Testing a Model of Maladaptive Perfectionism and Depression Symptoms: The Roles of Emotional Disclosure, Emotion Regulation Strategies, Adult Attachment, and Shame

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TESTING A MODEL OF MALADAPTIVE PERFECTIONISM AND DEPRESSION
SYMPTOMS: THE ROLES OF EMOTIONAL DISCLOSURE,
EMOTION REGULATION STRATEGIES,
ADULT ATTACHMENT, AND SHAME

by

Angela M. Garrison

A dissertation submitted to the Graduate College
in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
Department of Counselor Education and Counseling Psychology
August 2014

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TESTING A MODEL OF MALADAPTIVE PERFECTIONISM AND DEPRESSION SYMPTOMS: THE ROLES OF EMOTIONAL DISCLOSURE, EMOTION REGULATION STRATEGIES, ADULT ATTACHMENT, AND SHAME

Angela M. Garrison, Ph.D.

Western Michigan University, 2014

Previous research has supported a link between maladaptive perfectionism and higher levels of depression symptoms. However, researchers have not yet investigated the ways in which emotion regulation processes may mediate this relationship. Therefore, the primary purpose of this study was to evaluate emotional disclosure, emotional avoidance, and rumination as mediators of the relation between maladaptive perfectionism and depression symptoms. Additionally, this study also investigated the role that insecure attachment orientations play in the relationship between maladaptive perfectionism and use of particular emotion regulation strategies. Further, the role of shame in the emotion regulation processes of individuals with higher levels of maladaptive perfectionism was also explored in this study. In order to examine these relationships, 745 college students completed measures of maladaptive perfectionism, emotional suppression, rumination, distress disclosure, depression symptoms, adult attachment, and shame. Participants for this study were recruited via in-class announcements, and then completed all study measures through an online questionnaire.

Results of the study supported several of the proposed relationships among
variables. To begin, higher levels of maladaptive perfectionism were predictive of higher levels of depression through the mediating variable of higher levels of rumination. In addition, higher levels of maladaptive perfectionism were also predictive of lower levels of emotional disclosure through the mediating variable of higher levels of emotional avoidance. Further, lower levels of emotional disclosure were then related to higher levels of depression symptoms. Although the proposed moderating role of adult attachment in the relation between maladaptive perfectionism and emotion regulation strategies was not supported, expected relationships between insecure attachment and maladaptive perfectionism were found. Study results also offered tentative support for the mediating role of shame in the relation between maladaptive perfectionism and rumination. The author places these results in the context of past literature and research, discusses potential implications of these findings for counseling psychology research and practice, and offers directions for future research.
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CHAPTER I

REVIEW OF THE LITERATURE

Perfectionism is a significant concern for college student populations, with prevalence rates of up to 66% reported across multiple samples of students (Grzegorek, Slaney, Franze, & Rice, 2004). Such high rates of perfectionism are concerning, as perfectionism has been related to a number of negative outcomes, including decreased levels of self-esteem (Rice & Dellwo, 2002), increased levels of stress (Chang & Rand, 2000), increased levels of depression and anxiety symptoms (e.g., Rice & Aldea, 2006; Rice & Slaney, 2002; Wei, Mallinckrodt, Russell, & Abraham, 2004). Although maladaptive perfectionism has a variety of negative outcomes for individuals, perhaps one of the most alarming consequences is its link to depression symptoms. In particular, this is due to the severe impact that depression symptoms can have, including increased potential for suicide. Indeed, individuals high in maladaptive perfectionism do tend to exhibit higher levels of suicidal ideation and suicidal behaviors (i.e., suicide attempts) than those who are lower in maladaptive perfectionism (O’Connor, 2007).

Thus, it is important that counseling psychology researchers work to understand more about how maladaptive perfectionism may contribute to depression. Such research is likely to have direct clinical applications for counseling psychologists who work with college students in university counseling centers and other related settings. One way to understand more about the relationship between maladaptive perfectionism and symptoms of depression is to identify variables that mediate, or explain, this relationship. The primary purposes of this review are to provide an overview of the literature related to
maladaptive perfectionism and depression, identify potential mediating variables in this relationship, and present specific research questions for the current study. Moreover, in this review additional variables of interest related to understanding the primary proposed meditation model are also highlighted and incorporated into the present study.

This literature review begins with an overview of perfectionism that includes discussions of definitional issues, etiology, and consequences. In regard to consequences of maladaptive perfectionism, the link between maladaptive perfectionism and depression is emphasized and further explored. Then, potential mediating variables in the relation between maladaptive perfectionism and depression are discussed. Specifically, the current study is focused on the following potential mediators: emotional disclosure, emotional avoidance, and rumination. Following exploration of these mediators, the variable of adult attachment is introduced as a variable that may help differentiate which emotion regulation strategy in the primary meditation model (i.e., emotional avoidance or rumination) particular maladaptive perfectionists may rely on. Next, a short discussion about the role shame may play in the relation between maladaptive perfectionism and emotional disclosure is presented. The literature review ends with an introduction to the present study’s methodology, research questions, and hypotheses.

**Conceptualizations of Perfectionism**

At its most basic level, perfectionism can be defined as a constant striving for flawlessness in one or more areas of life (Flett & Hewitt, 2002). While many researchers agree on this core definition, specific ways of operationalizing the construct vary based upon what components of perfectionism are emphasized by the particular researchers. For instance, some researchers tend to primarily view perfectionism in terms of multiple
underlying dimensions (e.g., Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1990), while others define it based on how adaptive or maladaptive one’s perfectionism is (e.g., Slaney, Rice, Mobley, Trippi, & Ashby, 2001). These conceptualizations have developed over time, and have either incorporated or challenged existing definitions (Flett & Hewitt, 2002). Thus, in order to fully understand any one conceptualization of perfectionism, a basic understanding of the three most prominent ways of operationalizing this construct is necessary.

To begin, two of the three most common ways perfectionism is currently conceptualized in the literature grew out of early investigations of multidimensional models of perfectionism (Flett & Hewitt, 2002). The first was a model developed by Frost and colleagues (1990). Specifically, the authors reviewed existing perfectionism literature and found six dimensions they believed were central to perfectionism. These dimensions included: concern over mistakes, high personal standards, experience of parental criticism, high parental expectations, doubts about performance, and orderliness. They then designed and empirically tested a scale, called the Multidimensional Perfectionism Scale (F-MPS) that assessed perfectionism by measuring these dimensions. Their measure was created and initially tested for reliability and validity on a sample of community adults. However, subsequent studies have also supported construct, concurrent, and discriminant validity of the measure in elementary school student, college student, and clinical samples (Enns & Cox, 2002).

Around the same time, Hewitt and Flett (1991) also developed a multidimensional conceptualization of perfectionism. Yet, their dimensions were quite different from Frost et al.’s (1990) dimensions. Specifically, Hewitt and Flett delineated three fundamental
dimensions of perfectionism. The first dimension is self-oriented perfectionism, which involves setting and striving to meet very high personal standards. The second is socially prescribed perfectionism. This dimension captures the belief that others hold high standards for the individual. Finally, other-oriented perfectionism is the third dimension and it describes the extent to which the individual holds high standards for others in his or her life. Thus, these dimensions primarily differ based on where high standards originate (i.e., self or other) and where they are projected. Hewitt and Flett also developed a measure of perfectionism based on their conceptualization. Interestingly, it is also called the Multidimensional Perfectionism Scale (HF-MPS). The HF-MPS was developed and initially validated on a college student sample (Hewitt & Flett, 1991), but reliability and validity have also been supported in psychiatric samples (e.g., Hewitt, Flett, Tumbull-Donovan, & Mikail, 1991). Enns and Cox (2002) state that this conceptualization of perfectionism provides a “sophisticated multidimensional conceptualization of the perfectionism construct (p. 45-46),” with strong support for convergent, divergent, and predictive validity of the dimensions.

Furthermore, a third way of operationalizing perfectionism is in terms of the consequences it has for individuals. Specifically, as Enns and Cox (2002) explain, this involves separating perfectionism that has negative consequences (i.e., compulsive tendencies, inability to experience pleasure, inflexibly high standards) from perfectionism that has more positive consequences (i.e., ability to experience satisfaction with performance, high standards that match ability level and are flexible, relaxed but careful attitude). Researchers have referred to this distinction in a number of different ways, including neurotic versus normal perfectionism (e.g., Hamachek, 1978), positive versus
negative perfectionism (e.g., Slade & Owens, 1998), and maladaptive versus adaptive perfectionism (e.g., Slaney et al., 2001).

Despite the popularity of using this distinction, Flett and Hewitt (2006) have questioned whether the positive form of perfectionism really is healthy. In particular, they suggest this form of perfectionism is still motivated by a fear of failure and note that positive perfectionism may actually be better represented by the construct of conscientiousness. The field does not appear to have reached a conclusion in regard to the viability of the construct of adaptive perfectionism, with many researchers (i.e., Ashby, Dickinson, Gnulka, & Noble, 2011; Chang, Watkins, & Banks, 2004; Rice & Ashby, 2007) still advocating for the importance of the construct. Yet, there is no debate about the existence of a maladaptive form of perfectionism, as researchers have repeatedly demonstrated that high levels of perfectionism are related to multiple negative outcomes (Flett & Hewitt, 2002).

Furthermore, counseling psychologists have started to highlight the importance of understanding and addressing maladaptive perfectionism and its relation to mental health concerns, particularly in the college context (e.g., Rice & Dellwo, 2002; Wei et al., 2004). Following in this line of inquiry, in the current study I also focused on expanding knowledge related to maladaptive perfectionism as experienced by undergraduate college students. While perfectionism can certainly impact individuals throughout the lifespan, there appears to be a fairly high prevalence of perfectionism in college students, with some college student samples reporting perfectionism prevalence rates of up to 66% (Grzegorek et al., 2004). Moreover, college students are in a developmental place where achievement and developing competence in a number of areas (e.g., academic, physical,
interpersonal) are core developmental tasks (Chickering & Reisser, 1993). Thus, perfectionism may be especially relevant in such an achievement-oriented context. Therefore, understanding more about maladaptive perfectionism in the college context is especially likely to benefit counseling psychologists who work with college students.

In terms of measurement, maladaptive perfectionism is a construct that has been measured slightly differently across studies. Many researchers have used scales from one or both of the original perfectionism measures (Frost et al., 1990; Hewitt & Flett, 1991) that were previously described. From the F-MPS, the Concern Over Mistakes and Doubts About Actions scales have typically been used to measure maladaptive perfectionism. From the HF-MPS, the Socially Prescribed Perfectionism scale has typically been used. Researchers chose these scales based on their high correlation with negative consequences of perfectionism (Enns & Cox, 2002), which was used as an indicator that the scales were tapping into the more maladaptive aspects of perfectionism. However, one drawback to assessing maladaptive perfectionism in this way is that not every researcher has used the same exact scales, and in studies where groups were created (e.g., maladaptive perfectionists, non-perfectionists, etc.) the groups were created with cluster analyses on a case-by-case basis (Rice & Ashby, 2007). Thus, this inconsistency can potentially be problematic when trying to make accurate comparisons across studies.

More recently, researchers have developed a single scale to measure the construct of maladaptive perfectionism. This scale, called the Discrepancy scale, is part of the Almost Perfect Scale-Revised (APS-R; Slaney et al., 2001) which is a measure designed to assess both adaptive and maladaptive perfectionism. According to Slaney, Rice, and Ashby (2002), discrepancy refers to individuals’ perceptions of consistently being unable
to meet the high standards they set for themselves. These authors argue that the negative impact of having this disconnect between performance standards and ability to meet those standards is actually what is at the heart of maladaptive perfectionism. Thus, it appears to tap into the construct of maladaptive perfectionism in a different way than when MPS scales are used. In addition, validity testing of the measure has supported construct, discriminant, and predictive validity of the Discrepancy scale (Slaney et al., 2002).

Identifying this core feature of perfectionism also represents an important step forward in the area, as scholars have suggested that some of the subscales from both MPS measures may be tapping into causes or consequences of perfectionism, and not only the actual construct itself. Specifically, these scholars have suggested that certain scales of the HF-MPS (i.e., Socially Prescribed Perfectionism) and of the F-MPS (i.e., Parental Criticism and Parental Expectations) may best be thought of as causes of perfectionism (Rice et al., 2005; Slaney et al., 2001). Similarly, Slaney and colleagues (2001) have also suggested that other scales of the HF-MPS (i.e., Other-Oriented Perfectionism) and of the F-MPS (i.e., Organization, Concern Over Mistakes, and Doubts About Actions) are likely to be measuring consequences of perfectionism. Therefore, conceptualizing maladaptive perfectionism in terms of discrepancy is valuable in terms of construct validity because it appears to accurately tap into the construct of maladaptive perfectionism without also measuring these other components of perfectionism.

For this reason, in the current study I conceptualized maladaptive perfectionism in a way that is consistent with the Discrepancy scale of the APS-R. Moreover, despite the recent creation of cutoff scores for classifying maladaptive perfectionists using the APS-R (Rice & Ashby, 2007), I used a dimensional view of maladaptive perfectionism. This
allowed me to assess how differing degrees of maladaptive perfectionism related to other key study variables. A dimensional view of the construct is also quite useful because maladaptive perfectionism can be problematic regardless of whether or not someone would be completely categorized as a maladaptive perfectionist. Additionally, when maladaptive perfectionism is addressed dimensionally instead of categorically the findings and treatment implications from research can be applied to a wider range of individuals. Such a view of maladaptive perfectionism has been supported and previously used in the literature (e.g., Wei et al., 2004). Furthermore, use of this particular conceptualization of maladaptive perfectionism is also likely to yield results that are useful for counseling psychology researchers and practitioners, as the APS-R was developed to be used in both research and practice (Enns & Cox, 2002; Slaney et al., 2001).

**Perfectionism: Etiology and Consequences**

In addition to discussing conceptual issues associated with maladaptive perfectionism, it is important to briefly address the etiology of perfectionism. Understanding how this form of perfectionism develops can shed light on why or how behaviors associated with perfectionism are maintained. In particular, Flett, Hewitt, Olivier, and Macdonald (2002) have generated one of the most comprehensive models of the development of perfectionism. Specifically, these authors explain that three different factors are likely to influence the development of perfectionism. First, the authors explain that parent factors can influence the degree of pressure one feels to be perfect. Such factors include parental goals, practices, personality, and style of parenting. For instance, parents who set high standards (i.e., emphasize performance goals instead of learning
goals) and who are perfectionistic themselves are likely to contribute to their children feeling an increased need to be perfect. Rice et al. (2005) offered further support of this factor when they tested a relational model of perfectionism with 241 college student participants. They determined that perceiving high levels of criticism from parents was an antecedent of maladaptive perfectionism, yet this relationship was not present for a model testing the antecedents of adaptive perfectionism.

Second, Flett and colleagues (2002)’s model also indicates that child/individual factors influence the pressure to be perfect. For example, one of these individual factors includes how individuals internalize early experiences with parents. Thus, two children may have similar experiences (e.g., parents with high standards) and one may react by internalizing these standards and becoming perfectionistic, while the other may not internalize these standards at all. Additionally, temperament is another individual factor that may impact the development of perfectionism (Flett et al., 2002). For instance, a temperament that includes high levels of fearfulness and persistence may make it more likely for an individual to become perfectionistic.

Furthermore, this model cites environmental factors as the third factor that contributes to the development of perfectionism (Flett et al., 2002). Such factors include culture, peers, teacher, and occupation. For instance, the authors suggest people from individualistic cultures as well as people who experience very high standards in peer relationships or at school/work are more likely to develop perfectionism than those who do not. Taken together, this model posits different pathways that interact to promote a sense of needing to be perfect and meet excessively high standards.
Regardless of the exact cause of an individual’s perfectionistic tendencies, there is no way to disregard the adverse consequences of maladaptive perfectionism. In terms of physical health, maladaptive perfectionism is positively correlated with current fatigue and is also predictive of subsequent fatigue (Dittner, Rimes, & Thorpe, 2011). Maladaptive perfectionism has also been related to engaging in unhealthy behaviors. For instance, Rice and Van Arsdale (2010) found that college student maladaptive perfectionists are more likely to use alcohol to cope with their stress and are also more likely to report drinking-related problems than either adaptive perfectionists or non-perfectionists. Moreover, maladaptive perfectionism also has implications for college student academic adjustment. Specifically, Rice and Dellwo (2002) found that maladaptive perfectionists reported lower levels of academic integration (i.e., positive behaviors related to the college academic environment) than adaptive perfectionists or non-perfectionists, even though their grade-point averages were no different. Furthermore, maladaptive perfectionism is also related to lower levels of social integration (i.e., positive behaviors related to the college social environment) and perceived social support (Rice & Dellwo, 2002; Sherry, Law, Hewitt, Flett, & Besser, 2008).

