that misinterpretation of who is responsible for modifying an emotional experience influences regulation. For example, research suggests individuals with depression tend to be more dependent on others to alleviate their distress (Blatt, Guinlan, Chevron, McDonald, & Zuroff, 1982).

The third step of this model, *Goal-Setting*, involves deciding what can be done, if anything, to modify an emotional state. Consistent with Thompson and Calkins (1996), Garber et al. (1991) suggest that individual goals are critical in determining the strategies employed for emotion regulation. According to the authors, one must wish to feel differently if he or she is to regulate emotion. For example, an individual may in fact identify the regulation of certain emotional states as a goal, but feel that a change in his or her emotional state would require too much energy, and thus choose to do nothing. Garber and colleagues suggest that this type of goal deficit may be present in depressed individuals who may prefer to feel differently, but lack the energy to engage in the necessary behaviors to alleviate their sad feelings. A goal deficit may also occur when an individual holds additional goals that are incompatible with that of emotion regulation. This notion again is consistent with Thompson and colleagues who state that emotion regulation may become compromised when the setting involves multiple conflicting goals. For example, in a physical abuse context, a child's wish to regulate his or her angry affect may be secondary to the goal of self-protection. For another child, the goal of anger regulation may take precedence simply because this child experiences anger as highly aversive, intolerable, or inappropriate. Clearly, an individual's context specific goals have to be considered in the conceptualization of emotional regulation processes.

Response Generation, the fourth stage in the information processing model of emotion regulation, concerns the action taken to achieve one's goal. Deficits at this step may be those of knowledge or accessibility. A knowledge deficit may operate when an individual has never learned the strategies necessary to effectively manage negative emotion, or has learned ineffective strategies. Alternatively, an access deficit may be

present when high levels of emotional arousal interfere with accessing appropriate strategies, and less functional strategies may be used as a result (e.g., Yerkes & Dodson, 1908). Saarni (1995) suggests that although aggressive children may have knowledge of appropriate strategies, emotional arousal may interfere with accessing these strategies, leading them to resort to maladaptive, previously used aggressive methods.

Next in the chain of events is the *Response Evaluation* step that involves appraising both the expected outcome produced by the response and the perceived efficacy of one's ability to enact the desired response. Garber and colleagues (1991) hypothesize that successful regulation of emotion involves a belief that the strategies selected will prove effective and can be enacted by the individual. Bandura (1977) argued that believing a behavior will produce an outcome (outcome expectancies), as well as perceiving that one is capable of skillfully enacting the response (self-efficacy), influences which strategy is chosen. Support for this stage of the model can be found in a study examining response evaluation in depressed children. Specifically, Garber and colleagues found that these children reported significantly lower expectations about the efficacy of strategies for altering their negative mood than did nondepressed children. Furthermore, these children reported that they expected both self and mother generated emotion regulation strategies would be less effective. Given that the children expected no one would be effective in regulating their emotions, the researchers suggest that depressed children have a negative outcome expectancy regarding sadness regulation.

The final stage of emotion regulation involves *Enactment* of the skills involved, or the ability to produce the actual behaviors selected by individuals to regulate their emotions. An individual may proceed easily through each level of processing, only to

finally lack the skills to produce the outcome. A child may know that feeling better may involve talking to a peer, only to fall short of the goal due to a social skills deficit.

Refining this point, Garber and colleagues (1991) suggest that deficits at this stage can in fact result from something other than a skills deficit, in the case where a highly aroused emotional state produces temporary shortcomings. Indeed, strong support exists for the idea that performance can deteriorate under conditions of strong emotional arousal (e.g., Yerkes & Dodson, 1908). The idea that emotional arousal may interfere with successful performance of behaviors may underlie the reason why certain psychological practitioners advise clients to practice newly learned emotion regulation skills (e.g., deep breathing, muscle relaxation) under progressively more emotionally arousing conditions.

Taken together, effective emotion regulation may take place as follows. Suppose an adolescent girl is grounded by her mother and consequently feels angry. According to Garber and colleagues (1991), competent emotion regulation would involve several steps, beginning with the girl recognizing that she is feeling angry. She then interprets possible causes of the problem, perhaps attributing the cause of the anger to herself for engaging in behavior that resulted in her grounding. Conversely, she may attribute her anger to her mother for being unreasonable. Next, however, she has to identify her goal, which can take numerous forms, including those of resolving the problem, feeling better, or obtaining sympathy from others. After generating a goal, she then must produce a response that will help her achieve her goal. If her goal is to resolve the problem, she may choose to apologize to her mother for her behavior; if her goal is to receive sympathy, she may decide to call a friend. At the evaluation stage of processing, she must assess each possible response with respect to its success in achieving the goal and

her ability to enact the strategies. If her goal is to solve the problem, and she believes that talking to her mother may have the desired response, she may decide to enact this option. If she thinks that she will not be able to speak to her mother without blowing up, however, this response will likely be rejected for another solution. Once she decides on a particular response, successful emotion regulation hinges on whether she has the particular skills to enact the response -- her actual verbal and communication skills in the event of seeking to use communication. Although the mother's communication skills also play a role in the likely outcome of emotion dysregulation, as this example makes clear, the information processing model by definition limits its focus to the individual.

Although this example may give the impression that processing is slow and deliberate, processing actually occurs quite rapidly, generally outside of conscious awareness (Garber et al., 1991). Obviously this poses a challenge for the prospect of stage-targeted intervention and suggests several limitations of the model. First, because such processing occurs rapidly, it limits individuals' knowledge of these aspects of their behavior, as well as their ability to comment on such aspects of behavior. However, as is the case for many social cognitive models (e.g., Dodge, 1986), it is suggested that individuals do have insight into these aspects of their behavior, can comment on them reliably, and with training, can slow down this processing. Moreover, the theory behind many social-problem solving interventions based on such models is that individuals can comment on these aspects of their problem solving in order to modify processing at each step.

Additional to the complexity of the model, it seems that a particular individual may have processing problems only for certain emotions. For example, an individual

may have more difficulty identifying a certain emotion but not others, such as knowing when he or she feels angry, but not when he or she feels sad. Hence, it seems the model must be viewed in relation to specific discrete emotions. Garber and colleagues (1991) also advocate this approach. For example, in their research on childhood depression, Garber and colleagues view the processing of sadness in particular, as opposed to anger, fear, or shame, as key to the maintenance and exacerbation of depression. Given these findings, it seems that each discrete emotion may have distinct implications for information processing of emotion regulation, as well as for the forms that psychopathology may take.

Despite its complexity, the information processing perspective seems to provide a sound, detailed framework for describing both constructive and maladaptive emotion regulation. It identifies the junctures where deficits may occur, allows for deficits to be emotion - and situation-specific rather than global in nature, and depicts how consistent shortcomings can ultimately become incorporated into symptoms of psychopathology.

In fact, Garber and colleagues (1991) suggest a likely relationship between consistent, unique patterns of information processing in emotion regulation and various forms of psychopathology. For example, behavioral disturbances would seem to involve disorder specific processing deficits at the Goal-Setting and Response Generation stage, deficits applicable only to the discrete emotion of anger. Anxiety disorders, on the other hand, may involve specific problems at the level of Perception and Response Generation, problems only relevant when processing fear. Certainly then with guidance from the empirical literature on particular psychological disorders, this would be appear to be a

model with the potential of developing specific hypotheses regarding processing deficits underlying the development and maintenance of many psychological disorders.

For the purposes of this study, the information processing model of emotion regulation can serve as a guide for the scientific inquiry into emotion regulation and dysregulation in adolescent girls with bulimia nervosa. A review of the empirical literature will clarify how the model may apply to bulimia nervosa. The following sections will review research that has implications for emotion regulation skills in bulimia nervosa, as well as pertinent research describing emotional functioning in adolescent females. Emotional functioning will be discussed in terms of its protective and predisposing influence on the development and maintenance of eating disorders in adolescent females. Possible patterns of emotion regulation and dysregulation in the context of adolescent stress and cultural and family influences regarding thinness will be proposed. In short, it is suggested that adolescent females with bulimia nervosa manifest characteristic patterns in their emotional functioning that differentiate them from normal female adolescents, as well as from those with other forms of psychopathology, and that these patterns influence the ways in which they perceive, experience, and cope with negative emotions, particularly those of sadness, fear, and anger. Prior to reviewing the relevant research, however, a brief description of some of the clinical and associated features of bulimia nervosa will be provided.

Bulimia nervosa: clinical and associated features

In the last 30 years, bulimia nervosa has emerged as a significant threat to the psychological and physical health of females, with anywhere from 1 to 3% of females

meeting the diagnostic criteria for the disorder (Lucas, Beard, O'Fallon, & Kurland, 1991). Rand and Kaldau (1992) suggest that this rate may be even higher when looking at a college-age sample. Although bulimia nervosa is seen in males (10%), the majority of sufferers are female (Conners & Johnson, 1987).

Bulimia nervosa (literally, *ox hunger*) is characterized by recurrent episodes of binge-eating followed by compensatory behaviors designed to prevent weight gain, including prolonged fasting, excessive exercise, or more invasive methods such as self-induced vomiting or laxative abuse. During a binge episode, individuals with this disorder generally consume more food than most individuals would eat under similar circumstances. For individuals with bulimia nervosa, binge episodes are generally accompanied by an overwhelming sense of lack of control. Some individuals with bulimia describe these episodes as having a dissociative and/or frenzied quality. As such, considerable discontinuity exists between the binge-episodes of bulimia nervosa and those of dieters (Charnock, 1989; Polivy & Herman, 1989). In addition to this pattern of behavior, the self-evaluation of individuals with bulimia nervosa tends to be unduly influenced by their body shape and weight. Some common characteristics among females diagnosed with bulimia nervosa include unreasonably high expectations of themselves (Baumeister, 1991), extreme self-criticism (Katzman & Wolchik, 1984), low levels of self-esteem (Wilmuth, Leitenberg, Rosen, & Cado), and higher than average body weight for their age and height (Pyle, Neuman, Halverson, & Mitchell, 1991).

In addition to these clinical characteristics, bulimia is frequently associated with other forms of psychopathology, such as depressive symptoms or mood disorders (particularly dysthymic disorder and major depressive disorder). When a mood

disturbance occurs, however, most of the time it begins concurrently with, or follows the development of bulimia nervosa (APA, 1994). Also, individuals with this disorder typically attribute their depressed mood to symptoms associated with bulimia nervosa (APA, 1994). In addition to depressive disturbances, there is an increased frequency of anxiety symptoms or anxiety disorders in individuals with the disorder. Moreover, substance abuse or dependence occurs in a large proportion of individuals with bulimia nervosa (30%). Typically, however, such problems remit following the effective treatment of bulimia nervosa.

Given that that associated forms of psychopathology occur concurrently with the disorder and remit following effective treatment, some researchers have argued that the disorders are a not a variant of affective disorders, but a product of the distress or shame associated with the symptoms of bulimia nervosa (Laessle, Schweiger, Ficher, & Pike, 1988; Strober & Katz, 1988). Although statistics are in flux, social and public health costs of this disease include hospitalization costs, secondary health consequences, arrested academic achievement goals, and intangible measures of human suffering. Given the emotional, psychological, and public health costs of bulimia, it would seem imperative that research continue to identify its eitiological factors, to enable treatments to be developed and refined to more effectively address the disorder.

Emotion Regulation Skills in Bulimia Nervosa:

Review of Empirical Research

Prior to describing the research illuminating the specific steps of the model where females with bulimia nervosa may encounter obstacles in emotion regulation processing,

it is first necessary to address whether the subject of emotion is relevant to females with eating disorders. It was previously noted that eating disorders do not involve affect as a unique diagnostic marker, but rather its observed symptom pattern appears to involve problems of behavior and cognition. With this in mind, what is the role of emotion, if any, in bulimia nervosa? One answer to this question can be found through an examination of a characteristic behavioral feature of bulimia nervosa, binge-eating.

In spite of the current focus on cognitive symptoms of bulimia nervosa, a considerable body of research has linked negative affective states to bulimic symptomatology (see Heatherton & Baumeister, 1991; Polivy & Herman, 1993). In fact, the most commonly cited trigger of a binge-episode is negative affect or stress (see Polivy & Herman for a review). Moreover, research suggests a predictable and systematic variation of mood states over the binge-purge episode. Individuals with bulimia experience high levels of emotional distress preceding a binge-episode, show elevated levels of depression, anxiety, and guilt relative to controls (Casper, Hedeker, & McClough, 1992; Ruderman & Besbeas, 1992; Shisslak, Pazda, & Crago, 1990; Tobin, Johnson, Steinberg, Staats, & Dennis, 1991), report feeling dysphoric prior to binge eating (Pyle et al., 1981), report immediate reductions in feelings of depression when engaged in binge-eating (Steinberg, Tobin, & Johnson, 1990), and report that purging further helps decrease negative emotions (Shupak-Neuberg & Nemeroff, 1993). Negative affect also has been found to mediate the relationship between sociocultural pressure for thinness and binge-purge symptoms through the effects of body dissatisfaction on affective state (Stice, Nemeroff, & Shaw, 1996). Moreover, the interaction of bi-phasic mood shifts with dietary restraint has been found to predict binge-

eating (Greenberg & Harvey, 1987). This finding suggests the possible role of affective lability, or a profound difficulty regulating emotions and moods throughout the day in the development of binge-eating.

In light of this research, several theorists have proposed affect regulation models of binge-eating. These models depict binge-eating as a learned behavior which individuals use to regulate negative emotional states. Heatherton and Baumeister (1991) in their escape model of binge eating, suggest that patterns of binge-eating develop through continued attempts to escape from negative emotional states, by narrowing the cognitive attention from the self to the immediate stimulus environment. In fact, the theorists propose that prior to a binge-episode individuals with bulimia tend to experience high levels of self-focused negative emotion, generally occurring as a result of the failure to live up to high and unrealistic self-imposed standards. According to Heatherton and Baumeister, negative emotion focused on the self is experienced as highly aversive, more so than general negative arousal that is externally focused. In order to tolerate or reduce this distress, individuals with bulimia learn to reduce their level of cognitive focus from higher levels of awareness to lower, more concrete levels of external stimuli. Although this narrowing of attention may help to manage aversive emotional arousal, it tends to disengage normal inhibitions against eating and renders food cues much more salient and immediate to the individual (Heatherton & Baumeister, 1991).

Another affect regulation model of binge-eating is the trade-off hypotheses (Kenardy et al., 1996). According to this hypothesis, binge-eating helps regulate negative affect through the purely hedonic qualities of food and the distraction that it provides from unpleasant feelings. This distraction, the authors argue, serves to elevate

and actually change the quality of mood states. According to the model, individuals learn through experience that the excessive consumption of food provides them with a method to qualitatively change the nature of the emotional experience, by replacing negative emotions with more tolerable emotions.

Support for this hypothesis has been found in studies with both purging and nonpurging bulimics (Cooper et al., 1988; Kenardy et al., 1996). Cooper and colleagues found that patients reported a systematic variation in their emotional states through the course of the binge-episode, such that feelings of anger, anxiety, or sadness experienced prior to the binge were rapidly replaced by states of joy, calm, and pleasure during the binge. Following the binge, these emotional states gave way to feelings of guilt, shame, and helplessness -- feelings that were alleviated by the purging behavior that followed. Following the purge, individuals with bulimia reported feelings of relief, calm, or pleasure. In a study with individuals who engaged in binge-eating but not purging behavior, Kenardy and colleagues found that these individuals reported a similar, yet distinct, trade-off of emotional experience to that experienced by individuals with bulimia during the binge-purge episode. However, unlike those with bulimia, individuals who did not purge failed to report experiencing positive feelings following the episode, though, they did report that the emotions they experienced after binge-eating (e.g., guilt) typically were less aversive than those experienced before the binge (e.g., anger).

Wiser and Telch (1999) have begun to examine affect regulation in binge-eating through a treatment study of an emotion regulation intervention. Based on affect-regulation models of binge-eating, these researchers have begun to examine the efficacy of Dialectical Behavior Therapy (DBT) -- one of the few psychological treatments in

which emotion regulation is a central goal -- when treating females diagnosed with binge-eating disorder. According to these researchers, binge-eating serves to help these individuals distract themselves from or reduce the intensity of upsetting emotions. Given this function of binge-eating, Wiser and Telch suggest that binge-eating is maintained by the reinforcing experience of temporary relief from negative emotions. Treatments that are aimed at providing alternative, more functional affect regulation strategies, they suggest, should prove quite useful.

Affect regulation models in the treatment of binge-eating stand in sharp contrast to the currently accepted treatment formulations, the cognitive-behavioral and the interpersonal approaches. Specifically, the cognitive-behavioral model views binge-eating as a consequence of strict dieting behaviors, behaviors that result from distorted cognitions regarding weight and shape (Fairburn, Marcus, & Wilson, 1993). In contrast, the interpersonal approach describes eating disturbances as symptomatic of larger interpersonal problems such as unresolved grief, social skills deficits, interpersonal conflicts, or role transitions (Fairburn, 1993). According to affect regulation models, however, the origin of negative emotional states (i.e., falling short of expectations regarding weight and shape, interpersonal conflict, loneliness) is less important to the development of binge-eating than the strategies one uses to regulate them. In contrast to cognitive-behavioral therapy, a treatment based on an affect regulation model would focus, not on modifying unrealistic attitudes regarding weight and shape, but on learning strategies to regulate the emotions resulting from these distorted cognitions. In contrast to interpersonal therapy, affect regulation treatment would not focus on social skills

training or on grief resolution, but on emotion regulation strategies resulting from these interpersonal problems.

Although affect regulation models appear promising, their early stage in development and somewhat narrow focus leave several questions unanswered. First, it is unclear whether other symptoms of eating disorders, such as compulsive body checking, dieting, or exercising also reduce negative affect. There is some evidence that body checking (e.g., ritualistic weighing, checking one's appearance in the mirror, or reassurance seeking) may also function to prevent or reduce distress associated with body size and shape (Reas, Williamson, Whisehunt, & Zucker, 1999). Likewise, exercise has been found to have a significant impact on improving mood (see Yeung, 1996 for a review). It is possible that compulsive exercise behavior may become incorporated into the emotion regulation repertoire of individuals with bulimia through the reinforcing consequences it provides for emotional well-being. Moreover, dieting may also be viewed as a way to diminish negative affect associated with body dissatisfaction. This reduction in negative affect may be accomplished through the diversion of attention from immediate ideas and meanings that evoke distress towards the optimistic goal of changing one's weight and shape, a goal that would seem to be associated with a positive image of the self (an image related to positive emotions) for individuals with bulimia. Despite this notion, research has yet to examine the function of dieting behaviors in the regulation of affect.

In addition, the current research and theories relating to binge-eating and affect regulation do not address the specific aspects of emotion regulation that may be deficient in binge-eaters. Thus far, research has only examined the outcome of emotion

dysregulation, binge-eating, while neglecting to consider processes earlier in the course of regulation that may have led to this outcome. Garber and colleagues' (1991) information-processing model indicates that emotion regulation is a complex process with the involvement of numerous emotional competencies. In order to fully understand how binge-eating and/or other behaviors associated with bulimia nervosa (dieting, body-checking, and exercising) can become incorporated into emotion management repertoire of the individual with bulimia, the particular skills of emotion regulation that may be deficient in these individuals must first be identified. Research in the area of emotional processes of eating disorders such as bulimia nervosa needs to elucidate the particular aspects of emotional regulation that may lead to maladaptive functioning, producing symptoms of bulimia nervosa.

Given evidence that emotion regulation is involved in eating disorders, it is necessary at this point to return to the model for guidance on *how* emotion regulation is involved in bulimia nervosa. As suggested in the earlier discussion, this model can help determine the specific stages of processing that may be problematic for girls with bulimia nervosa. To reiterate, Garber and colleagues (1991) propose six steps in which deficits can occur: 1) Perception, 2) Interpretation, 3) Goal Setting, 4) Response Generation, 5) Response Evaluation, and 6) Enactment. Further, they outline the necessary skills within each of these steps that are needed for competent emotion regulation and that the particular deficits that may place individuals at risk for adaptational failures (emotional, cognitive, and behavioral difficulties). Moreover, different types of emotions, as well as specific contextual variables are likely to have distinct implications for which aspects of emotion regulation processes may be affected. The research regarding developmental

transitions of female adolescents, and the emotional life of adolescents in general can help us to identify the particular emotional states and situations that might be relevant to this model as it relates to emotion regulation in bulimia nervosa.

Step 1: Perception

The empirical research on the identification of emotion in eating disorders has been influenced by psychodynamic formulations. Hilde Bruch (1969) was one of the first to implicate specific emotional processes in the development and maintenance of eating disorders. Bruch hypothesized that patients with eating disorders, ranging from anorexia nervosa to obesity possess basic difficulties recognizing physiological sensations and urges, specific emotions, and sensations of hunger and satiety. She used the term *interoceptive labeling* to describe this ability, and came to regard interoceptive disturbances as more important than any other factor in the etiology of anorexia nervosa.

Support for Bruch's (1969) hypothesis has been found through studies with females with both anorexia and bulimia nervosa, as well as those who are at-risk for developing an eating disorder (Garner et al; Garner, Olmsted & Polivy, 1984; Leon, Fulkerson, Perry, & Cudek, 1993; Leon, Fulkerson, Perry, & Early-Zald, 1995). The construct of interoceptive awareness has been used to describe individuals with eating disorders, through its incorporation in the factor structure of one of the most widely used assessment instruments for eating disorders, the Eating Disorders Inventory (EDI; Garner, Olmsted, & Polivy, 1983).

Leon and colleagues (1993) have proposed a model of how poor interoceptive awareness leads to the development of eating disorders including anorexia and bulimia

nervosa. These authors suggest that when poor interoceptive awareness is coupled with negative emotionality (e.g., depressed mood), a state of chronic negative arousal will be the likely outcome. As a result, maladaptive behaviors such as binge-eating or dieting may be used in a desperate attempt to reduce the unpleasant condition. Leon and colleagues (1993) suggest that in a culture that places a strong emphasis on thinness, the reliance on severe dieting and/or excessive food consumption followed by compensatory behaviors to rid oneself of food are likely to become a salient option for girls to attempt to manage their emotions.

In both cross-sectional and prospective investigations of personality and behavioral risk factors, Leon and colleagues (1993, 1995) have found support for aspects of this model. In a concurrent investigation of a large sample of adolescent girls, they examined over 15 possible personality and psychosocial risk factors, including depression, achievement orientation, self worth, and perfectionism. Of these variables, only negative emotionality (e.g., depressed mood) and the inability to label emotional arousal (low interoceptive awareness) predicted eating disorder risk in adolescent girls (Leon et al., 1993).

However, in a subsequent two-year prospective investigation examining the same set of presumed risk factors, negative emotionality (e.g., depressed mood) failed to predict later risk status, leaving interoceptive awareness as the sole predictor of eating disorder risk, except for a prior risk score. The results were such that the authors removed negative emotionality from the model, except when it was combined with poor interoceptive awareness. Their findings are especially harmonious with the chain of events in Garber and colleagues' (1991) information processing model. That is, the

failure to recognize emotion (at the perceptual stage) compromises later stages of processing (response generation) and eventually leads to the dysregulation of negative emotional states. Binge-eating or dieting behaviors may become a learned way or a salient response to cope with this dysregulated or ambiguous emotional state.

Directly addressing interoceptive awareness, research on alexithymic disturbances in individuals with eating disorders provides more support for the existence of perceptual deficits in the psychopathology of eating disorders. Originally describing psychosomatic patients, alexithymia has been described as a syndrome that entails deficits in the discrimination between emotional states and bodily sensations, the experience and expression of feelings, and an apparent impoverishment in imagination and fantasy life (Nemiah & Sifneos, 1970). Individuals with alexithymia often manifest their emotions as physical complaints, such as recurrent abdominal pains, and headaches. Given the difficulty recognizing emotional states, as well as discriminating between physical sensations, alexithymia is generally thought to have some overlap with the concept of interoceptive awareness, and certainly has implications for the manifestation of perceptual deficits in emotion regulation.

Prompted by a conceptualization of anorexia nervosa through the paradigm of psychosomatic illness, Minuchin, Rosman, and Baker (1978) suggested that alexithymia may be a personality trait in these patients. Since then, several researchers have examined alexithymia among a broad range of eating disorder subtypes. They discovered high rates of alexithymia in patients with anorexia, bulimia, binge-eating disorder, and eating disorder-not otherwise specified (Bourke, Taylor, & Crisp, 1985; Bourke, Taylor, Parker, & Bagby, 1992; Cochrane, Brewerton, Wilson, & Hodges, 1993; Jimerson, Wolfe,

Franko, Covino, & Sifenos, 1994; Schmidt, Jiwany, & Treasure, 1993). This research also found that scores on the Toronto Alexithymia Scale failed to correlate with duration of illness, amount of weight loss, levels of depression, and other measures of psychopathology; a finding that suggests that alexithymia is not merely a complication of chronic illness or an effect of the disorder, but rather something central to eating disorders.

Because Jimerson and colleagues (1994) hypothesized that alexithymia was too broad a construct to explain the emotional functioning of patients with bulimia, they sampled a group of outpatient females with bulimia nervosa and conducted a factor analysis of their scores on the Toronto Alexithymia Scale (Taylor, Ryan, & Bagby, 1985). After finding that the bulimics endorsed a poor ability to identify and discriminate between emotional states and bodily sensations but reported no deficits on the scale measuring fantasy and metaphorical thought, the authors concluded that females with bulimia nervosa have an emotion deficit more specific than that captured in the larger construct of alexithymia. It appears, then, that the study of alexithymia also provides support for the argument that emotion processing deficits at the perceptual stage are central to bulimia nervosa.

Studies examining the self-reported ability of females with eating disorders to identify their emotions provide support for the link between deficits at the Perceptual stage of processing and disordered eating (Elizabeth, 1990; Sim, Zeman, & Nesin, 1999). Women with bulimia nervosa have been found to score significantly lower than recovered or nonbulimic women a measure of the ability to monitor and label internal states (Elizabeth, 1990). Further, early adolescent age girls' difficulty identifying and

communicating emotional states has been found to predict disordered eating. Individuals with bulimia nervosa have also been found to report an impaired ability to identify emotional states and other internal cues (Heilbrun & Bloomfield, 1986). Similar to the information-processing model of emotion regulation, this difficulty in perceiving internal cues such as emotional states leads to a failure to utilize potentially vital information, shedding light on options for self-control and management of negative affect (Heilbrun & Bloomfield, 1986). Despite such evidence for a deficit in the Perceptual stage of emotion regulation in bulimia nervosa, research findings are limited by their use of self-report methodology. Objective and observational measures are needed to provide convergent evidence for a Perceptual problem in females with bulimia nervosa.

Step 2: Interpretation

Although considerable evidence exists for an association between depression and the interpretation or attribution of the cause of negative events to internal, stable, and global factors (e.g., Abramson, Seligman, & Teasdale, 1978), the same cannot be said for eating disorders. Given that bulimics view themselves as having little control over events however (Shatford & Evans, 1986), it would seem that they would tend to believe that they are not responsible for changing their negative affective state in response to these events. Nevertheless, limited research exists regarding attributional style in individuals with bulimia nervosa, and that which has been conducted is equivocal with respect to whether they exhibit a characteristic attributional style. Some research has found that females with bulimia do exhibit a higher overall external locus of control than normal

females (Shatford & Evans, 1986), and attribute positive events to external, global, and unstable factors (Etringer, Altmaier, & Bowers, 1989).

In contrast, in a study of undergraduate women, attributional style was found to be predictive of depressive but not bulimic symptoms (Joiner, Metalsky, & Wonderlich, 1996). Similarly, although females with bulimia have been found to score significantly higher than controls on measures of attributional style, these attitudes disappear once researchers control for scores on measures of depression (Goebel, Spalthoff, Schulze, & Florin, 1990). Likewise, although internal attributional style was associated with the recurrence of binge-eating, further analysis of negative cognitions and guilt were better predictors of binge-eating episodes than stable differences in attributional style (Grillo & Shiffman, 1994). In light of these mixed findings, it remains unclear whether attributional style is related to bulimic symptomatology or to depressive symptoms that tend to co-occur with the disorder. In addition to specific research on attributional style, investigators have suggested that individuals with bulimia nervosa may misinterpret the source of their negative mood states (Christiano & Mizes, 1997; Hawkins & Clement, 1984). Christiano and Mizes have suggested that these individuals may misappraise negative situations by attributing the cause of their negative emotion to weight- and eating-related events. Clearly, if an adolescent girl has difficulty understanding what has caused her negative affect, unrealistic standards for shape and weight may provide her with a viable explanation as well as with a logical way to improve this condition (i.e., lose weight). As a consequence of this misattribution, girls may view patterns of restricting and/or binge-eating and purging as a logical way to improve their dysphoric state. However, given the inconclusive findings and limited

research that has been conducted on attributional style and eating disorders, it is unclear whether deficits in the Interpretation stage of information processing in emotion regulation play a strong role in bulimia nervosa. As such, before informed conjectures can be made on the Interpretation stage of emotion regulation, more research needs to be conducted on how bulimic females interpret the cause of their negative emotions.