Additionally, research has also linked maladaptive perfectionism with a number of negative emotional health consequences. To begin, maladaptive perfectionism has been linked with the presence of both state and trait anxiety (Rice & Dellwo, 2002; Rice & Slaney, 2002). It has also been related to general negative affect (Rice & Slaney, 2002), as well as to higher levels of daily negative affect and lower levels of daily positive affect (Dunkley, Zuroff, & Blankstein, 2003). In addition, individuals with
perfectionism also tend to report feelings of loneliness (Sherry et al., 2008), hopelessness, and stress (Chang & Rand, 2000). Moreover, maladaptive perfectionistic individuals have also been shown to report lower levels of self-esteem than either adaptive perfectionists or non-perfectionists (Rice & Dellwo, 2002).

Moreover, results from multiple studies suggest maladaptive perfectionism is positively related to depression symptoms (e.g., Rice & Slaney, 2002; Sherry et al., 2008; Wei et al., 2004). Rice and Aldea (2006) sought to further understand this relationship by conducting a short-term longitudinal study. Specifically, they assessed perfectionism (as measured by the APS-R Discrepancy scale) and depression symptoms in college students using three waves of data collection that were separated over 4-5 weeks. Using the final longitudinal sample of 84 individuals, they found that maladaptive perfectionism was predictive of current depression as well as later depression at both 4-5 weeks and 8-10 weeks. The authors also concluded that maladaptive perfectionism is a vulnerability factor for depression, and noted that changes in depression did not meaningfully change perfectionism levels. Thus, findings from this study offered additional support for the predictive relationship between maladaptive perfectionism and depression symptoms.

Furthermore, given maladaptive perfectionism’s link with loneliness, hopelessness, and depression, it may not be surprising that it is also related to suicidality (i.e., suicidal ideation and/or suicidal behavior). Specifically, in a review paper of 29 studies, O’Connor (2007) found substantial support that maladaptive perfectionism is positively correlated with suicidality. Similarly, Blankstein, Lumley, and Crawford (2007) also assessed this relationship with a sample of 205 undergraduate students. Participants completed a variety of questionnaires, including measures of perfectionism...
(HF-MPS), current suicidal ideation, and hopelessness. One of their primary findings was that socially prescribed perfectionism (an indicator of maladaptive perfectionism) was a predictor of suicidal ideation, as well as interpersonal hopelessness and achievement hopelessness. This was true across genders. Thus, Blankstein and colleague’s findings further support the notion that maladaptive perfectionism can have serious consequences.

**Perfectionism and Depression Symptoms: A Cause for Alarm**

Clearly, maladaptive perfectionism can be linked to a variety of negative consequences. Although all of these consequences are concerning, the link between maladaptive perfectionism and depression symptoms (including correlates of depression such as loneliness, hopelessness, and suicidal ideation) seems to be the most alarming. This is because individuals who are high in maladaptive perfectionism and also experiencing symptoms of depression are then vulnerable to the negative consequences of both concerns. Specifically, depression symptoms themselves can lead to distress and impairment in social academic, and/or occupational functioning (*DSM-IV-TR*, APA 2000). Additionally, suicide is also a severe potential consequence of high levels of depressive symptoms, as depression is a significant risk factor for suicide. Moreover, this threat is real with 6.6% of college students reporting they have seriously considered suicide in last year and 1.1% actually attempting suicide (American College Health Association, 2012). Hence, depression symptoms can compound or add to the negative consequences maladaptive perfectionists are already experiencing as a result of their perfectionism.

Further, in order to more fully understand the connection between perfectionism and depression, conceptualizations of depression should be clarified. In many clinical
settings, depression is often defined categorically by identifying whether or not individuals meet enough criteria to qualify for a diagnosis of Major Depression Disorder (MDD; APA, 2000). However, I measured depression dimensionally by assessing the levels of depression symptoms participants are experiencing. I chose to assess depression symptoms instead of presence of MDD because depression symptoms can be problematic regardless of whether or not individuals meet criteria for MDD. Further, measuring depression in this way will also allow the current findings to be applied to a wider range of individuals.

Most importantly, using a dimensional conceptualization is also in line with recent developments in the field. For instance, Ruscio and Ruscio (2000) tested the underlying structure of depressive symptomology. In order to do this they used data from two large \((n = 996; n = 13,707)\) clinical samples. Their results strongly supported dimensionality of depression symptoms. Subsequent research has generally continued to suggest important dimensional variations in depression (e.g., Ahmed, Green, Clark, Stahl, & McFarland, 2011). Furthermore, research connecting depression and maladaptive perfectionism has utilized dimensional measures of depression (e.g., Rice & Aldea, 2006; Wei et al., 2004). Thus, for all of these reasons, it appears valuable to assess depression in terms of level of symptoms.

Furthermore, developing a more complete understanding of how individuals’ levels of depression symptoms are related to maladaptive perfectionism is important because it can help counseling psychologists begin to discern ways to interrupt this link. Specifically, identifying variables that explain the relationship between perfectionism and depression symptoms can provide guidance regarding the best ways to intervene with
perfectionistic clients in order to reduce levels of depression symptoms. Knowledge of such variables will also provide more insight into one specific vulnerability factor for depression (i.e., perfectionism), which will add to the literature in the area. Therefore, in the following sections, I will highlight several variables I believe may help explain the relation between maladaptive perfectionism and depression symptoms.

**Emotional Disclosure**

One variable that may be important to understand in terms of its relation to maladaptive perfectionism and depression symptoms is emotional disclosure (i.e., the sharing of personal emotional events). In particular, emotional disclosure is valuable to understand because it sheds light on what individuals are doing with their emotional distress. For instance, do they share their distress with others or do they keep it to themselves? Understanding such patterns may be especially important for maladaptive perfectionists, as they tend to experience a variety of distressing emotions (e.g., Dunkley et al., 2003; Rice & Dellwo, 2002; Sherry et al., 2008). Furthermore, knowledge of disclosure variations is also important in a counseling context because many clinical interventions rely on disclosure from clients, making it a key component of the counseling process (Farber, 2006).

In general, emotional disclosure has been related to a number of positive outcomes. For example, Pennebaker and Seagal (1999) reviewed over two-dozen studies on written disclosure and found it to be associated with a number of positive effects in a variety of populations (e.g., college students, chronic pain patients, prisoners) and across social class and racial/ethnic groups. Specifically, in the studies reviewed disclosure was associated with fewer visits to the doctor, increased immune system functioning, lower
levels of depression, and higher grades. In terms of mood, participants tended to experience a significant increase in negative mood shortly after writing about traumatic personal experiences, but after a 2-week period they were as happy or happier than those in the control group who had not written about distressing experiences. Moreover, Pennebaker and Seagal also noted that writing about distressing experiences and talking about them appears to have similar positive effects. These findings highlight the importance of disclosure, regardless of the exact method. Additionally, this literature also provided support for the notion that disclosures containing more emotions are related to higher levels of positive outcomes (Pennebaker & Seagal, 1999).

Additionally, a more recent meta-analysis of 146 randomized studies of experimentally induced disclosure also found a variety of positive outcomes related to emotional disclosure (Frattaroli, 2006). First, it was found that engaging in emotional disclosure was related to decreased levels of depression, anger, anxiety, and distress, as well as to an increased level of subjective well-being. In terms of physical health, use of disclosure was related to improvements in immune system functioning, liver functioning, and dopamine levels. Finally, positive outcomes in regard to work, social relationships, school, and general cognitive functioning were all indicated in participants who engaged in disclosure.

Furthermore, Kahn, Hucke, Bradley, Glinski, and Malak (2012) conducted a research review of 30 studies that have used the Distress Disclosure Index (DDI; Kahn & Hessling, 2001), and found a number of beneficial outcomes. The DDI is often used to measure emotional disclosure in research studies. According to their review, engaging in higher levels of disclosure has been related to higher levels of self-esteem, greater life
satisfaction, higher levels of positive affect, and higher levels of perceived social support. It is also related to lower levels of negative affect, and decreased symptoms of depression and anxiety. Additionally, use of distress disclosure is also related to more positive help-seeking attitudes and an increased level of belief in the usefulness of disclosure.

Studies have also shown emotional disclosure to have important implications for the process and outcome of therapy. For example, Kahn, Achter, and Shambaugh (2001) examined therapy-related outcomes in a sample of 79 clients at a university counseling center. Clients who participated in the study completed measures related to distress disclosure and therapy-related outcomes (i.e., stress, symptoms) prior to termination and upon termination. Results indicated a relation between higher levels of disclosure in session and reported decreases in stress and symptomology at termination. A study by Sloan and Kahn (2005) also yielded similar results. Specifically, this study assessed a sample of 22 clients at a university counseling center in order to evaluate associations between use of disclosure and short-term therapy outcomes (i.e., after three or four sessions). Results of this study indicated that higher levels of emotional disclosure were related to a decrease in distress as measured by the Outcome Questionnaire (OQ-45), which is commonly used to track client reported distress in clinical settings. Additionally, Kahn, Vogel, Schneider, Barr, and Henning (2007) conducted an analogue study of transcripts from 33 volunteer client sessions (3 sessions from 11 different clients). The authors coded the transcripts for client disclosures, as well as positive and negative emotion words. Their findings indicated that increased disclosure in session was related to higher session impact (as indicated by greater depth) in counseling. Taken together, all
of these findings suggest a variety of benefits are related to the use of disclosure, both in
general and in clinical settings.

Moreover, while increased disclosure has been related to positive outcomes,
decreased levels of disclosure have been related to negative outcomes. In particular, self-
concealment is a form of nondisclosure that involves a tendency to actively conceal
distress from others (Larson & Chastain, 1990). Use of self-concealment has been related
to increased symptoms of depression and anxiety (Larson & Chastain, 1990), as well as
increased symptoms of pain in both healthy individuals and individuals who experience
chronic pain (Uysal & Lu, 2011).

Additionally, research suggests that it is the repeated tendency to conceal distress
from others that is most problematic. Specifically, Kelly and Yip (2006) tested this
assertion with a sample of 86 undergraduate college students. Participation in this study
involved attending two separate sessions that were separated by a time span of 9 weeks.
At the first session, participants completed measures of self-concealment, stress,
psychological symptoms, and social support. They were also asked if they were keeping a
major secret. Then, at the second session they completed identical measures of stress and
symptoms. As the authors predicted, high levels of generalized self-concealment were
related to high levels of psychological symptoms at the first session and increased
symptom levels after 9 weeks. However, when accounting for initial levels of self-
concealment, keeping a major secret was actually related to lower levels of reported
symptoms. This supports the idea that there may be times when nondisclosure of
something particular is warranted (e.g., if disclosure could result in shame, alienation, or
some other negative consequence).
Taken together, this literature then suggests that disclosing upsetting information and feelings is generally a positive behavior. In their review article, Kennedy-Moore and Watson (2001) offered several reasons why disclosure may have so many positive benefits for individuals. First, they suggested that emotional disclosure decreases distress because it can minimize intrusive thoughts and often enables individuals to feel more control over their stress. Second, the authors explained that disclosure also helps to facilitate insight. Specifically, when individuals put their distress into words it often allows them to interpret and understand their emotions more fully. Such insights are important because they can help people create meaning and figure out what they want to do next in order to cope with their distress. Third, Kennedy-Moore and Watson posited that emotional disclosure is also beneficial for individuals because it helps promote social support. They note that being supported by others can also decrease distress. Indeed, this final piece about social support may be especially valuable for perfectionists, as they tend to experience loneliness (Sherry et al., 2008), which has been shown to contribute to later development of depression (Wei, Russell, & Zakalik, 2005).

**Emotional Disclosure and Perfectionism**

Despite these positive benefits of disclosure and negative impacts of nondisclosure, I was unable to find a single study that explicitly addressed the relationship between emotional disclosure and perfectionism. As previously noted, understanding this relationship provides valuable insight into what individuals are doing with their distress (e.g., depression). While there appear to be no studies that have examined this link, I was able to find a handful of studies that addressed theoretically
related constructs. The findings from these studies suggest perfectionism may indeed be related to problematic uses of emotional disclosure.

To begin, Kawamura and Frost (2004) examined whether self-concealment explained (i.e., was a mediating factor) the relationship between maladaptive perfectionism and distress. They hypothesized self-concealment would be a mediating variable, and in order to test this hypothesis they used a sample of 145 undergraduate college students. Participants in this study completed self-report measures of maladaptive perfectionism, self-concealment, and general distress. As predicted, results indicated that self-concealment mediated the relationship between maladaptive perfectionism and distress. In particular, maladaptive perfectionism was related to higher levels of self-concealment, and these higher levels of self-concealment were then related to higher levels of distress.

Thus, these results suggest maladaptive perfectionists may not be sharing distressing information with others. However, it is important to note that while self-concealment and emotional disclosure are related, they are distinct constructs and not simply opposites. Specifically, self-concealment is usually conceptualized to include the process of actively concealing information from others and at times fearing disclosure. On the other hand, emotional disclosure only refers to behaviors (and not fears) associated with both disclosure and concealment (Kahn et al., 2012). This theoretical difference is also supported in studies that have used both measures and observed that relationships between the two are only modestly negatively correlated (e.g., Kahn & Hessling, 2001). Therefore, even though this study suggests a potential relationship
between maladaptive perfectionism and emotional disclosure, the relation still needs to be empirically tested with a measure of emotional disclosure.

Along these same lines, Flett, Besser, Hewitt, and Davis (2007) investigated the relation between perfectionism, silencing the self, and depression symptoms. They defined silencing the self as keeping distress to oneself in order to maintain or improve relationships. Thus, this is a form of nondisclosure, but it has a self-sacrificing component to it. Their sample included 202 undergraduate students, and participants in the study completed self-report measures for each of the primary constructs being studied. Flett and colleagues supported their hypotheses with their primary finding that socially prescribed perfectionism (which is sometimes used as an indicator of maladaptive perfectionism) was positively related to silencing the self, and silencing the self was positively related to depression symptoms. Again, the findings from this study offer support for the notion that there may potentially be a link between perfectionism and use of emotional disclosure.

Furthermore, recent literature suggests guided written disclosure may be beneficial for maladaptive perfectionists. Specifically, Merrell, Hannah, Van Arsdale, Buman, and Rice (2011) had 14 college students who were classified as maladaptive perfectionists complete a guided written disclosure task. This task involved the participants writing about their “very deepest thoughts and feelings about stress, perfectionism, performance expectations, and coping (Merrell et al., 2011, p. 515)” for 20 minutes on three different occasions. Two to four days passed between each writing session. The authors then used consensual qualitative analysis to analyze the data and look for primary themes in the writing. Primary themes that emerged included: distress,
standards, identity as a perfectionist, and coping. When reviewing clinical implications of their findings, Merrell et al. argued that using an expressive writing paradigm may help perfectionists. While the authors acknowledged that their study did not directly test this, they reasoned that the richness of the qualitative data they obtained from the participants demonstrated that such a task was powerful and could be a way to gain access into participants’ deeper thoughts and feelings, something the authors suggest could otherwise be quite difficult.

Together these three studies begin to build the argument that maladaptive perfectionism may possibly be related to problematic uses of emotional disclosure. The studies by Kawamura and Frost (2004) and Flett et al. (2007) both suggest that perfectionistic individuals may engage in low levels of disclosure. In addition, the study by Merrell and colleagues (2011) was interpreted to suggest perfectionists may benefit from guided disclosure tasks. If perfectionists do indeed benefit from such tasks, it may mean that they are not initially using emotional disclosure effectively on their own.

Due to these findings, and the negative implications of low levels of disclosure that were previously discussed, it is important to understand more about how the disclosure patterns of maladaptive perfectionists may be contributing to their depression symptoms. Although two of the studies reviewed suggest a low level of disclosure in maladaptive perfectionists, it is also possible that they could be using disclosure in other problematic ways as well. For instance, rumination on distress (an emotion regulation strategy that has previously been connected to perfectionism) has been associated with higher levels of disclosure that are not productive because they do no generate insight and can actually push others away (Stroebe, Schut, & Stroebe, 2009). Therefore, in order to
better understand the disclosure behavior of perfectionists it also seems valuable to understand more about how they may typically regulate their emotions internally. Specifically, the strategies maladaptive perfectionists use to manage their emotions internally are likely to impact whether or not they share their distress with others.

**Emotion Regulation and Perfectionism**

Overall, existing research suggests maladaptive perfectionists may exhibit poor abilities to effectively manage their emotions (e.g., Dunkley et al., 2003; Wei, Heppner, Russell, & Young, 2006). Furthermore, Aldea and Rice (2006) explain that such difficulties with emotion regulation have the potential to impact adaptive functioning and distress. Thus, they conducted an empirical study assessing the relationship between perfectionism, emotion dysregulation (comprised of emotional reactivity and splitting), and psychological distress. The authors hypothesized that maladaptive perfectionism would be related to higher levels of emotion dysregulation, which in turn would be related to higher levels of distress. In order to test this, 349 university students completed a series of questionnaires. As hypothesized, results indicated that emotion dysregulation was a mediator of the relationship between maladaptive perfectionism and distress. This finding is important because it clearly demonstrates that emotion regulation difficulties exist for perfectionistic individuals and are significant enough to be related to distress.

Over the past 10 years, other researchers have also worked to understand how emotion regulation tendencies may impact the relation between maladaptive perfectionism and forms of psychological distress such as depression. Findings from these studies suggest two primary, problematic internal emotion regulation strategies that are likely used by perfectionists: emotional avoidance and rumination. Understanding of
these two emotion regulation strategies is important for a couple of reasons. First, as previously noted, it can inform our understanding of how perfectionists may use emotional disclosure. Additionally, such understanding is important in its own right, as both of these strategies have previously been related to depression symptoms (e.g., Campbell-Sills, Barlow, Brown, & Hofmann, 2006; Nolen-Hoeksema, 2000). In the remainder of this section, research findings related to perfectionism and each of these emotion regulation strategies will be reviewed.

To begin, perfectionism has been associated with avoidance of emotions and thoughts associated with distress across a number of studies. For instance, Dunkley and various colleagues have conducted several studies in which the relationships between perfectionism, avoidant coping, and various types of psychological distress were assessed. In each of these studies, avoidant coping was defined as denial of distressing emotions, behavior disengagement (i.e., not expressing distress), and mental disengagement. First, Dunkley, Blankstein, Halsall, Williams, and Winkworth (2000) used a sample of 443 university students to assess the relationships between evaluative concerns perfectionism (a maladaptive form of perfectionism), avoidant coping, and distress (as indicated by depression and anxiety symptoms) via self-report questionnaires. Results indicated avoidant coping was one mediator in the relationship between perfectionism and distress. In particular, perfectionism was related to higher levels of avoidant coping, and higher levels of avoidant coping were related to higher levels of distress.

In addition, using daily reports, Dunkley et al. (2003) found that avoidant coping explained the relation between self-critical perfectionism and daily negative affect.
including symptoms of depression) in a sample of 163 college students. Furthermore, Dunkley, Sanislow, Grilo, and McGlashan (2006) sought to understand the relation between perfectionism, avoidant coping, current depression symptoms, and depression symptoms 3 years later. In order to assess this, they had 96 patients from a clinical setting complete self-report measures of study constructs at two sessions that were 3 years apart. Results indicated that avoidant coping mediated the relation between perfectionism and both current and future depression. These three studies together suggest denial of distress and mental/behavioral avoidance are related to perfectionism, and may also partially explain the relationship between perfectionism and depression/other negative emotions.

A study by Santanello and Gardner (2006) also offered support for a relation between experiential avoidance (i.e., avoidance of negative internal experiences) and maladaptive perfectionism. Specifically, these authors used a sample of 125 college students to test their hypothesis that experiential avoidance would explain the relation between maladaptive perfectionism and worry. Participants in this study completed a series of questionnaires measuring perfectionism and emotion regulation strategies at one point in time. Results supported their hypothesis, thus also supporting a relationship between maladaptive perfectionism and increased use of experiential avoidance.

Bergman, Nyland, and Burns (2007) also conducted a study that provided support for a relation between negative perfectionism and emotional suppression (i.e., avoidance of negative emotions and thoughts). Specifically, the authors evaluated several potential correlates of negative perfectionism in a sample of 344 college students. Results of the study revealed a positive correlation between negative perfectionism and emotional suppression, meaning higher levels of negative perfectionism were associated with higher
levels of emotional suppression. Both of these studies thus further support the idea that perfectionists may avoid experiencing emotional distress.

Finally, two additional studies (Park, Heppner, & Lee, 2010; Wei, Heppner, Russell, & Young, 2006) using cross-sectional survey data from college students also support relationships between maladaptive perfectionism, suppression, and depression. Yet, these studies do not provide results that are as clear as the previously discussed studies because both sets of researchers combined measures of emotional suppression and emotional reactivity to yield overall constructs of maladaptive or ineffective coping. Both studies did indeed determine that maladaptive or ineffective coping served as mediators of the relationship between maladaptive perfectionism and higher levels of depression. Thus, it can be concluded that use of emotional suppression was related to maladaptive perfectionism in some way, but the exact relationship is unclear in these two studies since it was not measured as a distinct construct in either study’s models.

In addition to emotional avoidance, perfectionism has also been associated with the use of rumination. Rumination involves a repetitive thought process where individuals focus on their distress and the meaning of their distress. This is often done in a passive manner, with no action being taken to eliminate the distress (Nolen-Hoeksema, 2000). Research has shown rumination to have a clear relationship with depressive symptoms. For instance, Nolen-Hoeksema (2000) assessed the association between these two variables in a study with 1,132 adult participants. Participants in the study completed two sessions with a researcher that were 1 year apart. At the sessions, participants were asked to complete measures of depression, anxiety, and rumination. Results indicated that rumination not only was related to current depression symptoms, but also could predict
the occurrence and reoccurrence of major depressive episodes. Rumination was also found to predict anxiety symptoms. The author suggested that rumination might have such negative mental health consequences because it creates a focus on negative events and also can lead to a pessimistic outlook (Nolen-Hoeksema, 2000). These findings are noteworthy because they suggest the negative impact that responding to distress in this way can have for individuals.

As previously noted, several studies have demonstrated a link between perfectionism and increased levels of rumination in response to distress. To begin, Rudolph, Flett, and Hewitt (2007) sought to investigate the relationship between perfectionism and a number of cognitive emotion regulation deficits they believed to be present in perfectionists. In order to test these relationships, the authors had 100 college student participants complete a battery of questionnaires assessing perfectionism, cognitions, and emotion regulation strategies. In terms of rumination, their results indicated that socially prescribed perfectionism was positively correlated with rumination symptoms. Moreover, Rudolph et al. (2007) concluded that due to their tendency to use rumination and other maladaptive coping strategies, individuals high in perfectionism may be especially vulnerable to distress after experiencing negative events.

Similarly, Flett, Madorsky, Hewitt, and Heisel (2002) also conducted a study to assess the relation between perfectionism and rumination. They used a sample of 65 college students to test their hypothesis that individuals high in certain dimensions of perfectionism would also exhibit a tendency to ruminate. As predicted, they also found a strong positive correlation between socially prescribed perfectionism and rumination. Additionally, they concluded that both perfectionism and rumination were correlated with
measures of mood disorders. Again, this suggests that rumination is related to perfectionism, and may also contribute to distress levels.

Indeed, Olson and Kwon (2008) empirically tested this idea when they conducted a study aimed at understanding whether perfectionism and rumination contribute to the development of depression symptoms. In their study, they had 305 undergraduate university students complete questionnaires at two different time points that were four weeks apart. At time 1, participants completed measures of perfectionism, rumination, and depression. At time 2, they only completed a measure of depression. Based on their results, Olson and Kwon concluded that being high in perfectionism (either self-oriented or socially prescribed) and high in tendency to ruminate can lead to the development of depression symptoms. Specifically, participants in their sample who were high on both of these variables exhibited higher increases in depression symptoms over the time points of the study than individuals lower on these variables. Thus, not only are perfectionism and rumination related to depression, but at high levels both perfectionism and rumination can also be a potential cause for depression symptoms.

Furthermore, as researchers observed that perfectionism, rumination, and distress are related they began to wonder whether rumination might function as a mediator between the two constructs, and thus at least partially explain their relation to each other. For example, O’Connor, O’Connor, and Marshell (2007) conducted a series of three studies to test this mediation hypothesis. Their first study consisted of two samples of mixed college and non-college adults ($n = 279; n = 224$). Participants in this study completed measures of perfectionism, rumination, psychological distress, depression, and hopelessness. The results supported their hypotheses and indicated that rumination
mediated the relationships between perfectionism (self-oriented and socially prescribed) and general distress, depression, and hopelessness. Study 2, which used a sample of 205 college students, replicated these results. In study 3, the O’Connor et al. used a sample of 163 college students to examine these relationships longitudinally. This involved participants completing questionnaires on two occasions 8 weeks apart. The authors found that when controlling for initial levels of distress, rumination mediated the relation between socially prescribed perfectionism and symptoms of depression and hopelessness 8 weeks later. Taken together, results from these three studies support the importance of rumination in understanding the relation between perfectionism and depression.

A study by Harris, Pepper, and Maack (2008) further supports this mediating role of perfectionism. Specifically, the authors tested a model with rumination as a mediating variable between maladaptive perfectionism and depressive symptoms. They used a sample of 96 college students and had them complete measures of perfectionism, rumination, and depression symptoms. As predicted, their model was supported. In addition, the authors reported that two different components of rumination were differently important as mediators. In particular, they found that brooding rumination, which captures the process of repeatedly thinking about distress in an obsessive but not solution-focused way, was a stronger mediator of the relationship than reflective pondering, which is related to problem-solving. This is fitting, as the brooding component of rumination is especially strongly related to depression (Nolen-Hoeksema, 2000).

In summary, the emotion regulation strategies of emotional avoidance and rumination have both been shown to have strong associations with perfectionism and
depression. Yet, these processes are likely to have different implications when it comes to emotional disclosure. Those who engage in emotional avoidance, and thus suppress their emotional experiences, are not likely to share these experienced with others. Indeed, suppression and disclosure are negatively correlated, with an increased tendency to suppress emotional experiences being related to lower levels of disclosure (Kahn et al., 2012). On the other hand, individuals who ruminate about their distress may be likely to share this distress with others. However, their disclosure still may not reduce distress because they are likely to be ruminative disclosures that are not aimed at insight (Stroebe, Schut, & Stroebe, 2009). Understanding which emotion regulation strategy a particular perfectionist may rely on is then important for understanding how to help them use emotional disclosure more effectively.

One individual difference variable that may inform which emotion regulation strategy perfectionistic individuals prefer is adult attachment orientation. This is likely an important variable to consider for a couple of reasons. First, previous research suggests a relationship between certain attachment orientations and level of perfectionism (e.g., Rice et al., 2005). Second, one’s attachment orientation has clear implications for how distress is managed, and whether individuals are likely to avoid emotions, ruminate over emotions, or effectively cope with emotions (e.g., Mikulincer et al., 2003). Thus, for these reasons I believe it is important to consider adult attachment when trying to understand how individuals who are high in perfectionism tend to regulate their emotions.
**Adult Attachment Orientations and Perfectionism**

Attachment refers to the bond that individuals have with those in their lives who provide safety and comfort (Obegi & Berant, 2009). From an early age, individuals learn to seek out those they are attached to when they are distressed (Shaver & Mikulincer, 2009). During childhood, these attachment figures are often parents or other primary caregivers. Over time, mental representations (i.e., working models) of how caregivers respond to children’s proximity-seeking behaviors develop (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1988). According to Bowlby (1988), those who are consistently comforted by caregivers when distressed learn to view proximity-seeking as a viable means of emotion regulation, and thus continue to rely on this strategy when distressed. These individuals are described as having a secure attachment orientation. However, when children experience inconsistent or neglectful caregiving, they learn proximity-seeking is not a viable means of emotion regulation, and learn to rely on other emotion regulation strategies. Although these strategies may be adaptive in this original context, over time such strategies can become quite maladaptive. This pattern of attachment is referred to as an insecure attachment orientation.

While these early understandings of relationships (i.e., attachment orientations) are developed in infancy and refined in childhood, they are also quite relevant in adulthood (Obegi & Berant, 2009). Specifically, as individuals grow older they apply their working models of relationships to new relationships with close friends, romantic partners, and any other individuals who provide them with a sense of safety and comfort when they are distressed (Shaver & Mikulincer, 2009). Empirically, Hazan and Shaver (1987) were the first to support the presence of attachment styles in adulthood (i.e., adult...
attachment). Specifically, they conducted a series of studies in the context of adult romantic relationships that suggested adults could be classified into secure and insecure attachment styles at similar frequencies to their prevalence in infancy.

Since this major finding, numerous researchers have further explored the notion of adult attachment. Early research in the area supported the existence of four adult attachment styles: secure, anxious, avoidant, or unresolved (Hazan & Shaver, 1987; Shaver & Hazan, 1993). While this categorical conceptualization of adult attachment is still used by some researchers, more recent research suggests adult attachment may better be represented as a dimensional construct. Specifically, in their overview chapter on attachment, Shaver and Mikulincer (2009) explain that over time researchers have concluded that attachment is best thought of in terms of two primary dimensions. According to this two dimensional model, which was developed by Brennan, Clark, and Shaver (1998), attachment orientation can be described in terms of attachment anxiety and attachment avoidance. Specifically, individuals high in attachment anxiety tend to have a strong desire to be overly close to attachment figures and fear abandonment, while individuals high in avoidant attachment tend to have a difficult time trusting others and are often overly self-reliant. Exhibiting low levels of both dimensions indicates secure attachment, while exhibiting anxious and/or avoidant attachment indicates insecure attachment.

Given that both adult attachment and perfectionism have some roots in early experiences with parents, researchers have worked to understand if there are any meaningful relations between the two. Rice and colleagues (2005) were the first to conduct a comprehensive investigation of how these two variables may relate to each
other. Prior to this, researchers had evaluated relations between perfectionism and parental attachment (e.g., Rice & Mirzadeh, 2000) and generally found maladaptive perfectionism to be related to higher levels of insecure attachment to parents. Yet, adult attachment and attachment to parents are slightly different constructs and specific evaluation of adult attachment and perfectionism was warranted, though Rice et al. expected to find similar patterns. Specifically, the authors believed that maladaptive perfectionism would be related to both attachment anxiety and attachment avoidance, while adaptive perfectionism would be related to more secure attachments. In their study, the authors also wanted to see how parental expectations and parental criticisms influenced these variables. In particular, they argued that such variables were actually precursors to perfectionism and attachment instead of part of the perfectionism construct. They further hypothesized that high levels of parental expectations and parental criticisms would likely predict maladaptive perfectionism and both forms of insecure attachment.

In order to test these relationships, Rice, Lopez, and Vergara, (2005) had a sample of 241 undergraduate students complete several measures of perfectionism and adult attachment. In terms of correlations, both attachment anxiety and attachment avoidance were significantly positively correlated with maladaptive perfectionism as measured by the Discrepancy scale of the APS-R (Slaney et al., 2001). Adaptive perfectionism, as measured by the High Standards scale of the APS-R, was not significantly correlated with anxiety, but did have a significant small negative correlation with attachment avoidance. In terms of their proposed model, Rice et al. found general support for the notion that parental expectations and parental criticism were precursors of perfectionism, and that
both of these variables also predicted maladaptive perfectionism and insecure attachment. The authors also reported several interactions between dimensions of perfectionism and attachment security. Most noteworthy was their conclusion that high levels of parental criticism that are unrelated to similarly high parental expectations for performance can have the most deleterious impact on attachment security. Findings from this study were important, as they were the first to explicitly link maladaptive perfectionism and the dimensions of attachment avoidance and attachment anxiety. In addition, this study also shed further light on how early experiences with parents can impact both perfectionism and attachment.

Further study on adult attachment and perfectionism has also generally supported the links found by Rice et al. (2005). For instance, a study on the relational precursors of achievement orientation in high-ability students by Speirs Neumeister and Finch (2006) supported connections between attachment insecurity and certain forms of perfectionism. The authors used a sample of 265 college freshmen that were honors students to test their proposed model. Participants completed a series of questionnaires assessing parenting style, perfectionism, and attachment. Most relevant to the current study, was their finding that adult attachment insecurity was associated with higher levels of perfectionism. Thus, this supported the earlier conclusions made by Rice et al. Yet, it is important to note there were a few limitations to the way Speirs Neumeister and Finch measured adult attachment. First, they used a measure (Relationship Questionnaire; Bartholomew & Horowitz, 1991) that only contained one item and asked participants to choose which one of the four descriptions of attachment orientation fit them best. With such a low number of items, reliability cannot be assessed. Additionally, in the authors’ model all three types
of insecure attachment categories generated by responses on the RQ were combined into one measure of attachment insecurity. This is problematic because specific relationships between these different attachment orientations and perfectionism could not be seen. Speirs Neumeister and Finch suggested that future studies separate these insecure attachment orientations.