Step 3: Goal-setting

Garber and colleagues (1991) suggest two ways in which deficits can occur at the Goal-Setting stage. First, the goal of feeling better would be subject to interference from low motivation and energy to initiate the behavior regulating affect. The authors argue that this problem is likely to influence the affect regulation of depressed individuals. Unless they are experiencing a concurrent depressive episode, the proposal falls short in the case of individuals with bulimia, primarily because the symptom picture of the disorder does not typically include behavioral or motivational deficits, but rather behavioral excesses (i.e., extreme dieting and/or excessive exercise [APA, 1994]). Numerous dieters will attest to the tremendous energy and motivation involved in restricting and exercise behaviors. In addition, Heatherton and Baumeister's (1991) review describes individuals with bulimia as engaging in binge-purge behavior as desperately seeking to escape from negative emotion, a description that is inconsistent with a motivation goal deficit. However, these are only suggestions and are not based on empirical support.

Second, given that individuals with bulimia are unlikely to have a motivational deficit for regulating their affect, if they do harbor deficits at the Goal-Setting stage, it

would seem more likely to be because they hold goals that conflict with the aim of emotion regulation. Feeling bad, for example, might be associated with secondary gain of some sort, such as obtaining sympathy, receiving help, or avoiding conflict or aggression. To better understand whether this explanation is plausible, it is important to explore briefly whether the environment of individuals with bulimia provides positive consequences for the failure to regulate negative mood. In other words, do these girls achieve any positive consequences or are they reinforced for expressing their negative emotions?

Studies of communication and emotional expression in families of eating disordered individuals may shed some light on this question. Unfortunately, this research overwhelmingly suggests that families of women and girls with eating disorders do not encourage emotional expressiveness (Attie & Brooks-Gunn, 1989; Hastings & Kern, 1994; Johnson & Flach, 1985; Ordman & Kirshenbaum, 1986; Shisslak, McKeon, & Crago, 1990; Stern et al., 1989). Specifically, women with bulimia nervosa report low expressiveness within the family (Hastings & Kern, 1994; Johnson & Flach, 1985; Ordman & Kirshenbaum, 1986; Shisslak, McKeon et al., 1990; Stern et al., 1989), as do women with anorexia nervosa (Johnson & Connors, 1987; Stern et al., 1989; Strober, 1981). Both mothers and fathers of females with eating disorders perceived low levels of family emotional expressiveness (Stern et al., 1989). Mothers of adolescent females who scored high on a measure of eating disorders also reported low levels of family expressiveness and communication (Attie & Brooks-Gunn, 1989). In an observational study, emotional communications in these families is typically met with lower levels of

empathy and understanding than in families without a member with an eating disorder (Humphrey, 1986).

Given this atmosphere, it seems reasonable to expect that the expression of negative emotion would not be met with positive consequences at home, and in fact would be more likely to be met with just the opposite type of reaction. Girls may have learned that emotion expression is “bad” so they try every way to dampen these experiences and expressions. As such, these girls may be especially motivated to try to diminish or minimize their negative affect. Despite this hypothesis, no research has been conducted on the goals and expectancies of adolescents with an eating disorder for regulating and expressing their emotions with various socialization figures.

Step 4: Response generation

At the Response Generation stage, an individual attempts to generate concrete responses to achieve his or her goal. As suggested earlier, problems in generating appropriate responses to regulate emotions can result from deficiencies of knowledge or accessing that knowledge. A knowledge deficit is said to occur for those individuals who have never learned successful strategies to regulate their emotions. An accessing problem, on the other hand, takes place in those persons who are unable to access this knowledge because they are in a negative affective state. Research on eating disorders and coping may clarify if either of these are the case for girls with bulimia nervosa.

Problem-focused and support seeking strategies involve active attempts to alter a stressful situation and are associated with positive adaptation (Billings & Moos, 1984; Perlin & Schooler, 1978). From the considerable body of research that has examined

coping strategies in both eating disorder and at-risk samples, studies of global coping abilities have consistently found the use of problem-focused and support seeking strategies to be negatively associated with eating disorder symptomatology (Janzen, Kelly, & Saklofske, 1992; Yager, Rorty, & Rossotto, 1995). One study found bulimic symptomatology to be negatively correlated with self-reported problem-focused strategies among undergraduate women (Janzen et al., 1992). Another study found women with bulimia endorse using planning (problem-focused methods) and active coping methods significantly less than both recovered and nonbulimic women (Yager et al., 1995). Interestingly, these differences remained even after depressive symptoms were controlled (Yager et al., 1995). Women with bulimia also have been found to endorse fewer social support seeking methods than control women in response to stressful situations, differences that remained after both depression and anxiety were controlled (Koo-Loeb, Pedersen, & Girdler, 1998; Soukup, Beiler, & Terrell, 1990). The tendency of women with eating disorders to avoid engaging in problem focused coping or active support seeking methods inhibits their ability to effectively cope with stressful situations.

Contributing to the conceptualization of the negative association between adaptive strategies and disordered eating is the finding that maladaptive coping methods are positively related to various eating disorders, the severity of illness and symptomatology (Fryer, Waller, & Stenfert-Froese, 1997; Hawkins & Clement, 1984; Katzman & Wolchik, 1984; Koo-Loeb et al., 1998; Neckowitz & Morrison, 1991; Shatford & Evans, 1986; Troop, Holbrey, & Treasure, 1998). Individuals with bulimia have been found to rely extensively on a limited number of coping strategies (Hawkins &

Clement, 1984). Both women with anorexia and bulimia nervosa have been found to report more avoidance and maladaptive emotion focused strategies on self-report measures than nonbulimic women (Koo-Loeb et al., 1998; Mizes, 1989; Shatford & Evans; Soukup et al., 1990). They also have been found to use fewer and more passive coping strategies than control women (Katzman & Wolchik, 1984). Using self-report methodology, one study found that women with bulimia report more avoidant coping in both intimate and nonintimate encounters than women who exercised frequently but did not demonstrate a clinical eating disorder (Neckowitz & Morrison, 1991). Given that this study failed to control for level of depression, however, it is unclear whether depression influenced the findings. Another study, using an interview measure, found females with anorexia and bulimia nervosa to be more likely to respond to actual difficult life events with cognitive avoidance and rumination than control females, differences that remained significant after controlling for depression (Troop et al., 1998).

In spite of these findings, there still is some indication that avoidant coping methods are not specific to bulimia, but instead relate to depression. Tobin and Griffing (1995), for example, suggest that avoidant and disengaged coping, as well as the lack of support-seeking and problem-solving methods may be more related to affective symptoms than to bulimia itself. After dividing individuals with bulimia into four subgroups based on level of depression, they found that the groups differed with respect to the use of avoidance and social support, such that the group with the most depression exhibited the highest usage of these strategies. Problem-solving methods, however, did not differ between the groups, suggesting that they are not dependent upon the level of depression. Likewise, in a study of undergraduate females, Paxton and Diggins (1997)

found that avoidant coping did not significantly add to the prediction of binge-eating above the contribution of depression. After controlling for depression, Troop and colleagues (1998) found that differences remained between women with bulimia and control women in their level of cognitive avoidance and rumination.

Given that avoidance strategies have been defined as indirect efforts to reduce tension or avoid unpleasant emotions (Billings & Moos, 1984), eating disorder symptoms themselves can be conceptualized as avoidance behaviors. Not surprisingly, avoidance coping or emotion focused strategies that involve avoiding problems or escaping negative affect have been found to be ineffective in successfully alleviating negative emotional states in the long-term (Christiano & Mizes, 1997). Although occasionally temporarily reducing negative affect, they are thought to ultimately interfere with the processing of stress-relevant information, attention to possible consequences, and planning (Neckowitz & Morrison, 1991). This interference would presumably set the stage for the rapid return of such negative emotion. This negative emotion is likely compounded by the fact that emotional avoidance is associated with poor adjustment, as well as associated with depression and somatic symptoms (Billings & Moos, 1984; Hayes, Wilson, & Strosahl, 1996; Neckowitz & Morrison, 1991).

The relationship between avoidant coping strategies and eating disorders appears to fall on a continuum. The use of these poor quality coping strategies also has been associated with disturbed eating attitudes and behaviors in nonclinical samples. Emotion focused coping has been associated with eating disturbance in adolescent girls (Koff & Sangani, 1997) as well as in college undergraduates (Fryer et al., 1997). Likewise, college females who engaged in binge-eating have been found in laboratory interpersonal

situations to employ more negative coping strategies than those who did not binge-eat (Hansel & Wittrock, 1997). Poor coping strategies found among females at-risk for an eating disorder may point researchers to examine a knowledge deficit. Specifically, in girls with a clinical eating disorder, the symptoms associated with the disorder may interfere with access to appropriate coping strategies. An accessing deficit cannot be ruled out altogether, however. The rigid dichotomous cognitions found at even subclinical levels of disturbed eating may limit access to appropriate coping strategies.

Perhaps a comparison of women with bulimia and those recovered from bulimia can clarify the nature of the Response Generation deficit exhibited. In a study of bulimic, nonbulimic, and recovered bulimic women, Yager and colleagues (1995) found women with active bulimia nervosa were more likely to fixate on and “vent” (misdirect) emotions, and use behavioral disengagement strategies than women who were recovered from bulimia and normal controls. Moreover, the authors found coping strategies among individuals who had recovered from bulimia to be as functional as those with no history of an eating disorder. In support of the access deficit explanation, these studies suggest that it may be possible that individuals with bulimia may have developed knowledge of appropriate coping skills, but the active state of the disorder compromises access to these strategies. Based on the existing literature, the question of knowledge versus access is still difficult to answer definitively. The above study does not exclude the possibility that functional coping strategies were learned during treatment and recovery process. Given that a coping model informs the cognitive-behavioral and interpersonal approach (Christiano & Mizes, 1997) -- the two empirically supported treatments for bulimia

nervosa -- this is a distinct possibility. It is difficult to draw firm conclusions about the origin of the specific deficit (knowledge vs. access) in the response generation stage.

The above research does suggest, however, that females with bulimia differ from normal individuals with regard to their coping strategies. Yet, it is important to note that most of this research has examined their coping in response to stressful situations, rather than to negative affect per se. Only one study is available that examined coping in response to the discrete emotion of guilt. Not surprisingly, the findings of this study parallel those of the stress and coping literature. That is, this study found that women who reported using maladaptive coping, including rumination, self-hatred, and destructive behaviors following the experience of guilt-provoking events had more problems with disordered eating (Bybee, Zeigler, Berliner, & Merisca, 1996). Thus, it is likely that the Response Generation deficit exhibited in response to stress applies to affect regulation as well. In order to understand how adolescent females with bulimia regulate their affect, however, it is important to examine coping in relationship to specific emotions.

Step 5: Response evaluation

The Response Evaluation stage of the information processing model of emotion regulation consists of individuals' assessment of response possibilities with regard to their perceived effectiveness (outcome expectancies), and perceptions of their capability in enacting the response (self-efficacy). The previous discussion aside, it is likely that individuals with bulimia use fewer problem-focused strategies than their normal counterparts, not because they have limited knowledge of, or access to these strategies,

but because of factors in the Response Evaluation stage. That is, they either do not expect these strategies will be successful in modifying their distress and/or they do not view themselves as having the skills required to implement them successfully.

Although no research currently exists regarding answers to this question, informed conjectures can be made from research on the broader subject of emotion and coping in eating disorders. In short, there is some suggestion that the infrequent use of problem-focused strategies in interpersonal situations characteristic of females with bulimia may be attributable to their beliefs regarding negative outcomes associated with the use of these strategies (Mizes, 1989). Though he did not reference specific research, Mizes argued that females with eating disorders believe assertiveness on their part will result in hostility from others. The low levels of emotional expressiveness within families of females with bulimia would support the notion that negative outcomes are a likely outcome when expressing emotions, though these are speculations.

A considerable body of research, however, links a low sense of self-efficacy with the development of eating disorders. The significance of the concept of self-efficacy in relation to eating disorders is illustrated by the inclusion of a dimension of ineffectiveness on the Eating Disorders Inventory (EDI; Garner et al., 1983), and by the consistent link found between eating disorders and low self-esteem (e.g., Bruch, 1973; Crisp, 1980), a construct found to overlap significantly with that of self-efficacy (Stanley & Murphey, 1997).

There is considerable indication that women with eating disorders lack confidence in their abilities to affect an outcome. Research has found differing levels of overall self-efficacy between eating disorder and control groups (Edlund, Halvarsson, Gebre-Medhin,

& Sjoeden, 1999; Etringer et al., 1989; Lyon et al., 1997; Wagner, Halmi, & Maguire, 1987). Women with eating disorders, compared to controls, tend to endorse lower levels of perceived personal control (Etringer et al., 1989), report lower self-efficacy with respect to both social and eating situations, as well as low levels of self-sufficiency (Wagner et al., 1987). Adolescents with anorexia nervosa have been found to differ from age-matched controls on feelings of ineffectiveness (Lyon et al., 1997), and differences in perceptions of ineffectiveness have been found between dieting and nondieting adolescents (Edlund et al., 1999). However, these studies did not control for depressed mood, so it is unclear whether level of depression influenced these findings.

In addition, the level of feelings of ineffectiveness has been shown to vary with the severity and symptoms of illness, and the level of perceived ineffectiveness at pre-treatment is shown to influence treatment outcomes and decrease with treatment. In a study comparing inpatients and outpatients with bulimia nervosa on a number of dimensions, feelings of ineffectiveness and prior hospitalization were found to be the best predictors of hospitalization (White & Litovitz, 1998). Similarly, the behavior of laxative abuse, perhaps the most deleterious form of purging (Tobin et al., 1991), has been associated with significantly higher scores on measures of perceived ineffectiveness (Pryor, Widerman, & McGilley, 1996). In a study of cognitive behavioral treatment, Baell and Wertheim (1992) found that pretreatment levels of perceived ineffectiveness significantly predicted treatment outcome at post-treatment and/or follow-up. Finally, Schneider, O'Leary, and Agras (1988) found that cognitive behavioral treatment for bulimia nervosa influenced improvement of perceived self-efficacy in several domains, including self-efficacy in developing satisfactory social relationships and refraining from

binge-eating in various situations and mood states. One problem, however, is that none of these studies controlled for depressed mood. Because the authors did not control for level of depression, it is difficult to know whether depression influenced these relationships.

In order to understand the particular relationship to treatment and the areas in which feelings of ineffectiveness need to be remediated, some authors have suggested that perceived ineffectiveness should be measured as a specific, rather than a global construct. In a study of patients with bulimia nervosa, Wagner and colleagues (1987) examined global as well as specific domains of ineffectiveness. Overall, they found that these patients not only endorsed global feelings of ineffectiveness, they reported a sense of ineffectiveness in many areas of their lives, including eating behavior, social relationships, personal independence, as well as self-esteem. Consequently, these authors suggest that perceived ineffectiveness is a complex construct referring to a range of behaviors that reflect specific areas of difficulty in the lives of individuals with eating disorders.

Unfortunately, few studies have examined self-efficacy in relationship to the domain of affect regulation. The most relevant body of research is the investigation of self-efficacy in coping with stress or negative situations. Overall, this research suggests that women with bulimia nervosa, as compared to control women, have less faith in their ability to cope with stress or negative situations (Lehman & Rodin, 1986), as well as life tasks (Beiler & Terrell, 1990). They also perceive themselves as less able to use adaptive approaches (Bybee et al., 1996). Moreover, both females with anorexia and bulimia

nervosa have been found to report lower levels of confidence in their ability to solve problems than control females (Beiler & Terrell, 1990).

Thus far, only one study has examined disordered eating and self-efficacy in relation to emotion regulation. Using a sample of female undergraduates, Bybee and colleagues (1996) investigated perceived efficacy specifically in relation to alleviating feelings of guilt. Not surprisingly, they found that perceived ineffectiveness in alleviating guilt in the domains of both eating/exercise and school was associated with disordered eating (Bybee et al., 1996). Once again, because the authors did not control for level of depression, it is difficult to know whether depression influenced this relationship. Nevertheless, evidence from the coping literature suggests that self-efficacy in one's ability to cope with negative situations is clearly involved in bulimia nervosa.

Step 6: Enactment

The final stage of processing in emotion regulation as suggested by Garber and colleagues (1991) is that of Enactment. It is possible that individuals with bulimia simply lack the skills necessary for implementing the affect regulation strategies they select. Although there is no research on the actual performance of affect regulation skills of individuals with bulimia, there is some suggestion that women with bulimia lack social and problem-solving skills integral to emotion management. Women with bulimia have been observed to be less socially competent than their normal counterparts (e.g., Espelage, 1998). Moreover, they tend to report more difficulties engaging in assertive behaviors (McCanne, 1985; Mizes, 1989; Williams, Chamove, & Millar, 1991), despite role-play assessment of assertiveness indicating that women with bulimia exhibit similar

levels of performance as control women (Mizes, 1989). Instead of actually being less able to execute assertive behaviors, findings from assertiveness skills research suggest the problem lies in the perceptions of their ability. However, given that none of these studies controlled for depression, it is unclear whether the perceptions of their ability to enact emotion regulation strategies is a result of depression or bulimia. Although it is possible that individuals with bulimia lack actual Enactment skills, the scarcity of research using direct observation of individuals with bulimia regulating their emotion limits the conclusions that can be drawn regarding the Enactment stage of information processing in bulimia. Thus, it is unclear whether Enactment problems play a role in the disorder.

To summarize, from an information processing perspective, available research suggests that females with bulimia exhibit specific deficits in the following three stages of information processing of emotion regulation: a) Perception, or the ability to perceive and identify emotional states, b) Response Generation, or the capacity to generate adaptive affect regulation strategies, and c) Response Evaluation, or the ability to accurately appraise emotion regulation strategies, particularly with regard to the appraisal of one's ability to produce adaptive strategies (self-efficacy). Although there is some evidence for potential problems at the other stages of processing (i.e., Interpretation), equivocal research findings and confounding variables such as depressive symptomatology limit our understanding of these possibilities. Of course, it must be noted that much of the research reviewed involved self-report methodologies, which is subject to limitations including social desirability, malingering, or other response set biases, and shared method variance (see Anastasi, 1988 for a review). In addition, some of the studies failed to control for depression rendering it difficult to know whether

depression plays a role in these skills. Nevertheless, the findings do suggest viable hypotheses regarding possible areas where problems in emotion regulation may exist in individuals with bulimia nervosa. The more conclusive findings regarding deficits at the Perceptual, Response Generation, and Response Evaluation stage of information processing require additional empirical evaluation to determine the nature of these deficits in female adolescents with bulimia nervosa.

The present study compared adolescent females with bulimia nervosa, those with major depression, and those without a disorder on their a) ability to perceive and identify various emotions, b) knowledge of and access to adaptive emotion regulation strategies, and c) perceived ability to use these skills. Each of these skills have been examined on two levels, globally, and in relation to specific situations thought to be problematic for girls with bulimia, in particular, and adolescent girls, in general. In order to elucidate the emotions and situations that are most relevant to this processing scheme, it is necessary to discuss research regarding specific challenges and emotions that are relevant to the female adolescence period and to disordered eating.

Adolescence

Research from adolescent development suggests that female adolescence is a time replete with psychosocial challenges of both an intrapersonal and interpersonal nature (see Striegel-Moore, 1993 for a review). Some of the normative tasks associated with female adolescent development pose particular challenges to adolescent girls, especially those girls who are not equipped with effective emotion management skills. Challenges especially relevant to female development and eating disorders include, but are not

limited to, the intensification of cultural standards of attractiveness, and the development of increased achievement expectations. Research has linked these issues with the development of eating disorders in adolescence (see Striegel-Moore, 1993 for a review). One issue posed by these findings, however, is why when most adolescent girls encounter these tasks, the majority do not develop an eating disorder? Given that these psychosocial tasks have distinct emotional consequences, the study of how emotion regulation skills interact with these challenges may determine which adolescents in particular develop eating problems. Therefore, these tasks and their relationship to adolescence and disordered eating will be considered briefly.

Cultural standards for beauty

Although prepubertal girls have been found to ascribe to cultural standards of beauty for females (Shapiro, Newcomb, & Loeb, 1997; Thelen, Powell, Lawrence, & Kuhnert, 1992), research suggests that with the onset of adolescence, girls tend to become excessively preoccupied with these concerns (Killen et al., 1992). Not only are adolescent girls aggressively targeted by the media to adopt the thinness ideal (Levine, Smolak, & Hayden, 1994), the physical changes of puberty increase the salience of beauty and thinness for these girls. Striegel-Moore (1993) has suggested that the fat spurt associated with puberty effectively moves girls away from cultural ideals of beauty. Around this time, adolescent girls become highly concerned with their appearance and express awareness of the great value that society places on female physical attractiveness (Crisp & Kalucy, 1974; Levine et al., 1994; Rosenbaum, 1979). Among their appearance concerns, they tend to rank weight as most central (Rosenbaum, 1979). Considering the

emphasis that adolescent girls place on beauty and thinness, it is not surprising that after puberty, body-image satisfaction decreases dramatically among girls; this dissatisfaction tends to persist throughout adolescence (Story et al., 1991).

This rise in appearance concerns and body dissatisfaction is paralleled by an increase in dieting and weight reduction behaviors (Bennett, Spoth, & Borgen, 1991; Killen et al., 1992; Rosen, Silberg, & Gross, 1988; Story et al., 1991). Girls who feel unduly negative about their bodies are even more likely to develop eating problems in the long-term than girls who endorse normative levels of body dissatisfaction (Attie & Brooks-Gunn, 1989). The reliance on fashion magazines for information about beauty has been found to be a powerful predictor of investment in thinness, dieting behavior, and disturbed eating (Levine et al., 1994). Likewise, the high prevalence of eating disorders among dancers and aerobic instructors -- subcultures emphasizing the importance of body-shape, slenderness, and attractiveness for females-- suggest that women and girls who are exposed to high levels of these cultural beliefs are at an increased risk for eating problems (Brooks-Gunn, Attie, Burrow, Rosso, & Warren, 1989; Brooks-Gunn & Warren, 1985; Hamilton, Brooks-Gunn, & Warren, 1985).

Unfortunately much of the discussion surrounding eating disorders fails to progress past this first point. These findings suggest that appearance or body-related concerns are both a risk factor in the development of eating problems, and at the same time constitute a normative, recurrent, and emotionally charged event in the lives of adolescent girls. Successfully mastering these situations would seem to require effective emotion regulation skills. Given that only a minority of adolescents develop an eating disorder, it may be that those girls who have poor quality emotion regulation abilities

may be unprepared to navigate these situations, and become potentially vulnerable to using eating disorder behaviors to cope with these challenges.

Achievement

The transition to adolescence typically involves an increased focus on achievement concerns for both girls and boys. The transition to middle school from elementary school marks the beginning of increased demands to achieve in academics, as well as in social spheres, sports, or other extracurricular activities, demands which tend to persist throughout adolescence. This period also coincides with a greater emphasis on evaluation and social comparison (Feldlaufer, Midgley, & Eccles, 1988), and signals an intensification of gender-related socialization by parents, peers, and teachers (Hill & Lynch, 1983). For girls, this transition to middle school often is accompanied by a decline in academic performance, extracurricular activities, and a marked decrease in self-esteem (e.g., Simmons, Burgeson, Carlton-Ford, & Blyth, 1987).

Yet, the value of achievement for females is only intensifying as evidenced by a new sex-role stereotype that has emerged, the “superwoman ideal” (Striegel-Moore, 1993), emphasizing the pursuit of excellence across all areas of life, including beauty, relationships, career, family, athletics, and school. According to Striegel-Moore, women are told that they can have it all without sacrificing performance in other areas.

Not only are these unrealistic attitudes pervasive among many adolescent girls, they have been observed to be especially prevalent among females with eating disorders, and those at-risk for an eating disorder (Burkle et al., 1999; Levine & Smolak, 1992; Steiner-Adair, 1986; Striegel-Moore, Silberstein, French, & Rodin, 1986). In clinical

descriptions, females with anorexia have been characterized as perfectionists and overachievers. The popular media has portrayed the female with anorexia nervosa as “the best little girl in the world” (Levenkron, 1978). Moreover, research suggests a link between the adoption of the “superwoman” role and eating disorders (Levine & Smolak, 1992; Steiner-Adair, 1986; Thornton, Leo, & Alberg, 1991). Girls who internalize unrealistic expectations for achievement across many areas of their life were found to score higher on a measure of eating disorders than those who set more realistic goals for themselves (Steiner-Adair, 1986). Similarly, female college students who considered many roles central to their sense of self also scored higher on a measure of disordered eating than those who endorsed fewer roles (Thornton et al., 1991).

The subject of the perfect woman and achievement in eating disorders has begun to be viewed in sharper focus. In their study of undergraduate females, Burkle, Rykman, Gold, Thornton, and Audesse (1999) suggest that it is not a need to achieve per se that is associated with disordered eating, but rather a specific form of competitive attitude. They found that hypercompetitiveness, or an attitude that signals the need to be successful at all costs, was strongly related to disordered eating. Clearly, such unrealistic goals harbor emotional consequences for young girls; one cannot possibly live up to these expectations and more likely than not, girls tend to fall short of these unrealistic goals. One can imagine how deficits in emotion regulation skills may influence these emotional consequences to become even more frequent, enduring, and disruptive to the individual.

To summarize briefly, it seems that appearance concerns and achievement worries constitute normative, recurrent, and emotionally charged events in the lives of adolescent girls. In addition, these issues have been observed to be associated with eating disorders

and eating disorder risk. Due to the fact that only a minority of adolescents develop an eating disorder, research must consider the abilities of these girls, or lack thereof, that leave them unprepared to navigate these situations. Given the importance of emotion in promoting adaptation to life's challenges (Campos, Mumme, Kermoian, & Campos, 1994), emotion regulation skills may represent a crucial factor in the development and maintenance of eating disorders.

Emotions

According to the functionalist approach, each discrete emotion must be considered in relationship to contextual demands, as well as in relation to a person's goals (Campos, Campos, & Barrett, 1989). As such, emotion regulation will likely vary according to the type of emotion experienced. Likewise, the pattern of emotion regulation skills in psychopathology is most relevant when examined in relation to specific discrete negative emotions. Research examining the information processing model to specific emotions is likely to obtain different findings from those applying the model to global states of negative mood. For example, an adolescent who engages in substance abuse may also have difficulties identifying negative emotions (Wiederman & Pryor, 1997). However, an adolescent with bulimia nervosa may have a specific difficulty recognizing anger. A substance-abusing youth, on the other hand, may be accomplished at identifying anger yet display difficulties recognizing sadness, shame, or guilt. As such, in order to fully understand the deficits in emotion regulation, we must begin by specifying the discrete emotions to which these processing deficits apply.

When investigating emotion regulation processing in a specific psychological disorder, researchers typically select an emotion that appears most relevant to that particular disorder; typically, those emotions that appear intense or diminished in the clinical picture. Researchers examining emotion regulation in behavioral disturbances, for example, may begin by investigating the regulation of anger. Those studying depression, may start with the regulation of sadness. From there, other emotions can be examined. Regardless of which emotion is chosen, however, the key focus is on the individual emotion, in addition to the global mood state (i.e., feeling mad versus feeling upset).

For most forms of psychopathology, the task of selecting the most salient emotions to study is relatively simple; those that are either heightened or deficient in the symptom profile. Identifying specific emotions relevant to bulimia nervosa is more challenging, however. As stated earlier, the disorder manifests itself primarily cognitively and behaviorally, resulting in a lack of research examining emotional components. Nevertheless, research on the emotional experience of both female adolescents and females with an eating disorder may suggest some viable hypotheses regarding the specific emotions that contribute to emotion dysregulation in adolescent bulimia nervosa.

It is useful first to examine the emotional experience of adolescence. On a global level, research on adolescence and emotion has suggested that adolescents experience more frequent negative affect than children (Larson & Lampman-Petratis, 1989; Rutter, 1980), and that the higher rates of daily distress are partly attributable to the greater number of negative life events encountered in adolescence than childhood (Larson &

Ham, 1993). Moreover, this research suggests that during adolescence, girls report experiencing more negative affect than boys (Brooks-Gunn & Warren, 1989). One problem with this research is that the studies have tended to focus on broad categories of emotions (e.g., distress vs. pleasure, negative vs. positive affect), making it difficult to know which emotions are particularly salient to this developmental period.

Only a few studies have focused on discrete emotions relevant to adolescence. Most of these studies find gender differences in specific negative emotions experienced or expressed during this time. Using observational methods, Gralinski, Safyer, Hauser, and Allen (1995) found that girls expressed both anger and sadness significantly more than boys. In light of research on sex differences, these findings regarding the expression of anger is somewhat surprising. One possible contributor to these findings is half of the sample was comprised of psychiatric inpatients.