In another study, Wei and colleagues (2004) examined the dimensions of attachment anxiety and attachment avoidance separately. Specifically, they looked at the relations between these two dimensions, maladaptive perfectionism, and depressive mood. They hypothesized that maladaptive perfectionism would function as a moderator and mediator between the two insecure attachment orientations and depressive mood. In order to test these hypotheses they used a sample of 310 undergraduate students who completed a battery of questionnaires measuring primary study constructs. Results supported both of their hypotheses. In relation to mediation, Wei et al. found that maladaptive perfectionism mediated the relation between both dimensions of insecure attachment and depressive mood. Yet, maladaptive perfectionism was only a moderator of the relation between anxious attachment and depressive mood. In particular, the relationship between attachment anxiety and depressive mood was stronger as levels of maladaptive perfectionism increased. This study is important because it not only further supported the existence of a relationship between maladaptive perfectionism and the two dimensions of attachment insecurity, but also demonstrated that these variables likely have important implications for level of depressive symptoms experienced by insecurely attached individuals who exhibit high levels of maladaptive perfectionism.
Due to these supported relationships between the dimensions of insecure attachment and perfectionism, researchers (e.g., Aldea & Rice, 2006; Wei et al., 2006) have noted that attachment orientation likely has implications for understanding links between perfectionism and strategies of emotion regulation. In addition, these researchers have used the connection between adult attachment orientations and perfectionism to support their hypotheses about what specific emotion regulation strategies would be most important to understand for perfectionists. Yet, no study I found has addressed the differential effects of the two dimensions of insecure attachment (i.e., attachment anxiety and attachment avoidance) on the relationship between perfectionism and emotion regulation strategies. For instance, in Aldea and Rice’s study splitting and emotion regulation were combined to form one variable of emotion dysregulation and attachment orientation was not accounted for at all. Similarly, even though Wei et al. (2006) included the separate attachment dimensions in their models, suppressive and reactive coping were combined to form one variable of ineffective coping. This is problematic because attachment avoidance and attachment anxiety are associated with very different approaches to regulating emotions. Thus, it is likely that the problematic emotion regulation strategies used by individuals high in maladaptive perfectionism will vary depending on individuals’ primary attachment orientations. In particular, the emotion regulation strategies of emotional avoidance and rumination that were previously described are each associated with a different dimension of insecure attachment.

**Adult Attachment Orientations and Emotion Regulation**

To understand this more fully, it is first important to review the ways in which adult attachment is related to broad categories of emotion regulation strategies. For
securely attached individuals, who have learned that proximity-seeking results in safety and comfort, the typical way to cope with distress is to seek out attachment figures (Bowlby, 1988). However, insecurely attached individuals have learned over time that this way of managing distress is not always effective. Thus, they tend to use one of two secondary emotion regulation strategies (Mikulincer, Shaver, & Pereg, 2003).

First, avoidantly attached individuals tend to use deactivating strategies. According to Mikulincer et al. (2003), the primary purpose of such strategies is to cut off any distress these individuals may experience. This happens because avoidantly attached individuals have learned they cannot expect relationship partners to comfort them when they are distressed, as their early attachment figures were likely often unavailable. So, their way of coping with distressing emotions is to distance from others and become overly reliant on themselves. For this reason, avoidantly attached individuals do not tend to go others when they are distressed and tend to refrain from engaging in emotional disclosure (Mikulincer et al., 2003). In fact, they tend to suppress experiences, thoughts, and emotions that are distressing altogether (Shaver & Mikulincer, 2009). For these individuals, the goal of such efforts is to decrease the chance that their emotions will become unmanageable.

Indeed, empirical research has linked avoidant attachment and suppression of emotions. For instance, after observations that avoidantly attached individuals tended to report low levels of distress, Fraley and Shaver (1997) wanted to assess whether these individuals were actually experiencing lower levels of distress or if they were suppressing their emotions. They tested this across two different experimental studies. In their first study, Fraley and Shaver assigned 200 undergraduate students to one of two experimental
conditions. In one condition participants were asked to engage in a 5 minute session of stream of consciousness writing while suppressing thoughts of what it would be like for a relationship partner to leave them for someone else and then they were instructed to spend 5 minutes expressing what it would be like if this happened. Participants were instructed to put a check mark in the margins each time they thought about their partner in order to assess accessibility of thoughts about their partner. Participants in the other condition did these same tasks but in a reverse order. Measures of adult attachment were also obtained. In terms of avoidant attachment, the results indicated that when engaged in suppression these individuals had a lower level of accessibility to loss-related thoughts than anxiously attached individuals. This was conceptualized to support the detached way in which avoidantly attached individuals are thought to cope with distress (Fraley & Shaver, 1997).

Moreover, in their second study Fraley and Shaver (1997) wanted to assess what was happening for avoidantly attached individuals physiologically when encountering distressing thoughts. Thus, they had 100 undergraduate students participate in this second study. During the study skin conductance rates were measured as an indicator of physiological arousal. Participants individually took part in the study and the experimenter was only in the room to give directions. All participants spent the first 5 minutes of the study discussing any thoughts that came to their minds regarding a romantic relationship. Participants were then randomly assigned to continue discussing what came to mind while (1) avoiding thoughts of that it would be like for their partner to leave them for someone else (experimental condition) or (2) avoiding thoughts of what it would be like for their partner to leave them to go to a restaurant (control condition).
After this 5-minute session, all participants then spent the last 5 minutes thinking about and talking about what it would be like for their partners to leave them for someone else. According to Fraley and Shaver, the results indicated that when asked to suppress distressing thoughts, avoidantly attached individuals also experienced a corresponding reduction in arousal. For anxiously attached individuals, these instructions actually created increased activation. This finding suggests individuals with this attachment orientation are able to suppress their negative thoughts and emotions. However, it is also worth noting that over longer periods of time these individuals may not be able to continue to suppress their physiological arousal, despite reporting reduced levels of distress (Diamond, Hicks, & Otter-Henderson, 2006). Nevertheless, this research provides support for the deactivation that avoidantly attached individuals use to cope with distress.

Further, a more recent study by Caldwell and Shaver (2012) also empirically linked attachment avoidance and suppression of emotions. These authors wanted to understand how attachment orientation was related to a variety of emotion regulation strategies that they believed may contribute to ego-resiliency. Specifically, in regard to attachment avoidance and suppression, the authors hypothesized that attachment avoidance would be positively correlated with use of emotional suppression. In order to answer their research questions, the authors had 388 college students complete packets of questionnaires measuring adult attachment, emotion regulation strategies, mood, and resiliency. Suppression was measured by the Suppression scale of the Emotion Regulation Questionnaire (Gross & John, 2003). As expected, Caldwell and Shaver found a strong positive correlation between attachment avoidance and suppression ($r = .62$).
They reasoned that this strong relationship was likely due to the deactivating emotion regulation processes of avoidantly attached individuals. Thus, this finding further supports the notion that attachment avoidance is related to increased use of suppression as an emotion regulation strategy.

On the other hand, anxiously attached individuals tend to engage in hyperactivating strategies (Mikulincer et al., 2003). The primary aim of such strategies is to gain attention from others in hopes of increased closeness. This occurs because anxiously attached individuals have learned that relationship partners will inconsistently be available. Thus, they feel they need to express high levels of distress in order to elicit comfort from others. Hyperactiviting behaviors include being clingy with relationship partners, as well as other behaviors intended to elicit attention from others. Moreover, anxiously attached individuals also tend to experience exaggerated emotional reactions to objectively minor threats, and then ruminate over their negative emotions (Shaver & Mikulincer, 2009). These individuals are also hyper-vigilant in relationships and are always on the lookout for relationship-ending threats (Mikulincer et al., 2003).

As previously stated, part of the hyperactivating process associated with attachment anxiety involves constant rumination over distressing emotions. A number of research studies have empirically supported this link between attachment anxiety and rumination. For example, Burnette, Davis, Green, Worthington, and Bradfield (2009) conducted a study looking at the relations between insecure attachment, rumination, and forgiveness. For their study they administered questionnaires assessing these variables to a sample of 221 undergraduate college students. As predicted, results indicated that higher levels of attachment anxiety were related with higher levels of rumination. The
presence of rumination for anxiously attached individuals then decreased their level of forgiveness in regard to relational transgressions. Similarly, Saffrey and Ehrenberg (2007) also reported a positive correlation between attachment anxiety and rumination in a sample of college students ($n = 231$). In addition, they also found that rumination explained the relationship between attachment anxiety and symptoms of mood and anxiety disorders following a relationship ending. Overall, these studies support a relationship between attachment anxiety and rumination. They also further demonstrate some of the negative outcomes associated with this method of coping.

Moreover, recent research also provides evidence that individuals with avoidant and anxious attachment vary in their use of emotional disclosure as a way of coping with their distress. Specifically, Garrison, Kahn, Sauer, and Florczak (2012) sought to disentangle the effects that depression, attachment anxiety, and attachment avoidance have on use of emotional disclosure. This was important as these predictors had been related in past research and yet no study had looked at them together in one study. In addition, this study was also novel in that it measured typical disclosure tendencies (as assessed by the DDI) as well as daily disclosure in response to the most negative event of the day. Participants in this study, 121 college students, first completed a packet of self-report questionnaires assessing study variables such as attachment and disclosure tendencies. They then completed a short online questionnaire each night for 7 nights that primarily measured daily disclosure behaviors. In terms of attachment avoidance, results indicated that higher levels of attachment avoidance were related to lower levels of both typical disclosure and daily disclosure. These findings supported previous literature that also suggested a negative correlation between attachment avoidance and disclosure
In relation to attachment anxiety, Garrison and colleagues’ (2012) results indicated that individuals high in attachment anxiety disclosed at high levels on a daily basis, and also disclosed more when negative events they experienced were more intense. Because disclosure is thought to be therapeutic and helpful, these individuals should have exhibited lower levels of distress, but they actually reported increased levels of depression symptoms. The authors suggested this finding likely was due to the rumination anxiously attached individuals tend to engage in. Moreover, the findings also clarified previous inconsistent research on the relation between attachment anxiety and rumination (Mikulincer & Nachson, 1991; Pistole, 1993). This research on insecure attachment and disclosure suggests not only are the dimensions of insecure attachment differentially related to emotion regulation strategies, but also differently impact whether individuals share their distress with others.

Taking all of this information together, it seems reasonable to suggest that maladaptive perfectionists who are higher in attachment avoidance may be likely to use higher levels of emotional avoidance than maladaptive perfectionists who are lower in attachment avoidance. Similarly, maladaptive perfectionists who are higher in attachment anxiety may be more likely to engage in higher levels of rumination than those who are lower in attachment anxiety. For these reasons, maladaptive perfectionists who are higher in attachment avoidance may exhibit decreased levels of emotional disclosure, while those higher in attachment anxiety may demonstrate increased levels of emotional disclosure. Thus, adult attachment is clearly an important variable to consider when
trying to understand how maladaptive perfectionism and these emotion regulation variables are related.

**Shame, Perfectionism, and Emotional Disclosure**

Finally, shame is an additional variable that I believe is important to consider when trying to understand more about how perfectionists cope with their distress and possible feelings of depression. In particular, it seems likely that the experience of shame may impact whether or not individuals share their emotions with others. As previously noted, disclosure behavior can then have serious implications for mental and physical health (Frattaroli, 2006; Pennebaker & Seagal, 1999).

According to Tangney and Dearing (2002), shame is an emotional reaction to a negative event that often involves a fairly global negative evaluation of the self (i.e., the negative event is related to who they are as a person). This is in contrast to guilt, which involves a negative evaluation of a particular behavior (i.e., the negative event is related to a particular behavior the person engaged in). Often, shame leads to more painful feelings than guilt, including a sense of worthlessness, devaluation of the self, and worry about others’ evaluations of the self (Tangney & Dearing, 2002).

Shame and other negative self-conscious emotions have repeatedly been linked with perfectionism (Tangney, 2002). For instance, Kilbert, Langhinrichsen-Rohling, and Saito (2005) surveyed 475 undergraduate college students and found that socially prescribed perfectionism was positively correlated with a number of maladaptive outcomes including level of shame. Additionally, Fedewa, Burns, and Gomez (2004) administered questionnaires to a sample of 230 college students and their results indicated that negative perfectionism was positively correlated with both state shame and
shame-proneness. Thus, these results suggest that maladaptive forms of perfectionism are
associated with both current feelings of shame and a general tendency to feel shame
about the self. In her review chapter on the topic, Tangney (2002) explained that this
connection is likely due to the high degree of attention that perfectionists, particularly
maladaptive perfectionists, place on negative self-evaluation.

Moreover, Ashby, Rice, and Martin (2006) sought to understand how maladaptive
perfectionism, internalized shame, self-esteem, and depressive symptoms were
empirically related. They hypothesized that the shameful experiences that are associated
with being a maladaptive perfectionist may explain why maladaptive perfectionists are
likely to experience increased symptoms of depression. In order to test these relations, the
authors surveyed 215 college students using measures of maladaptive perfectionism,
depression symptoms, and internalized shame. Their results generally supported the
proposed meditational model. Specifically, they found that internalized shame and self-
esteeem fully mediated the relation between perfectionism and depression symptoms for
men and partially mediated this relation for women. These findings indicate that not only
is maladaptive perfectionism related to shame, but this relation may also explain some of
the distress that these perfectionists tend to experience. Further, the findings also suggest
there may be potential differences in the way that shame impacts perfectionism and
depression in men and women.

Furthermore, it seems plausible that experiencing shame may also impact the
likelihood that some maladaptive perfectionists will share their distress with others.
Specifically, if they view themselves as sources of shame or as worthless they may not be
as likely to tell others about their distress. This could be because they may feel shame
about experiencing negative emotions in the first place (i.e., to be perfect they should not experience negative emotions) or because they do not feel they are worth the attention from others. Thus, it seems possible that experiencing high levels of shame may reduce perfectionists’ overall levels of disclosure.

Yet, I was only able to find one study that addressed the relation between shame and the general tendency to disclose distressing information to others. Specifically, Greenland, Scourfield, Maxwell, Prior, and Scourfield (2009) conducted a study assessing possible antecedents of distress disclosure behavior. In order to test these relations, they used a sample of 329 community individuals between the ages of 17 and 18. The authors found shame to be a significant predictor of lower levels of distress disclosure. However, this finding should be interpreted tentatively based upon their measure of shame. In particular, the authors used a measure they created to assess for shame instead of using a measure that had already been created with established reliability and validity. Moreover, on their measure only three items actually assessed the construct of shame. Indeed, Greenland and colleagues noted that the factor structure that emerged from the measure they created (which included shame) should be interpreted with caution. Thus, while this study provides potential support for a relation between shame and emotional disclosure of distress, more research with established measures is certainly warranted.

**The Current Study**

Although researchers have started to understand more about how maladaptive perfectionism is related to emotion regulation strategies and depressive symptoms, many important unanswered questions still remain. In particular, much is still unknown about
how individuals high in maladaptive perfectionism use emotional disclosure, how their typical emotion regulation strategies may influence use of disclosure, and whether attachment orientation impacts the emotion regulation strategies of these individuals. Thus, the primary purpose of this study was to examine these relationships.

In order to achieve this purpose, undergraduate college students at a large public university in the Midwest completed a series of questionnaires online that measured relevant study constructs. After gathering data, structural equation modeling was then used to evaluate proposed relationships among the variables. Specifically, in this study I sought to answer four research questions related to maladaptive perfectionism and other constructs of interest. These research questions and their associated hypotheses are described in the following paragraphs.

My first research question was: How do individuals with higher levels of maladaptive perfectionism utilize emotional disclosure to cope with distress? In particular, I wanted to know: (1a.) Do emotional avoidance and rumination mediate the relationship between maladaptive perfectionism and distress disclosure?, and (1b.) Does level of distress disclosure then contribute to increased depression symptoms? For a representation of this model please see Figure 1. No study I am aware of has looked at these proposed relationships together in one model.
In relation to question (1a.), I hypothesized that emotional avoidance and rumination would mediate the relation between maladaptive perfectionism and emotional disclosure. Specifically, I predicted that increased use of emotional avoidance would mediate the relation between higher levels of maladaptive perfectionism and decreased levels of emotional disclosure, while increased use of rumination will mediate the relation between higher levels of maladaptive perfectionism and increased levels of emotional disclosure.