A larger body of research suggests that girls struggle with the inhibition of anger (Brody, 1985). In her review of sex differences in emotional experience and expression, Brody has noted that data consistently indicate that females report themselves to be more sad and fearful, but less angry than males. Zeman and Shipman (1996) found that girls reported feeling better if they expressed feelings of sadness and pain compared to boys, and were more apt to endorse that "one should always show feelings." Interestingly, these authors found no differences for the expression of anger. These findings are consonant with the female sex-role socialization that encourages the expression of sadness and fear, but is less tolerant of the expression of anger.

Wintre, Polivy, and Murry (1990) provide support for gender differences in the intensity of emotions experienced in adolescence. After examining the emotional

responses of children and adolescents using hypothetical situations in which multiple emotions could be experienced, they found that sex differences in emotion experience occurred only during adolescence. At this time, males tended to endorse more varied emotional experiences, whereas females endorsed fewer but more intense emotional experiences. Conclusions from this limited research depict adolescence as a time of increased negative emotional experience for both genders and markedly so for females. During adolescence, girls are more likely to experience discrete emotions of sadness and fear, and are less likely to express anger than their male counterparts.

Similar to the research on adolescent emotional experience, the research on eating disorders has primarily focused on global negative mood states as opposed to discrete emotions. Consistent with the research on female adolescence in general, the few investigations that have focused on discrete emotional states in eating disorders suggest specific regulation deficits in response to the emotions of sadness, fear, and anger. Breaux and Moreno (1994), for example, found that both females with anorexia and those with bulimia scored significantly higher than controls on measures of depression, anxiety, and anger, and Kenardy and colleagues (1996) found that nonpurging binge-eaters rated emotions of sadness, anger, and fear as more aversive than guilt.

In addition to emotions of sadness and worry, associations have been found between disordered eating and anger (Allen, Scannel, & Turner, 1998; Weiss & Ebert, 1983). Interestingly, Allen and colleagues (1998) found differences between females with bulimia and comparison females on covert, but not overt hostility. Congruent with the Perception and the Response Evaluation stage of the information processing model, they also found a compelling association between covert hostility and both interoceptive

awareness and ineffectiveness. Fava, Rappe, West, and Herzog (1995) found that anger attacks, or sudden intense spells of anger accompanied by a surge in autonomic arousal, behavioral outbursts, and feelings of being out of control, were significantly more prevalent in individuals with bulimia nervosa than a matched control group. In a study of emotional risk factors of eating disorders in a community sample of middle-school age girls, Sim, Zeman, and Nesi (2000a) found that the predominant emotions experienced by adolescent girls that predicted scores on the Eating Attitudes Test were fear, embarrassment, and self-directed hostility. Of those emotions experienced as part of specific conflictual situations related to eating and appearance issues, only anger was found to predict disordered eating (embarrassment and fear did not). In a related study, the researchers found that the dysregulated expression of both anger and fear predicted disordered eating in adolescent girls (Sim, Zeman, & Nesi, 2000b). In light of these findings, these authors have suggested that anger and fear appear to be particularly disruptive to attempts at effective management for girls at-risk for eating disorders.

In sum, it appears that adolescence is a time of more frequent, more intense, negative emotions, particularly for girls. Consistent with female sex-role socialization, girls appear to be more likely to express sadness, and possibly less likely to express anger in adolescence. Sadness and anger also tend to be those emotions most frequently associated with eating disorders. As the experience of negative emotions becomes increasingly frequent during adolescence, attempts at regulation appear to become more challenging. Given that the emotions of sadness and anger are salient experiences for adolescent girls in general, and for females with bulimia nervosa in particular, these

emotions will be considered in the information processing model of emotion regulation in bulimia nervosa.

The Study

The information processing model of emotion regulation suggests that emotion regulation is a dynamic and multifaceted process involving a succession of skills (Garber et al., 1991). According to this approach, skills at various steps of processing contribute to both emotion regulation and dysregulation. Although emotion regulation has been implicated in eating disorders such as bulimia nervosa, most studies view emotion regulation as a discrete phenomenon rather than as a process. This tendency is evident through the common perception of binge-eating as an emotion regulation process, rather than an outcome of this process or as a marker of emotion dysregulation. That is, although binge-eating may be used as a strategy to regulate negative emotion experiences, there are many other aspects of deficient emotional processes that could promote the use of this ineffective coping strategy. Most studies neglect an examination of these emotion processing skills, and the ways in which they result in emotion dysregulation and binge-eating.

Using the information processing model as a framework for this examination, the present study investigated certain emotion regulation skills thought to be problematic in adolescents with bulimia nervosa. This study compared adolescent females with bulimia nervosa to both depressed and normal adolescent females on three steps of the Information Processing model. Females were selected for this study because eating disorders occur almost exclusively among females (Fairburn & Beglin, 1990). This study

examined skills at the Perceptual (the ability to identify emotion), Response Generation (knowledge of and access to regulation strategies), and Response Evaluation (perceived outcome and self-efficacy) phase of processing. Moreover, these skills were measured in response to global situations and negative mood, as well as in response to specific, emotionally-charged situations. These situations focused on the two issues relevant to the challenges and goals of adolescent girls, appearance and achievement. In addition, global negative mood states, as well as responses to the specific emotions of sadness and anger were examined. By comparing girls with bulimia to normal adolescents, it was hoped to determine whether girls with bulimia nervosa do in fact differ from normal adolescents on skills at various levels of emotion regulation processing. Likewise, it was hoped to determine whether these differences are specific to bulimia or relate instead to psychopathology in general.

The decision to include girls with depression as a psychiatric control group was based on the conceptual similarities shared by problems of eating and depression. Specifically, both disorders are thought to be affected by problems relevant to gender and adolescence. That is, there is a significant rise in the prevalence of both disorders in females during adolescence compared to childhood. Both disorders are found to be affected by the transition to adolescence. In addition to age and gender, Brooks-Gunn and Attie (1997) suggest other similarities between depression and eating disorders. Both disorders have a biological component, involve problems in the family system, and may be due in part to stressful life events. According to Brooks-Gunn and Attie, puberty is thought to be implicated in the development of both disorders, although it is unclear whether it is the social or biological aspects of puberty that have greater importance.

Both disorders are also thought to involve the dysregulation of mood with depression most likely involving the dysregulation of depressive affect (Garber et al., 1991). With so many similarities between depression and eating disorders, it is important to identify factors that are unique to each disorder or those that they share. Similarities in emotion regulation skills may help to understand basic features common to various forms of psychopathology in females. Differences, however, may represent potential risk factors that may discriminate between the developmental pathways of the two disorders.

With regard to comparing the psychiatric groups, differences were not expected to surface between depression and bulimia at every stage of processing. Rather, it was thought that the total pattern of emotion regulation skills would differ between these groups, because similarities have been found to exist among various disorders at specific stages of processing. That is, youth who engage in substance abuse have also been found to exhibit interoceptive deficits (Wiederman & Pryor, 1997), whereas children with depression have been found to exhibit difficulties at the Response Generation phase (Garber et al., 1991; Garber, Braafladt, & Weiss, 1995). Further, at the Interpretation stage such depressed children are likely to attribute negative events to internal, stable, and global factors (Garber et al., 1991; Garber et al., 1995).

Emotion regulation processing skills and the consequent emotional experience were measured by both interview and self-report methodology. Ability to perceive emotion (Perception) was measured by self-report (questionnaire and interview measures), as well as by objective measures (latencies). Specifically, girls were asked to describe situations in which they have felt mild and high levels of negative emotion (e.g., "Tell me about a time when you felt [a little / really] bad"). After describing the

scenario, respondents were asked which emotion they felt in that situation. From their response, their ability to identify emotions was assessed by 1) measuring the latency of responses to these questions compared to a baseline response latency, and by 2) coding the quality of the emotion labels in their response. Emotion perception was also measured by having participants describe the particular emotion (s) portrayed in various hypothetical situations. To standardize the particular emotional experience depicted in these situations, pilot testing was conducted (70% of pilot participants agreed on the predominant emotion elicited by the situation).

Response Generation was assessed by questionnaire, as well as by interview measures. After being asked to describe a situation in which they felt a negative emotion, girls were asked to respond to several questions assessing their self-reported access to and knowledge of regulation strategies during self-generated scenarios. In response to hypothetical scenarios relating to achievement and appearance, similar questions assessing both knowledge and access to regulation strategies were asked.

Response Evaluation was also assessed in relation to self-generated negative emotion situations, as well as in response to hypothetical vignettes. Specifically, girls were asked how effective they thought that their chosen strategy (was / would be) in helping them feel better, and secondly, how capable they feel they (were / would be) in implementing such strategies. These questions were asked in response to both actual and ideal coping responses.

With regard to emotional experience associated with regulation, access to the full range of emotions has long been considered a component of healthy emotion regulation (Cole et al., 1994). As such, the emotions experienced in both day-to-day and situation-

specific emotional experience were measured. Emotional experience was assessed by self-report questionnaires, as well as by interview measures, with girls being asked how they felt in self-generated negative situations, as well as in response to hypothetical situations.

Hypotheses

The following hypotheses were based on the information processing model and the empirical research base discussed previously. 1) *Perception*: a) Adolescent females with bulimia nervosa were expected to endorse more difficulty identifying emotional states in their daily life than both depressed and normal adolescents, as demonstrated by self-report and by significantly longer response latencies accessing emotional states in response to self-generated negative emotionally provocative situations. b) Adolescent females with bulimia nervosa were predicted to have more difficulty identifying their emotions in response to hypothetical situations relating to appearance and achievement than both the depressed and normal adolescents.

2) *Response Generation*: a) Adolescents diagnosed with bulimia, as compared to normal youth, were anticipated to endorse the use of less effective emotion regulation strategies in response to self-generated, emotionally charged situations. However, given findings that depressed individuals also have deficits at the Response Generation stage of processing, no differences were expected between the bulimic and the depressed females on responses to self-generated situations. b) Adolescents with bulimia were expected to endorse binge-eating and dieting more than the other groups as a means of coping. Given that skills at the Response Generation phase are contingent upon processing at a previous

phase, c) adolescents with bulimia were expected to generate poorer regulation strategies in response to situations that pertain to appearance and achievement than both the normal and depressed adolescents on the labeled conditions. Because the Response Generation of adolescents with depression was not expected to be compromised by a labeling deficit, d) differences were expected between adolescents with bulimia and those with depression only on the unlabeled conditions. Finally, in both conditions, e) adolescents with bulimia were expected to report the use of binge-eating and dieting strategies more than the other two groups.

In order to determine whether the deficits at the Response Generation phase are knowledge- or access-based, discrepancies between effective responses between the actual and ideal responses were examined in relation to hypothetical situations relating to appearance and achievement. However, given the mixed findings in the eating disorders and coping literature relating to a knowledge vs. an accessing deficit, specific hypotheses for the bulimia group could not be put forth. In light of findings that support a knowledge deficit and eliminate an accessing problem for children with depression (Garber et al., 1991), f) adolescents with depression and their normal counterparts were not expected to differ on discrepancies between ideal and actual responses for regulating their negative emotions. However, g) individuals with depression were hypothesized to produce less effective strategies on both the ideal and actual questions as compared to normal adolescents.

3) *Response Evaluation*: a) Girls diagnosed with bulimia nervosa-- in response to self-generated negative situations and hypothetical situations relating to appearance and achievement -- were expected to evaluate their own ability to control their emotion as less

effective than would normal adolescent girls. Considering Garber and colleagues' (1991) findings that depressed children evaluated their own strategies as generally less effective, b) no differences were expected between girls with bulimia and those with depression on self-efficacy in response to these self-generated situations.

Given the lack of research on the outcomes expected by individuals with bulimia regarding the use of various strategies to regulate their affect, the examination of outcome expectancies for affect regulation strategies among adolescents with bulimia were exploratory, and no hypotheses were offered. It was expected that c) girls with bulimia would rate the use of dieting and binge-eating strategies as significantly more effective than both the control groups. In light of research indicating children with depression have a specific outcome expectancy deficit (Garber et al., 1991), d) girls with depression were predicted to rate affect regulation strategies as less effective than normal adolescents.

Chapter 2

METHODS

Participants

Sixteen adolescent females with a DSM-IV diagnosis of Bulimia Nervosa between 12 and 19 years of age were recruited from two eating disorder treatment programs in the Midwest. Sixteen adolescent females with a DSM-IV Diagnosis of Major Depression, Depression NOS, or Dysthymia were recruited from a child and adolescent psychology treatment program in a medical center in the Midwest. Sixteen girls who did not exhibit clinical symptoms associated with an eating disorder or depression were recruited from the community. Only girls were selected for this study because eating disorders occur almost exclusively among females (Fairburn & Beglin, 1990).

Recruitment

Efforts to recruit adolescents with bulimia and adolescents with depression involved contacting parents or guardians upon intake at the site of their treatment program. Participants in psychiatric groups were interviewed shortly after beginning treatment. Girls in the non-disordered control group were recruited through an advertisement posted in a local newspaper. Interested families telephoned the principal investigator who described the study and participant involvement. Girls with depression and those without a diagnosis were matched to the socioeconomic status category of the bulimia group, child age (within 6 months), and race. Adolescents with a primary

diagnosis of depression who had a secondary DSM-IV diagnosis of an eating disorder other than bulimia nervosa were excluded from this study. However, because of the high rate of depression in bulimic adolescents, girls diagnosed with bulimia nervosa who scored high on a measure of depression were not excluded from this study. Girls who had a history of depression or eating disorders, and/or who fell outside the normal range on the depression or eating disorder measure were excluded from the normal control group.

Participant Characteristics

Due to the preponderance of Caucasian adolescents diagnosed with eating disorders (Silber, 1986), all the participants in the sample were Caucasian. The average age of participants was 16.9 years of age, and the average level of academic achievement was the end of the tenth grade year. Overall, girls fell in the upper-middle range of social class. Please see Table 2.1 for means and standard deviations.

Table 2.1

Means and Standard Deviations for Matching Criteria and Participant Characteristics

	Group		
	Bulimia Nervosa	Depressed	No Diagnosis
N	16	16	16
Age (in months)	204.18 (19.11)	201.44 (18.36)	205.75 (20.93)
Grade	10.75 (1.44)	10.56 (1.26)	11.25 (1.48)
SES	3.69 (.79)	3.69 (1.08)	4.06 (.85)
WASI T-Scores (Vocab Subtest)	51.81 (5.70)	51.87 (7.10)	54.06 (4.40)
BDI	30.19 (14.56) _a	26.00 (8.39) _a	3.50 (3.22) _b
EAT	45.38 (10.37) _a	7.63 (5.80) _a	2.88 (2.22) _b

Note. Means are presented followed by standard deviations in parentheses.

Means in the same row that share the same subscript are not significantly different at $p < .05$.

Girls with bulimia were diagnosed by the referring multi-disciplinary clinical team (psychiatrist, psychologist, social worker, and nutritionist). Diagnoses were made with the assistance of information obtained through clinical interview with the patient and the patient's family, and self-report instruments (EDI-2; EAT-26). Girls with depression were diagnosed by the referring clinician. Diagnoses of the girls in the depressed group were validated by the K-SADS P/L (see measures). According to the medical chart, 31% of girls in the bulimia group had the following secondary DSM-IV diagnoses: Social Phobia ($n = 1$), Panic Disorder ($n = 1$) Major Depression, ($n = 2$) and Depressive Disorder, not otherwise specified ($n = 1$). All of the girls were being treated with psychotherapy. Seventy-five percent of girls in the bulimia group were treated with an

antidepressant medication in addition to psychotherapy. Within this group, the majority were treated on an outpatient basis (81.2%). The remaining were treated in the context of a partial-hospital program.

Of the girls in the depression group, 6 (37.5%) had a DSM-IV diagnosis of Major Depression, 5 (31%) had a diagnosis of Depressive Disorder, not otherwise specified, and 5 (31%) had a diagnosis of Dysthymia. Because the girls in the depressed group were referred and diagnosed by several clinicians, introducing variability into the diagnosis, primary diagnosis was determined by the K-SADS interview. Percent agreement between clinician and diagnostic interview was determined to be .65. Five of these girls had a secondary diagnosis, including generalized anxiety disorder ($n = 2$), panic disorder ($n = 1$), attention deficit disorder ($n = 1$), and conduct disorder ($n = 1$). At the time of study participation, all of the girls were receiving psychotherapy with 50% of them receiving an antidepressant medication. Within the depressed group, 31.2% were in the process of being treated in the context of a partial hospital program, whereas 68.8% of these girls were treated on an outpatient basis.

Measures

Eating disorders

The Eating Attitudes Test-26 (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982) was used as a screening measure to assess unhealthy eating behaviors and attitudes regarding weight and shape. The EAT-26 is an abbreviated version of the 40-item Eating Attitudes Test (EAT; Garner & Garfinkel, 1979; Garner et al., 1982). The total score provides an overall measure of disturbed eating attitudes and beliefs. Each item on the EAT-26 requires that participants rate how much each item describes themselves on a 6-point Likert scale ($1 =$ never, $6 =$ always) with a clinical cutoff of 20. Factor analysis yielded three factors. The first factor, Diet, taps the extreme avoidance of fattening foods and a preoccupation with a thin body shape. The second factor, Bulimia, reflects

behaviors such as bingeing and purging. The third factor, Oral Control regards the self-control of eating and the perceived social pressure to be thin.

The EAT-26 has good internal consistency with Cronbach's alphas ranging from .79 to .94 (Garner et al., 1982) and good test-retest reliability over an 8-week period ($r = .88$). Construct validity has been supported using both adolescent and adult samples (Garner et al., 1982; Gross, Rosen, Leitenberg, & Wilmuth, 1986; Kowalski et al., 1992; Mann et al., 1985). Specifically, the EAT-26 has been shown to be significantly correlated with the eating disorder subscales of the Eating Disorder Inventory (EDI, Garner et al., 1983), a standardized interview of eating disorder pathology, and the Body Dissatisfaction Scale (BDS; Bercheid, Walster, & Hohnstedt, 1973). The EAT-26 has been validated with anorectic patients, and has been used to identify eating disturbances in adolescent and adult non-clinical samples (Button & Whitehouse, 1981; Thompson & Schwartz, 1982; Williams, Shaefer, Shisslak, Gronwaldt, & Comerchi, 1986).

Discriminant validity indicates no relationship to personality and depression measures (Garner et al., 1984; Garner & Garfinkel, 1979), and finds the EAT-26 distinguishes females with bulimia nervosa with from controls participants (Gross et al., 1986).

Depression

The *Beck Depression Inventory - Second Edition* (BDI-2; Beck, 1997) was administered as a screening measure to assess depressive symptomatology. The BDI-2 is a 21-item questionnaire that measures severity of somatic, affective, and cognitive features of depression in adolescents and adults. Each item includes three statements (scored 0, 1, 2) in which higher scores indicate increased severity of the symptom. Due to a request by one of the Institutional Review Boards who approved the study, item 21, "Loss of Interest in Sex," was removed from the inventory. The BDI-2 has been extensively validated using both psychiatric and nonpsychiatric adolescent populations (e.g., Bennett et al., 1997; Steer, Kumar, Ranieri, & Beck, 1998). The BDI-2 has demonstrated strong internal consistency and test-retest reliability (e.g., Steer et al., 1997).

Verbal intellectual abilities

The *Vocabulary subtest of the Wechsler Abbreviated Scale of Intelligence* (WASI; Wechsler, 1999) was administered in order to provide an estimate of the adolescents' overall verbal intellectual functioning. This measure was included to permit consideration of the potential influence of overall verbal expressive ability when interpreting group differences in affect management skills. The WASI was selected because it permitted evaluation of the entire range of ages considered in this study (age 12 to 19). The Vocabulary subtest of this test was used because research demonstrates that this subtest has high reliability, and provides the best measure of the general intelligence factor of the entire scale (62% of the variance may be attributed to g) (Sattler, 1992). Similarly, the Vocabulary subtest demonstrates the highest correlation with the Full Scale IQ score of any subtest on the WASI.

Diagnostic interview measure

The Schedule for Affective Disorders and Schizophrenia for School-Age Children - Present State (K-SADS-P/L; Kaufman, Birmaher, Brent, Rao, & Ryan, 1995) is a semi-structured interview that provides categorical information on lifetime and current diagnoses with global and diagnosis specific impairment ratings. This interview was only administered to the girls in the depression group only, because the depressed adolescents were referred by a number of clinicians, introducing variability in diagnosis. As such, this interview was employed to arrive at a diagnosis of the participants in the depression group that is independent of the diagnosis obtained in the medical setting. Although the format of the interview includes both parent and child, given the more advanced verbal abilities of adolescents as compared to children, the interview was conducted without the parent. The K-SADS-P/L is an updated version of the original K-SADS interview schedule created by Puig-Antich and Chambers (1978). In addition to establishing current and lifetime diagnostic status, it generates data on episode duration, age of onset, and syndrome specific impairment. The K-SADS-P/L uses a modular

interviewing technique based on an 82-symptom Screen Interview. This interview rates key symptoms for current and past episodes in 20 different diagnostic areas. A negative screening allows the interviewer to skip the remaining nonsignificant symptoms, shortening administration time. The diagnostic coverage of the K-SADS includes affective disorders, anxiety disorders, behavioral disturbances, eating disorders, psychoses, tic disorders, substance abuse, encopresis, and enuresis. This subscale has good interrater reliability with Kappa's ranging from .80 for ADHD to 1.0 for Major Depression (Ambrosini, 2000). In addition, this measure demonstrates good convergent validity with Cronbach's alphas ranging from .82 for the Hamilton Depression Rating Scale, to .90 with the Beck Depression Inventory (Ambrosini, 2000). For adolescents, the interview is very sensitive in identifying Major Depressive Disorder, is specific in excluding psychiatric controls without a diagnosis of depression, and significantly differentiates between MDD and dysthymic disorder (Ambrosini, 2000). Good predictive validity of K-SADS diagnoses has been found with follow-up studies of adolescents with depression, demonstrating that adolescent unipolar MDD diagnosed with the K-SADS predicted continued risk for recurrence of an affective disorder (Lewinson, Rhode, Klein, & Seeley, 1999; Rao, Ryan, & Birmaher, 1995).

Social status measure

The *Hollingshead Four Factor Index of Social Status* (Hollingshead, 1975) was used to code participants' responses to demographic questions on the General Information Sheet (See Appendix A), including: Who lives with you (what adults)? What does (do) your parent (s) do for a living? What is the highest level of education your parent (s) attained? With this index, SES can be computed using a range of computed scores (i.e., from low of eight to a high of 66, with higher scores indicating higher SES level) or using five social status categories (i.e., from 1 to 5, with higher numbers indicating higher SES level). The Hollingshead has been shown to have good validity, with high correlations to methods of estimating SES on data specific to individuals (Spearman's correlation

coefficient ranges between .60 and .90) (Deonandan, Campbell, Ostbye, Tummon, & Robertson, 2000).

Emotion interview measures

The *Access to Emotion Interview* (AEI; Sim & Zeman, unpublished measure) assesses an adolescent's ability to identify and cope with emotions associated with self-generated negative situations that vary in emotional intensity (e.g., low and high intensity). The AEI is patterned after measures used in past research (Emotion Behavior Interview; Penza, 1999). The AEI was included to determine adolescents' level of difficulty identifying their emotions within the context of situations they have selected as being personally relevant, thus increasing external validity. In addition, it was used to measure their emotional experience and coping strategies (including the tendency to use dieting and binge-eating to regulate affect), as well as their self-efficacy of coping in these personally relevant emotional situations.

The girls were shown an "emotion thermometer," a 10-point analogue scale in the shape of a thermometer that was used to help define low- and high- intensity emotional arousal. The thermometer represents a range of intensity levels displayed on a 10-point Likert scale from 1 = very mild to 10 = very intense. Girls were familiarized with the thermometer by descriptions of the anchors. For example, an intensity rating of 8, 9, or 10 on the thermometer would represent a highly intense emotional experience, whereas a 1, 2, or 3 would represent a low intensity emotional experience.

The interview was audiotaped. Following a series of questions to gain rapport, girls were asked to think about a time when they felt high levels of global negative emotion -- intensity of 8 to 10 on the scale (e.g., "tell me about a time when you felt really bad"). In addition, they were asked to think about an episode when they felt a low intensity level of global negative emotion -- 1 to 3 on the scale (e.g., tell me about a time when you felt a little bad). Intensity levels were presented in random order across participants. After the girls thought of the experience, the research assistant asked them

to describe the situation. Girls were then asked a series of questions about the situation to measure their baseline latency of response (e.g., "Where were you when this happened?" "Who was with you when this happened?" "What were you thinking when this happened?") There was no time limit to their response; however, if girls did not respond to the research assistant's request in 30 seconds, they were given a prompt (e.g., "Tell me what happened when you felt really bad"). After their description, the girls were asked to rate the specific intensity with which they felt the emotional arousal. If their intensity rating met the criteria (low intensity stories = 1 to 3 on the scale; high intensity stories = 8 to 10) the interview could proceed. If it did not meet the criteria they were asked to think of another situation that met the intensity criteria.

To assess 1) emotion perception, girls were asked what basic emotion(s) they felt. The latency of the girls' response to this question was measured and compared to a baseline average latency of response. Also, emotion identification was assessed through the content of emotion words in girls' account of the event. The research assistant then asked the girls a series of open- and closed-ended questions that assessed: 2) actual emotion coping a) "How did you make yourself feel better?"; 3) self-efficacy/control a) "How much do you think you could have controlled how much emotion you felt in the situation?" (1 = not at all, 2 = a little bit, 3 = some, 4 = a lot); 4) outcome expectancy a) "How much did it work to help yourself feel better?" (1 = not at all, 2 = a little bit, 3 = some, 4 = a lot); 5) ideal emotion coping "If you could do things differently to make yourself feel better in that situation, what would you have done?" 6) The use of binge-eating/dieting to cope a) "Did you 'pig out' (eat a lot) /decide to go on a diet to make you feel better in this situation?" (0 = no, 1 = yes) 7) Outcome expectancy for binge-eating/dieting a) "How much would it work to make you feel better?" (1 = not at all, 2 = a little bit, 3 = some, 4 = a lot).

Some of these questions have been used in previous research investigating emotion management behaviors in school-age children (Zeman & Garber, 1996; Zeman

& Shipman, 1996). After the AEI was completed, the audiotape was turned off and not used for the remainder of the session. The open-ended coping questions (2 and 3) were coded for the level of activity of emotion regulation strategy (e.g., active vs. not active coping strategy), and the description of the emotional event was coded for content (see Appendix A). Specifically, it was coded for a) the frequency of emotion words (i.e., mad, sad, afraid, ashamed.), b) words that connote an indistinct emotional state (i.e., stomach-ache, bad), c) cognitions/beliefs (i.e., "I felt that it was unfair"), and e) the content of the negative emotional event (i.e., interpersonal conflict, loss, etc.). Please see Appendix A for a complete description of the coding system that was used.

Emotion Identification and Coping Interview (Sim & Zeman, unpublished measure) contains six sets of three vignettes that are presented to the participants with a short list of questions in order to assess two aspects of emotion regulation processing. First, this interview was used to assess the presence of deficiencies in girls' emotion identification. Second, it was used to assess whether Response Generation and Evaluation vary under different emotion identification demands (low and high). Specifically, the interview examined whether coping (knowledge and access) and one's perception of self-efficacy differ in situations in which the emotion is clearly identified for the participant (labeled), and in which the emotion is not identified for the participant (unlabeled). These vignettes were modeled after those used in previous research (Emotion Appearance and Coping Interview; Sim, Zeman, & Nesin, 1999). There were two similarly themed stories that portrayed situations in which pilot testing revealed that sadness or anger is typically experienced. At the end of these stories, the specific emotion was labeled for them to ensure that the intended emotion is identified by the girls (e.g., "this makes you feel sad/mad"). For each set of these emotion stories (sadness and anger), there was a set of parallel stories in which the emotion elicited is not labeled for the girls at the end of the vignette. Sadness and anger were chosen as the basic emotions for these vignettes because research suggests there are strong links between eating

disorders and high levels of anger (Breux & Moreno, 1994), and depression (e.g., Herzog, 1982; Hudson & Pope, 1987; Pope & Hudson, 1989).

Vignettes were designed to consist of situations that are particularly relevant to female adolescent development, including achievement- and appearance-related events. Each of these themes involves the same type of social context and implied responsibility for the event. That is, all vignettes take place in a social context and the protagonists were not responsible for the emotion eliciting event. Vignettes were pilot tested with adolescents to ensure that they elicited the designated emotions (anger, sadness) for each of the vignettes. Stories were chosen in which 70% or more of the girls in the pilot study endorsed the emotion of sadness or anger (see Appendix C).

To control for priming effects of the labeled stories on the unlabeled set of vignettes, the unlabeled stories were presented at the beginning of the testing session, whereas the labeled stories were presented at the end. However, within each set of vignettes, story themes were presented in random sequence to control for order effects. Following the presentation of the *unlabeled vignettes*, the interviewer asked a series of questions that assessed: 1) identification and experience of emotion “Please circle how much you would have the following feelings if you were the girl in this story.” (Feeling responses included discrete emotions of sad, mad, guilty, nervous, ashamed, disgusted, embarrassed, surprised, and responses that connote difficulty identifying emotion including bad, upset, not sure, and fat); 2) knowledge of idealized regulation scripts, “If you could do anything to make yourself feel better, what would be the best thing that you could do in this situation?”; 3) actual regulation strategy, “What would you really do to make yourself feel better in this situation?”; 4) outcome expectancy, “How much would this strategy work to make you feel better?”; 5) self-efficacy a) “How good would you be at using this strategy to make yourself feel better?” (1 = not at all, 2 = a little bit, 3 = some, 4 = a lot); 6) food/dieting strategies, a) “Would (‘pigging out’ (eating a lot) /deciding to go on a diet) help you feel better in this situation?”; (0 = no, 1 = yes) b)

“How much would (eating/trying not to eat) make you feel better?” (1 = not at all, 2 = a little bit, 3 = some, 4 = a lot).

Following the *labeled* stories, the same set of questions that was asked for the unlabeled stories was used. However, question 1 (emotion identification) was replaced with a question to assess the intensity of the emotion experienced (e.g., “how sad/ mad would you feel, if you were the girl in this story?”); (1 = not at all, 2 = a little bit, 3 = some, 4 = a lot). The open-ended questions in the interview (knowledge of idealized regulation scripts, actual regulation strategy) were coded according to the type of affect regulation strategy endorsed (i.e., problem focused, support seeking, emotion focused, cognitive, avoidance, diet). Please see Appendix B for a complete description of the coding system that was used.

Emotion questionnaire measures

Girls completed the *Emotion Expression Scale for Children* (EESC; Penza-Clyve & Zeman, in press) in order to assess two aspects of deficient emotional expression: lack of emotional awareness and lack of motivation to express negative emotion. The EESC is an 18-item scale that requires participants to rate each item on a 5-point Likert scale ranging from 1 = not at all true to 5 = extremely true. Validity and reliability of the EESC has been established using a community sample of 208 fourth- and fifth-grade children who were part of a larger study that investigated emotion management. This measure demonstrates strong internal consistencies (Cronbach’s alpha = .89) and convergent validity. Specifically, the EESC was significantly positively correlated with the Child Somatization Inventory (CSI; Garber, Walker, & Zeman, 1991), the Child Depression Inventory (CDI; Kovacs, 1985; Kovacs & Beck, 1977), and the State-Trait Anxiety Index for Children (STAIC; Spielberger, 1973), and self-reported regulation of anger and sadness.

The Interoceptive Awareness Scale (IA) from the Eating Disorder Inventory-second edition (EDI-2; Garner et al., 1984) was used to determine adolescents’ perceived

ability to identify internal states. The IA is a 10-item subscale that uses a 6-point Likert scale (1 = never, 6 = always) to assess an individual's ability to identify accurately internal states including emotions and sensations of hunger or satiety. This subscale includes items such as: "I get frightened when my feelings are too strong", "I get confused about what emotion I am feeling", "I get confused as to whether or not I am hungry." This subscale has good internal consistency with Cronbach's alphas ranging from .85 for a combined sample of Anorexia Nervosa and Bulimia Nervosa patients and .80 for a comparison group. In addition, this subscale has shown acceptable test-retest reliability, with correlations ranging from .67 for a sample of college students and staff nurses after one week (Welch, 1988) to .84 for a sample of college students after three weeks (Wear & Pratz, 1987).

Generalized Expectancies for Negative Mood Regulation (NMR; Catanzaro & Mearns, 1990) is a 30-item scale designed to measure individuals' general expectation for self-regulation of their negative moods and emotional states using various cognitive and behavioral strategies. Individuals are required to rate each item on a 5-point Likert scale ranging from 1 = strong disagreement to 5 = strong agreement. The NMR yields three subscales: General Coping Expectancy, Cognitive Coping Expectancy, and Behavioral Coping Expectancy. Although different subscales may prove useful in the prediction of some criteria (using cognitive vs. behavioral mood regulation strategies), the subscales correlated with the entire scale from a moderate to a high degree (.52 to .68), suggesting that the 30 items measure a broad unitary construct. High internal consistency was demonstrated for the entire scale using five samples of college undergraduates (Cronbach's alphas ranging from .86 to .92). Test-retest reliability was demonstrated over a 3- to 4- week period ($r = .74$) and a 6- to 8-week interval ($r = .67$).

Construct validity was supported using measures of locus of control (Internal-External Locus of Control Scale; I-E; Rotter, 1966), social desirability (Social Desirability Scale; SDS; Crowne & Marlow, 1964), depression (Beck Depression

Inventory; BDI; Beck, Rush, Shaw, & Emory, 1979), and general psychological adjustment (Rotter Incomplete Sentences Blank; ISB; Rotter & Rafferty, 1950). Specifically, the NMR demonstrated concurrent validity through negative correlations with the BDI, $r = -.39$ and the ISB, $r = -.28$. In addition, the NMR demonstrated discriminant validity from the I-E and the SDS.

The Differential Emotions Scale-IV (DES-IV; Blumberg & Izard, 1986) was used to assess the frequency with which children experience negative and positive emotions in their daily life. The DES-IV is a 36-item questionnaire designed to examine the frequency with which children experience 12 discrete emotions in their daily life (e.g., interest, joy, sadness, anger, disgust, contempt, fear, shame, embarrassment, guilt, surprise, self-directed hostility). Each item requires that participants rate the frequency of emotional experience on a 5-point Likert scale ($1 =$ rarely, $5 =$ very often). The DES was developed initially by Izard (1972) for use with adults based on his theory of fundamental emotions (Izard, 1977). The original scale was later revised (DES-III; Izard, Dougherty, Bloxom, & Kotsch, 1974) with the addition of two discrete emotion scales (shame and self-directed hostility) and factor analyzed with children 8-years of age and older (Kotsch, Gerbing, & Schwartz, 1982).

The DES-IV has established test-retest reliability in samples of children and adults across time periods of up to four months (Pearson correlations ranging from $r = .50$ to $.76$). The 12 emotion scales have been demonstrated in confirmatory factor analyses (Blumberg & Izard, 1985, 1986; Friedland, Gerbing, & Schwartz, 1982). In addition, two factors of positive and negative emotionality have been established (Izard, Libero, Putnam, & Haynes, 1993), with Interest, Enjoyment, and Surprise forming the Positive Emotionality Factor (factor loadings range from $.73-.86$) and the rest of the scales constituting the Negative Emotionality factor (factor loadings range from $.66-.82$). Construct validity has been established by demonstrating discrete patterns of emotions exhibited by children and adults with anxiety and depression (Blumberg & Izard, 1986).

The Self-Efficacy for Negative Emotion Regulation (SER) is a three-item measure that was developed for this study to assess girls' perception of self-efficacy for regulating intense emotional experiences (sadness, worry, and anger). Specifically, girls were asked "When you are really sad / worried / mad, how much do you think you can make yourself feel better? Girls were asked to respond using a 4-point Likert scale (1 = not at all, 2 = a little bit, 3 = some, 4 = a lot). These three questions were administered in random order to prevent priming effects.

Procedure

A packet of information containing an overview of the study and a consent form was provided to families by one of two methods: 1) upon intake at the treatment facility, or 2) discussed over the telephone and later mailed to families at their home. Parents/guardians were asked to complete the consent forms and return them during intake registration or prior to the interview session at the girls' homes. Socio-economic status was calculated using the Hollingshead Four Factor Index (Hollingshead, 1975). With this measure, SES was computed using five social status categories (higher numbers indicate higher SES level). Normal control group parent/guardians were asked about their daughter's previous mental health histories. Those girls who have current symptoms of depression and/or eating disorders were excluded from the study. At the beginning of the study, diagnoses were obtained on depressed and eating disorder participants following the structured interview with the K-SADS and/or a review of their medical chart.

The primary investigator or a female psychology graduate student individually interviewed each child in a testing room at the treatment facility or in a similar setting in the home. Interviews were read aloud to the girls, whereas questionnaires were completed individually by the participant. Prior to the interview, assent was obtained from girls who had parent/guardian consent to participate in the study. Following a brief rapport-building period, the purpose and procedures were described to the girls. The

Access to Emotion Interview (AEI) was administered first so that subsequent question responses would not influence their responses. The vignettes in the Emotion Identification and Coping Interview (EICI) were presented in random sequence to control for order effects. Likewise, the remaining questionnaires were administered in random order. The testing sessions took approximately 90 minutes. Girls were given necessary breaks and were reinforced verbally for their continued participation. Girls were reimbursed with \$15.00 for their time and effort.

Please refer to Appendix A for copies of measures that were administered to girls. Refer to Table 2.2 and 2.3 for a summary of the research instruments described above and the constructs that they assessed.

Table 2.2

Summary of Emotion Measures Used as a Function of Construct Assessed

Emotion Perception

Global

- Emotion Expression Scale for Children (Zeman et al., 1998).
- Interoceptive Awareness Questionnaire (Garner et al., 1983).

Situation Specific

- Access to Emotion Interview (Sim & Zeman, unpublished measure). *Response latency discrepancy score (baseline latency - response latency to question 1). Description of emotional state (coded response to question 1).*
- Emotion Identification and Coping Interview (Sim & Zeman, unpublished measure). *Emotion identification responses (question 1a.-1l.)*

Response Generation

Regulation Strategies

- Access to Emotion Interview (Sim & Zeman, unpublished measure). *Coping style (question 2; "What did you do to make yourself feel better?" Binge/diet strategies (question 5; "Would eating/dieting make you feel better in this situation?").*

Knowledge of Regulation Strategies

- Emotion Identification and Coping Interview (Sim & Zeman, unpublished measure). *Coping question 3; "How would you make yourself feel better in this situation?"*

Access to Regulation Strategies

- Emotion Identification and Coping Interview (Sim & Zeman, unpublished measure). *(Coping question 3; "How would you make yourself feel better in this situation?")*

Response Evaluation

Outcome Expectancies

- Generalized Expectancies for Negative Mood Regulation (Catanzaro & Mearns, 1990)
- Emotion Identification and Coping Interview (Sim & Zeman, unpublished measure). *Outcome expectancy question (question 4; "How much do you think this strategy would work to make yourself feel better?")*

Self-Efficacy

- Self-efficacy for Negative Emotion Regulation (SER; Sim, unpublished scale).
- Access to Emotion Interview (Sim & Zeman, unpublished measure). *Self-efficacy question (question 3; "How much do you think you could have controlled how much emotion you felt in the situation?")*
- Emotion Identification and Coping Interview (Sim & Zeman, unpublished measure). *Self-efficacy question (question 5 a; "How good would you be at using this strategy to make yourself feel better")*

Emotion Experience

- Differential Emotions Scale (Blumberg & Izard, 1986)

Table 2.3

Summary of Other Measures Used as a Function of Construct AssessedVocabulary/Intelligence

- The Vocabulary subtest of the Wechsler Abbreviated Scale of Intelligence (Wechsler, 1999)

Disordered Eating

- The Eating Attitudes Test -26 (Garner et al., 1982)

Depression

- Beck Depression Inventory - Second Edition (Beck, 1985)

Coding Procedure

Two independent raters (i.e., psychology graduate students) who were unaware of the study hypotheses, and the participants' psychiatric status coded the open-ended questions of the AEI, EICI. On the AEI, they coded the type of situations that elicited the emotional arousal (i.e., interpersonal, loss, activity, etc.), in the girls' account of the negative emotional event (e.g., "Tell me about a time when you felt [really/a little] bad."). They also coded responses to the AEI emotion perception question (e.g., "What emotions did you feel in this situation?") for appropriate emotion labels, labels that connote indistinct emotional states, cognitions, and descriptions that contradict the account of the event. Finally, they coded responses to the coping question of the AEI (e.g., "What did you do to make yourself feel better?") for the type of affect regulation coping strategy employed (i.e., dieting, problem focused, avoidance, emotion focused). Next, raters coded the open-ended coping questions of the EICI (ideal and actual regulation) for the quality of affect regulation coping strategy. The raters were trained to a criterion of 85% agreement using a coding manual. Coding categories for the AEI and the EICI were established according to previous research (Sim et al., 1999) and an examination of girls' responses. Inter-rater reliability was calculated on 30% of the protocols using percent agreement. Percent agreement between raters was .90. Discrepancies were resolved through discussion. Please refer to Appendix B for a description of the coding system that was used.

Chapter 3

RESULTS

Data Analysis Strategy

Given the specific apriori hypotheses that were tested, interval scale data were analyzed using Univariate Analyses of Variance (ANOVAs) and Repeated Measures Analyses of Variance (RM-ANOVAs), with significant main effects broken down using standard procedures (i.e., Student-Neuman-Keuls [SNK; $p < .05$], multiple comparisons using Bonferroni correction, t -tests). Independent variables consisted of Group (i.e., bulimia, depression, no diagnosis). Within-subjects variables consisted of Emotion type (i.e., sadness, anger), story Theme (i.e., appearance, achievement), Labeling condition (i.e., labeled, unlabeled), and level of emotion Intensity (i.e., high, low). For categorical data, chi-square analyses were conducted. An alpha level of .05 was used for all statistical tests, except when a Bonferroni was used. Bonferroni corrections were based on the number of analyses in each of the emotion processing steps. In addition to standard tests of statistical significance, a measure of the magnitude of effect (eta squared; η^2) was calculated. The magnitude of effects are categorized as follows: $\eta^2 = .01$, small effect; $\eta^2 = .06$, medium effect; $\eta^2 = .14$, large effect (Cohen, 1988).

Multivariate Analyses of Variance (MANOVA) was used when apriori hypotheses could not be made. This is due to the protection it provides against the chance of Type I errors and its robustness to violations of the homogeneity of within-groups variance assumption (Pedhazur, 1982). The specific type of MANOVA performed for each analysis (e.g., MANOVA solution vs. mixed model Linquist solution) depended on the degree to which the assumption of sphericity was met. Hertzog and

Rovine (1985) outline selection criteria using magnitude of epsilon values to determine the appropriate MANOVA to conduct. As epsilon values approach 1.0, no violation of the sphericity assumption is indicated. The criteria for determining which MANOVA to calculate were as follows: when the epsilon value was greater than .90, the multivariate mixed-model solution was used; when epsilon value lies between .75 and .90, the multivariate mixed model solution was used with caution, and when epsilon lies below .75, the MANOVA solution was used.

Participant Characteristics

An analysis was conducted to establish that participants in the bulimia and control groups were similar in relation to verbal intellectual functioning, a characteristic that might influence participants' responses. Analyses were also conducted to examine overall group differences in level of depression and eating disorder symptomatology. These analyses are presented first followed by those that investigate each of the affect regulation skills.

Beck Depression Inventory-Second Edition

With respect to level of depressive symptomatology, a one-way ANOVA was conducted. The dependent variable was the score on the BDI-2 for each girl. The between-groups independent factor was Group. Findings revealed a significant between-groups effect, $F(2, 46) = 33.77, p < .001$. SNK analyses indicated that girls with bulimia nervosa ($M = 30.19, SD = 14.6$) and girls with depression ($M = 26.00, SD = 8.39$) exhibited significantly more depressive symptomatology than those without a

diagnosis ($M = 3.50$, $SD = 3.22$) (see Table 3.1). There was no significant difference on BDI-2 scores between girls with bulimia and those with depression.

Table 3.1

Means and Standard Deviations for Matching Criteria and Participant Characteristics

	Group		
	Bulimia Nervosa	Depressed	No Diagnosis
<u>N</u>	16	16	16
Age (in months)	204.18 (19.11)	201.44 (18.36)	205.75 (20.93)
Grade	10.75 (1.44)	10.56 (1.26)	11.25 (1.48)
SES	3.69 (.79)	3.69 (1.08)	4.06 (.85)
WASI T-Scores (Vocab Subtest)	51.81 (5.70)	51.87 (7.10)	54.06 (4.40)
BDI	30.19 (14.56) _a	26.00 (8.39) _a	3.50 (3.22) _b
EAT	45.38 (10.37) _a	7.63 (5.80) _b	2.88 (2.22) _b

Note. Means are presented followed by standard deviations in parentheses.

Means in the same row that share the same subscript are not significantly different at $p < .05$.

Eating Attitudes Test (EAT-26)

To consider group differences in the level of unhealthy eating behaviors and attitudes regarding weight and shape, a one-way ANOVA was conducted. The dependent variable was each participant's score on the EAT-26 and the between-groups independent variable was Group. As expected, there was a significant Group main effect $F(2, 46) = 178.35$, $p < .001$, with bulimic adolescent females ($M = 45.38$, $SD = 10.37$) endorsing

significantly more disturbed eating attitudes and behaviors than depressed adolescent females ($M = 7.63$, $SD = 5.80$) and their non-depressed, non-eating disordered counterparts ($M = 2.88$, $SD = 2.22$). There were no differences between girls with depression and those without a diagnosis in the level of disturbed eating attitudes and behavior (see Table 3.1).

Vocabulary Subtest, Wechsler Abbreviated Scale of Intelligence (WASI)

A one-way Analysis of Variance (ANOVA) was conducted to consider group differences in estimated verbal intellectual functioning. The dependent variable was the T-score on the WASI Vocabulary subtest for each participant. The between-groups independent factor was diagnostic Group. Findings indicated no significant differences as a function of Group, $F(2, 46) = .76$, $p = .47$. Consideration of T-scores for the bulimic ($M = 51.81$, $SD = 5.77$), depressed ($M = 51.87$, $SD = 7.12$), and control groups ($M = 54.06$, $SD = 4.37$), suggest that, overall, participants performed within the Average range on the Vocabulary subtest of the WASI (see Table 3.1).

Emotion Perception Skills

Emotion perception-global measures

Interoceptive Awareness Scale (IA). To examine group differences in the perceived ability to identify internal emotional states and bodily sensations, a one-way ANOVA was conducted. The dependent variable was the total score on the IA scale of the EDI-2 and the between-groups independent variable was Group. Findings revealed a significant main effect for Group, $F(2, 45) = 59.73$, $p < .001$, $\eta^2 = .73$. Multiple comparisons using the bonferroni correction ($p < .01$) revealed adolescent females with

bulimia nervosa ($M = 42.44$, $SD = 7.38$) reported more difficulty identifying emotions and bodily sensations than girls with depression ($M = 29.50$, $SD = 7.51$) and those without a diagnosis ($M = 17.00$, $SD = 4.37$). Girls with depression reported significantly more difficulty identifying emotions than those without a diagnosis (see Table 3.2).

Table 3.2

Means and Standard Deviations for Measures Assessing Emotion Perception

	Group			F-value
	Bulimia Nervosa	Depression	No Diagnosis	
Emotional Perception				
IA	42.44 (7.37) _a	29.50 (7.51) _b	17.00 (4.37) _c	59.73***
EA	29.68 (4.47) _a	23.31 (5.85) _b	14.18 (4.33) _c	39.89***
ER	27.56 (5.44) _a	21.31 (6.73) _a	16.00 (4.62) _b	16.71***

Note. Means are presented followed by standard deviations in parentheses. Means in the same row that share the same subscript are not significantly different at $p < .05$. EA = Emotional Awareness Scale. ER = Expressive Reluctance Scale.

*** $p < .001$

Emotion Expression Scale for Children (EESC).

A one-way ANOVA was performed to consider group differences in the perceived ability to identify emotional states. The dependent variable was the score on the Poor Awareness scale for each girl and the between-groups independent factor was Group. Results indicated a significant difference as a function of Group, $F(2, 46) = 39.89$, $p < .001$, $\eta^2 = .64$. Multiple comparisons using the bonferroni correction ($p < .01$) revealed that girls with bulimia nervosa ($M = 29.68$, $SD = 4.47$) endorsed more difficulty identifying and communicating internal states than girls with depression ($M = 23.68$, $SD = 5.85$) and girls without a diagnosis ($M = 14.18$, $SD = 4.33$). In addition, girls with depression reported significantly more difficulty identifying emotional states than those without a diagnosis (see Table 3.2).

A one-way ANOVA was conducted to consider group differences in the motivation to express emotion to others. The dependent variable was the score on the Expressive Reluctance scale for each girl and the between-groups independent factor was Group. Findings revealed a significant difference as a function of Group, $F(2, 46) = 16.71$, $p < .001$, $\eta^2 = .42$. Multiple comparisons analyses using the Bonferroni correction ($p < .01$) revealed that girls with bulimia nervosa ($M = 27.56$, $SD = 5.44$) endorsed a greater reluctance to express emotion than girls with depression ($M = 21.31$, $SD = 6.73$) and girls without a diagnosis ($M = 16.00$, $SD = 4.61$). However, girls with depression did not report significantly more reluctance to express emotion than those without a diagnosis (see Table 3.2).

Emotion perception-situation specific measures

Access to Emotion Interview (AEI - Response latencies). To reduce group differences in characteristic response times from influencing findings on the response latency items of the AEI, response latencies to general questions were first examined. Specifically, a baseline latency score was calculated by averaging participants' response times to three non-emotion questions regarding the situations participants reported to illustrate the experience of high and low emotional arousal (i.e., "Where were you when this happened?", "Who was with you when this happened?", "What were you thinking when this happened?"). To consider differences in baseline response latencies, a one-way ANOVA was conducted. The dependent variable was the mean latency in milliseconds for each participant to respond to the baseline questions and the between-groups independent variable was Group. Results indicated no significant differences as a function of Group, $F(2, 46) = .91, p < .41$ (Bulimia Nervosa: $M = 1.27, SD = .58$; Depression: $M = 1.35; SD = .52$; No Diagnosis: $M = 1.55; SD = .68$).

Given that there were no between-groups differences on baseline scores, analyses could be performed on the response latencies to the emotion questions. To examine group differences in response latencies to the emotion question in milliseconds, a RM-ANOVA was conducted. The dependent variable was the response latency score on the AEI (i.e., longer latencies indicate more difficulty accessing a label for their emotional state). The between-groups independent factor was Group and the within-subjects factor was emotion Intensity (low, high). Findings indicated a significant effect for Group, $F(2, 45) = 5.31, p < .01, \eta^2 = .19$. Multiple comparisons using the Bonferroni correction ($p < .01$) indicated that girls with bulimia nervosa ($M = 4.32, SD = 3.29$) and those with

depression ($M = 3.03$, $SD = 2.56$) reported significantly longer latencies to access a verbal label to describe their emotional state than girls without a diagnosis ($M = 2.09$, $SD = 1.32$). Girls with bulimia nervosa did not differ significantly from those with depression in the latency to access a verbal label to describe their emotional state (see Table 3.3).

Table 3.3

Means and Standard Deviations for the Latency to Access an Emotion Response as a Function of Emotional Intensity and Group

Emotion Intensity	Group			F-value
	Bulimia Nervosa	Depression	No Diagnosis	
High	5.3 (4.3) _a	2.5 (1.8)	1.9 (1.2) _b	5.31**
Low	3.3 (2.3)	3.4 (3.3)	2.2 (1.4)	

Note. Means are presented followed by standard deviations in parentheses. Means in the same row that share the same subscript are not significantly different at $p < .01$.

*** $p < .001$.

Tests of within-subject effects indicated a marginally significant Intensity x Group interaction, $F(2, 45) = 3.06$, $p < .06$, $\eta^2 = .12$. This interaction was explored further given the moderate effect sizes; however, due to the marginal significance level ($p = .06$), the meaning of these findings should be interpreted with caution. The interaction was best explored by examining Group differences within each Intensity level. One-way ANOVAs followed by multiple comparisons using the Bonferroni correction ($p < .017$) indicated that under high intensity emotional arousal, girls with bulimia ($M = 5.35$, $SD =$

4.26) demonstrated significantly longer latencies to access a label to describe their emotional state than girls without a diagnosis ($M = 1.95$, $SD = 1.18$). Girls with bulimia did not differ on this measure from girls with depression ($M = 2.59$, $SD = 1.80$). Under low intensity emotional arousal, there were no significant differences between the groups (bulimia: $M = 3.31$, $SD = 2.32$; depression: $M = 3.46$, $SD = 3.3$; no diagnosis: $M = 2.24$, $SD = 1.46$) (see Table 3.3).

Access to Emotion Scale (AEI-Emotion, “In this situation what specific emotion did you feel?”). To determine Group differences in girls’ description of their emotional state in response to high and low intensity situations, the content of participants’ responses were coded into categories that reflected the quality of their language to describe how they were feeling. To make the number of categories more parsimonious, conceptually similar categories were collapsed (see Appendix A) and frequencies were calculated to determine group differences in girls’ coping strategies. Categories that appeared to demonstrate differences between Groups were then analyzed using chi-square. The categories for responses included basic and self-conscious *Emotion* words (i.e., angry, sad, nervous, ashamed), *Non-specific/Cognitive* emotional descriptors (i.e., upset, yucky, in pain, unfair) or *Uncertainty* (i.e., don’t know, unsure). Please see Appendix A for a complete description of the coding system that was used.

In response to the high intensity emotion situation, the categories revealed a significant Group effect, $\chi^2(2, 45) = 14.49$, $p < .001$. Specifically, 100% of girls without a diagnosis and 68.8% of girls with depression endorsed an emotion word to describe how they felt at the time of the high intensity situation compared to only 43.8 % of girls with bulimia. In contrast, 56.3% of girls with bulimia endorsed a non-specific word to

describe their emotional state compared to only 31.3% of girls with depression and no girls without a diagnosis. No significant group effects emerged for any of the categories in response to the low intensity emotion situation $\chi^2(2, 45) = 4.40, p < .10$ (see Table 3.4).

Table 3.4

Percentages of Emotions Endorsed for the Access to Emotion Interview, Open-Ended Question, "In this situation, what specific emotion did you feel?" as a function of Group

Intensity	High Intensity			Low Intensity		
	Group			Group		
Emotion Labels	Bulimia	Depress	No Dx	Bulimia	Depress.	No Dx
Emotion	43.8 _a	68.8	100.0 _b	56.3	50.0	81.3
Nonspecific/ Cognitive	56.3 _a	31.3	0 _b	43.8	50.0	18.8

Note. No Dx = No diagnosis; Depress. = Depression; Bulimia = Bulimia Nervosa.

Means in the same row that share the same subscript are not significantly different at $p < .01$.

Emotion Identification and Coping Interview (EICI-Ambiguous Emotion Scale).

To determine group differences in the ability to label emotions in response to hypothetical situations of the EICI, a RM-ANOVA was conducted. The dependent variable was the score on the ambiguous emotion scale of the EICI (i.e., higher scores indicate more emotions endorsed). The between-groups independent variable was Group

and the within-subjects variables were Emotion (sadness, anger) and story Theme (appearance, achievement). Consistent with predictions, findings indicated significant differences as a function of Group, $F(2, 45) = 68.63, p < .001, \eta^2 = .75$. Multiple comparisons using the Bonferroni correction ($p < .01$) indicate that girls with bulimia ($M = 12.72, SD = 2.09$) endorsed experiencing more types of emotions than those with depression ($M = 8.41, SD = 3.42$) and those with no diagnosis ($M = 3.55, SD = 3.35$). In addition, girls with depression endorsed experiencing more emotions than those with no diagnosis (see Table 1.4). Tests of within-subjects effects indicated a significant Group x Emotion interaction, $F(2, 45) = 4.84, p < .05, \eta^2 = .17$. This interaction was best explicated by examining Emotion differences within each Group. Paired t -tests using the Bonferroni correction ($p < .025$) revealed that bulimic participants endorsed significantly more emotions in response to the sadness condition ($M = 14.09, SD = 1.29$) than the anger ($M = 11.34, SD = 2.89$) condition, as did depressed participants (sadness: $M = 9.71, SD = 3.18$; anger: $M = 7.09, SD = 3.66$). However, non-diagnosed participants were not significantly different with regard to the number of emotions endorsed in response to the sadness condition ($M = 3.81, SD = 3.74$) or the anger condition ($M = 3.28, SD = 2.90$) (see Table 3.5).

Table 3.5

Means and Standard Deviations for the Number of Emotions Endorsed to the Ambiguous Emotion Scale

Emotion Type	Group			F-value
	Bulimia Nervosa	Depression	No Diagnosis	
Overall	12.7 (3.4) _a	8.4 (2.1) _b	3.5 (3.4) _c	68.63***
Sadness	14.1 (1.3) _a	9.7 (3.2) _b	3.8 (3.7) _c	
Anger	11.2 (2.9) _a	7.1 (3.7) _b	3.6 (2.3) _c	

Note. Means are presented followed by standard deviations in parentheses. Means in the same row that share the same subscript are not significantly different at $p < .017$.