These predictions were based on previous studies suggesting differential relationships between maladaptive perfectionism and each of these strategies. Thus, it seemed likely these strategies, which determine what individuals do with their emotional experiences (i.e., suppress them or think about them over and over), would impact behavior regarding whether emotional experiences are shared with others. Furthermore, it was important to consider these emotion regulation strategies separately when trying to understand the relationship between maladaptive perfectionism and emotional disclosure because their impacts on disclosure behavior are opposite. Therefore, not distinctly
measuring these constructs may make it difficult to see how these strategies may differentially impact disclosure.

In regard to question (1b.), I hypothesized that levels of distress disclosure would contribute to increased depression symptoms. Specifically, I proposed that levels of disclosure that were too high (i.e., as a result of rumination), as well as levels of disclosure that were too low (i.e., as a result of suppression) would both contribute to increased depression symptoms. I believed that both of these ways of misusing disclosure would be problematic because they would prevent individuals from experiencing the positive effects of disclosure, including reductions in distress, insight, and social support.

My second research question was: Do the use of emotional avoidance and rumination as emotion regulation strategies mediate the relation between maladaptive perfectionism and depression symptoms? While previous studies had addressed each of these emotion regulation strategies separately, this study was the first I was aware of to include both strategies as mediators in one model. Thus, studying both of these potential mediating variables together was important because it allowed me to assess whether previously found relationships changed when the variables were included in a single model.

In terms of question (2.), I hypothesized that emotional avoidance and rumination would both be mediators in the relationship between maladaptive perfectionism and depression symptoms (See Figure 1). This hypothesis was based on previous literature linking maladaptive perfectionism with these emotion regulation strategies. Consequently, if individuals are ineffectively coping with their emotions by either avoiding them or obsessing over them, it seemed likely that their depression levels would
be increased. Thus, this hypothesis reflects my belief that when both emotional avoidance and rumination were included in my model, they would each continue to function as mediators in the relationship between maladaptive perfectionism and depression.

My third research question was: How does adult attachment orientation interact with maladaptive perfectionism to predict the use of particular emotion regulation strategies? Specifically, I wanted to know: (3a.) Does attachment avoidance moderate the relation between maladaptive perfectionism and emotional avoidance?, and (3b.) Does attachment anxiety moderate the relation between maladaptive perfectionism and rumination? An understanding of these patterns was important, as it could help clinicians identify whether certain perfectionistic individuals would exhibit stronger tendencies toward emotional avoidance or rumination. These preferences would then likely have implications for understanding ways in which these individuals may utilize emotional disclosure.

In relation to question (3a.), I hypothesized that attachment avoidance would moderate the relation between maladaptive perfectionism and emotional avoidance, such that maladaptive perfectionism and emotional avoidance would be more strongly related for individuals higher in attachment avoidance than those who were lower in attachment avoidance. Thus, I believed that individuals already high in maladaptive perfectionism may tend to use higher levels of emotional avoidance if they were also high in attachment avoidance. This hypothesis was based on literature suggesting that avoidantly attached individuals tend to rely on deactivating emotion regulation strategies (Mikulincer et al., 2003).
In regard to question (3b.), I hypothesized that attachment anxiety would moderate the relation between maladaptive perfectionism and rumination, such that maladaptive perfectionism and rumination would be more strongly related for individuals who were higher in attachment anxiety than those who were lower in attachment anxiety. In this case, I was suggesting that individuals high in maladaptive perfectionism may tend to exhibit higher levels of rumination if they were also higher in attachment anxiety. This hypothesis was based on the connection between attachment anxiety and use of hyperactivating emotion regulation strategies that has been demonstrated in the literature (e.g., Mikulincer et al., 2003).

My fourth research question was: How is shame related to both maladaptive perfectionism and emotional disclosure? This question was primarily exploratory in nature, as the specific relation between shame and distress disclosure has not been clearly established in the literature using measures of the shame construct with strong psychometric properties. Thus, it was too early to place it in the larger meditational model being addressed in the first two research questions. Doing so would have risked making a misspecification error in the model. Thus, these specific relationships were studied in an exploratory way with the intention that the findings could pave the way for adding shame to the model in later studies.

In regard to question (4.), I first believed that maladaptive perfectionism would be related to higher levels of shame. This was based on the previous conceptual and empirical support for this link. Additionally, it seemed plausible that higher levels of shame would be related to lower levels of distress disclosure. I reasoned that those who
tend to feel shame about themselves and their experiences, including their negative emotions, would be less likely to talk about their emotions with others.

Further, if both of these links were supported, I intended to explore a meditational model with shame as a mediator between maladaptive perfectionism and distress disclosure. In this case, I believed that higher levels of shame may function as a mediating variable in the relationship between higher levels of maladaptive perfectionism and decreased disclosure. Thus, I believed that the tendency to experience shame may account for some of the relationship between maladaptive perfectionism and emotional disclosure.
CHAPTER II

METHOD

In this chapter, I outline the methodology of the present study. First, I provide a description of the study participants, including how I determined who was included in the final sample for data analysis. Then, I explain the measures used in this study, highlighting psychometric properties associated with each measure. After this, I report the specific recruitment and data collection procedures I used. Finally, I present an overview of my plan for data analysis.

Participants

Nine hundred and fourteen students from a large public university in the Midwest consented to participating in this study. However, only 831 of these participants completed at least one item from at least one of the primary study measures. Of these individuals, 745 participants had complete sets of data (i.e., had completed all study measures). Only participants with complete sets of data were included in study analyses. However, prior to eliminating cases with incomplete sets of data, it was important to determine whether missing data was missing at random. According to Kline (2011), data missing completely at random (MCAR) is “ignorable (p. 55)” because it is not systematically missing. If there is a systematic pattern to missing data, deleting cases with missing values can lead to biased estimates during analyses. A non-significant Little’s chi-square test value ($\chi^2(132) = 147.25, p = .172$) indicated that the missing data
in the present study was missing completely at random (MCAR). Thus, eliminating cases with incomplete sets of data was not problematic.

Therefore, the final working sample for this study consisted of 745 participants. This large sample size allowed for hypothesis tests to be conducted with an acceptable degree of power based on a test of close-fit for the root-mean-square-error of approximation with power set at .80 (MacCallum, Browne, & Sugawara, 1996). The final participant sample included 262 men (35.2%), 480 women (64.4%), 1 transgendered individual (.1%), and 1 individual who did not specify gender. The majority of participants were Caucasian/European-American (71.1%, \( n = 530 \)), with smaller percentages of African-American (12.6%, \( n = 94 \)), Latino/a (3.8%, \( n = 28 \)), biracial or multiracial (3.6%, \( n = 27 \)), Asian-American (2.4%, \( n = 18 \)), Middle Eastern (2.1%, \( n = 16 \)), Native American/American Indian (1.1%, \( n = 8 \)) participants. Approximately 3% of participants (\( n = 24 \)) reported being from a different race, ethnicity, or cultural background than those listed. In terms of gender and race, the current study was similar to many previous studies in this research area, as the sample was predominately Caucasian/European-American and consisted of a higher proportion of women than men. Yet, the sample was unique in that it was large enough to allow for testing of some group differences related to gender and race.

Further, 43.2% of participants (\( n = 322 \)) were freshman, 27.4% (\( n = 204 \)) were sophomores, 18.1% (\( n = 135 \)) were juniors, and 11.3% (\( n = 84 \)) were seniors. The mean age was 19.90 (\( SD = 3.56 \)) and the mean self-reported grade-point average (GPA) was 3.24 on a 4.0 scale (\( SD = .50 \)). In regard to GPA, it is important to note that 14.9% of participants (\( n = 111 \)) left this item blank or did not report their GPA because they did not
know it or did not have one yet (i.e., first semester freshmen). In terms of relationship status, 55% \((n = 410)\) of participants were currently single, 42.3% \((n = 315)\) were in a dating relationship, 2.3% \((n = 17)\) were married, and .4% \((n = 3)\) were separated or divorced. A large majority of participants identified as heterosexual \((95.4\%, n = 711)\), while 1.7% \((n = 13)\) identified as gay or lesbian and 2.6% \((n = 19)\) identified as bisexual. Two participants did not report their sexual orientation. As a measure of socioeconomic status, participants were asked about their families’ approximate level of household income. Fourteen percent of participants \((n = 106)\) reported a family income level of less than $25,000, 17.6% \((n = 131)\) reported a family income between $25,001 and $40,000, 23.9% \((n = 178)\) reported a family income between $40,001 and $70,000, 18.9% \((n = 141)\) reported a family income between $70,001 and $90,000, and 24.3% \((n = 181)\) reported a family income above $90,000.

**Instruments**

**The Almost Perfect Scale-Revised (APS-R).** The APS-R is a 23-item self-report measure designed to assess perfectionism (Slaney et al., 2001). Participants are asked to read each statement and rate how well it corresponds to their attitudes about themselves, their performance, and others on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The APS-R contains three subscales: high standards, order, and discrepancy. The high standards and orderliness subscales are meant to assess aspects of adaptive perfectionism. The discrepancy scale, which is a measure of the difference between one’s standards and performance, is meant to assess aspects of maladaptive perfectionism. According to the authors, the original APS was revised because the subscales of this original measure did not adequately measure maladaptive perfectionism (Slaney et al.,
Since this study is focused on understanding maladaptive perfectionism, only the 11-item discrepancy scale was analyzed. Sample items from this scale include, “I often feel frustrated because I cannot meet my goals,” and “Doing my best never seems to be enough.”

Internal consistency reliabilities for the scales were .86 for order, .85 for standards, and .92 for discrepancy in a sample of undergraduate students (Slaney et al., 2001). Coefficient alpha for scores from the APS-R Discrepancy Scale in the present study was .92. Test-retest reliability has also been supported by test-retest correlations for the Discrepancy scale ranging from .76 to .82 over a period of 8-10 weeks in a college student sample (Rice & Aldea, 2006). Additionally, Slaney et al. (2001) found only small correlations between discrepancy and both high standards ($r = .03$) and order ($r = .06$), which suggests that the discrepancy subscale is indeed measuring a distinct aspect of perfectionism. Construct validity was supported, with scores from the APS-R being related in expected ways to other measures of perfectionism (i.e., Frost MPS). Convergent and discriminant validity were also supported by expected relationships. For instance, Slaney et al. (2001) reported that scores from the discrepancy scale of the APS-R were positively related to negative adjustment variables (e.g., depression and worry) and negatively related to positive adjustment variables (e.g., self-esteem, grade point average). In a later study, Rice, Ashby, and Slaney (2007) further supported these findings of construct, discriminant, and convergent validity by replicating these findings in a different sample of college undergraduates. In addition, the authors also provided additional support for convergent validity by finding expected relationships between the
Discrepancy scale and personality trait of Neuroticism and the High Standards subscale and personality trait of Conscientiousness.

**Emotion Regulation Questionnaire (ERQ).** The ERQ is a 10-item self-report measure intended to assess the use of reappraisal and emotional suppression (Gross & John, 2003). Participants are asked to rate how much they agree or disagree with each item on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The ERQ is divided into two scales: the Reappraisal scale and the Suppression scale. The Reappraisal scale provides a measure of emotion regulation based on changing how one thinks about an event, therefore altering its emotional impact. The Suppression scale provides a measure of emotion regulation involving active inhibition of emotions. For this study, only the 4-item Suppression scale was analyzed. Specifically, it will be used as a measure of emotional avoidance. This scale has previously been used as a measure of emotional avoidance in the literature (e.g., Kahn & Garrison, 2009). Sample items from the Suppression scale include, “I keep my emotions to myself,” and “I control my emotions by not expressing them.”

Over a series of five studies, Gross and John (2003) obtained support for reliability and validity of the ERQ. In undergraduate samples, test-retest reliability for scores from both scales over a period of 3 months was .69 and alpha reliabilities averaged .73 for scores from the Suppression Scale. Coefficient alpha for scores from the ERQ Suppression scale in the current study was .78. Furthermore, convergent validity for the ERQ scores was evidenced in a variety of ways. Suppression had a correlation of .47 with inauthenticity, and reappraisal was related to greater use of mood repair (i.e., ability to improve negative mood using strategies such as an optimistic attitude) than suppression.
Additionally, discriminant validity was evidenced, with neither scale being related to cognitive ability or social desirability. Furthermore, a recent confirmatory factor analysis of the ERQ indicated an exceptional fit with the original factor structure of the measure (Melka, Lancaster, Bryant, & Rodriguez, 2011). In addition, Melka et al. also found that male college students exhibited higher levels of suppression than female college students, which supports previous research with the ERQ and other measures of emotional expression.

Ruminative Responses Scale (RRS). The RRS is a 10-item self-report measure designed to assess ruminative thinking (Treynor, Gonzalez, & Nolen-Hoeksema, 2003). Participants are instructed to indicate whether they almost never, sometimes, often, or almost always engage in the thoughts or actions described in each of the items when they feel “down, sad, or depressed.” The 10 items in this scale are drawn from an original 22-item version of this scale. Treynor et al. (2003) eliminated 12 items from the original version of the RRS (2003) because they overlapped too closely with the construct of depression. The remaining 10 items can be broken down into two subscales that consist of 5 items each. The reflection subscale assesses purposeful reflection that is meant to facilitate cognitive problem-solving aimed at decreasing depression symptoms. The brooding subscale assesses obsessive, passive reflection focused on comparing one’s present situation with a standard that has not been reached. Only the Brooding scale was analyzed in this study, as it fits best with the definition of rumination that I used. Sample items from the Brooding scale include items assessing how often individuals “think ‘Why can’t I handle things better?’” and “Think about a recent situation wishing it had gone better” when they feel sad or depressed.
Coefficient alpha for scores from the brooding scale was .77 and test-retest reliability of the scale was .62 (Treynor et al., 2003). This initial reliability data was based on a sample of community adults. In a more recent study that used a sample of undergraduate college students, the coefficient alpha for scores from the brooding scale was .72 (Olson & Kwon, 2007). Coefficient alpha for scores from the RRS Brooding scale was .77 in the present study.

Further, the factor analysis from which the two subscales originally emerged supported the notion that these scales measure rumination and not depression because the rumination items did not load on the depression factor (Treynor et al., 2003). In a more recent study, Whitmer and Gotlib (2011) offered further support for the divergent validity of the brooding scale though a factor analysis that showed it to be distinct from the reflection scale in a sample of community adults that included depressed and non-depressed individuals. Furthermore, convergent validity was supported in a sample of undergraduate college students with an expected positive correlation between the brooding scale and depressive symptoms on two different occasions that were 4 weeks apart (Olson & Kwon, 2007).

**Rumination-Reflection Questionnaire (RRQ).** The RRQ is a 28-item self-report measure designed to assess individuals’ tendencies to ruminate or reflect on their experiences (Trapnell & Campbell, 1999). Participants are asked to read each statement and rate their level of agreement or disagreement with the statements on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The RRQ yields subscales of Reflection and Rumination. The Reflection scale measures individuals’ tendency to engage in intellectual self-reflection that is motivated by curiosity and related to the personality trait
of being open to new experiences. On the other hand, the Rumination scale measures individuals’ tendency to repeatedly think about past events or experiences in a way that is negative, focused on self-evaluation, and associated with regret. The authors note that rumination, as measured by this scale, can also be thought of as “neurotic self-attentiveness (p. 287).” Only the 12-item Rumination Scale was used in the current study, as rumination is a variable of interest in this study. Sample items from this subscale include “Often I’m playing back over in my mind how I acted in a past situation,” “Sometimes it is hard for me to shut off thoughts about myself,” and “I often find myself re-evaluating something I’ve done.”

Trapnell and Campbell (1999) reported a coefficient alpha of .90 for the Rumination Scale in a sample of undergraduate university students. Similar alpha levels for the Rumination Scale have been found in subsequent studies. For instance, Randles, Flett, Nash, McGregor, and Hewitt (2010) reported a coefficient alpha of .88 in sample of college students and Liao and Wei (2011) reported a coefficient alpha of .91 in sample of college students. Coefficient alpha for scores from the RRQ Rumination scale was .90 in the current study.

In terms of validity, Trapnell and Campbell (1999) demonstrated construct validity with a positive correlation between the Rumination scale and neuroticism in their sample. In a more recent study, Siegle, Moore, and Thase (2004) sought to further understand the validity of several Rumination scales. In regard to the RRQ Reflection scale, the authors found that this scale was positively correlated with other measures of rumination (i.e., Response Styles Questionnaire-Brooding scale) in an undergraduate student sample. Additionally, the authors found an expected moderate positive correlation
between this measure of rumination and depression symptoms as measured by the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996).