*** $p < .001$.

Response Generation Skills

Response generation - knowledge

Emotion Identification and Coping Interview - (EICI-Cope; “In this situation, how did you make yourself feel better?”). To consider Group differences in reported strategies used to cope with emotions in hypothetical situations regarding appearance and achievement, girls’ responses to the open-ended questions of the EICI, “In this situation, how did you make yourself feel better?” were coded (see Appendix B). To make the number of categories more parsimonious, conceptually similar categories were combined (see Appendix B) and frequencies were calculated to determine Group differences in

girls' coping strategies. Categories that appeared to demonstrate differences between Groups were then analyzed using chi-square.

The categories for coping with emotions included *Problem-Focused* (e.g., a response that is intended to behaviorally change the situation, or come up with viable solutions to a problem), *Social-Support* (e.g., seeking social support from others to help manage feelings associated with a situation, gain practical assistance or information from others to solve a problem, or secure help in reappraising the situation), *Emotion-Focused* (e.g., behavioral attempts to reduce tension or physiological arousal or modification of thoughts or appraisals in an effort to change feelings or behavior), *Avoidance* (e.g., avoidance of the problem and/or persons associated with the problem in order to escape unpleasant emotions), and *Aggression* (e.g., a response that is intended to hurt persons or objects involved in problem in an act of revenge or to save face, often involving relational aggression).

In response to the Sadness-Appearance-Unlabeled situation, the Problem Focused category revealed a significant Group effect, $\chi^2(2, 46) = 9.96, p < .01$. Specifically, 81.3% of girls without a diagnosis and 68.8% of girls with depression endorsed coping with sadness in Appearance situations by using problem-focused strategies compared to only 6.3 % of girls bulimia (see Table 6). In addition, the Avoidance category revealed a significant Group effect, $\chi^2(2, 46) = 14.8, p < .005$. That is, 75% of girls with bulimia nervosa reported they would use avoidant strategies to cope with sadness in Appearance situations where the emotion was not labeled for them, compared to only 6.3% of girls without a diagnosis and 12.5% of girls with depression (see Table 3.6).

Table 3.6

Percentages of Strategies Endorsed for the Emotion Identification and Coping Interview, Sadness-Appearance, Open-Ended Question, "In this situation, how could you make yourself feel better?" as a Function of Group and Labeling Condition

Categories	Unlabeled			Labeled		
	Group			Group		
	Bulimia	Depress	No Dx	Bulimia	Depress.	No Dx
Problem-Focused	6.3 _{ab}	68.8 _b	81.3 _a	12.5 _{cd}	62.5 _d	81.3 _c
Support	0	0	6.3	0	6.3	0
Emotion-Focused	18.8	18.8	6.3	25.0	50.0	25.0
Avoidance	75.0 _{ab}	12.5 _a	6.3 _b	81.3 _{cd}	18.8 _d	12.5 _c
Aggression	0	0	0	0	0	0

Note. No Dx = No diagnosis; Depress. = Depression; Bulimia = Bulimia Nervosa.

Means in the same row that share the same subscript are not significantly different at $p < .05$.

For the Sadness-Appearance-Labeled condition, the Problem-Focused category revealed a significant Group effect, $\chi^2(2, 46) = 8.08, p < .05$. In response to labeled-appearance-situations, 81.3% of girls without a diagnosis and 62.5% of girls with depression reported coping with Sadness by using problem-focused strategies compared to only 12.5% of girls with bulimia nervosa. A significant Group effect emerged for the Avoidance category, $\chi^2(2, 46) = 12.3, p < .005$. Specifically, 81.3% of girls with bulimia reported coping with Sadness by using avoidance strategies compared to only 18.8% of girls with depression and 12.5% of girls without a diagnosis (see Table 3.6).

No significant group effects emerged for any of the categories for the other hypothetical situations (see Tables 3.7 to 3.9).

Table 3.7

Percentages of Strategies Endorsed for the Emotion Identification and Coping Interview, Sadness-Achievement, Open-Ended Question, "In this situation, how could you make yourself feel better?" as a Function of Group and Labeling Condition

Categories	Unlabeled			Labeled		
	Group			Group		
	Bulimia	Depress.	No Dx	Bulimia	Depress.	No Dx
Problem-Focused	12.5	37.5	37.5	12.5	18.8	56.3
Support	18.8	12.5	37.5	6.3	6.3	12.5
Emotion-Focused	18.8	31.3	25.0	25.0	43.8	31.3
Avoidance	31.3	12.5	0	50.0	31.3	0
Aggression	18.8	6.3	0	6.3	0	0

Note. No Dx = No diagnosis; Depress. = Depression; Bulimia = Bulimia Nervosa.

Table 3.8

Percentages of Strategies Endorsed for the Emotion Identification and Coping Interview, Anger-Appearance, Open-Ended Question, "In this situation, how could you make yourself feel better?" as a Function of Group and Labeling Condition

Categories	Unlabeled			Labeled		
	Group			Group		
	Bulimia	Depress.	No Dx	Bulimia	Depress.	No Dx
Problem-Focused	18.8	62.5	37.5	37.5	37.5	12.5
Support	6.3	18.8	12.5	0	6.3	6.3
Emotion-Focused	25.0	18.8	50.0	12.5	25.0	18.8
Avoidance	37.5	0	0	43.8	25.0	0
Aggression	12.5	0	0	6.3	6.3	0

Note. No Dx = No diagnosis; Depress. = Depression; Bulimia = Bulimia Nervosa.

Table 3.9

Percentages of Strategies Endorsed for the Emotion Identification and Coping Interview, Anger-Achievement, Open-Ended Question, "In this situation, how could you make yourself feel better?" as a Function of Group and Labeling Condition

Categories	Unlabeled			Labeled		
	Group			Group		
	Bulimia	Depress.	No Dx	Bulimia	Depress.	No Dx
Problem-Focused	12.5	25.0	25.0	12.5	25.0	25.0
Support	6.3	0	18.8	6.3	6.3	18.8
Emotion-Focused	25.0	25.0	50.0	37.5	43.8	50.0
Avoidance	37.5	18.8	0	25.0	18.8	0
Aggression	18.8	31.3	6.3	18.8	6.3	6.3

Note. No Dx = No diagnosis; Depress. = Depression; Bulimia = Bulimia Nervosa.

Response generation - access

Access to Emotion Interview - (AEI-Cope; “In this situation, how did you make yourself feel better?”). To consider Group differences in reported strategies used to cope with emotionally arousing situations, girls’ responses were coded to the open-ended question of the AEI, “In this situation, how did you make yourself feel better?” (see Appendix B). To make the number of categories more parsimonious, conceptually similar categories were collapsed (see Appendix B) and frequencies were conducted to determine group differences in girls’ coping strategies. Categories that appeared to demonstrate differences between Group were then analyzed using chi-square. Chi-square analyses were conducted by Group for each low and high intensity emotion. The categories for coping with emotions were the same as those used for the EICI and included Problem-Focused, Social-Support, Emotion-Focused, Avoidance, and Aggression.

In response to high intensity emotional arousal, the Support category revealed a significant Group effect, $\chi^2(2, 30) = 7.35, p < .05$. Specifically, 62.5% of girls without a diagnosis endorsed coping with high intensity emotional arousal by support-seeking compared to only 6.3% of girls with bulimia and none of the girls with depression. In addition, responses that fell into the Avoidance category yielded a significant Group effect, $\chi^2(2, 30) = 11.56, p < .01$. Specifically 75% of girls with bulimia nervosa and 62.5% of those with depression relied on avoidant strategies to cope with high intensity emotional arousal, compared to no endorsement of this category by girls without a diagnosis (see Table 3.10). No significant Group effects emerged for any categories for low intensity emotional arousal (see Table 3.10).

Table 3.10

Percentages of Strategies Endorsed for the Access to Emotion Interview, Open-Ended Question, “In this situation, how could you make yourself feel better?” as a Function of Group and Intensity

	High			Low		
	Group			Group		
Categories	Bulimia	Depress.	No Dx	Bulimia	Depress.	No Dx
Problem-Focused	0	12.5	18.8	6.3	31.3	31.3
Support	6.3 _a	0 _b	62.5 _b	31.3	18.8	25
Emotion-Focused	12.5	18.8	18.8	37.5	37.5	37.5
Avoidance	75.0 _a	62.5 _b	0 _b	25.0	6.3	0
Aggression	6.3	6.3	0	0	6.3	0

Note. No Dx = No diagnosis; Depress. = Depression; Bulimia = Bulimia Nervosa.

Means in the same row that share the same subscript are not significantly different at $p < .05$.

Response Evaluation

Response evaluation - self-efficacy

Self-Efficacy for Emotion Regulation (SER). A MANOVA was conducted to examine group differences in girls' perceived capacity to regulate intense emotional experiences of sadness, anger, and fear. The dependent variables were the scores on each item ("When you are really [sad/mad/worried], how much do you think you can make yourself feel better?") of the SER for each girl (0 = "Not at all" to 4 = "A lot"). The between-groups independent factor was Group. A significant main effect for Group emerged, $F(3, 45) = 10.89, p < .001, \eta^2 = .43$. Consideration of univariate tests of significance for each of the items followed by multiple comparisons using the Bonferroni correction ($p < .017$) indicated that girls without a diagnosis endorsed significantly higher levels of self-efficacy in coping with sadness, anger, and fear, than girls with bulimia nervosa and those with depression. Girls with bulimia were not significantly different from their depressed counterparts on their reported level of self-efficacy in coping with any of these emotions. See Table 3.11 for means and standard deviations of the SER negative emotion items as a function of group status.

Table 3.11

Means and Standard Deviations for each Item on the Self-Efficacy for Emotion Regulation (SER) for Girls as a Function of Group Status

Scale	Group			F-value
	Bulimia Nervosa	Depression	No Diagnosis	
				10.89***
Sadness	1.50 (.52) _b	1.94 (.44) _b	3.38 (.72) _a	
Anger	2.19 (.91) _b	2.13 (.81) _b	3.31 (.79) _a	
Fear	1.94 (.44) _b	2.19 (.83) _b	3.19 (.66) _a	

Note. Means are presented followed by standard deviations in parentheses. Means in the same row that share the same subscript are not significantly different at $p < .004$.

*** $p < .001$.

Access to Emotion Interview (AEI - Self-Efficacy; “How much do you think you could control how bad you felt in this situation?”). A RM-ANOVA followed by SNK was conducted to examine group differences in participants’ reported ability to control their own emotion in response to self-generated situations. The dependent variable was the score on the self-efficacy questions of the AEI (0 = “not at all” to 4 = “a lot”). The between-groups independent variable was Group and the within-subjects variable was emotion Intensity (i.e., high, low). Findings indicated a significant Group effect, $F(2, 42) = 9.25, p < .001, \eta^2 = .31$. Specifically, multiple comparisons using the Bonferroni

correction ($p < .004$) revealed that girls with no diagnosis ($M = 2.87$, $SD = 1.04$) endorsed higher levels of self-efficacy in alleviating negative emotional states than those with bulimia nervosa ($M = 1.79$, $SD = .77$) and those with depression ($M = 2.12$, $SD = .86$). There were no differences between girls with bulimia nervosa and girls with depression on the level of self-efficacy in reducing negative emotion.

Tests involving the within-subjects factors revealed a significant main effect for Intensity, $F(1, 42) = 6.07$, $p < .005$, $\eta^2 = .17$. Specifically, girls endorsed lower levels of self-efficacy in alleviating their negative emotional state in response to high ($M = 2.00$, $SD = .95$) than low intensity ($M = 2.53$, $SD = 1.06$) emotional arousal.

Emotion Identification and Coping Interview (EICI - Self-efficacy; “How good do you think you would be at using this strategy to help yourself feel better?”). A RM-ANOVA was conducted to consider group differences in participants’ reported ability to control their own emotion in response to hypothetical situations. The dependent variable was the score on the self-efficacy questions of the EICI ($0 =$ “Not at all” to “ $4 =$ a lot”). The between-groups independent variable was Group and the within-subjects variables were Emotion (sadness, anger), story Theme (appearance, achievement), and the Labeling condition (labeled, unlabeled). Findings revealed a significant effect for Group, $F(2, 26) = 5.53$, $p < .01$, $\eta^2 = .30$. Multiple comparisons using the Bonferroni correction ($p < .004$) indicated that girls without a diagnosis ($M = 3.43$, $SD = .71$) endorsed higher levels of self-efficacy in response to emotional arousal than girls with bulimia nervosa ($M = 2.65$, $SD = .97$). However, girls with depression did not differ significantly from either group ($M = 2.86$, $SD = .97$).

Tests of within-subjects factors revealed a significant Label x Theme x Group interaction, $F(2, 26) = 3.67, p < .05, \eta^2$. This interaction was best explained by examining label and theme differences within diagnostic category. Paired t-tests using the Bonferroni correction ($p < .004$) revealed that girls with depression endorsed lower levels of self-efficacy in response to achievement situations when the emotion was labeled for them ($M = 2.35, SD = 1.26$) than when it was not labeled for them ($M = 3.35, SD = 1.26$). However, in appearance situations, their level of self-efficacy did not vary as a function of labeling condition (Unlabel: $M = 3.00, SD = .91$; Label: $M = 2.7, SD = 1.10$). The level of self-efficacy of girls with bulimia nervosa and those without a diagnosis did not differ depending on labeling or theme condition.

Response evaluation - outcome expectancies of coping strategies

Generalized Expectancies for Negative Mood Regulation (NMR). A one-way ANOVA was conducted to determine group differences in the perceived expectation for self-regulation of negative moods and emotional states using various cognitive and behavioral strategies. The dependent variable was the total score on the NMR (i.e., higher scores indicate more positive outcome expectancies) and the between-groups independent variable was Group. Results indicated significant differences as a function of Group, $F(2, 45) = 35.72, p < .001, \eta^2 = .61$. Multiple comparisons using the Bonferroni correction ($p < .004$) revealed that girls without a diagnosis ($M = 125.94, SD = 11.42$) reported more positive outcome expectancies than those with bulimia nervosa ($M = 74.63, SD = 19.45$) and those with depression ($M = 85.81, SD = 21.67$). There were no differences between girls with bulimia nervosa and those with depression on the

degree of positive outcome expectancies for various cognitive and behavioral strategies to cope with negative mood and emotional states.

Access to Emotion Interview (AEI - Outcome expectancies for actual coping strategies). A RM-ANOVA was conducted to examine group differences in participants' reported effectiveness of the regulation strategy chosen in response to self-generated situations. The dependent variable was the score on the outcome expectancy questions of the AEI (0 = "not at all" to 4 = "a lot"). The between-groups independent variable was Group and the within-subjects variable was emotion Intensity (i.e., high, low). A significant effect emerged for Group, $F(2, 42) = 10.42, p < .001, \eta^2 = .33$. Multiple comparisons using the Bonferroni correction ($p < .004$) revealed that girls with bulimia nervosa ($M = 2.28, SD = 1.08$) endorsed more negative outcome expectancies for their reported coping strategies in self-generated situations than girls without a diagnosis ($M = 3.60, SD = .69$). However, girls with depression ($M = 2.70, SD = 1.13$) did not differ significantly from either group.

Tests of the within-subjects factors revealed a significant main effect for Intensity, $F(1, 42) = 12.70, p < .001, \eta^2 = .23$. Inspection of means suggested that girls endorsed higher outcome expectancies in response to low ($M = 3.16, SD = 1.02$) than high intensity emotional arousal ($M = 2.47, SD = 1.24$).

Emotion Identification and Coping Interview (EICI-Outcome expectations; "How much do you think this strategy would work to help you feel better?"). A RM-ANOVA was conducted to examine group differences in participants' level of perceived effectiveness of their reported regulation strategies in response to hypothetical vignettes. The dependent variable was each girl's EICI-Outcome Expectancy score (1 = "not very

good” to 4 = “really good”). The between-groups independent variable was Group and the within-subjects variables were Emotion (sadness, anger), story Theme (appearance, achievement), and Labeling condition (labeled, unlabeled). Results indicated a significant Group effect, $F(2, 41) = 6.68, p < .01, \eta^2 = .25$. Multiple comparisons using the Bonferroni correction ($p < .004$) suggested that girls with no diagnosis ($M = 3.34, SD = 1.21$) reported higher outcome expectancies in response to hypothetical situations than girls with bulimia nervosa ($M = 2.62, SD = .74$). However, girls with depression did not differ significantly from either group ($M = 2.89, SD = .95$).

Tests of within-subjects effects indicated a significant effect for Theme, $F(1, 41) = 5.25, p < .05, \eta^2 = .11$. Comparison of means suggested that girls expressed less positive outcome expectancies for coping with achievement ($M = 2.84, SD = 1.07$) as opposed to appearance situations ($M = 3.06, SD = .92$).

Response evaluation - outcome expectancies for dieting

Access to Emotion Interview (AEI - Outcome expectancies for dieting). A RM-ANOVA was conducted to consider group differences in participants' level of perceived effectiveness of dieting to alleviate negative mood in response to self-generated situations. The dependent variable was the score on the diet outcome expectancy question of the AEI (0 = “Not at all” to 4 = “A lot”). The between-groups independent factor was Group and the within-subjects factor was Intensity. Findings revealed a significant Group effect, $F(2, 45) = 20.46, p < .001, \eta^2 = .48$. Specifically, multiple comparison analyses using the Bonferroni correction ($p < .004$) revealed bulimic girls ($M = 2.69, SD = 1.08$) reported higher outcome expectancies for dieting strategies than

depressed girls ($M = 1.28$, $SD = .78$) and non-diagnosed girls ($M = 1.06$, $SD = .76$), who did not differ significantly from each other.

Emotion Identification and Coping Interview (EICI - Outcome expectancies for dieting). A RM-ANOVA was performed to examine group differences in the perceived effectiveness of dieting to cope with various hypothetical situations surrounding appearance and achievement. The dependent variable was the score on the diet outcome expectancy question of the EICI (0 = “Not at all” to 4 = “A lot”). The between-groups independent factor was Group and the within-subjects factors were Emotion (sadness, anger), story Theme (appearance, achievement), and Labeling condition (unlabeled, labeled). Findings indicated a significant effect for Group, $F(2, 45) = 32.76$, $p < .001$, $\eta^2 = .59$, such that girls with bulimia nervosa ($M = 2.72$, $SD = 1.00$) perceived binge-eating to be significantly more effective at alleviating their negative emotional states than girls with depression ($M = 1.56$, $SD = .66$) and those without a diagnosis ($M = 1.08$, $SD = .17$), who did not differ from each other.

Response evaluation - outcome expectancies for binge-eating

Access to Emotion Interview (AEI-Outcome expectancies for binge-eating). A RM-ANOVA was performed to consider group differences in participants' perceived effectiveness of using binge-eating to alleviate negative emotion (i.e., higher scores indicate more positive outcome expectancies for using binge-eating to alleviate negative emotion), as assessed by the AEI. The dependent variable was the score on the AEI - Binge Outcome Expectancy question (“How much did binge-eating work to make you feel better,” or if the participant responded “no” to the binge question, “If you would

have decided to go on a binge in that situation, how much do you think that decision would have worked to make you feel better?”). The between-groups independent factor was Group and the within-subjects factor was Intensity. Results revealed a significant effect for Group, $F(2, 45) = 19.78, p < .001, \eta^2 = .47$. Multiple comparisons using the Bonferroni correction ($p < .004$) indicated that girls with bulimia nervosa ($M = 2.56, SD = 1.29$) endorsed significantly higher outcome expectancies for using binge-eating to alleviate negative mood than girls with depression ($M = 1.31, SD = .51$) and those without a diagnosis ($M = 1.00, SD = .25$), who did not differ significantly from each other.

Tests of within-subjects factors revealed a significant main effect for Intensity, $F(2, 45) = 10.53, p < .01, \eta^2 = .19$, such that girls reported higher outcome expectancies for binge-eating in response to high ($M = 1.83, SD = 1.19$) than low emotional arousal situations ($M = 1.42, SD = .99$).

Emotion Identification and Coping Interview - (EICI - Outcome expectancies for binge-eating). A RM-ANOVA was conducted to determine group differences in relation to girls' perceived effectiveness of using binge-eating to alleviate negative mood (i.e., higher scores indicate more positive outcome expectancies for binge-eating to alleviate negative emotion), as assessed by the EICI. The dependent variable was the score on the EICI - Binge Outcome Expectancy question (“In this situation, how much do you think binge-eating would work to help you feel better?”). The between-groups independent factor was Group and the within-subjects factors were Emotion (sadness, anger), story Theme (appearance, achievement), and Labeling condition (unlabeled, labeled). A main effect for Group emerged, $F(2, 44) = 19.75, p < .001, \eta^2 = .47$. Specifically, girls with

bulimia nervosa ($M = 2.13$, $SD = 1.09$) endorsed significantly more positive outcome expectancies for using binge-eating to alleviate negative mood than girls with depression ($M = 1.09$, $SD = .26$) and those without a diagnosis ($M = 1.02$, $SD = .09$). Girls with depression did not differ significantly from girls without a diagnosis in their perceived outcome expectancies for binge-eating to alleviate negative mood. Consideration of tests of within-subjects factors indicated a significant Emotion by Theme x Group interaction, $F(2, 44) = 4.78$, $p < .05$, $\eta^2 = .18$. This interaction was best explained by examining Emotion and Theme differences within each Group. A paired t -test using the Bonferroni correction ($p < .004$) demonstrated that when confronted with situations surrounding their appearance, girls with bulimia reported more positive outcome expectancies in response to anger ($M = 4.44$, $SD = 1.82$) than sadness ($M = 3.37$, $SD = 2.09$). In response to achievement situations, however, no significant effects as a function of emotion were found (sadness: $M = 4.87$, $SD = 2.47$; anger: $M = 4.31$, $SD = 2.24$). The level of outcome expectancies for binge-eating of girls with depression and those without a diagnosis did not differ as a function of emotion or theme condition.

Emotional Experience

Differential Emotions Scale -Fourth Edition (DES-IV).

A RM-MANOVA was conducted to investigate group differences in the frequency of positive emotional experience. Dependent variables were girls' scores on the scales of the DES-IV that measure the frequency of positive emotional experience (i.e., Interest, Joy, Surprise). The between-groups independent factor was Group. A significant Group x Emotion interaction emerged, $F(3, 43) = 7.46$, $p < .001$, $\eta^2 = .46$.

Consideration of univariate tests of significance for each of the positive emotion scales indicated that girls with no diagnosis ($M = 13.06$, $SD = 1.53$) reported experiencing more joy than girls with bulimia nervosa ($M = 7.75$, $SD = 2.40$) and girls with depression ($M = 9.31$, $SD = 2.91$). There were no significant differences between the bulimia nervosa and the control groups for the frequency of surprise or interest they endorsed.

A MANOVA was conducted to investigate group differences in the frequency of negative emotional experience. The dependent variables were girls' scores on the DES-IV scales that measure negative emotional experience (e.g., Contempt, Disgust, Fear, Hostility, Anger, Sadness, Shame, Shyness, and Guilt). The between-groups independent factor was Group. Results revealed a significant Group x Emotion Interaction, $F(9, 37) = 8.79$, $p < .001$, $\eta^2 = .68$. Consideration of univariate tests of significance for each of the negative emotion scales indicated that girls with bulimia nervosa, compared to their depressed peers, reported experiencing significantly more guilt, shyness, disgust, self-directed hostility, and embarrassment. There were no differences between the bulimia nervosa and depressed groups for contempt, fear, anger or sadness. Girls with bulimia nervosa and girls with depression reported experiencing each of the emotions significantly more frequently than their non-eating disordered, non-depressed peers. See Table 3.12 for means and standard deviations of the DES-IV negative emotion scales as a function of group status.

Table 3.12

Means and Standard Deviations for the Negative Emotion Scales of the Differential Emotions Scale-Fourth Edition (DES-IV) for Girls as a Function of Group Status

Scale	Group		
	Bulimia Nervosa	Depression	No Diagnosis
Guilt	11.81 (2.32) _a	9.75 (2.05) _b	6.50 (1.46) _c
Shyness	11.19 (2.54) _a	8.00 (2.88) _b	5.38 (1.63) _c
Disgust	10.31 (3.65) _a	7.19 (2.43) _b	4.13 (1.09) _c
Self-Directed	13.13 (1.71) _a	8.87 (2.78) _b	4.06 (.93) _c
Embarrassment	11.81 (2.23) _a	8.31 (2.47) _b	4.87 (1.31) _c
Sadness	12.37 (2.45) _a	10.63 (2.42) _a	5.00 (1.32) _b
Contempt	6.81 (2.07) _a	6.50 (2.63) _a	4.69 (1.08) _b
Fear	8.94 (2.52) _a	8.06 (2.82) _a	3.88 (1.26) _b
Anger	10.12 (2.79) _a	9.94 (3.26) _a	5.56 (1.36) _b

Note. Means are presented followed by standard deviations in parentheses. Means in the same row that share the same subscript are not significantly different at $p < .05$.

*** $p < .001$.

Type of emotionally-arousing situation generated.

Girls' self-generated situations to the question on the AEI, "Tell me about a time you felt really/a little bad," were coded into categories reflecting the informational account of the negative emotional event and frequencies were calculated. There were no significant differences between the groups in the types of situations generated for high and low emotional arousal. Overall, girls reported feeling high intensity emotional arousal in the following situations: loss (33.3%), interpersonal conflict (18.8%), failed responsibility/regret over conduct (10.4%), injury or illness (10.4%), victimization (10.4%), achievement (6.3%), autonomy (6.3%), and instrumental-negative (4.2%). In relation to low intensity emotional arousal, girls endorsed the following situations: achievement (25%), failed responsibility/regret over conduct (25%), interpersonal conflict (16.7%), loss (10.4%), instrumental-negative (8.3%), appearance (4.2%), and autonomy (2.1%). Please refer to Table 3.13 for presentation of percentage of situations generated as a function of emotion intensity and group status.

Table 3.13

Percentages of Situations Endorsed for the Access to Emotion Interview, Open-Ended Question, "Tell me about a time you felt (really/a little) bad," as a Function of Group and Intensity

Categories	High			Low		
	Bulimia	Depress s	No Dx	Bulimia	Depress	No Dx
Achievement	6.3	6.3	6.3	18.8	25.0	31.3
Appearance	0	0	0	12.5	0	0
Autonomy	0	0	18.8	6.3	0	0
Interpersonal Conflict	6.3	25.0	25.0	18.8	25.0	6.3
Loss	25.0	50.0	25.0	18.8	12.5	0
Injury	25.0	6.3	0	0	0	0
Instrumental- Negative	0	6.3	6.3	0	6.3	18.8
Responsibility/ Conduct	25.0	0	6.3	12.5	25.0	37.5
Victimization	12.5	6.3	12.5	0	6.3	6.3
Unscorable	0	0	0	12.5	0	0

Note. No Dx = No diagnosis; Depress. = Depression; Bulimia = Bulimia Nervosa.

Chapter 4

DISCUSSION

The field of developmental psychopathology has paid increasing attention to the nature of emotion regulation, and its relationship to normative and atypical development (Cicchetti et al., 1995; Fox, 1994). Research suggests that emotion regulation is a multifaceted process that involves several competencies such as the ability to monitor, evaluate, and modify one's emotional reactions in an effort to adapt to various environmental demands and to accomplish one's personal goals (Thompson & Calkins, 1996). Within the field of eating disorders, numerous affect regulation models of bulimia nervosa have been proposed to describe the consistent relationship between negative affect and binge-eating. Although these models appear promising, they fail to address research and theory on normative emotion regulation. Given that abnormal emotional functioning represents deviations from normal development, the failure to incorporate findings from normative emotional development in the current conceptualizations promotes misunderstanding and distortion of the emotion regulation process. The information processing model recognizes the myriad skills that comprise emotion regulation, and as such, is a useful framework for describing normative and maladaptive emotion regulation.

The present study investigated three steps of emotion regulation that appear to play a role in bulimia nervosa (i.e., Perception, Response Generation, and Response Evaluation). In general, findings indicated that girls with a DSM-IV diagnosis of bulimia nervosa, compared to those with a DSM-IV diagnosis of a unipolar mood disorder and

those without a psychiatric disorder, exhibited significantly greater difficulty at the Perceptual stage of information processing. Specifically, compared to girls in the control groups (e.g., depression, no diagnosis), girls with bulimia described themselves as having less awareness of their emotional states and decreased motivation to express negative emotion to others. They also described themselves as less adept at recognizing and discriminating between negative emotional states than girls in the control groups. Compared to their depressed and their non-disordered peers, girls with bulimia also reported having inferior processing at the Response Generation stage. They possessed a more limited repertoire of culturally appropriate emotion regulation strategies than girls in control groups, and were less able to access these strategies when under high emotional arousal than girls without a diagnosis. Finally, girls with bulimia and those with depression exhibited more difficulty at the Response Evaluation stage of processing than girls without a diagnosis. That is, they evaluated themselves as less competent at implementing emotion regulation strategies effectively, and rated the outcome of their chosen strategies as less effective in decreasing their negative emotional state than those without a diagnosis. The following discussion will consider the diverse implications of these findings for our understanding of bulimia nervosa and the emotion regulation process. A brief discussion of each of the findings will be followed by a consideration of the limitations of the present study, areas for future research, and the clinical implications of these results.