**Distress Disclosure Index (DDI).** The DDI is a 12-item self-report measure designed to assess for general tendency over time to disclose negative emotions and thoughts (Kahn & Hessling, 2001). Participants are asked to rate how much they agree or disagree with each item on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores reflect higher levels of distress disclosure. Sample items from the DDI include, “I typically don’t discuss things that upset me (reverse-scored),” “I try to find people to talk with about my problems,” and “When I’m distressed I don’t tell anyone (reverse-scored).” The coefficient alpha for scores on the DDI was .94 and the test-retest reliability correlation coefficient (2-month period) for the DDI was .80 in a college student sample. Validity of DDI scores for the initial scale development sample was supported by expected gender differences, with women reporting more of a tendency to disclose than men. The measure also had a correlation of .43 with another measure of self-disclosure (Kahn & Hessling, 2001).

Furthermore, in a review of studies using the DDI over the last 10 years (i.e., 30 studies), Kahn et al. (2012) found a mean internal consistency reliability score of .92 (range .89 to .95). Coefficient alpha for scores from the DDI in the present study was .94. The mean test-retest reliability from Kahn et al.’s studies was .80 (range .77 to .81), with intervals ranging from 1 to 4 weeks. Moreover, convergent validity was supported with DDI scores showing a positive correlation with measures of emotional expressivity, verbal disclosure, and attitudes about disclosure. Additionally, generalized self-reports of disclosure have shown strong correlations with self-reports of situation specific
disclosure (Garrison & Kahn, 2010; Kahn & Garrison, 2009). Discriminant validity was demonstrated with scores on the DDI being distinct from scores on measures of ambivalence over emotional expression and from scores on measures of cognitive reappraisal (Kahn et al., 2012).

**Inventory of Depression and Anxiety Symptoms (IDAS).** The IDAS is a 64-item self-report measure designed to assess specific symptom dimensions of major depression and related anxiety disorders (Watson et al., 2007). Participants are asked to read each statement and rate how much they have felt or experienced each item during the past week on a 5-point scale ranging from 1 (*not at all*) to 5 (*extremely*). The IDAS contains the following specific symptom scales: (a) Suicidality, (b) Lassitude, (c) Appetite Loss, (d) Appetite Gain, (e) Ill Temper, (f) Well-Being, (g) Panic, (h) Social Anxiety, and (i) Traumatic Intrusions. The measure also includes the following general scales: Dysphoria and General Depression (Watson et al., 2007). The Dysphoria scale assesses emotional and cognitive symptoms thought to be at the core of depression, and thus assesses a more narrow range of symptoms than most traditional depression measures. In response to this, Watson et al. created the General Depression scale which is comprised of all Dysphoria items, as well as two items from each of the following scales: Suicidality, Lassitude, Insomnia, Appetite Loss, and Well-Being. The authors explained that this scale is more closely related to typical depression measures because it assesses a wider range of depression symptoms. For this reason, the 20-item General Depression scale was used in the current study to assess depression symptoms. Sample items from the General Depression scale include, “I felt inadequate (Dysphoria/General
Depression),” “I had trouble falling asleep (Insomnia/General Depression),” and “I felt exhausted (Lassitude/General Depression).”

Internal consistency reliabilities for scores from the specific and general scales of the IDAS ranged from .75 to .89 in college student samples. For the General Depression scale, the coefficient alpha was .89 in two different college student samples. In the present study, coefficient alpha for scores from the IDAS General Depression scale was .92. Moreover, the General Depression Scale had a mean test-retest reliability correlation coefficient (1 week period) of .84 in a psychiatric patient sample. Scores from the General Depression Scale showed a convergent correlation coefficient of .83 with scores from the BDI-II (Beck et al., 1996) in a standardized combined sample that included college students, adults, psychiatric patients, young adults, and high school students (Watson et al., 2007).

Furthermore, in a follow-up study Watson and colleagues (2008) found that scores obtained from the specific and general scales of the IDAS in a college student sample showed convergent correlations that ranged from .30 to .62 with an interview measure of depression symptoms. Additionally, criterion validity for the General Depression Scale was demonstrated by a .62 correlation between this scale and a diagnosis of Major Depressive Disorder as assessed by the Structured Clinical Interview for DSM-IV (Watson et al., 2008).

**Center for Epidemiological Studies-Depression Scale (CES-D).** The CES-D is a 20-item self-report instrument designed to assess level of depression symptoms over the past week (Radloff, 1977). Participants are asked to read the statements and select the choice that best reflects how they have felt over the last week using a scale from 0 (rarely
or none of the time: < 1 day) to 3 (most or all of the time: 5-7 days). The CES-D yields one total score for depression, which higher scores signifying higher levels of depression symptoms. This total score was used as a measure of depression in the current study. Sample items from the CES-D include, “I was bothered by things that don’t usually bother me,” “I felt that I was not as good as other people,” and “I was unhappy.”

Radloff (1997) reported coefficient alphas ranging from .85 to .90 for the CES-D in samples of clinical and nonclinical individuals. More recently, coefficient alphas for scores from the CES-D have ranged from .86 to .91 (Wei et al., 2006; Wu & Wei, 2008) in samples of college students. Coefficient alpha for scores on the CES-D in the current study was .94. In addition, the average test-retest coefficient for the CES-D was .57 for time intervals ranging from 2 to 8 weeks (Radloff, 1997) in clinical and nonclinical samples. Validity of the measure has been supported by positive correlations with other measures of depression, such as the Beck Depression Inventory (Santor, Zuroff, Ramsey, Cervantes, & Palacios, 1995) and measures of negative affect, such as the Bradburn Negative Affect Scale (Radloff, 1997). Further, in a study by Wei, Shaffer, Young, and Zakalik (2005) construct validity of the measure was also supported, with scores from the CES-D being positively related to scores from other measures of depression (i.e., Self-Rating Depression Scale (SRDS), Depression subscale of the Depression, Anxiety, and Stress Scale (DASSD)) and a measure of loneliness (i.e., UCLA Loneliness Scale-Version 3).

**Experiences in Close Relationships Scale (ECR).** The ECR is a 36-item self-report measure designed to assess adult attachment orientation (Brennan et al., 1998). Participants are asked to read each statement and rate how well it represents their
emotional experiences in romantic relationships on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). It is important to note that this scale assess participants’ typical experiences in romantic relationships, and therefore can be validly completed by participants not currently in romantic relationships. This measure yields the subscales of attachment avoidance and attachment anxiety. Attachment avoidance measures the tendency to be uncomfortable depending on others and the tendency to emotionally distance from relationship partners. Attachment anxiety measures the tendency to be overly reliant on relationship partners and to fear rejection. As previously noted, there is a consensus among many attachment researchers that the construct of attachment may best be conceptualized in terms of these two dimensions (Shaver & Mikulincer, 2009). Thus, both 18-item subscales were used in this study as indicators of these dimensions of insecure attachment. Sample items include, “I am nervous when partners get too close to me (Attachment Anxiety),” and “I prefer not to be too close to romantic partners (Attachment Avoidance).”

The initial coefficient alpha for scores on the Attachment Avoidance scale was .94 and for scores on the Attachment Anxiety scale was .91 in a sample of undergraduate students (Brennan et al., 1998). In the current study, coefficient alphas from scores on both the Attachment Avoidance and Attachment Anxiety scales were .93. Validity of scores from the ECR is supported by a positive correlation between attachment avoidance and having a dismissing-avoidant attachment style as measured by the Relationship Questionnaire (RQ: Bartholomew & Horowitz, 1991). In addition, attachment anxiety was positively correlated with jealousy, worry, and romantic anxiety (Brennan et al., 1998).
Furthermore, in their review of self-report measures of adult attachment, Mikulincer and Shaver (2007) reported that the ECR has been used in hundreds of studies since it was created. In these studies, internal consistency reliabilities have been at or above .90 and test-retest reliabilities have ranged from .50 to .75. The authors also note that the validity of the ECR has also been supported in studies involving behavioral observations and behavioral manipulations.

**Test of Self-Conscious Affect-3 (TOSCA-3): Short Version.** The short version of the TOSCA-3 is an 11-item self-report measure designed to assess various features of shame and guilt (Tangney & Dearing, 2002). Only the Shame-Proneness subscale of this measure was used in this study. This scale provides a measure of dispositional shame, which involves global negative evaluations of the self. This is in contrast to guilt, which involves negative feelings about particular behaviors (Tangney & Dearing, 2002). On the TOSCA-3, participants are asked to read a series of scenarios and rate how likely they would be to react in each of the ways that are described on a scale of 1 (not likely) to 5 (very likely). For instance, a sample scenario states, “At work, you wait until the last minute to plan a project, and it turns out badly.” Participants are then asked to rate how likely it would be to react in the following ways, “You would feel incompetent (Shame),” “You would think: “There are never enough hours in the day (Externalization),” “You would feel: “I deserve to be reprimanded for mismanaging the project (Guilt),” and “You would think: What’s done is done (Detached).”

Scenarios for the TOSCA-3 were selected from written descriptions of shame, pride, and guilt experiences that were generated by a sample of college students and non-college adults. Possible reactions were selected from responses that were generated by a
separate sample of adults (Tangney & Dearing, 2002). The full TOSCA-3 yields scores on the following subscales: shame-proneness, guilt-proneness, externalization, detachment, alpha pride, and beta pride. The short version does not include the items that describe positive situations, thus eliminating the pride scales (Tangney & Dearing, 2002). This is not problematic, as only the shame-proneness scale will be analyzed in this study. Furthermore, Tangney and Dearing report that the correlation between the original TOSCA-3 shame-proneness scale and the short version of this scale was .94, supporting the use of the short version.

Internal consistency reliability scores for the shame-proneness subscale of the TOSCA-3 range from .77 to .88 (Tangney & Dearing, 2002). These reliabilities were based on scores from college student and non-college adult samples. Rusch and colleagues (2007) reported an internal consistency score of .91 for the shame-proneness subscale. Their scores were based on a sample of 60 female participants diagnosed with borderline personality disorder and 60 female participants without any mental health diagnoses. Coefficient alpha for scores from the TOSCA-3 shame-proneness subscale was .79 in the current study. Validity is supported for scores from the TOSCA-3 with shame-proneness being negatively correlated with self-efficacy and empowerment and positively correlated with trait anxiety, experiential avoidance, and general psychopathology (Rusch et al., 2007).

**Demographic Questionnaire.** A demographic questionnaire (see Appendix A) was developed by the researcher to obtain descriptive information about the sample. Additionally, some of these demographic items (e.g., gender) were also used in analyses to determine if model fit varied based on group membership. Such analyses were only
conducted when previous literature suggested differences may exist, significant differences in means existed between groups, and there were enough participants to adequately test model fit differences. On the demographic questionnaire, participants were first asked to report the following: age, gender, race/ethnicity/cultural background, current relationship status, sexual orientation, and year in school. Additionally, participants were asked about the type of school they attend, their GPA, and their families’ approximate level of household income. These latter questions were initially included to enable exploration of differences between participants from two different institutions, as my original data collection plan was to sample from two different institutions. However, due to unforeseen circumstances I only ended up sampling from one university. Thus, these items were not utilized.

Procedures

The Human Subjects Institutional Review Board approved all study procedures (see Appendix B). Participation in this study occurred online; however, participants were recruited via in-person class announcements. This design was chosen for a couple of reasons. First, research suggests that Internet recruitment often results in lower than ideal response rates (Koo & Skinner, 2005). Indeed, the Chief Information Officer at the large public university that was sampled from in this study explained that studies that attempt to recruit student participants through email messages often end up with response rates of 5% or less (J. Gilchrist, personal communication, March 18, 2012). Thus, this strategy would likely not have been as effective as listening to an in-person announcement. Studies also suggest participants are most motivated when they feel important to the
researchers (Conner, Barrett, Tugade, & Tennen, 2007), and initially meeting with students in person may have helped to convey this message.

In-person recruitment announcements were made during introductory courses in the areas of psychology, alcohol and drug abuse, and holistic health. Students were drawn from these particular courses because they contain students with a variety of different majors and backgrounds. Exact response rates for this particular study could not be calculated, as I did not track the number of students who were in attendance during each in-class recruitment session. Yet, even though participants were recruited in-person, they completed study measures online. This was done in response to research that cites time and scheduling conflicts as primary reasons why undergraduates do not participated in research opportunities that are offered for extra credit (Elicker, McConnell, & Hall, 2010). Thus, the online availability of study measures allowed participants to complete study materials at their convenience, which may have then increased response rates.

During the in-person class announcements, the primary researcher read the following script:

“My name is Angela Garrison from the Department of Counselor Education and Counseling Psychology at Western Michigan University. I would like to invite you to participate in a research study designed to gather information about variables related to emotional well-being, emotion regulation, and interpersonal relationships. We are interested in the overall responses of all of the people who participate in this study, not the responses of any one participant. Any student 18 years of age or older is eligible to participate in this study.
Participation in this study will take a total of approximately 30-45 minutes and will involve responding to a series of questionnaires online.

The risks associated with this study are minimal. Although you will be asked to provide personal information about yourself, your name will not be attached to this information. The benefits of participating in this study include learning about this research once your participation is complete and gaining course credit or extra credit.

If you would like to learn more about participating in this research study, please write your name and preferred email address on the slip of paper I hand you. If you would not like to learn more about participating in this study, do not write anything on the slip of paper I hand you. I will then collect all of the slips. Those individuals who are interested in learning more about participating in this study will receive in email with further information later today.

Does anyone have any questions at this time? (Pause) If you have questions later, please contact me at [email address] or you may contact the primary investigator, Dr. Eric Sauer at [email address].”

Following recruitment, students who provided their name and email address received an email containing a link to the online survey (see Appendix C). Reminder emails were also sent to participants after 1 week and then again after 2 weeks. These reminder emails contained the same information as the first email. They also thanked individuals who already participated and invited them to ignore the reminder emails. The online survey was hosted on Survey Monkey, a secure website designed for the purpose
of collecting data online. Identifying information (i.e., email addresses and IP addresses) was not linked to the data set in any way.

After clicking on the provided link, participants were presented with an informed consent document to read. The survey was set-up so that only participants who agreed with the information presented in the informed consent document were able to continue and complete the study measures. If participants did not agree to the informed consent document, they were redirected to Western Michigan University’s homepage. The online survey contained all of the measures described above, including the demographic questionnaire. It was expected that it would take up to 5 minutes to complete the informed consent process, and another 25-40 minutes to complete all study measures.

After completing the measures, participants were presented with a statement that thanked them for their participation. This statement also included contact information for the research supervisor in the event of any questions or concerns about participation. Additionally, contact information for the university counseling center was also provided in case participants had strong emotional reactions to any of the study questionnaires. Participants were invited to contact the researcher via email if they were interested in obtaining study results upon the completion of the study.

Further, participants who wanted to receive extra credit for their participation were instructed to click on a button labeled “Done.” Participants who did not wish to receive extra credit for their participation were invited to exit the survey. Those who clicked on the “Done” button were redirected to a completely separate survey collector where they were asked for their name, email address, course name, and instructor name. Participants were informed that this new survey was not connected to the primary study
survey in any way. Thus, responses to the extra credit survey were not linked with responses to the primary study survey in any way. The information participants provided in the extra credit survey was used to generate lists of student participants for course instructors. The researcher provided these lists to instructors, and then instructors assigned extra credit to participants.

**Data Analysis**

I used structural equation modeling (SEM) to test primary hypotheses of this study. Overall, SEM allows researchers to test a theory about causal relationships using both latent variables and observed (i.e., measured) variables, and also allows for comparisons between alternative models that assess which model provides the best fit (Kline, 2011). Latent variables, also called factors, are variables that have not been directly measured, but are the constructs thought to underlie measured variables (Klem, 2000). In this study, the following variables were factors in the different structural equation models: maladaptive perfectionism, rumination, emotional avoidance, distress disclosure, depression, attachment anxiety, attachment avoidance, and shame. Observed variables, also called indicators, are the scores obtained using the study measures (Klem, 2000). In this study, each of the factors had between two and four indicators. Figures for each of the specific models tested are included in the corresponding sections of the Results chapter.

SEM was an appropriate statistical analysis for the hypotheses tested in the current study because I was interested in understanding the relationships among several latent variables. Specifically, I wanted to learn about hypothesized direct relationships, indirect (i.e., mediating) relationships, and moderating relationships. Each of these types
of relationships can be tested using SEM. Additionally, SEM is different from the related analysis method of path analysis because it models, and thus accounts for, the error in the models that is related to the observed variables. Indeed, some authors have suggested that SEM is the preferred approach for testing models that involve mediation (e.g., Frazier, Tix, & Barron, 2004; Klem, 2000). Furthermore, SEM allows researchers to examine differences in the fit of structural models (Klem, 2000), which was an important component of my hypothesis tests.