Emotion Perception Skills

Interoceptive awareness

As hypothesized, girls with bulimia nervosa exhibited more difficulty identifying internal emotional states and bodily sensations than both depressed and normal adolescents. This is consistent with findings suggesting girls with eating disorders, including those with bulimia nervosa suffer from an interoceptive deficit (Bruch, 1973; Leon et al., 1993, 1995). This interoceptive deficit may be a product of the gradual desensitization to signals of hunger and satiety that occurs in response to extreme restriction and binge-eating. Alternatively, this difficulty identifying interoceptive sensations may precede the symptoms. Despite support for the role of an interoceptive deficit in the maintenance of bulimia, it is less obvious whether it represents a risk factor for the development of the disorder. Given the cross-sectional nature of this investigation, this issue of causality was not addressed and should be investigated in future research endeavors.

Although it is plausible that girls with bulimia nervosa may become desensitized to physiological stimuli of hunger and satiety, it is unclear why emotional states would also become less salient and identifiable. Research suggests that individuals with bulimia exhibit problems with internal scanning, a cognitive process by which the person monitors and utilizes internally generated cues and available information (Heilbrun & Bloomfield, 1986). Although this research has limited the investigation of internal scanning processes to the study of physiological sensations, it is likely that this applies to emotional stimuli as well. Given that basic emotional states have a physiological component (Fischer, Shaver, & Carmochan, 1990; Izard & Kobak, 1991), not perceiving

physical signals would likely interfere with recognition of emotional states. Obviously, such interoceptive deficits, whether they are problems with recognizing physical or emotional cues, would seem to play a role in the maintenance of the bulimic pathology. Individuals with bulimia often confuse strong emotional cues with signals of hunger, leading to binge-eating (Waters, Hill, & Waller, 2001).

Emotion awareness and expressive reluctance

Girls with bulimia nervosa endorsed poorer awareness of emotional states and a greater reluctance to express emotion, compared to both depressed and non-disordered girls. This finding is similar to Leon and colleagues' (1993,1995) findings that poor interoceptive awareness is a risk factor for the development of eating disorders. These authors suggest that binge-eating, purging, and restricting are employed as methods to regulate emotional states that one has difficulty identifying. From an information processing perspective, poor awareness of one's emotions would necessarily compromise later stages of processing by making it difficult to respond adaptively to relieve these indistinct negative emotional states. Without the ability to identify the specific emotion one is experiencing, choosing an appropriate and effective strategy to resolve this state of arousal will be largely haphazard or based on short-term consequences, and thereby inadequate. Thus, over time, binge-eating and purging may develop as an immediate, all-purpose response for alleviating negative mood.

This study examined the ability to identify internal emotional states, as opposed to decoding or recognizing emotions in others. Emotion regulation, however, often involves extrinsic processes, or the ability to recognize emotional states in others. An important area for future research would be to examine whether the awareness deficit in individuals

with bulimia is specific to identifying emotions in oneself or whether it generalizes to recognizing emotional expressions in others.

In addition to simple awareness of emotional and physiological cues, findings from the Expressive Reluctance Scale of the EEC indicate that girls with bulimia and those with depression report being more unwilling to express emotion than girls without a psychiatric diagnosis. Girls with bulimia nervosa were not significantly different from those with depression on this dimension. Given research that finds an association between the reluctance to express emotion in children and internalizing symptoms (Penza-Clyve & Zeman, in press), this may have been a function of the high level of depression in the bulimic sample.

Another explanation may rest on bulimic and depressed girls' poor awareness of emotional states. Specifically, to express emotion one requires a clear understanding of which emotion is being experienced. Indistinct negative emotional states do not lend themselves well to a discussion of the causes and consequences of emotions. Given that girls with bulimia and those with depression endorsed poor awareness of their emotional state, it follows that they would be less likely to express their feelings to others, especially if they do not themselves know what they are feeling. This reluctance to express may interfere with the skills to understand emotions in others, as well as the ability to resolve feelings wrought from emotion provoking events. From a public health perspective, this finding is especially troubling given research that suggests individuals who are able to communicate emotional experiences to others in a coherent narrative have improved physical health, enhanced immune function, reduced medical visits, and

superior psychological adjustment than those who actively inhibit emotional expressions (Berry & Pennbaker, 1993; Pennbaker & Seagel, 1999).

Families of individuals with bulimia exhibit low levels of emotional communication, as well as poor expression of empathy and understanding for emotional communications within the family (Hastings & Kern, 1994; Humphrey, 1986; Johnson & Flach, 1985; Shisslak, McKeon, et al., 1990). Girls with bulimia may be more reluctant to express emotion than their non-eating disordered counterparts based on family socialization experiences whereby expressing emotion is undesirable.

Individuals with bulimia also have a limited network of social support (Pyle et al., 1981). As such, the reluctance to express emotion among girls with bulimia may be based on a lack of meaningful social relationships that would provide opportunities to communicate emotion. Unfortunately, the reluctance to express emotion may also be self-sustaining, interfering with the development of close interpersonal relationships that, in turn, diminish the use of support-seeking strategies. Longitudinal research is needed to understand the causal direction of this relationship.

Response latencies to describe emotional states

Additional support for the conclusion that girls with bulimia reported a limited awareness of their emotional state and difficulty expressing this state to others emerged from data on their latencies to label an emotional state. Girls with bulimia nervosa exhibited significantly longer latencies to describe their emotional state than did girls in either control group. In addition to taking more time to arrive at an answer, girls with bulimia also used more non-emotional descriptions of their emotional state including vague descriptors (e.g., upset, hurt, bad), as well as cognitive explanations to describe

how they were feeling (e.g., betrayed, unfair, undermined), than girls in the control groups.

Girls with bulimia, compared to those in both control groups, exhibited a unique difficulty describing their emotion in contexts of high emotional arousal. There are two possible explanations for this finding. First, it may be that high and low intensity emotional situations require separate behavioral organizational processes. As such, girls with bulimia may lack particular skills to identify their emotion in response to high intensity situations. They may become flooded or overwhelmed with the emotional experience and unable to process their feelings in an organized manner. Second, research suggests that cognitive biases in depression enhance the speed of processing of negative emotional stimuli (Matthews & Southall, 1991; Power, Cameron, & Dalgleish, 1996; Scott & Bradley, 2001). It is possible that girls with depression exhibit a specific tendency to over-identify and perseverate on interoceptive and affective cues. Girls with depression may tend to focus on feelings that confirm their emotional state and thus respond more quickly to questions regarding affect. That is, they may over-identify any high intensity emotions as representing the familiar emotional states of sadness and anger. Nonetheless, the fact that depressed adolescent females were no faster than those without a diagnosis in responding to emotional stimuli appears to shed doubt on this possibility.

Given research findings that individuals with bulimia nervosa tend to be especially prone to experiencing heightened emotional distress, the finding that girls with bulimia nervosa exhibit a specific difficulty labeling high intensity emotional states is

significant, and highlights that they tend to become disorganized in response to high levels of emotional arousal.

Ability to differentiate emotions

Providing further support for a Perceptual deficit, girls with bulimia selected a vast array of terms to describe their emotional state. Specifically, girls with bulimia were asked to select and rate the intensity of different emotions that would represent how they would feel in hypothetical situations. Girls with bulimia, compared to their non-eating disordered peers, endorsed significantly more emotions to describe how they would feel in response to these situations. For example, girls with bulimia endorsed on average, 12 emotional descriptors, amounting to a veritable emotion soup to describe their emotional state. One explanation for this indistinct and indiscriminant endorsement of items is that girls with bulimia exhibit difficulty distinguishing between various emotional states. An alternative possibility is that girls with bulimia display an exaggerated response style. That is, in an effort to describe how negatively they would feel in these situations they strongly endorse all possible items. This second scenario is consistent with findings that girls with bulimia, compared to those in control groups, endorsed experiencing more intense emotion in response to hypothetical scenarios. Interestingly, these scenarios were not designed to elicit strong feelings but rather to reflect mild to moderate levels of emotional distress or typical experiences in daily life of adolescent females (e.g., failing to do well on a test; finding nothing to wear; getting one's hair cut too short). The tendency to feel so strongly about commonplace occurrences would be consistent with research that finds women with bulimia describe life events that are associated with normative developmental transitions as precipitating their eating disorder (Sharpe, Ryst,

Hinshaw, & Stiner, 1997). Clearly, this finding suggests that it is not the events themselves that are related to the development of bulimia but the perception of these events as highly stressful (Cattanach & Rodin, 1988).

Although girls with bulimia endorsed a wider array of emotions than girls with depression, it is also instructive that girls with depression endorsed significantly more emotions than girls without a diagnosis. Similar to girls with bulimia, those with depression may be prone to over-report or exaggerate how negative they would feel. Alternatively, they too may exhibit interoceptive problems, albeit to less of an extent than girls with bulimia. When presented with stories that simply asked the intensity of emotion participants would feel, as opposed to which emotions they would feel, girls with depression did not differ from those without a diagnosis. As such, the undifferentiated response to the emotion questions is unlikely to reflect an extreme response style, and more likely to represent a difficulty discerning emotional states. Future research is necessary to elucidate these findings.

Response Generation Skills

Knowledge

One of the goals of using hypothetical vignettes was to determine if girls with bulimia exhibit a knowledge deficit for alleviating negative affect in response to various situations normative to female adolescents. That is, some questions assessed what girls believed they *should do*, as opposed to what they *actually did* in a specific situation to alleviate negative mood. Compared to their depressed and non-disordered counterparts, girls with bulimia reported that they would use significantly more avoidant strategies and

fewer problem-focused strategies to alleviate negative mood in response to these scenarios.

This finding is consistent with research that suggests women with bulimia tend to use more maladaptive emotion-focused strategies, as well as more passive and avoidant methods, and rely extensively on a limited number of coping strategies (Hansel & Wittrock, 1997; Koo-Loeb et al., 1998; Mizes, 1989; Shatford & Evans, 1986; Soukup et al., 1990). Moreover, problem-focused strategies are more active in nature, in that they are a direct attempt to confront or gain long-term resolution to a problem (Lazarus & Folkman, 1984).

Interestingly, although this difference applied to appearance situations that involved sadness, it did not apply to appearance situations that involved anger or achievement themes. Several adaptive explanations are offered for this finding. First, girls with bulimia may simply have less knowledge of strategies to use when regulating sadness when it occurs in situations that involve issues about appearance. It is possible that anger may mobilize more active coping responses in that it is an emotion that is considered active in nature (Izard & Malatesta, 1987; Izard, 1993). In contrast, sadness is an emotion that is often directed inward (Izard & Malatesta, 1987; Izard, 1993) and, as such, is likely to instill little motivation to solve the problem in these scenarios.

A second explanation for this finding is that the emotion scenarios chosen may have been limited in their ability to discern the influence of various emotional states and situational demands on coping responses. It is possible that the sadness-appearance stimuli were more meaningful, and thus more emotionally provocative to the bulimia group as compared to the control groups, rendering effective coping responses less likely.

Given girls with bulimia rated their emotional intensity of the sad appearance stories as equivalent to the other situations, this is unlikely to be the case. As such, the knowledge deficit is more likely a product of the specific contextual demands of the situation for these individuals, rather than the emotional intensity of the scenario.

Perhaps the most likely explanation is that that girls with bulimia endorsed more avoidant strategies and fewer problem focused approaches on the sadness-appearance situations because of a particular limitation inherent in the situations chosen. The anger-appearance situations involved issues related to hair or skin, whereas the sadness-appearance situations implied a problem with body weight or shape. Although eating disorder symptoms have been conceptualized as avoidance behaviors or indirect efforts to reduce tension or avoid unpleasant emotions (Christiano & Mizes, 1997), if viewed in the context of the specific situation, girls with bulimia may consider them to be problem-focused in nature. Because it is possible that girls with bulimia may view binge-eating and purging as an effective weight management strategy, they may perceive these symptoms as functioning to solve problems associated with body weight or shape. As such, it is necessary that future research assess individuals' goals in these situations, specific views of how binge-eating and purging operate to alleviate emotional state, and the degree to which these behaviors are perceived to be consistent with weight management.

Access

To measure girls' access to emotion regulation strategies, this study examined what participants reported they *actually* did to cope with emotion in their

autobiographical situations as opposed to what they *would* do in hypothetical situations that were provided for them. In response to these stories, girls without a diagnosis reported using more support-seeking strategies than girls with either bulimia or depression, who did not differ from each other. This is consistent with research that suggests women with bulimia endorse fewer social support seeking methods than control women in response to stressful situations (Koo-Loeb et al., 1998).

There are several explanations for this discrepancy. One explanation is the inconsistent classification scheme applied for categorizing coping strategies (Compas, Conner-Smith, Saltzman, Thompsen, & Wadsworth, 2001). In some schemes, support seeking strategies are included within the category of emotion-focused approaches, whereas in others they are included as a separate classification. Compas and colleagues suggest that models that include only one dimension do not reflect the structure of coping in children and adolescents. According to Compas, emotion-focused and problem-focused coping are insufficient to capture the diversity and complexity of the ways that adolescents cope, and can obscure critical differences in the function of their coping efforts. These authors suggest that support-seeking strategies involve active coping efforts that are intended to achieve some degree of personal control over one's emotions. Moreover, research has conceptualized social support as instrumental in nature, that is, information seeking in preparation to solve a problem (Carver & Scheirer, 1999).

Another possibility for this discrepancy is that most coping research examines everyday stressors, as opposed to high intensity emotion resulting from unusually negative events in the lives of individuals. In coping with intense emotional arousal, there in fact may be very little one can do in terms of altering the situation associated

with the emotional experience, and in these situations, research suggests a more adaptive strategy is to focus on altering the emotional response rather than the situation itself (Lazarus & Folkman, 1984). In short, though it is emotion-focused rather than problem-focused by nature, seeking social support may be one of the most effective methods of alleviating high intensity emotional arousal (Thoits, 1986).

Interestingly, girls with bulimia and girls with depression reported coping with high intensity emotional arousal by resorting to avoidant strategies, rather than support seeking strategies. Although this is contrary to research that fails to support an accessing deficit for girls with depression, this is consistent with findings that girls with bulimia and those with depression are prone to experience disturbed interpersonal relationships (Altmann & Gotlib, 1988; Gotlib & Lee, 1989; Humphrey, 1986; Pyle et al., 1981; Puig-Antich et al., 1993; Strober & Humphrey, 1987). As such, they would have fewer social resources with which to seek support. Their shared paucity of avenues for social support could explain why girls with bulimia did not differ from girls with depression on the access to support seeking strategies.

The finding that girls with bulimia, compared to those without a diagnosis, are less likely to rely on social-support seeking methods is consistent with above results that find girls with bulimia are more reluctant to express emotion than girls without a disorder. Seeking social support for managing negative emotion would seem to be dependent on the ability to communicate one's emotion in culturally appropriate ways. Research suggests that the unwillingness to express emotion is strongly related to the inhibition and dysregulated expression of negative affect, including culturally inappropriate outbursts that would seem to interfere with support-seeking strategies

(Penza-Clyve & Zeman, in press). In addition, the finding that girls with bulimia are less likely to use social-support methods and more likely to use avoidant strategies than girls without a diagnosis is consistent with research that finds women with bulimia exhibit less competent social skills than their non-eating disordered counterparts (Espelage, 1998). In this case, girls with bulimia may be unequipped with the skills integral to using support-seeking strategies for emotion management.

Interestingly, the three groups failed to differ with regard to the coping strategies reported for low emotional intensity arousal. This suggests that for girls with bulimia, and those with depression, the intensity of emotional experience elicits a specific accessing deficit. This finding is noteworthy given the idea that emotion can be either an organizer or a disorganizer of behavior depending on the intensity of the emotional experience (Campos et al., 1994). Research on mood state dependent recall also supports this finding (Bower, 1981), such that information acquired while one is in a low or moderate level of emotional arousal may prove more difficult to access in a highly distressed state.

Response Evaluation Skills

Self- efficacy

Self-efficacy for regulating sadness, anger, and fear

As expected, girls without a diagnosis evaluated their own abilities to alleviate emotions of sadness, fear, and anger more positively than girls with bulimia and those with depression, who did not differ from each other. This finding is concordant with the eating disorders literature that finds individuals with bulimia nervosa tend to endorse low

levels of perceived personal control, global self-efficacy, and self-sufficiency (Etringer et al., 1989; Lyon et al., 1997), as well as perceive themselves as ineffective in domains such as coping with stress or negative situations and alleviating feelings of guilt (Bybee et al., 1996; Wagner et al., 1987). Moreover, this is consistent with Garber and colleagues' (1991) finding that depressed children evaluate themselves as less effective at reducing their sad affect. This may suggest that the development of the Response Evaluation stage is similar for the two groups. However, it is possible that the two groups may share separate pathways to a similar behavioral response. To determine the developmental trajectory of this aspect of emotion regulation, longitudinal research is necessary.

Regardless of group status, findings indicated that all girls perceived their ability to regulate anger to be greater than their ability to regulate sadness. In fact, a large body of research has found girls to be likely to regulate feelings of anger, disclose feelings of vulnerability, and report feeling better if they expressed feelings of sadness (Fuchs & Thelen, 1988; Garber & Zeman, 1996; Underwood, Cole, & Herbsman, 1992; Zeman & Shipman, 1996). Moreover, girls are socialized from an early age to display emotions that are related to traditional roles that support expressions of affiliation and vulnerability and discourage displays of animosity and aggression (Brody & Hall, 1993). Because this study did not assess gender differences, however, it remains unclear whether girls report a higher level of self-efficacy for regulating anger than adolescent boys. Future research is necessary to elucidate this issue.

Self-efficacy in actual situations

In response to self-generated situations, girls with bulimia and those with depression perceived themselves as having a decreased ability to control their emotions than girls without a diagnosis. Although this finding obscures our ability to isolate why girls with bulimia exhibit the deficit, the finding that girls with depression do not differ from those with bulimia in this context is consistent with the literature that finds individuals with depression exhibit low levels of self-efficacy (Abrahmson et al., 1978; Garber et al, 1991). An important caveat to these findings is that girls with bulimia and those with depression may have rated themselves as less able to control their emotion because they actually may be less skilled at implementing effective strategies. Alternatively, the strategies they reported may in fact have been less effective which would render their perceptions accurate, as opposed to feeling merely pessimistic about their abilities. Research suggests that avoidant strategies tend to be ineffective at reducing negative emotion in the long-term (Christiano & Mizes, 1997). Indeed, findings from the present study indicate that girls with bulimia stated using fewer support-seeking strategies, more avoidant methods, and less active strategies than those cited by controls. If it is the case that girls with bulimia exhibit problems not with response evaluation, but hold accurate and realistic assessments of their abilities, it would have been better to assess the response generation and response evaluation components of the information processing model independently from each other. Comparing bulimic and control groups with respect to their efficacy ratings on the full range of strategies that all girls typically generate, and not only the strategies that the bulimic girls reported using, may help us to answer the question regarding why they view their abilities so poorly.

Regardless of group status, girls exhibited higher levels of self-efficacy in alleviating their negative emotional state in response to low- rather than high-intensity emotional arousal. In response to low emotional arousal the groups did not differ in their level of self-efficacy to alleviate emotional states. This finding is consistent with previously discussed results that the strategies girls reported using did not differ as a function of group status. This lends additional support for the idea that girls' perceived level of self-efficacy is related to the strategies that they choose. To better examine perceptions of ability, future research might ask girls to compare their perceived ability to use various strategies to alleviate negative emotional states to their perceptions of a friend's ability to enact strategies.

As expected, girls without a diagnosis endorsed significantly higher levels of self-efficacy than girls with bulimia in response to hypothetical vignettes. This is consistent with research that finds individuals with eating disorders, compared to controls, tend to endorse lower levels of perceived personal control (Etringer et al., 1989), report lower self-efficacy with respect to both social and eating situations, as well as low levels of self-sufficiency (Wagner et al., 1987).

Girls with depression, however, did not differ significantly from either group. This finding was unexpected given the finding that depressed youth tend to evaluate themselves and their strategies as less successful than those without a diagnosis in alleviating their negative mood (Garber et al., 1991). However, this finding may be related to the fact that girls with depression did not differ from those without a diagnosis in the endorsement of problem focused strategies on this measure. Again it is likely that girls' assessment of their ability to regulate their negative mood is based on the strategies

they choose, and in this regard is an accurate portrayal of their perceived efficacy in alleviating negative affect. That is, as long as their strategies they chose are effective, they will tend to evaluate themselves as effective.

The results did not support the hypothesis that girls with bulimia would exhibit lower self-efficacy on stories in which the emotion is not labeled for them. Further, girls with depression endorsed lower levels of self-efficacy in achievement situations where the emotion was labeled for them than when the emotion was not labeled. One explanation for this finding is that labeling anger or sadness may prime depressed adolescents for a general negative expectancy that nothing can be done to alter these emotions. Failed past attempts with achievement followed by corresponding unsuccessful attempts at alleviating their negative mood may be one cause for this predisposition. This seems especially plausible given the evidence that depressed individuals often believe the cause for their distress to be stable and unchangeable (Nolen-Hoeksema, Girgus, & Seligman, 1986; Peterson & Seligman, 1984).

Outcome expectancies

Outcome-expectancies for common mood regulation strategies

To clarify whether girls with bulimia and those with depression evaluate their strategies accurately, groups were compared with respect to the efficacy ratings of the full range of strategies that both groups typically generate. Findings indicate that compared to those without a diagnosis, girls with bulimia and those with depression endorsed significantly lower levels of outcome expectancies for common strategies to alleviate negative mood. Again, girls with bulimia did not differ from those with depression on

their generalized outcome expectancies for using these strategies to manage their emotion. These results would suggest that girls with bulimia and those with depression view adaptive cognitive behavioral strategies as significantly less effective at regulating negative affect. Some may assume this means girls with either diagnosis have a general negative response tendency, but diagnosed groups did show significant differences in their efficacy ratings across the various categories of strategies.¹ Girls with bulimia rated problem-focused strategies as significantly more effective than pleasant event scheduling. Girls with depression rated pleasant event scheduling as significantly more effective than cognitive strategies. Clearly, although both bulimic and depressed girls had consistently lower efficacy expectations, this did not seem to be the result of an undifferentiated negative response style. These girls may actually be less skilled at implementing these strategies which would render their experience more negative with regard to managing negative affect than their non-disordered counterparts.

Outcome expectancies for chosen strategies in actual situations

With regard to girls' reported effectiveness of their regulation strategies in self-generated emotionally arousing situations, girls with bulimia evaluated the strategies they used as significantly less effective at alleviating negative mood than girls without a diagnosis. Although girls with depression rated their strategies as more effective than girls with bulimia, they did not differ with regard to their reported reliance on avoidant strategies and paucity of social-support seeking strategies. This suggests that girls with bulimia may actually have a more realistic assessment of the strategies they use than girls with depression. The fact that girls with depression evaluated themselves as less

effective at implementing their strategies, yet appraised their strategies as equally effective as girls without a diagnosis is consistent with research that suggests individuals with depression exhibit an internal attributional style (Nolen-Hoeksema et al., 1986; Peterson & Seligman, 1984). That is, individuals with depression tend to be more likely to evaluate themselves, as opposed to their strategies, as less effective. Interestingly, research finds that if a girl should attribute the cause of her distress to unstable factors (i.e., lack of knowledge or ineffective strategies), she will be more likely to engage in behaviors that will prepare her to do better in the future and thus to feel better. In contrast, a girl who interprets the cause of her distress to a stable and global factor (i.e., deficits in ability), will be more likely to give up and continue feeling emotional distress.

One caveat to the above findings is the post-hoc nature of the participants' report on the Access to Emotion Interview. Because the participants knew how the situation turned out, the measure did not assess outcome expectancies per se. Instead, it assessed girls' evaluation of the *actual* outcome efficacy, as opposed to the *expected* outcome efficacy. This limitation aside, the assessment clearly provides a persuasive explanation for why girls with bulimia tend to evaluate their strategies as less effective than girls without a diagnosis. Past experience has provided them with a realistic, albeit negative, evaluation of the strategies they tend to implement. With this in mind, it is possible to offer another explanation for why girls with depression evaluated their strategies more positively than girls with bulimia, despite their endorsement of similarly maladaptive strategies. That is, perhaps they are evaluating the short-term effectiveness of their avoidant strategies (i.e., staying home from school, crying, or sleeping) as being effective. This focus on immediate reinforcers of regulation strategies, as opposed to the

long-term consequences, would tend to promote a reliance on these strategies in the future among girls who are depressed. It is less clear, however, why girls with bulimia evaluate their strategies as less effective yet continue to endorse their use.

Outcome-expectancies for chosen strategies in hypothetical situations

Compared to those without a diagnosis, girls with bulimia perceived their strategies to be less effective in alleviating negative emotion in hypothetical situations. Girls with depression did not differ from either group on this measure. Because the Emotion Identification and Coping Interview does not assess situations that have occurred, participants do not have knowledge of the outcome of their strategy. This would suggest that girls with bulimia exhibit a specific negative outcome expectancy regarding the strategies they choose. It is important to note, however, that the assessment of skills at the response generation and response evaluation stage were not conducted independently. As such, it is possible that these outcomes were a fair assessment of the strategies girls chose, particularly as the strategies endorsed by girls with bulimia were rated as less active than girls with depression and those without a diagnosis.

Regardless of group status, all girls endorsed more negative outcome expectancies for coping with achievement than appearance situations. This finding contrasts to earlier results that girls endorsed more problem focused and fewer avoidant strategies in response to emotion in achievement situations than they did for appearance situations. Despite having more positive coping strategies, they expect more negative outcomes for these strategies in these situations. More research is necessary to elucidate this finding.

Outcome expectancies for dieting and binge-eating to regulate negative affect

As expected, girls with bulimia perceived dieting to be significantly more effective at alleviating negative mood than girls with depression and those without a diagnosis. This is true in both high and low intensity emotion arousal situations, as well as in hypothetical and self-generated situations surrounding appearance and achievement. Interestingly, regardless of group status, girls perceived binge-eating to be more effective in coping with high intensity emotional arousal which suggests that even girls without eating disorders perceive binge-eating to be effective at alleviating strong emotional states. This may reflect cultural beliefs on the soothing nature of food.

With regard to hypothetical situations, a surprising finding emerged. Although girls with bulimia exhibited greater outcome expectancies for using binge-eating to cope with negative affect than girls without a disorder, girls with bulimia did not differ from girls with depression in their appraisal of the efficacy of binge-eating. Given the low level of eating disorder symptoms within the depressed sample, this finding was unexpected. Individuals with depression may ignore long-term consequences, and instead evaluate regulation strategies based on their immediate effects at reducing emotional states. As such, binge-eating may be viewed by depressed adolescent females as a strategy viable in the short-term. Interestingly, binge-eating is typically found in individuals with seasonal affective disorder (SAD) (APA, 2000). Given that the depressed girls were recruited from a treatment center in the Northern part of the country during the months of October through March, it is possible that a seasonal component to the depression was overlooked by the diagnosing clinician and structured interview.

Alternatively, the group differences may have been hidden by the possibility that girls with bulimia minimized the immediate emotion regulation benefit of binge-eating. When not in the midst of high emotional arousal, girls with bulimia may focus on their long-term goals of weight loss. Under these conditions, girls with bulimia may perceive binge-eating as counterproductive to these goals. Their experience that binge-eating leads to strong feelings of guilt and shame in the long-term may also influence their appraisal of outcomes for binge-eating to regulate emotion.

Consistent with above findings that girls with bulimia endorse lower levels of self-efficacy in coping with anger, they were found to endorse lower expectations for using binge-eating in appearance situations for coping with anger than sadness. This finding may result from the belief that sadness is less amenable to change in these situations. Given that this finding only occurred in response to appearance situations, however, it is more likely to be a result of limitations with the emotion stimuli. Specifically, sadness-appearance situations involved a problem with body-weight or shape. Although girls with bulimia may view binge-eating as associated with affect regulation, they may view the strategy as counter productive to weight management.

Emotion Experience

With regard to the range of emotions experienced in daily life, compared to their depressed peers, girls with bulimia were more likely to experience guilt, shyness, disgust, self-directed hostility, and embarrassment. Girls with bulimia did not differ from their depressed peers, however, on the frequency of experiencing sadness, contempt, fear, anger, joy, interest, or surprise. Heatherton and Baumeister (1991) suggested that

individuals with bulimia are more likely to experience emotions that are focused on the self, a state of mind that has been associated with disinhibiting binge-eating. The present study supports this notion. With the exception of disgust, all other emotions that discriminated between girls with bulimia and those with depression were self-conscious in nature. It is also consistent with findings that individuals with bulimia harbor unrealistically high standards and expectations. Falling short of these expectations is likely to produce heightened levels of self-focused emotions, increasing the risk for symptoms of binge-eating and purging. In addition, the high frequency of self-focused emotions in the daily life of girls with bulimia nervosa may be a result of binge-eating and purging behavior that these girls view as self-defeating. Specifically, these symptoms are undesirable in that they undermine bulimic girls' goals of restriction and weight loss, leaving them self-hating, shy, guilty, embarrassed, and disgusted.