Prior to hypothesis testing, indicators for each of the latent variables were first determined. Since there were two measures of rumination and depression, scores from these measures provided two indicators for each of these latent variables. Item parceling was then used for each of the remaining latent variables except suppression. I used the model described by Russell, Kahn, Spoth, and Altmaier (1998) to create 3 item parcel indicators for each of these latent variables. These authors note that use of item parcels is preferable to individual item responses because it reduces the number of parameters that need to be estimated in models. Since the suppression measure used only contained four items, each of these items was used as a separate indicator of suppression.

Following identification of indicator variables, I conducted preliminary analyses to ensure that the data were appropriate for testing with SEM. This involved testing for multicollinearity, checking for outliers, and assessing normality. After these preliminary analyses, I obtained descriptive statistics associated with each of the study measures, including means, standard deviations, and bivariate correlations.

In order to test a majority of my hypotheses (i.e., Hypothesis 1, Hypothesis 2, & the Exploratory Hypothesis), I utilized the two-step procedure originally outlined by
Anderson and Gerbing (1998) for evaluating structural equation models. First, I tested the measurement models. These models were confirmatory factor analyses involving each of the included factors and their associated indicators. The purpose of this step was to assess how well the factors were measured by their indicators. Second, I tested the structural part of the models. This allowed me to assess the proposed casual relationships between factors, and to obtain values for the direct and indirect effects the factors had on each other. The significance of obtained indirect effects was then later tested using the bootstrapping procedure described by Mallinckrodt, Abraham, Wei, and Russell (2006). Additionally, as needed throughout the hypothesis testing process, I used measures of fit to assess the fit of competing and alternative models. The specific measures of fit used are described in more detail within the Results chapter.

Further, it is important to note that preliminary testing of Hypothesis 3 was conducted using hierarchical multiple regression to test for moderation effects. The plan was to then integrate any significant interactions into the model assessed in Hypotheses 1 and 2. In order to determine significance of moderation effects during the regression analyses, the significance level of the R² change was assessed. Since these results were not significant, no SEM analysis with latent variables was conducted related to Hypothesis 3.
CHAPTER III

RESULTS

This chapter presents the results of the current study. First, I describe how indicator variables were determined. Next, I report descriptive statistics, including means, standard deviations, and bivariate correlations. Then, I describe the preliminary analyses. I conducted these analyses to assess for multicollinearity, outliers, and normality. Finally, I present the statistical analyses associated with each of the study hypotheses. I end the chapter with a brief summary of the primary research findings.

**Determination of Indicator Variables**

In order to use SEM, indicators of each latent variable are needed (Klem, 2000). For this study, I determined indicators in three different ways. First, for latent variables that I measured using two different measures, scores from those two measures were used as indicators. Thus, the latent variable of rumination was measured using scores from the RRS Brooding Scale and RRQ Rumination Scale as indicators, and the latent variable of depression was measured using scores from the IDAS and CES-D as indicators.

Second, for latent variables that I was unable to find multiple equivalent measurement instruments for, I used item parceling to create three indicators for each latent variable. In particular, indicators were created for the following latent variables using item parceling: maladaptive perfectionism, emotional disclosure, attachment avoidance, attachment anxiety, and shame. These item parcels were created using
guidelines provided by Russell et al. (1998). Specifically, item parcels were created by first conducting exploratory factor analyses for each scale being parcelled. A single factor was requested in each exploratory factor analysis because all items were expected to load on a single latent variable. Then, items from each scale were rank-ordered in terms of their factor loadings from highest to lowest. Items were then successively assigned to the three parcels, with the goal of this process being to create parcels with fairly equivalent factor loadings. After assigning all items to parcels, scores on each item parcel were determined by averaging the scores for the set of items contained in each parcel.

Third, for a latent variable with only one measure and not enough items to create three item parcels, I used the individual items as indicators. Specifically, because the latent variable of emotional avoidance was measured with the four item ERQ-Suppression scale it did not have enough items to be parcelled. Thus, I used each of the Suppression scale items as an indicator of the latent variable of emotional avoidance. This approach has also been taken in other studies using this measure in SEM analyses (e.g., Kahn & Garrison, 2009). Table 1 shows the latent variables used throughout this study along with their corresponding indicator variables. The abbreviations used in this table for the indicator variables will also be used in subsequent figures and tables as needed.
Table 1

*Latent Variables and Associated Indicator Variables*

<table>
<thead>
<tr>
<th>Latent Variable</th>
<th>Indicator Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maladaptive Perfectionism</td>
<td>MP1, MP2, MP3</td>
</tr>
<tr>
<td>Emotional Avoidance</td>
<td>Sup1, Sup2, Sup3, Sup4</td>
</tr>
<tr>
<td>Rumination</td>
<td>RRS-B, RRQ-Rum</td>
</tr>
<tr>
<td>Emotional Disclosure</td>
<td>DD1, DD2, DD3</td>
</tr>
<tr>
<td>Depression</td>
<td>IDAS, CES-D</td>
</tr>
<tr>
<td>Attachment Avoidance</td>
<td>Avo1, Avo2, Avo3</td>
</tr>
<tr>
<td>Attachment Anxiety</td>
<td>Anx1, Anx2, Anx3</td>
</tr>
<tr>
<td>Shame</td>
<td>Sha1, Sha2, Sha3</td>
</tr>
</tbody>
</table>

*Note.* MP1, MP2, MP3 = Maladaptive Perfectionism Parcel 1, Maladaptive Perfectionism Parcel 2, Maladaptive Perfectionism Parcel 3; Sup1, Sup2, Sup3, Sup4 = Suppression Item 1, Suppression Item 2, Suppression Item 3, Suppression Item 4; RRS-B = Brooding Scale of the Ruminative Responses Scale; RRQ-Rum = Rumination Scale of the Rumination-Reflection Questionnaire; DD1, DD2, DD3 = Distress Disclosure Parcel 1, Distress Disclosure Parcel 2, Distress Disclosure Parcel 3; IDAS = Inventory of Depression and Anxiety Symptoms; CES-D = Center for Epidemiological Studies Depression Scale; Avo1, Avo2, Avo3 = Attachment Avoidance Parcel 1, Attachment Avoidance Parcel 2, Attachment Avoidance Parcel 3; Anx1, Anx2, Anx3 = Attachment Anxiety Parcel 1, Attachment Anxiety Parcel 2, Attachment Anxiety Parcel 3; Sha1, Sha2, Sha3 = Shame Parcel 1, Shame Parcel 2, Shame Parcel 3

**Descriptive Statistics and Correlations**

Table 2 displays the means and standard deviations of scores from the measures used in this study, as well as the correlations between these scores. This sample is fairly similar to other college student samples in terms of the two primary study variables of maladaptive perfectionism and depression. Maladaptive perfectionism scores were only slightly different from APS-R Discrepancy scores in Rice et al.’s (2007) validation study.
Cohen’s $d$, comparing the current means with Rice et al.’s means (using the $SD$ for the current sample) was .09, indicating only slight differences between sample means.

Depression scores also showed small differences with previous college student means.

For example, Cohen’s $d$, comparing the current CES-D mean with the mean from a recent study by Wei et al. (2006), was .19 indicating a small difference between sample means.

Table 2

**Correlations, Means, and Standard Deviations Among Measures**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1. Maladaptive Perfectionism (APS-R)</td>
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<td>2. Suppression (ERQ)</td>
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<td>3. Rumination (RRS)</td>
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<td>.17**</td>
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<td>.09*</td>
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<td>-64**</td>
<td>-10**</td>
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<td>6. Depression (IDAS)</td>
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<td>.22**</td>
<td>.52**</td>
<td>.50**</td>
<td>-22**</td>
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<td>7. Depression (CES-D)</td>
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<td>.18**</td>
<td>.50**</td>
<td>.49**</td>
<td>-16**</td>
<td>.79**</td>
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<td>8. Attachment Avoidance (ECR)</td>
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<td>.34**</td>
<td>.14**</td>
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<td>9. Attachment Anxiety (ECR)</td>
<td>.33**</td>
<td>.07</td>
<td>.42**</td>
<td>.49**</td>
<td>.004</td>
<td>.51**</td>
<td>.53**</td>
<td>.20**</td>
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<td>10. Shame (TOSCA-3)</td>
<td>.37**</td>
<td>.06</td>
<td>.37**</td>
<td>.50**</td>
<td>.01</td>
<td>.43**</td>
<td>.46**</td>
<td>.08*</td>
<td>.45**</td>
<td>--</td>
<td></td>
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<tr>
<td>11. Gender</td>
<td>-.03</td>
<td>-.23**</td>
<td>.11**</td>
<td>.15**</td>
<td>.23**</td>
<td>.03</td>
<td>.08*</td>
<td>-.15**</td>
<td>.10**</td>
<td>.27**</td>
<td>--</td>
</tr>
</tbody>
</table>

$M$  45.10  15.28  12.26  41.42  36.73  47.05  16.60  53.84  63.38  31.66

$SD$  15.99  5.45  3.48  9.21  11.35  14.96  12.95  21.84  22.65  8.33

Note. $N = 745$, APS-R = Almost Perfect Scale-Revised; ERQ = Emotion Regulation Questionnaire; RRS = Ruminative Responses Scale; RRQ = Rumination-Reflection Questionnaire; DDI = Distress Disclosure Index; IDAS = Inventory of Depression and Anxiety Symptoms; CES-D = Center for Epidemiological Studies Depression Scale; ECR = Experiences in Close Relationships Scale; TOSCA-3 = Test of Self-Conscious Affect-3: Short Version; * $p < .05$; ** $p < .01$; Gender was coded male = 1, female = 2
Further, as indicated by the correlations in Table 2, men and women differed on several of the key study variables. For instance, men tended to use suppression more than women and also tended to have higher levels of attachment avoidance than women. Women tended to engage in more rumination and disclosure than men, tended to be more anxiously attached than men, and tended to experience more shame than men. In terms of depression, women showed a slightly higher level of depression than men, according to the CES-D.

Due to these significant correlations, independent sample t-tests were conducted to see if the means on study measures were significantly different for male and female participants. Results of these tests indicated that men had significantly higher levels of suppression ($p < .01$) and attachment avoidance ($p < .01$) than women. Women had significantly higher levels of rumination ($p < .01$), disclosure ($p < .01$), attachment anxiety ($p < .01$), shame ($p < .01$), and depression ($p < .05$) than men. Cohen’s $d$ was small for depression ($d = .18$) and small-to-moderate for RRS rumination ($d = .22$), RRQ Rumination ($d = .34$), attachment avoidance ($d = .33$), and attachment anxiety ($d = .25$). However, effect sizes for suppression ($d = .49$) and disclosure ($d = .45$) were moderate, and the effect size for shame ($d = .62$) was moderate-to-large (Cohen, 1988). Because of these larger effect sizes, potential gender differences in model fit were assessed during each phase of hypothesis testing.

As can be seen in Table 2, there were also many additional significant correlations among the scores on the measures used in the current study, as well as a few non-significant correlations. For instance, maladaptive perfectionism was significantly positively correlated with suppression, rumination, depression, and shame. It was
significantly negatively correlated with disclosure. Additionally, disclosure was significantly negatively correlated with suppression, but was only significantly correlated with one of the measures of rumination. Moreover, both suppression and rumination were significantly positively correlated with depression, while disclosure was significantly negatively correlated with depression. Further, attachment avoidance was significantly positively correlated with suppression, while attachment anxiety was significantly positively correlated with rumination. Finally, shame was significantly positively correlated with maladaptive perfectionism, rumination, and depression. It was not significantly correlated with suppression or distress disclosure.

Means of scores on the indicator variables (as opposed to measure scores), as well as their correlations with each other, were also explored. Similar patterns to those that are displayed in Table 2 emerged, thus these data are not reproduced in a separate table. In regard to these correlations, the only additional pieces of information obtained by looking at correlations between indicator variables were the correlations between the item indicators for each latent construct. Item parcels for maladaptive perfectionism, disclosure, attachment anxiety, and attachment avoidance were all strongly positively related to their respective latent variables (i.e., $r$ values ranging from .80 to .85, with one value of .88). This was expected given that these item parcels were created from commonly used measures with strong internal consistency reliabilities. Item parcels for the shame latent variable were also significantly positively related, but the correlations were weaker than for the other item parcel groupings (i.e., $r$ ranged from .52 to .56). Suppression indicators were also significantly positively correlated with each other, but these correlations varied more than other sets of indicators (i.e., ranged from .30 to .64).
This is not surprising, as each suppression indicator represented a single item so there was greater possibility for variation in scores. Correlations between the indicators of the latent variables of rumination and depression can be found in Table 2, as these indicators were measured using scores from study measures.

**Preliminary Analyses**

Prior to hypothesis testing, I conducted a number of preliminary analyses to ensure that assumptions associated with SEM were met. To begin, I checked scores on study measures for multicollinearity. Multicollinearity occurs when two different variables are so highly related that they are essentially measuring the same variable. In order to assess for multicollinearity, I examined the tolerance and VIF values for the variables. Tolerance scores above 1 and VIF scores above 10 signal a potential problem with multicollinearity (Kline, 2011). All variables in the present study had tolerance scores below 1 and VIF scores below 10, suggesting there was not a problem with multicollinearity. Further, Weston and Gore (2006) explain that another way to check for multicollinearity when conducting SEM is to look for bivariate correlations between indicators variables that are above .85, as this may suggest multicollinearity is present. An examination of these correlations for the current study yielded only one correlation above .85. Specifically, the correlation between two of the disclosure parcels (DD1 and DD2) was .88. Such correlations are not uncommon among parcels belonging to the same latent variable, and Weston and Gore suggest noting such potential issues and only modifying the parcels if a problem occurs during model estimation. In the present study, no problems occurred during model estimation.
Additionally, prior to hypothesis testing I also checked the data for outliers, which are cases with scores that are very different from the other cases in the sample. Such cases can potentially bias the results. This is especially true if the reason the case is an outlier is because the individual is actually from a different population than the researcher intended to sample from (Kline, 2011). One way to test for outliers is to compute squared Mahalanobis distance ($D^2$) scores for all cases. This measures the distance, in standard deviations, between scores for one case and sample means for all variables. When a case is an outlier its $D^2$ value is noticeably higher and separate from the others (Byrne, 2010). In the sample for the current study, none of the cases had $D^2$ values that were distinctly separate from others. Most of the $D^2$ scores listed only differed slightly from each other. Thus, it was determined that there were no outliers and all 745 cases were retained.

It was also important that I assess for normality of scores, as the default estimation method used in SEM is based on the assumption that the data are normally distributed. If the data are not normally distributed, and the researcher does nothing to address this, statistical test results may be incorrect (Kline, 2011). Both univariate and multivariate normality were assessed prior to proceeding with data analysis. To test for univariate normality, skewness and kurtosis index scores for all of the indicator variables were examined. Skewness index scores with absolute values greater than 3 and kurtosis index scores with absolute values greater than 10 are indicative of univariate non-normality in the data (Weston & Gore, 2006). Based on these cutoff values, all of the indicator variables exhibited univariate normality. Specifically, the absolute values of the skewness and kurtosis index scores for all variables were below 1.09, with all but two scores being less than 1.
After assessing for univariate normality, it was also important that I assess for multivariate normality. According to Kline (2011), multivariate normality means that in addition to univariate distributions being normally distributed, the joint distribution of any pair of variables is bivariate normal, and the distribution of the residuals is homoscedastic. Thus, even though all study variables exhibited univariate normality, it was still possible to have multivariate non-normality. To assess for multivariate normality I examined the multivariate kurtosis index scores for all study models and their associated critical ratio scores. Critical ratio values that are greater than 5.00 indicate multivariate non-normality of the data (Byrne, 2010). In the current study, critical ratio values were all above 5.00 (with a range from 5.91 to 16.24), indicating the presence of multivariate non-normality.

Due to this, I did not use the default SEM estimation method of maximum likelihood (ML) estimation when conducting SEM analyses. Instead, MLM estimation (which uses maximum likelihood parameter estimates with standard errors, but also provides an adjusted chi-square statistic that is robust to non-normality) was used. The scaled chi-square that results is called the Sattora-Bentler chi-square. This is the recommended estimation method for dealing with non-normality (Muthén & Muthén, 1998-2012).