Limitations and Directions for Future Research

Although the findings of the present study provide a cohesive picture of the vast range of emotion regulation skills, patterns, and deficits of girls with bulimia nervosa, certain limitations exist with regard to understanding the role of these skills in the development and maintenance of the disorder. Given the cross-sectional nature of this research, implications regarding causal factors cannot be drawn. Until such time when a longitudinal study addresses these findings, the present results should be considered descriptive in nature. Future research is necessary to understand the direction of the relationship between Perception, Response Generation, and Response Evaluation and binge-eating. It is possible that binge-eating and purging may develop in response to

extreme dietary restriction, yet are maintained by the relief that is provided from aversive self-focused emotions. Over time, girls with bulimia who engage in binge-eating and purging may lose their ability to identify emotion, to generate culturally appropriate strategies for emotion management, and to access these strategies when under stress. With fewer opportunities to practice emotion regulation skills, girls may become less skilled at implementing adaptive emotion regulation strategies and hence, experience more negative outcomes from using maladaptive emotion regulation strategies. As a result, they may begin to evaluate themselves and their strategies as less effective.

It is equally plausible that these deficits developed *prior* to the onset of the binge-eating and purging behavior. Perhaps in the context of cultural values on thinness, binge-eating and purging strategies developed to compensate for the specific pattern of deficits in the Perceptual, Response Generation, and Response Evaluation stages of processing. That is, given that appropriate skills to regulate emotion were never learned, the immediate reinforcing consequences of binge-eating became a tool to substitute for the deficits. If so, understanding how these skills are developed requires longitudinal research examining the developmental trajectory of this particular pattern of emotion regulation, as well as its degree of influence on the development of the disorder.

The self-report nature of the measures to assess Response Generation and Response Evaluation limit our confidence in the findings. Social desirability and general inaccuracy in reporting can create biases in the data. Used exclusively, self-report data can limit our understanding of factors that result in group differences. As such, future research would be wise to consider employing observational methods in assessing girls' responses. One possibility would be to conduct behavioral observations in which

researchers place girls with bulimia in emotionally challenging situations and observe their coping responses. Observational methods would provide vital information on the concordance between girls' perception of their coping strategies and their actual emotional responses, not to mention their expectancies of outcomes following their emotional displays.

Another potential methodological limitation of the present study is the relatively small sample size (16 girls in each group). It seems striking, however, that despite this small sample size, many findings did reach significance. In fact, the small sample size may have constituted an advantage as opposed to a shortcoming given the susceptibility of large N research to Type I error. Nevertheless, given the number of statistical analyses conducted, some of the findings may have inflated the experiment-wise alpha level, increasing the risk of a Type I error.

With respect to specific issues in the methodology, two limitations with the interview measures must be considered. The first concerns the emotion stimuli used in the Emotion Identification Interview. In order to enhance ecological validity, the stimuli were chosen based on a community sample of 50 girls, ages 12 through 18 who endorsed sadness or anger as the primary emotion they would experience in response to a host of stories related to appearance and achievement. The anger and sadness stories girls endorsed were not equivalent with regard to several variables across emotion and theme. Specifically, the appearance stories in which 80% or more of girls endorsed experiencing sadness involved the theme of body-image. Those appearance stories in which 80% or more of the girls endorsed anger involved a non-body image related scenario. In addition, a focus on the self as the origin of the emotion covaried with the stories in

which 80% or more of the girls endorsed sadness. The stories in which 80% or more of the girls endorsed anger as the primary experienced emotion included stories in which the responsibility for the emotion was outside the self. We cannot rule out the impact that these variables had on girls' self-report of their emotion regulation skills. Unfortunately, the degree of self-focus in the sad stories, and the extent to which body-image was implied in the appearance stories, limits our interpretation of how emotion and story theme affect emotion regulation skills.

The interview measures were also limited by their lack of independence in assessing response generation and response evaluation. Specifically, girls may have evaluated themselves based on the strategies they endorsed in that situation. If the strategy they chose was effective, they may evaluate their coping abilities as effective. However, findings from the Self-Efficacy for Emotion Regulation and the Generalized Expectancies of Negative Mood Regulation provided an independent assessment of response evaluation skills, one that supported the findings that girls with bulimia and girls with depression appraised themselves and their strategies as less effective in regulating their negative mood than those without a diagnosis.

A third potential challenge to this study, despite the use of depressed controls, is the level of depression present in the bulimic participants. Moreover, this study did not assess bulimic girls for a depressive disorder, as was done with the depressed participants. As such, there remains the possibility that the differences found between the psychiatric groups may be a function of girls with bulimia having to cope with two psychiatric disorders simultaneously (i.e., depression and bulimia). Although girls with bulimia may have had a second disorder, their specific emotion skill deficits are not

likely to be related to depression, considering data from split half analyses using depression scores that were conducted on girls with bulimia. That is, girls with bulimia who scored low on depression did not differ from those who scored high on any of the emotion measures.² Considering that symptoms of depression are common in girls with bulimia nervosa (Herzog, 1982; Hudson & Pope, 1987; Pope & Hudson, 1987), excluding girls with bulimia based on a high depression score may not be externally valid.

Another limitation was the varied treatment contexts for individuals in the clinical groups. Although some of the girls with bulimia were assessed prior to beginning treatment, others had experienced several months in treatment. Similarly, those with depression had a varied duration of treatment. Moreover, participants in the clinical groups differed with regard to the context of treatment with a proportion treated in a partial hospital treatment program. Finally, many girls in the clinical groups were taking antidepressants. Clearly, these varied treatment experiences would influence participants' responding. In particular, those who had significant exposure to psychotherapy may be more likely to have insight into their emotional state, a language with which to communicate emotion, and the possession of more skilled coping responses. Unfortunately, information regarding the number of sessions of psychotherapy the participants attended was not available.

In light of the descriptive nature of the study, the socialization contexts that contribute to the development of girls' emotion regulation skills were not examined. From a developmental psychopathology perspective it is essential to examine these girls' socialization experiences that would contribute to their pattern of deficits. Future

research in this area would benefit from an assessment of these girls' expectations of support for their emotional displays, as well as their perception of the interpersonal consequences of regulating or expressing their emotion. Given that emotional skills typically develop in the context of the family and peer group (Cassidy, Parke, Butkovsky, & Braugart, 1992; Halberstadt, 1986; Saarni, 1999), it would be useful to examine emotional communication within the relevant social environment. With this in mind, it is important to assess the beliefs of various socialization figures with regard to emotion regulation and emotional communication. This research should also include measures of the value that parents and peers place on emotional expression, their provision of emotional support or discouragement for emotional displays or regulation of emotional behavior, and measures of the skills that characterize mothers and fathers of girls with bulimia nervosa. It would be illustrative to examine whether parents of girls with bulimia report similar levels of psychological distress and poor emotional awareness as those of their adolescent daughters. Possible observational measures might involve creating a situation requiring mothers and their adolescent daughters to negotiate an emotionally arousing situation. Within these observations, researchers could assess parental labeling for their adolescents' emotions, demonstrations of empathy and emotional support, as well as parental emotional expression.

Clinical Implications

Findings from this research suggest a specific pattern of emotion regulation skill deficits is present in individuals with bulimia nervosa. Given these impairments in the capacity to regulate emotions, successful treatment of the disorder should involve

improvements in these emotion regulation skills. If this is true, not only will it help to improve current treatments, it may suggest that improved emotion regulation may mediate the successful treatment of bulimia nervosa in the currently accepted treatment approaches for bulimia nervosa, Cognitive Behavior Therapy (CBT) and Interpersonal Therapy (IPT).

If there is validity to the speculations regarding CBT and IPT as emotion regulation therapies, then several implications follow. First, improved emotion regulation may account for the similar outcomes achieved by strikingly different treatments for bulimia nervosa. Second, assessment of emotion regulation competence vis-à-vis the information processing model may provide useful information about appropriate treatment targets for bulimia nervosa, in general, as well as for individual clients. Third, emotion regulation competence may provide a fruitful target for outcome assessment. Conversely, because successful therapy should lead to improved emotion regulation, the failure to improve emotion regulation competence in clients who otherwise show improvement in specific bulimia nervosa symptoms at post-treatment (e.g., frequency of purges) may predict relapse. Finally, viewing bulimia nervosa as at least partially a disorder of emotion regulation suggests new avenues for prevention. Prevention programs for adolescent girls based upon education about eating disorders have been plagued by concerns about possible iatrogenic effects (Carter, Stewart, Dunn & Fairburn, 1997; Mann et al., 1997). Prevention aimed at general emotion regulation skills, on the other hand, may prove beneficial without the untoward side effect of drawing attention to, and perhaps glamorizing (see Moriarty, Shore, & Maxim, 1990), eating disorders. Such a prevention program could be aimed at preadolescent girls and could include

specific training on building a language to describe emotional states, developing alternative coping strategies, and practicing these strategies in order build confidence and a sense of self-efficacy in their newly learned skills.

Summary

Despite the significant body of research that suggests the presence of affect regulation deficits in bulimia nervosa (see Polivy & Herman, 1993), the topic of affect regulation has remained a peripheral issue in the etiology of the disorder. Perhaps the lack of attention to emotion regulation within the current etiological and treatment approaches has been due, in part, to the lack of integration between the normative emotional development and eating disorders literatures. From a developmental psychopathology perspective, without an appreciation of normative emotion regulation processes, the prospects for affect regulation models to influence the prevailing etiological and treatment approaches remain doubtful.

Findings of the present study indicate that girls with bulimia nervosa exhibit a specific pattern of skill deficits that differ from girls with depression and those without a disorder. In particular, girls with bulimia nervosa, compared to those with major depression and those without a disorder, exhibited significantly greater difficulty perceiving and identifying various emotions. Girls with bulimia also displayed an inferior repertoire of culturally appropriate emotion regulation strategies compared to their depressed and their non-disordered peers. When compared to their depressed peers, however, girls with bulimia nervosa did not differ in their ability to access these strategies when under high emotional arousal. They also appraised their ability to

regulate emotion effectively and the strategies they used to regulate emotion similarly to those with depression. The unique pattern of skill deficits between girls with bulimia and those with depression may represent potential risk factors that may discriminate between the developmental pathways of the two disorders. Future research is necessary to elucidate the developmental trajectories involved in the development of bulimia nervosa.

Footnotes

¹Findings revealed that the efficacy ratings of bulimia nervosa and girls with depression across the various categories of strategies of the Generalized Expectancies for Negative Mood Regulation were significantly different. Specifically, a RM-MANOVA followed by SNK was conducted using group to examine group differences in participants' ratings of outcome expectancies for various strategies. The dependent variables were each girls' scores on the various scales of the NMR (1 = "strongly disagree" to 5 = "strongly agree"). The between groups variable was Group and the within-subjects variables were strategy types (Social Support, Cognitive, Behavioral, Problem-Focused, General). Results indicated a significant Group main effect, $F(2, 45) = 33.88, p < .001, \eta^2 = .60$. Tests of within subjects-effects indicate a significant Strategy x Group interaction, $F(8, 40) = 2.37, p < .05, \eta^2 = .18$. This interaction was best explicated by examining Strategy differences within each Group. Paired t-tests demonstrated that girls with bulimia rated problem-focused strategies ($M = 2.75, SD = 1.03$) as significantly more effective than pleasant events scheduling ($M = 2.1, SD = .82$). Girls with depression rated pleasant events scheduling ($M = 3.20, SD = .63$) as more effective than cognitive strategies ($M = 2.82, SD = .85$).

² Findings from the analysis of the IA scale of the EDI for the bulimic girls using a median BDI score split of 33, revealed the following:
Group, $t(1, 14) = .91, p < .42$.

Findings from the analysis of the EDS, Poor Awareness scale for the bulimic girls using a median BDI score split of 33 revealed the following:
Group, $t(1, 14) = 1.32, p < .20$.

Findings from the analysis of the EDS, Expressive Reluctance scale for the bulimic girls using a median BDI score split of 33 revealed the following:
Group, $t(1, 14) = .04, p < .97$.

Findings from the analysis of the Latency scores on the AEI, high emotional intensity situations for the bulimic girls using a median BDI score split of 33 revealed the following:
Group, $t(1, 14) = -.56, p < .58$.

Findings from the analysis of the AEI Self-efficacy question for the high emotional intensity situation for the bulimic girls using a median BDI score split of 33 revealed the following:
Group, $t(1, 14) = .85, p < .41$.

Findings from the analysis of the AEI Self-efficacy question for the low emotional intensity situation for the bulimic girls using a median BDI score split of 33 revealed the following:
Group, $t(1, 14) = .05, p < .93$.

Findings from the analysis of the AEI outcome expectancy question for the high emotional intensity situation for the bulimic girls using a median BDI score split of 33 revealed the following:

Group, $t(1, 14) = 1.52, p < .15$.

Findings from the analysis of the AEI outcome expectancy question for the low emotional intensity situation for the bulimic girls using a median BDI score split of 33 revealed the following:

Group, $t(1, 14) = 1.68, p < .12$.

Findings from the analysis of the SER for the bulimic girls using a median BDI score split of 33 revealed the following:

Group, $t(1, 14) = .424, p < .67$.

Findings from the analysis of the NMR for the bulimic girls using a median BDI score split of 33 revealed the following:

Group, $t(1, 14) = -1.28, p < .22$.

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APPENDICES

APPENDIX A**Measures**

- Includes:**
- (1) General Information Sheet
 - (2) Eating Attitudes Test (EAT-26)
 - (3) Beck Depression Inventory (BDI)
 - (4) WASI-Vocabulary Subtest
 - (5) Emotion Dysregulation Scale (EDS)
 - (6) Interoceptive Awareness Scale (IA)
 - (7) Generalized Expectancies for Negative Mood Regulation (NMR)
 - (8) Differential Emotions Scale (DES-IV)
 - (9) Self-efficacy for Negative Emotion Regulation (SER)
 - (10) Access to Emotion Interview (AEI)
 - (11) Emotion Identification and Coping Interview (EICI)

General Information Sheet

1. Today's Date: _____

2. Age: _____

3. Date of Birth: _____

4. Grade: _____

5. Who lives at home with you? (Please circle all that apply)

1	2	3	4	5	6	7
Mom	Dad	Grandmother	Grandfather	Step-mom	Step-dad	Other

6. What is your parents' marital status? (Please circle)

1	2	3	4	5
Married	Divorced	Separated	Never Married	Other

7. Please circle mother's highest level of education:

1	2	3	4	5	6
High school	Technical College	University	Graduate/Professional School	Other	Don't Know

8. Please circle father's highest level of education:

1	2	3	4	5	6
High school	Technical College	University	Graduate/Professional School	Other	Don't Know

9. What is your mother's occupation (if any)? _____

10. What is your father's occupation (if any)? _____

	Always	Usually	Often	Sometimes	Rarely	Never
21. I give up too much time and thought to food.	_____	_____	_____	_____	_____	_____
22. I feel uncomfortable after eating sweets.	_____	_____	_____	_____	_____	_____
23. I engage in dieting behavior.	_____	_____	_____	_____	_____	_____
24. I like my stomach to be empty.	_____	_____	_____	_____	_____	_____
25. I enjoy trying new rich foods.	_____	_____	_____	_____	_____	_____
26. I have the impulse to vomit after meals.	_____	_____	_____	_____	_____	_____

BDI-II

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness

- 0 I do not feel sad.
- 1 I feel sad much of the time.
- 2 I am sad all of the time.
- 3 I am so sad or unhappy that I can't stand it.

2. Pessimism

- 0 I am not discouraged about my future.
- 1 I feel more discouraged about my future than I used to be.
- 2 I do not expect things to work out for me.
- 3 I feel my future is hopeless and will only get worse.

3. Past Failure

- 0 I do not feel like a failure.
- 1 I have failed more that I should have.
- 2 As I look back, I see a lot of failures.
- 3 I feel I am a total failure as a person.

4. Loss of Pleasure

- 0 I get as much pleasure as I ever did from the things I enjoy.
- 1 I don't enjoy things as much as I used to.
- 2 I get very little pleasure from the things I used to enjoy.
- 3 I can't get any pleasure from the things I used to enjoy.

5. Guilty Feelings

- 0 I don't feel particularly guilty.
- 1 I feel guilty over many things I have done or should have done.
- 2 I feel quite guilty over most of the time.
- 3 I feel guilty all of the time.

6. Punishment Feelings

- 0 I don't feel I am being punished.
- 1 I feel I may be punished.
- 2 I expect to be punished.
- 3 I feel I am being punished.

7. Self-Dislike

- 0 I feel the same about myself as ever.
- 1 I have lost confidence in myself.
- 2 I am disappointed in myself.
- 3 I dislike myself.

8. Self-Criticalness

- 0 I don't criticize or blame myself more than usual.
- 1 I am more critical of myself than I used to be.
- 2 I criticize myself for all of my faults.
- 3 I blame myself for everything bad that happens.

9. Suicidal Thoughts or Wishes

- 0 I don't have any thoughts of killing myself.
- 1 I have thoughts of killing myself, but I would not carry them out.
- 2 I would like to kill myself.
- 3 I would kill myself if I had the chance.

10. Crying

- 0 I don't cry anymore than I used to.
- 1 I cry more than I used to.
- 2 I cry over every little thing.
- 3 I feel like crying, but I can't.

11. Agitation

- 0 I am no more restless or wound up than usual.
- 1 I feel more restless or wound up than usual.
- 2 I am so restless or agitated that it's hard to stay still.
- 3 I am so restless or agitated that I have to keep moving or doing something.

12. Loss of Interest

- 0 I have not lost interest in other people or activities.
- 1 I am less interested in other people or things than before.
- 2 I have lost most of my interest in other people or things.
- 3 It's hard to get interested in anything.

13. Indecisiveness

- 0 I make decisions about as well as ever.
- 1 I find it more difficult to make decisions than usual.
- 2 I have much greater difficulty in making decisions than I used to.
- 3 I have trouble making any decisions.

14. Worthlessness

- 0 I do not feel I am worthless.
- 1 I don't consider myself as worthwhile and useful as I used to.
- 2 I feel more worthless as compared to other people.
- 3 I feel utterly worthless.

15. Loss of Energy

- 0 I have as much energy as ever.
- 1 I have less energy than I used to have.
- 2 I don't have enough energy to do very much.
- 3 I don't have enough energy to do anything.

16. Changes in Sleeping Pattern

- 0 I have not experienced any change in my sleeping pattern.
- 1a I sleep somewhat more than usual.
- 1b I sleep somewhat less than usual.
- 2a I sleep a lot more than usual.
- 2b I sleep a lot less than usual.
- 3a I sleep most of the day.
- 3b I wake up 1-2 hours early and can't get back to sleep.

17. Irritability

- 0 I am no more irritable than usual.
- 1 I am more irritable than usual.
- 2 I am much more irritable than usual.
- 3 I am irritable all the time.

18. Changes in Appetite

- 0 I have not experienced any change in my appetite.
- 1a My appetite is somewhat less than usual.
- 1b My appetite is somewhat greater than usual.
- 2a My appetite is much less than before.
- 2b. My appetite is much greater than usual.
- 3a. I have no appetite at all.
- 3b. I crave food all the time.

19. Concentration Difficulty

- 0 I can concentrate as well as ever.
- 1 I can't concentrate as well as usual.
- 2 It's hard to keep my mind on anything for very long.
- 3 I find I can't concentrate on anything.

20. Tiredness or Fatigue

- 0 I am no more tired or fatigued than usual.
- 1 I get more tired or fatigued more easily than usual.
- 2 I am too tired or fatigued to do a lot of the things I used to do.
- 3 I am too tired or fatigued to do most of the things I used to do.

Vocabulary Subtest - WASI

Girls asked what these words mean according to instructions specified in the WASI Manual. Words were displayed though the stimulus manual. (Discontinue after 5 consecutive failures).

Item	Response	Score	Item	Response	Score
1. Fish			22. Dance		
2. Shovel			23. Purpose		
3. Map			24. Entertain		
4. Shell			25. Famous		
5. Shirt			26. Reveal		
6. Shoe			27. Decade		
7. Flashlight			28. Tradition		
8. Car			29. Rejoice		
9. Bird			30. Enthusiastic		
10. Calendar			31. Improvise		
11. Number			32. Impulse		
12. Bell			33. Haste		
13. Lunch			34. Trend		
14. Police			35. Intermittent		
15. Vacation			36. Devout		
16. Pet			37. Impertinent		
17. Balloon			38. Niche		
18. Transform			39. Presumptuous		
19. Alligator			40. Formidable		
20. Cart			41. Ruminant		
21. Blame					

EDS

For each statement circle how true the statement is for you.

	Not at All True	A Little True	Somewhat True	Very True	Extremely True
1. I prefer to keep my feelings to myself.	1	2	3	4	5
2. I do not like to talk about how I feel.	1	2	3	4	5
3. When something bad happens, I feel like exploding.	1	2	3	4	5
4. I don't show how I really feel in order not to hurt others' feelings.	1	2	3	4	5
5. I have feelings that I can't figure out.	1	2	3	4	5
6. I usually do not talk to people until they talk to me first.	1	2	3	4	5
7. When I get upset, I am afraid to show it.	1	2	3	4	5
8. When I get upset, I do not know how to talk about it.	1	2	3	4	5
9. I often do not know how I am feeling.	1	2	3	4	5
10. People tell me I should talk about my feelings more often.	1	2	3	4	5
11. Sometimes I just do not have the words to describe how I feel.	1	2	3	4	5
12. At times I feel like smashing things.	1	2	3	4	5
13. When I'm sad, I try not to show it.	1	2	3	4	5
14. It is easy for me to describe how I feel.	1	2	3	4	5
15. Other people do not like it when you show how you really feel.	1	2	3	4	5
16. I know I should show my feelings but it is too hard.	1	2	3	4	5
17. I often do not know why I am angry.	1	2	3	4	5
18. It is hard for me to show how I feel about somebody.	1	2	3	4	5

NMR

This is a questionnaire to find out what people believe they can do about upsetting emotions or feelings. Please answer the statements by giving as true a response of your own beliefs as possible. Of course, there are no right or wrong answers. Remember the questionnaire is about what you believe you can do, not about what you actually or usually do. Be sure to read each item carefully and show your beliefs by marking the appropriate number.

If you strongly disagree with an item, fill in the space numbered 1. Mark the space numbered 2 if you mildly disagree with the item. That is, mark the space numbered 3 if you think the item is more generally untrue than true according to your beliefs. Fill in the space numbered 3 if you feel the item is about equally true as untrue. Fill in the space numbered 4 if you mildly agree with the item. That is, mark the number if you think the item is more true than untrue. IF you strongly agree with an item fill in the space numbered 5.

1. Strongly disagree
2. Mildly disagree
3. Agree and disagree equally
4. Mildly agree
5. Strongly agree.

Please be sure to fill in the spaces completely and to erase completely any marks to be changed. Make no extra marks on either the answer sheet or the questionnaire.

When I am upset, I believe that ...

- ___ 1. I can usually find a way to cheer myself up.
- ___ 2. I can do something to feel better.
- ___ 3. Wallowing in it is all I can do.
- ___ 4. I'll feel okay if I think about more pleasant times.
- ___ 5. Being with other people will be a drag.
- ___ 6. I can feel better by treating myself to something I like.
- ___ 7. I'll feel better when I understand why I feel bad.
- ___ 8. I won't be able to get myself to do anything about it.
- ___ 9. I won't feel much better by trying to find some good in the situation.
- ___ 10. It won't be a long before I can calm myself down.

When I am upset, I believe that ...

- ___ 11. It will be hard to find someone who really understands.
- ___ 12. Telling myself it will pass will help me calm down.
- ___ 13. Doing something nice for someone else will cheer me up.
- ___ 14. I'll end up feeling really depressed.
- ___ 15. Planning how I'll deal with things will help.
- ___ 16. I can forget about what's upsetting me pretty easily.
- ___ 17. Catching up with my work will help me calm down.
- ___ 18. The advice friends give me won't help me feel better.
- ___ 19. I won't be able to enjoy the things I usually enjoy.
- ___ 20. I can find a way to relax.

When I am upset, I believe that ...

- ___ 21. Trying to work the problem out in my head will only make it seem worse.
- ___ 22. Seeing a movie won't help me feel better.,
- ___ 23. Going out to dinner with friends will help.
- ___ 24. I'll be upset for a long time.
- ___ 25. I won't be able to put it out of my mind.
- ___ 26. I can feel better by doing something creative.
- ___ 27. I'll start to feel really down about myself.
- ___ 28. Thinking that things will eventually be better won't help me feel any better.
- ___ 29. I can find some humor in the situation and feel better.
- ___ 30. If I'm with a group of people, I'll feel "alone in a crowd."

DES-IV
Emotions and Feelings

In your daily life how often do you ...(or "during the past week, how often did you...")

	Rarely or never	Hardly ever	Sometimes	Often	Very Often
1. Feel regret, sorry about something you did.	1	2	3	4	5
2. Feel sheepish, like you do not want to be seen.	1	2	3	4	5
3. Feel glad about something.	1	2	3	4	5
4. Feel like something stinks, puts a bad taste in your mouth.	1	2	3	4	5
5. Feel you can't stand yourself.	1	2	3	4	5
6. Feel embarrassed when anybody sees you make a mistake.	1	2	3	4	5
7. Feel unhappy, blue, downhearted.	1	2	3	4	5
8. Feel surprised, like when something suddenly happens you had no idea would happen.	1	2	3	4	5
9. Feel like somebody is a low-life, not worth the time of day.	1	2	3	4	5
10. Feel shy, like you want to hide.	1	2	3	4	5
11. Feel like what your doing or watching is interesting.	1	2	3	4	5
12. Feel scared, uneasy, like somebody might harm you.	1	2	3	4	5
13. Feel mad at somebody.	1	2	3	4	5
14. Feel mad at yourself.	1	2	3	4	5
15. Feel happy.	1	2	3	4	5

	In your daily life how often do you ...(or "during the past week, how often did you...")				
	Rarely or never	Hardly ever	Sometimes	Often	Very Often
16. Feel like somebody is "good for nothing."	1	2	3	4	5
17. Feel so interested in what you're doing you're caught up in it.	1	2	3	4	5
18. Feel amazed, like you can't believe what's happened, it was so unusual.	1	2	3	4	5
19. Feel fearful, like you're in danger, very tense.	1	2	3	4	5
20. Feel like screaming at somebody or banging on something.	1	2	3	4	5
21. Feel sad and gloomy, almost like crying.	1	2	3	4	5
22. Feel like you did something wrong.	1	2	3	4	5
23. Feel bashful, embarrassed.	1	2	3	4	5
24. Feel disgusted, like something is sickening.	1	2	3	4	5
25. Feel joyful, like everything is going your way, everything is rosy.	1	2	3	4	5
26. Feel like people laugh at you.	1	2	3	4	5
27. Feel like things are so rotten it could make you sick.	1	2	3	4	5
28. Feel sick about yourself.	1	2	3	4	5
29. Feel like you are better than somebody.	1	2	3	4	5
30. Feel like you ought to be blamed for something.	1	2	3	4	5
31. Feel the way you do when something unexpected happens.	1	2	3	4	5

In your daily life how often do you... (or "during the past week, how often did you...")					
	Rarely or never	Hardly ever	Sometimes	Often	Very Often
32. Feel alert, curious, kind of excited about something unusual.	1	2	3	4	5
33. Feel angry, irritated, annoyed with somebody.	1	2	3	4	5
34. Feel discouraged, like you can't make it, nothing's going right.	1	2	3	4	5
35. Feel afraid.	1	2	3	4	5
36. Feel like people always look at you when anything goes wrong.	1	2	3	4	5

SER

1. When you are really sad, how much do you think you can make yourself feel better?

1	2	3	4
Not at all	A little bit	Some	A lot

2. When you are really worried, how much do you think you can make yourself feel better?

1	2	3	4
Not at all	A little bit	Some	A lot

3. When you are really mad, how much do you think you can make yourself feel better?

1	2	3	4
Not at all	A little bit	Some	A lot

Access to Emotion Interview

In this interview, I am going to ask you a number of questions to see how you deal with different situations in your life. First, I would like to ask you some questions to get to know you a little better. Is it okay if I turn on the tape recorder so that I don't have to write everything that you say down?

1. What is your favorite color?
2. What is your favorite subject in school?
3. What is your least favorite subject in school?
4. Who is your best friend?
5. What is your favorite food?

Now I am going to ask you to describe different experiences that you have had, but first I need to show you something that will help you describe these situations.

Draw the participant a picture of a thermometer that is a 10-point Likert scale(1 = very mild to 10 = very intense).

Interviewer reads following script :

This is a picture of a thermometer. However, this is not the kind that measures temperature, this one measures the strength or intensity of different feelings. The higher the number the more intense the feelings. An 8, 9, or 10 on the thermometer is an experience of intense or very strong feelings. For example, if the thermometer was measuring feeling bad, feelings that are at an 8, 9, or 10 would be so strong that a person would feel extremely bad and would hardly be able to stand it. A 1, 2, or 3 is an experience where the feelings are not so intense. For example, at this level, a person would feel still feel bad, but only sort of bad, and he or she could probably tolerate it okay.

I am going to ask you to describe some situations that you have been in in which you experienced feeling really bad (an 8, 9, or 10 on the scale) or just sort of bad (a 1, 2, or 3 on the scale). Then I am going to ask you some questions about that situation.

Are you ready, let's begin.

1. Tell me about a time when you felt really bad (an 8, 9, or 10 on the scale).

(If the girl does not respond after 30 seconds, prompt her by saying "Tell me what happened when you felt really bad").

1. On this thermometer, how bad did you feel? (If not an 8, 9, or 10, have the participant describe another situation that was an 8, 9, or 10).
2. Where were you when this happened?
3. Who was with you when this happened?
4. What were you thinking when this happened?
5. In this situation, what specific emotion did you feel?
6. On a 1-10 scale, how ___ did you feel? (1-10)
7. Did you feel any other emotions?
8. On a 1-10 scale, how much did you feel ____? (Ask this question for each emotion that they give you)

9. How much do you think you could have controlled how bad you felt in the situation?

1	2	3	4
Not at all	A little bit	Some	A lot

10. In this situation, what did you do to make yourself feel better?

11. How much did it work to make you feel better?

1	2	3	4
Not at all	A little bit	Some	A lot

12. If you could do things differently to make yourself feel better, what would you have done?

13. How much do you think it would have worked to make you feel better?

1	2	3	4
Not at all	A little bit	Some	A lot

14. What prevented you from using that strategy (repeat their answer to question 12)?

15. To try to make yourself feel better in this situation, did you eat a lot (pig out) or go on a binge? Yes / No

16. *IF YES:* How much did it work to make you feel better? *IF NO:* If you would have eaten a lot in that situation, how much do you think it would have worked to make you feel better in this situation?

1	2	3	4
Not at all	A little bit	Some	A lot

17. To try to make yourself feel better in this situation, did you decide to go on a diet or tell yourself that you are going to try and lose weight? Yes / No

18. *IF YES:* How much did it work to make you feel better? *IF NO:* If you would have decided to go on a diet in that situation, how much do you think that decision would have worked to help you feel better?

1	2	3	4
Not at all	A little bit	Some	A lot

II. Tell me about a time when you felt a little bad.

(If the girl does not respond after 30 seconds, prompt her by saying "Tell me what happened when you felt a little bad")

1. On this thermometer, how bad did you feel? (If participant does not describe the situation as a 1, 2, or 3, have her describe another situation that was an 1, 2, or 3).

2. Where were you when this happened?

3. Who was with you when this happened?

4. What did you think when this happened?

5. In this situation, what emotion did you feel?

6. On a 1-10 scale, how ...did you feel? (1-10)

7. Did you feel any other emotions?

8. On a 1-10 scale, how much did you feel? (Ask for each emotion that they give)

9. How much do you think you could have controlled how bad you felt in the situation?

1	2	3	4
Not at all	A little bit	Some	A lot

10. In this situation, what did you do to make yourself feel better?

11. How much did it work to make you feel better?

1	2	3	4
Not at all	A little bit	Some	A lot

12. If you could do things differently to make yourself feel better, what would you have done?

13. How much do you think it would have worked to make you feel better?

1	2	3	4
Not at all	A little bit	Some	A lot

14. What prevented you from using that strategy (repeat their answer to question 12)?

15. To try to make yourself feel better, did you eat a lot (pig out) or go on a binge? Yes /No

16. *IF YES*: How much did it work to make you feel better? *IF NO*: How much do you think eating a lot would work to make you feel better in this situation?

1	2	3	4
Not at all	A little bit	Some	A lot

17. To try to make yourself feel better in this situation, did you decide to go on a diet or tell yourself that you are going to try and lose weight? Yes / No

18. *IF YES*: How much did it work to make you feel better? *IF NO*: How much do you think deciding to go on a diet, or telling yourself that you are going to try to lose weight would work to make you feel better in this situation?

1	2	3	4
Not at all	A little bit	Some	A lot

Emotion Identification and Coping Interview
Labeled Stories
Counterbalanced Form A

Note to interviewer: Please administer stories in random order and indicate order in which story was read next to each story.

Sad - appearance

Michelle saves up her allowance to buy a new outfit that she has been wanting ever since she tried it on several weeks ago and thought that she looked pretty good in it. When she finally gets enough money, she goes to the store to buy the outfit. Later that night when Michelle is at home, she tries on her new outfit and discovers that it is too tight and that she looks terrible in it. This makes Michelle feel sad.

Mad - appearance

Tara has been planning for the homecoming dance. She has bought her dress and her shoes. She is really excited about the dance, and has been talking about it with her friends all week. Two days before the dance, she starts to get two giant zits right on the tip of her nose. Finally, on the day of the dance, she tries to cover them up. Whatever she does, she cannot disguise them. This makes Tara feel mad.

Sad - achievement

Laura really wants to be elected to student council. She campaigns really hard and puts up posters all over the school. When they announce the winners, she is the only one of her friends who did not get elected. This makes Laura feel sad.

Mad - achievement

Erika spent the whole weekend studying for an upcoming test. She studied so hard that she did not do anything fun, and even gave up her plans to go to the mall with her friends. A classmate who is always bragging about how smart she is gets a better grade than Erika even though she did not study for the test. This makes Erika feel mad.

Emotion Identification and Coping Interview
Unlabeled Stories
Counterbalanced Form A

Note to interviewer: Please administer stories in random order and indicate order in which story was read next to each story.

Sad - appearance

Patty is getting ready for the last day of school. Because all of her friends have agreed to wear the same brand of jeans, she decides that she will wear her pair also. They are her favorite jeans. However, when getting ready for school the next day, she finds that she cannot zip them up, even though she tries and tries.

Mad - appearance

Sherri is starting to grow her hair long. Because her hair is starting to get split-ends she decides to go the hair salon for a hair cut. She tells the stylist that she is trying to grow her hair out and only wants a trim. However, when she looks in the mirror, she realizes that she got a whole new hairstyle that is much shorter than before.

Sad - achievement

Ever since she was a young girl, Julie had been planning on going to the same college that her parents attended. When she talks to her guidance counselor, he tells her that her grades are not good enough to apply to that college.

Mad - achievement

Because it is important to Stacy to do really well on her next exam, she studies really hard. After she takes the test and gets her grade, Stacy finds out that one of her classmates who cheated on the exam got a better grade than she did.

Emotion Identification and Coping Interview
Unlabeled Stories
Counterbalanced Form B

Note to interviewer: Please administer stories in random order and indicate order in which story was read next to each story.

Sad - appearance

Michelle saves up her allowance to buy a new outfit that she has been wanting ever since she tried it on several weeks ago and thought that she looked pretty good in it. When she finally gets enough money, she goes to the store to buy the outfit. Later that night when Michelle is at home, she tries on her new outfit and discovers that it is too tight and that she looks terrible in it.

Mad - appearance

Tara has been planning for the homecoming dance. She has bought her dress and her shoes. She is really excited about the dance, and has been talking about it with her friends all week. Two days before the dance, she starts to get two giant zits right on the tip of her nose. Finally, on the day of the dance, she tries to cover them up. Whatever she does, she cannot disguise them.

Sad - achievement

Laura really wants to be elected to student council. She campaigns really hard and puts up posters all over the school. When they announce the winners, she is the only one of her friends who did not get elected.

Mad - achievement

Erika spent the whole weekend studying for an upcoming test. She studied so hard that she did not do anything fun, and even gave up her plans to go to the mall with her friends. A classmate who is always bragging about how smart she is gets a better grade than Erika even though she did not study for the test.

Emotion Identification and Coping Interview
Labeled Stories
Counterbalanced Form B

Note to interviewer: Please administer stories in random order and indicate order in which story was read next to each story.

Sad - appearance

Patty is getting ready for the last day of school. Because all of her friends have agreed to wear the same brand of jeans, she decides that she will wear her pair also. They are her favorite jeans. However, when getting ready for school the next day, she finds that she cannot zip them up, even though she tries and tries. This makes Patty feel sad.

Mad - appearance

Sherri is starting to grow her hair long. Because her hair is starting to get split-ends she decides to go the hair salon for a hair cut. She tells the stylist that she is trying to grow her hair out and only wants a trim. However, when she looks in the mirror, she realizes that she got a whole new hairstyle that is much shorter than before. This makes Sherri feel mad.

Sad - achievement

Ever since she was a young girl, Julie had been planning on going to the same college that her parents attended. When she talks to her guidance counselor, he tells her that her grades are not good enough to apply to that college. This makes Julie feel sad.

Mad - achievement

Because it is important to Stacy to do really well on her next exam, she studies really hard. After she takes the test and gets her grade, Stacy finds out that one of her classmates who cheated on the exam got a better grade than she did. This makes Stacy feel mad.

Emotion Identification and Coping Interview
INTERVIEW QUESTIONS FOR UNLABELED STORIES

I am going to read you a story, I would like you to imagine that this situation happened to you. Even if you have never been in this situation or have trouble relating to this situation, try to imagine the best you can what it would be like for you if this did happen to you. After I read each story, I am going to ask you several questions about how you would feel and what you would do if you were in that situation.

Note to interviewer: Read unlabeled story, then ask the following questions. Story _____

1. I am going to read you a list of different feelings, after I read you a feeling, I will have you tell me how much you would feel if you were the girl in this story:

In this situation, how much would you feel

a. Angry

1	2	3	4
None	A little	Some	A lot

b. Guilty

1	2	3	4
None	A little	Some	A lot

c. Fat

1	2	3	4
None	A little	Some	A lot

d. Ashamed

1	2	3	4
None	A little	Some	A lot

e. Not sure or confused about how you would feel

1	2	3	4
None	A little	Some	A lot

f. Disgusted

1	2	3	4
None	A little	Some	A lot

g. Nervous

1	2	3	4
None	A little	Some	A lot

h. Surprised

1	2	3	4
None	A little	Some	A lot

i. Bad

1	2	3	4
None	A little	Some	A lot

j. Upset

1	2	3	4
None	A little	Some	A lot

k. Sad

1	2	3	4
None	A little	Some	A lot

l. Embarrassed

1	2	3	4
None	A little	Some	A lot

m. Frustrated

1	2	3	4
None	A little	Some	A lot

n. Stressed

1	2	3	4
None	A little	Some	A lot

o. Depressed

1	2	3	4
None	A little	Some	A lot

2. In this situation, what would you probably do to help yourself feel better?

3. How much do you think this strategy would work to help you feel better?

1	2	3	4
Not at all	A little bit	Some	A lot

4. What else could you do in this situation to help yourself feel better? What would be your fantasy way of making yourself feel better? (Besides having the situation not happen).

5. How much do you think this strategy would work to help you feel better?

1	2	3	4
Not at all	A little bit	Some	A lot

6. How good do you think you would be at using this strategy to help yourself feel better?

1	2	3	4
Not very good	Okay	Pretty Good	Really Good

7. Why do you think you would probably not use this strategy (what is preventing you from using this strategy)?

8. Would eating a lot (pigging out) or going on a binge help you feel better in this situation? Yes / No

9. How much do you think it would work to help you feel better?

1	2	3	4
Not at all	A little bit	Some	A lot

10. In this situation, would deciding to go on a diet or telling yourself that you are going to try and lose weight help you feel better? Yes / No

11. How much do you think it would work to help you feel better?

1	2	3	4
Not at all	A little bit	Some	A lot

INTERVIEW QUESTIONS FOR LABELED STORIES

Note to interviewer: Read labeled story, then ask the following questions. Story _____

1. If you were the girl in the story, how (sad / angry) would you feel?

1	2	3	4
Not at all	A little bit	Some	A lot

2. In this situation, what would you probably do to help yourself feel better?

3. How much do you think this strategy would work to help you feel better?

1	2	3	4
Not at all	A little bit	Some	A lot

4. What else could you do in this situation to help yourself feel better? What would be your fantasy way of making yourself feel better? (Besides having the situation not happen).

5. How much do you think this strategy would work to help you feel better?

1	2	3	4
Not at all	A little bit	Some	A lot

6. How good do you think you would be at using this strategy to help yourself feel better?

1	2	3	4
Not very good	Okay	Pretty Good	Really Good

7. Why do you think you would probably not use this strategy (what is preventing you from using this strategy)?

8. Would eating a lot (pigging out) or going on a binge help you feel better in this situation? Yes / No

9. How much do you think it would help you feel better?

1	2	3	4
Not at all	A little bit	Some	A lot

10. In this situation, would deciding to go on a diet or telling yourself that you are going to try and lose weight help you feel better? Yes / No

11. How much do you think it would help you feel better?

1	2	3	4
Not at all	A little bit	Some	A lot

APPENDIX B
Coding Instructions

- Includes:
- (1) Access to Emotion Interview Coding System
 - (2) Emotion Identification and Coping Interview

Coding Instructions
Access to Emotion Interview

(1) Emotion content in response to emotion identification question (“*What emotions did you feel in this situation?*”)

(a) Emotion words, examples include:

- Sad (down, gloomy, unhappy)
- Anger (mad, frustrated, irritated)
- Fear (fearful, afraid, nervous, anxious, frightened)
- Pride (good about myself)
- Shame (ashamed)
- Embarrassed
- Guilty (bad about what I did)

(b) Emotion words that connote indistinct negative internal states, examples include:

- Bad
- Awful
- Terrible
- Fat
- Yucky
- Strange
- Sick
- Stomach-ache
- Headache
- Bad mood
- Hungry
- Confused

(c) Cognitions, examples include:

- Felt it was unfair
- Felt that I made a mistake
- Felt she should have helped me

(2) Informational content of account of negative emotional event (*“Tell me about a time when you felt [really/a little] bad”*)

(a) Type of situations that make adolescent feel really/alittle bad.

- **Achievement** - A situation involving the pursuit of, or failure in an academic or competitive realm (e.g., losing an athletic event, failing a test).
- **Appearance** - A situation where emotion stems from issues regarding appearance or body-image.
- **Autonomy** - A situation in which the participant reports a failed attempt to gain independence from family (e.g., arguing about a curfew, wanting to get a part-time job, dating, punishment).
- **Failed Responsibility / Conduct** - A situation that involves a failure to adequately fulfill a responsibility, or a situation in which the adolescent engages in behavior that she regrets (e.g., alienated a friend, talked negatively about a friend).
- **Interpersonal Conflict** - Situation in which the participant reports experiencing interpersonal conflict with parents or other adults or peers. (If conflict is with parents over situations involving separation or increased independence from parents, code as autonomy).
- **Injury/Illness** - Situation that involves injury or illness to self or others (illness may include mental illness of depression or alcoholism).
- **Instrumental Negative** - Situation that entails a negative outcome that is not interpersonal in nature (e.g., not being able to go to a concert because of a snow storm).
- **Loss** - Situation that involves loss of a relationship or significant other.
- **Misunderstanding** - A situation that involves an interpersonal conflict due to a misinterpretation of an individuals motives or goals (e.g., “hung up the phone on someone who was trying to ask me on a date.”)
- **Victimization** - A situation that involves physical or emotional harm to self or significant others (e.g., bullying, rape, etc.).
- **Unscoreable** - Response that does not fit into existing categories.

Coding Instructions for Questions to AEI and EICI

Questions on the AEI: *“In this situation, what did you do to make yourself feel better?”*
“If you could do things differently to make yourself feel better, what would you have done?”

Questions on the EICI: *“In this situation, what would you probably do to help yourself feel better?”* *“What would be your fantasy way of making yourself feel better? (Besides having the situation not happen).”*

- **Problem-focused** - A response that is intended to behaviorally change the situation, or come up with viable solutions to a problem (e.g., “take the outfit back to the store,” “apply to the college anyway.”). The response must be adaptive or socially acceptable in that it does not involve any untoward consequences. Alternatively, a response that involves declaring one’s needs or feelings in an appropriate manner to achieve one’s goals in alleviating negative mood.
- **Support-seeking** - A strategy that involves seeking social support to help manage feelings associated with a situation (e.g., seek reassurance), such as gaining assistance or information from others to help reappraise the situation or the emotional state.
- **Aggression** - A response that is intended to hurt audience member (usually involves relational aggression). For example, “tell my mom to shut up,” “tell her she is an idiot,” “kick her ass.”
- **Emotion-Focused** - An attempt to regulate the emotional states that may accompany the stressor. These responses typically include active attempts to reduce tension or physiological arousal, such as relaxation strategies that include massage, taking a bath, or taking deep breaths. Emotion focused responses also include behavioral attempt to distract oneself from the problem through engaging in pleasant events such as “go play a game” “go have fun” “listen to music.” Finally, these strategies may involve cognitive strategies to modify thoughts or initial appraisal in an effort to change feelings or behavior. Such cognitive strategies may include reappraisal, rationalization, perspective taking, or acceptance of the situation. Typically, any response that begins with “think about” or “tell myself” “know that” “believe that” “say to myself” is a cognitive strategy.
- **Avoidance/Distancing** - A response that involves avoidance or withdrawal from audience member or problem (e.g., An attempt to divert attention away from the situation in order to avoid negative affect. Such a response may include withdrawal from the object associated with the situation (e.g., “never wear shirt again”) or the situation itself “(e.g., “leave the party,” “don’t go to school,” “sleep,”). This category also includes the use of binge-eating and purging behavior as a way to make the participant feel better. Code responses involving a focus or rumination on a feeling state that fail to alter the associated feelings as an avoidance strategy (e.g., “go to my room and cry,” “take it out on myself.” “hold all my feelings in”)
- **Nothing/Don’t Know** - A response that indicates that there is nothing one can do in the situation.
- **Unscorable** - A response that doesn’t fit into current categories.

Coding for Questions on EICI and AEI : “What (prevented/would prevent) you from using that strategy”

- **Emotional arousal** - Strong emotions that would get in the way of using or accessing a certain strategy. (e.g., “too mad,” “too nervous,” “hopeless,” “embarrassed,” “upset,” “feeling bad,” jealousy,” “not in the mood.” Etc.). Essentially, every response that invokes an emotion or negative emotional state should be coded as emotional arousal.
- **Negative thoughts** - Cognitions that prevent implementing coping strategy (e.g., “didn’t believe it,” “feel defeated,” “high expectations,” “it would have been weird,” “being unable to relate,” “too insecure,” “telling myself I didn’t like it,” “low self-esteem,” “denial,” “I would believe the person,” “negative self-talk.” Etc.). Most of the time, when response begins with “telling myself,” “saying too myself,” or “thinking about” or “knowing” or “believing” it can be coded as a negative thought.
- **Social stigma/ consequence** - Situations that involve a negative *social* consequence. For example, if participant invokes another person such as their parent or a friend, or the response involves someone else saying something, a friend getting mad, people not liking them, being known as a tattletale, response would be coded as social stigma/consequence. Also, code this category if a social figure prevents them from implementing a coping strategy or if they interfere with the efficacy of the strategy (e.g., “if everyone noticed how bad I looked,” “friends telling me to eat.”). Basically, code this category any time a social figure is invoked or implied. For example, if the response included “seem like,” this would be coded as social stigma because others are implied (seem like to others).
- **Environmental support** - Could not implement coping response because situation was not conducive to implement coping response either because response would be impractical (“not enough time,” “have to go to work,” “bad weather,” “too busy,” “other commitments,” “money,” etc.)
- **Ineffective** - This category involves when participant acknowledges that the strategy wouldn’t work to help them feel better.
- **Skill Deficits** - Participant indicates that they would not implement strategy because she would not be very good at it or does not know how to do it.
- **Goal Deficits or Conflict** - When the participant indicates that she does not want to feel better or would rather do other things that make themselves feel better.

APPENDIX C
Pilot Data for the Development of the
Emotion Identification and Coping Interview

- (A) Pilot Stories
- (B) Data from Stories

Today's Date: _____

Date of Birth: _____

Please read each story and imagine that you are the girl in the story. Try to think about what emotion you would feel if you were in that situation. Then, please circle the one that comes the closest to how you would feel.

1. Allison buys a new outfit that she has been wanting for a long time. When she gets to school she finds her friend who is always bragging about how pretty she is has on the same outfit. Everyone compliments her friend but says nothing to Allison.

a. Please circle the emotion that best describes how you would feel if you were the girl in this situation?
(Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1 2 3
A Little Some A lot

2. Diana wants some curl in her hair, and rather than spending the money to go to the hair salon, she decides to give herself a home perm. Diana forgets about how much time has gone by and leaves the chemicals in too long. When she gets done, she realizes that she has burnt her hair.

a. Please circle the emotion that best describes how you would feel if you were the girl in this situation?
(Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1 2 3
A Little Some A lot

3. Rachel really wants to be on the soccer team. She spends all summer practicing and even goes to soccer camp. In the beginning of the school year, she tries out for soccer, but later learns that she did not make the team.

a. Please circle the emotion that best describes how you would feel if you were the girl in this situation?
(Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1 2 3
A Little Some A lot

4. When Amanda goes to get her haircut she brings in a picture of a hairstyle that she really wants. When she gets home, she realizes that her hair looks nothing like the picture.

a. Please circle the emotion that best describes how you would feel if you were the girl in this situation?
(Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1 2 3
A Little Some A lot

5. Michelle saves up her allowance to buy a new outfit she has been wanting for a long time. When she finally gets enough money, she goes to the store to buy the outfit. When she tries it on at the store she thinks it looks pretty good and decides to buy it. Later that night when Michelle is at home, she tries on her new outfit and discovers that it looks terrible on her.

a. Please circle the emotion that best describes how you would feel if you were the girl in this situation?
(Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1 2 3
A Little Some A lot

6. Sherri really wants to be on the cheerleading team. She did really well in try-outs and the captain tells her that she is probably going to make it. Later that evening, she gets in trouble for being late for practice. She is later disqualified from trying out for the team.

a. Please circle the emotion that best describes how you would feel if you were the girl in this situation?
(Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1 2 3
A Little Some A lot

7. Patty is getting ready for the last day of school. Because all of her friends have agreed to wear the same brand of jeans, she decides that she will wear her pair also. They are her favorite jeans. However, when getting ready for school the next day, she finds that she cannot zip them up, even though she tries and tries.

a. Please circle the emotion that best describes how you would feel if you were the girl in this situation?
(Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1 2 3
A Little Some A lot

8. Erika spent the whole weekend studying for an upcoming test. She studied so hard that she did not do anything fun, and even gave up her plans to go to the mall with her friends. A classmate who is always bragging about how smart she is gets a better grade than Erika even though she did not study for the test.

a. Please circle the emotion that best describes how you would feel if you were the girl in this situation?
(Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1 2 3
A Little Some A lot

9. Because it is important to Stacy to do really well on her next exam, she studies really hard. After she takes the test and gets her grade, Stacy finds out that one of her classmates who cheated on the exam got a better grade than she did.

a. Please circle the emotion that best describes how you would feel if you were the girl in this situation?
(Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1	2	3
A Little	Some	A lot

10. In a magazine Kristin finds a picture of a hairstyle that she really likes. When she goes to the salon to have her hair cut she shows the stylist the picture. When she gets back from the salon, she realizes that her hair looks really bad.

a. Please circle the emotion that best describes how you would feel if you were the girl in this situation?

(Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1	2	3
A Little	Some	A lot

11. Ever since she was a young girl, Julie had been planning on going to the same college that her parents attended. When she talks to her guidance counselor, he tells her that her grades are not good enough to apply to that college.

a. Please circle the emotion that best describes how you would feel if you were the girl in this situation?

(Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1	2	3
A Little	Some	A lot

12. Kelly studies really hard for a test. After the exam she thought she did pretty well. The next week when she gets her exam back, she finds out that she got an F.

a. Please circle the emotion that best describes how you would feel if you were the girl in this situation?

(Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1	2	3
A Little	Some	A lot

13. Patty decides that she wants to wear a pair of jeans to school that she has not worn in a while. Even though she tries and tries she cannot zip them up.

a. Please circle the emotion that best describes how you would feel if you were the girl in this situation?

(Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1	2	3
A Little	Some	A lot

14. Laura really wants to be elected to student council. She campaigns really hard and puts up posters all over the school. When they announce the winners, she is the only one of her friends who did not get elected.

a. Please circle the emotion that best describes how you would feel if you were the girl in this situation?
(Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1 2 3
A Little Some A lot

15. Sherri is starting to grow her hair long. Because her hair is starting to get split-ends she decides to go the hair salon for a hair cut. She tells the stylist that she is trying to grow her hair out and only wants a trim. However, when she looks in the mirror, she realizes that she got a whole new hairstyle that is much shorter than before.

16. a. Please circle the emotion that best describes how you would feel if you were the girl in this situation? (Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1 2 3
A Little Some A lot

17. Tara has been planning for the homecoming dance. She has bought her dress and her shoes. She is really excited about the dance, and has been talking about it with her friends all week. Two days before the dance, she starts to get two giant zits right on the tip of her nose. Finally, on the day of the dance, she tries to cover them up. Whatever she does, she cannot disguise them.

a. Please circle the emotion that best describes how you would feel if you were the girl in this situation?
(Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1 2 3
A Little Some A lot

18. Even though Beth knows that she burns easily, she spends all day trying to get a suntan. Later that night, she discovers that she is bright red and swollen.

a. Please circle the emotion that best describes how you would feel if you were the girl in this situation?
(Please circle only one):

Mad Sad Afraid Guilty Ashamed Nervous Just Okay Frustrated

b. How much would you feel that emotion?

1 2 3
A Little Some A lot

**Percentages of sadness and anger endorsed in response to pilot stories
(Stories selected based on the criteria > 70%)**

Appearance Stories

Sadness (71%)

5. Michelle saves up her allowance to buy a new outfit she has been wanting for a long time. When she finally gets enough money, she goes to the store to buy the outfit. When she tries it on at the store she thinks it looks pretty good and decides to buy it. Later that night when Michelle is at home, she tries on her new outfit and discovers that it looks terrible on her.

Sadness (71%)

7. Patty is getting ready for the last day of school. Because all of her friends have agreed to wear the same brand of jeans, she decides that she will wear her pair also. They are her favorite jeans. However, when getting ready for school the next day, she finds that she cannot zip them up, even though she tries and tries.

Anger (85%)

15. Sherri is starting to grow her hair long. Because her hair is starting to get split-ends she decides to go the hair salon for a hair cut. She tells the stylist that she is trying to grow her hair out and only wants a trim. However, when she looks in the mirror, she realizes that she got a whole new hairstyle that is much shorter than before.

Anger (70%)

16. Tara has been planning for the homecoming dance. She has bought her dress and her shoes. She is really excited about the dance, and has been talking about it with her friends all week. Two days before the dance, she starts to get two giant zits right on the tip of her nose. Finally, on the day of the dance, she tries to cover them up. Whatever she does, she cannot disguise them.

Achievement Stories

Sadness (71%)

14. Laura really wants to be elected to student council. She campaigns really hard and puts up posters all over the school. When they announce the winners, she is the only one of her friends who did not get elected.

Sadness (70%)

9. Ever since she was a young girl, Julie had been planning on going to the same college that her parents attended. When she talks to her guidance counselor, he tells her that her grades are not good enough to apply to that college.

Anger (74%)

8. Erika spent the whole weekend studying for an upcoming test. She studied so hard that she did not do anything fun, and even gave up her plans to go to the mall with her friends. A classmate who is always bragging about how smart she is gets a better grade than Erika even though she did not study for the test.

Anger (89%)

9. Because it is important to Stacy to do really well on her next exam, she studies really hard. After she takes the test and gets her grade, Stacy finds out that one of her classmates who cheated on the exam got a better grade than she did.

BIOGRAPHY OF THE AUTHOR

Leslie Sim was born in Rochester, Minnesota on October 10, 1968. She graduated from Mayo High School in 1987. Following graduation she attended the University of Colorado and graduated in 1991 with a Bachelor's degree, cum laude in Psychology. She attended the Developmental Psychology graduate program at Teachers College, Columbia University in the fall of 1994 and graduated with a Master's degree in Developmental Psychology in 1996. In the fall of 1996, she enrolled in the doctoral program in Clinical Psychology at the University of Maine. While at Maine, Leslie received the Department Chair's Award in Statistics and was inducted into the Sigma Chi Honors society. As part of her degree requirements, she completed her predoctoral internship in Pediatric Psychology at Rush-Presbyterian-St. Luke's Medical Center in Chicago, Illinois.

After receiving her degree, Leslie will begin a post-doctoral fellowship in the Department of Psychiatry and Psychology at the Mayo Clinic in Rochester, Minnesota. Leslie is a candidate for the Doctor of Philosophy degree in Clinical Psychology from The University of Maine in August, 2002.