**Hypothesis Testing**

I used the statistical programs SPSS Version 20 (IBM Corp., 2012) and Mplus Version 7.0 (Muthén & Muthén, 1998-2012) for hypothesis testing. SPSS is a common statistical analysis software. Mplus allowed me to use the data analysis technique of SEM when testing hypotheses that required this type of analysis. SEM allows for the testing of
theoretical models that involve both latent and observed variables, and also allows for the testing of models that are alternative to the hypothesized model (Kline, 2011).

As described in the data analysis plan, the implementation of SEM involved a two-step procedure for each hypothesis (Anderson & Gerbing, 1998). First, I tested the measurement model. The measurement model provided an assessment of how well the observed variables (i.e., indicator variables) measured the latent variables. If any modifications needed to be made to the model in response to poor model fit, it was done prior to moving on with the analysis. It was important that any modifications made were based on theory and not only numerical results (Kline, 2011). After the measurement model was determined to have a good fit to the data, I tested the structural model. This model allowed causal relationships among latent variables to be assessed. When testing the structural model, it was first important that I assess overall model fit, and compare this with alternative models if necessary. For hypotheses involving mediation effects (i.e., Hypothesis 1, Hypothesis 2, and the Exploratory Hypothesis), I examined the significance of direct and indirect effects between latent variables. In order to accomplish this, I used the bootstrapping procedure described by Mallinckrodt et al. (2006). For the hypothesis involving moderation (i.e., Hypothesis 3), I examined significance of the interaction term using hierarchical multiple regression.

Throughout the hypothesis testing procedures utilizing SEM, I used several measures of model fit to assess how well the observed data fit the estimated models. First, I used model chi-square statistic. This absolute fit measure provides a direct assessment of how well the model fits the data. As noted previously, I used a scaled version of the chi-square statistic, the Sattora-Bentler chi-square (SB $\chi^2$), throughout
hypothesis testing to correct the chi-square value for non-normality in the data. This scaled chi-square value is interpreted in the same way as a traditional chi-square value (Sattora & Bentler, 1994). A significant chi-square value indicates that the model does not fit the observed data, and a non-significant chi-square value indicates that the model is consistent with the data (Kline, 2011). However, in practice obtaining a non-significant chi-square value is unlikely. Weston and Gore (2006) explain that this result is unlikely because the chi-square test statistic is testing for exact fit (which is a rare occurrence) and it is also highly influenced by sample size, with larger samples resulting in significant chi-square values even with data that fits the model. Thus, SB $\chi^2$ values were not used to determine if single models had an adequate fit to the data. Instead, chi-square difference tests were used to assess for differences in model fit when comparing models. Researchers often use chi-square values in this way, and then use other measures of fit to assess overall model fit of a single model (Weston & Gore, 2006).

While there is no standardized set of additional fit indices that must be used, researchers (e.g., MacCallum & Austin, 2000; McDonald & Ho, 2002; Weston & Gore, 2006) have recommended that the following three fit indices be reported: the Comparative Fit Index (CFI: Bentler, 1990), the Root Mean Square Error of Approximation (RMSEA: Steiger, 1990), and the Standardized Root Mean Square Residual (SRMR: Bentler, 1995). The CFI is an index of the improvement in the fit of the proposed model as compared to a more restricted model called the null model. The CFI ranges from 0 to 1, and values that are closer to one indicate a better fit (Weston & Gore, 2006). A CFI value of .95 or greater reflects a good model fit (Hu & Bentler, 1999). The RMSEA tests for the overall fit of the model while also accounting for model parsimony.
For instance, if two models fit the data equally well, the simpler model will have a better
degree of fit according to the RMSEA value. RMSEA values closer to 0 signify better fit
(Kline, 2011). RMSEA values that are less than .06 reflect a good model fit (Hu &
Bentler, 1999). Additionally, because the RMSEA is a point estimate the 90% confidence
interval is also often reported along with this fit statistic. The SRMR is a summary
measure of fit that indicates how much of a difference there is between the model and the
observed data. Values closer to 0 indicate a better fit (Weston & Gore, 2006). Values of
SRMR that are less than .08 are desirable (Hu & Bentler, 1999). I used all three of these
fit measures in the present study to assess adequacy of model fit.

**Hypotheses 1 and 2.** Hypotheses 1 and 2 were based on the same model (see
Figure 1), thus they will be discussed together. As a reminder, Hypothesis 1 had two
parts. First, I hypothesized that emotional avoidance and rumination would mediate the
relation between maladaptive perfectionism and emotional disclosure (Hypothesis 1a). I
then hypothesized that emotional disclosure would be related to increased levels of
depression (Hypothesis 1b.). In Hypothesis 2, I hypothesized that emotional avoidance
and rumination would mediate the relation between maladaptive perfectionism and
depression. Thus, the model used to test these hypotheses used the following latent
variables and associated indicator variables: maladaptive perfectionism, emotional
avoidance, rumination, emotional disclosure, and depression.

**Measurement Model.** The first step of testing these hypotheses involved testing
the measurement model in order to determine the fit of the indicator variables to the
latent variables. As previously noted, due to significant mean differences between men
and women on key study variables, I tested models for gender differences prior to
interpreting models based on the entire sample. To determine this, I conducted a multiple-groups analysis. In this analysis, a model in which factor loadings and correlations among latent variables were constrained to be equal across groups did not provide a fit to the data that was significantly different from a model in which these parameters were free to vary ($\Delta$SB $\chi^2 (13, N = 745) = 19.34, p > .05$). Because the measurement model did not vary by gender, the measurement model was tested and interpreted based on the entire sample.

Further, it is important to note that the chi-square difference test using the SB $\chi^2$ was computed using a scaling factor that essentially changed the scaled $\chi^2$ back to a regular $\chi^2$ value. This was done because the difference between two scaled chi-square values does not follow a normal distribution (Muthén & Muthén, 2005). Thus, this procedure was used for all SB chi-square difference testing conducted in this study.

Table 3

Fit Indices for the Measurement Model Associated with Hypotheses 1 and 2

<table>
<thead>
<tr>
<th>Model</th>
<th>SB $\chi^2$</th>
<th>df</th>
<th>CFI</th>
<th>RMSEA</th>
<th>RMSEA 90% CI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Model</td>
<td>143.20</td>
<td>67</td>
<td>.99</td>
<td>.039</td>
<td>.030, .048</td>
<td>.03</td>
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<tr>
<td>Recommended Cutoffs</td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(Hu &amp; Bentler, 1999)</td>
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</tbody>
</table>

$Note$. SB = Sattora-Bentler; $df$ = degrees of freedom; CFI = comparative fit index; RMSEA = root mean square error of approximation; CI = confidence interval; SRMR = standardized root mean square residual

Overall, the measurement model provided a very good fit to the data, according to the fit guidelines described by Hu and Bentler (1999). As can be seen in Table 3, the CFI, RMSEA, and SRMR were all well within the recommended levels, which indicates a very good fit to the data. Further, modification indices did not indicate any changes to the
model that were theoretically justified (Kline, 2011). This measurement model provided a
good fit to the data, thus it could be interpreted.

Table 4

*Factor Loadings for the Measurement Model Associated with Hypotheses 1 and 2*

<table>
<thead>
<tr>
<th>Measure and Variable</th>
<th>Standardized Factor Loading</th>
<th>SE</th>
<th>Z</th>
</tr>
</thead>
<tbody>
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<td>Maladaptive Perfectionism</td>
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</tr>
<tr>
<td>MP1</td>
<td>.92</td>
<td>.01</td>
<td>99.55</td>
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<tr>
<td>MP2</td>
<td>.89</td>
<td>.01</td>
<td>84.40</td>
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<tr>
<td>MP3</td>
<td>.92</td>
<td>.01</td>
<td>96.64</td>
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<td>Emotional Avoidance</td>
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</tr>
<tr>
<td>Sup1</td>
<td>.80</td>
<td>.02</td>
<td>45.83</td>
</tr>
<tr>
<td>Sup2</td>
<td>.44</td>
<td>.04</td>
<td>12.39</td>
</tr>
<tr>
<td>Sup3</td>
<td>.83</td>
<td>.02</td>
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<tr>
<td>Sup4</td>
<td>.69</td>
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<td>Rumination</td>
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<tr>
<td>RRS-B</td>
<td>.76</td>
<td>.03</td>
<td>26.46</td>
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<tr>
<td>RRQ-Rum</td>
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<td>.03</td>
<td>29.06</td>
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<td>Emotional Disclosure</td>
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</tr>
<tr>
<td>DD1</td>
<td>.95</td>
<td>.01</td>
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<td>DD2</td>
<td>.93</td>
<td>.01</td>
<td>122.41</td>
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<td>DD3</td>
<td>.90</td>
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<td>Depression</td>
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</tr>
<tr>
<td>IDAS</td>
<td>.93</td>
<td>.02</td>
<td>60.10</td>
</tr>
<tr>
<td>CES-D</td>
<td>.85</td>
<td>.02</td>
<td>42.88</td>
</tr>
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</table>

*Note.* Z scores above 1.96 are significant at the .05 level; MP1, MP2, MP3 = Maladaptive Perfectionism Parcel 1, Maladaptive Perfectionism Parcel 2, Maladaptive Perfectionism Parcel 3; Sup1, Sup2, Sup3, Sup4 = Suppression Item 1, Suppression Item 2, Suppression Item 3, Suppression Item 4; RRS-B = Brooding Scale of the Ruminative Responses Scale; RRQ-Rum = Ruminative Scale of the Ruminative-Reflection Questionnaire; DD1, DD2, DD3 = Distress Disclosure Parcel 1, Distress Disclosure Parcel 2, Distress Disclosure Parcel 3; IDAS = Inventory of Depression and Anxiety Symptoms; CES-D = Center for Epidemiological Studies Depression Scale
Table 4 displays the standardized factor loadings for the measurement model. All factor loadings were significant and nearly all of the factor loadings were above .74. A couple of the factor loadings for the suppression items were below this level; however, this pattern has previously been found when using these items in this way (Kahn & Garrison, 2009). Further, despite their low factor loadings, neither of these items was removed from the model because doing so would have changed the nature of the construct being measured. Finally, all correlations between latent variables were significant. These correlations can be found in Table 5. Patterns of correlations between latent variables were similar to patterns observed between measure scores (see Table 2).

Table 5

<table>
<thead>
<tr>
<th>Latent Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Maladaptive Perfectionism</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Emotional Avoidance</td>
<td>.31**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Rumination</td>
<td>.52**</td>
<td>.19**</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Emotional Disclosure</td>
<td>-.19**</td>
<td>-.78**</td>
<td>-.11*</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>5. Depression</td>
<td>.53**</td>
<td>.24**</td>
<td>.75**</td>
<td>-.23**</td>
<td>--</td>
</tr>
</tbody>
</table>

Note. N = 745; * p < .05; ** p < .01

Structural Model. Prior to testing the hypothesized structural model shown in Figure 1, two preliminary steps were necessary. First, I examined the relationship between disclosure and depression for linearity. In the hypothesized model, a curvilinear relationship was proposed between disclosure and depression, with both high and low levels of disclosure being hypothesized to contribute to increased levels of depression.
(i.e., a quadratic or curvilinear relationship). Clarifying the nature of this relationship was important because different SEM estimation methods are needed to test for linear and curvilinear relationships (Kline, 2011). In order to test this relationship, I conducted two hierarchical regressions where disclosure (linear relationship), disclosure^2 (quadratic relationship), and disclosure^3 (cubic relationship) were systematically regressed on depression. Disclosure was measured by the DDI and depression was measured by the IDAS in the first regression and by the CES-D in the second regression. Results of both of these regressions suggested that the predictors of disclosure^2 and disclosure^3 did not significantly increase the amount of variance explained in depression scores (see Table 6). Thus, it was determined that disclosure and depression had a linear relationship and the same method of estimation used to test the measurement model (i.e., MLM estimation) was used to test the structural model.

Table 6

Results of the Test of Linearity for the Disclosure-Depression Relationship

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Model</th>
<th>R^2</th>
<th>R^2 Change</th>
<th>F Change</th>
<th>df1, df2</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDAS General Depression</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Disclosure</td>
<td>.047</td>
<td>.047</td>
<td>36.481</td>
<td>1, 743</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>2. Disclosure Disclosure^2</td>
<td>.049</td>
<td>.002</td>
<td>1.691</td>
<td>1, 742</td>
<td>.194</td>
<td></td>
</tr>
<tr>
<td>3. Disclosure Disclosure^2 Disclosure^3</td>
<td>.049</td>
<td>.000</td>
<td>.097</td>
<td>1, 741</td>
<td>.777</td>
<td></td>
</tr>
<tr>
<td>CES-D Depression</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Disclosure</td>
<td>.026</td>
<td>.026</td>
<td>20.087</td>
<td>1, 743</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>2. Disclosure Disclosure^2</td>
<td>.027</td>
<td>.001</td>
<td>.233</td>
<td>1, 742</td>
<td>.630</td>
<td></td>
</tr>
<tr>
<td>3. Disclosure Disclosure^2 Disclosure^3</td>
<td>.027</td>
<td>.000</td>
<td>.233</td>
<td>1, 741</td>
<td>.629</td>
<td></td>
</tr>
</tbody>
</table>
Next, it was important to test for gender differences in the hypothesized structural model. In order to do this, I conducted a multiple-groups analysis. In this analysis, a model in which factor loadings and structural path coefficients were constrained to be equal across groups did not provide a significantly different fit to the data than a model in which these parameters were free to vary ($\Delta$SB $\chi^2 (11, N = 745) = 9.92, p > .05$). Therefore, because the hypothesized structural model did not vary by gender, it was tested and interpreted based on the entire sample.

The hypothesized structural model provided a very good fit to the data. The fit statistics for the model were, SB $\chi^2 (70, N = 745) = 156.73, p < .01$; CFI = .99; RMSEA = .041 (CI = .032, .049); and SRMR = .04. As can be seen in Figure 2, a majority of the path coefficients were significant. Specifically, higher levels of maladaptive perfectionism significantly predicted higher levels of both emotional avoidance and rumination, higher levels of emotional avoidance significantly predicted lower levels of emotional disclosure, higher levels of rumination significantly predicted higher levels of depression, and higher levels of emotional disclosure significantly predicted lower levels of depression. These findings were consistent with hypothesized relationships. However, contrary to what was hypothesized, the relationship between emotional avoidance and depression and the relationship between rumination and emotional disclosure were not significant.
Before settling on a final structural model, it has been recommended that researchers test at least one theoretically possible alternative to their hypothesized structural model (Weston & Gore, 2006). Thus, I chose to test an alternative model that incorporated a direct link between maladaptive perfectionism and depression into the original hypothesized model. Incorporating this additional path then indicated that together the hypothesized mediating variables (i.e., emotional avoidance, rumination, and disclosure) partially, rather than fully, mediated the relationship between maladaptive perfectionism and depression. If mediators are partial mediators it means that they do not account for all of the relationship between the independent variable and the final
dependent variable (Frazier, Tix, & Barron, 2004). In this situation, it seems reasonable to suggest that while emotional avoidance, rumination, and emotional disclosure may account for a good portion of the relationship between maladaptive perfectionism and depression, there may still be a direct relationship between these two variables (or even additional mediators that may further account for the relationship).

Thus, this alternative structural model was tested. This structural model also did not vary by gender ($\Delta S B \chi^2 (12, N = 745) = 12.67, p > .05$), thus the complete sample was used for testing the alternative structural model. Overall, this alternative model provided a very good fit to the data. The fit statistics for the model were, $SB \chi^2 (69, N = 745) = 143.96, p < .01; CFI = .99; RMSEA = .038 (CI = .029, .047); and SRMR = .03$. As can be seen in Figure 3, the same patterns of significance that existed in the original hypothesized structural model also emerged in the path coefficients for the alternative structural model. Additionally, the path coefficient between maladaptive perfectionism and depression was significant, which indicated that higher levels of maladaptive perfectionism predicted higher levels of depression. The value of path coefficients were also generally similar between the models; however, the coefficient for the path from rumination to depression decreased from .78 to .65 in the alternative model. Overall, this alternative model suggested that when all three mediators were included in this model, there was still a direct relationship between maladaptive perfectionism and depression (i.e., partial mediation).
Since the hypothesized structural model and the alternative structural model were nested models (i.e., one was a subset of the other), it was possible to compare the fit of the two models using a SB chi-square difference test (Kline, 2011). Results of this comparison indicated that the alternative model provided a significantly better fit to the data than the hypothesized model, ($\Delta$SB $\chi^2$ (1, $N = 745$) = 13.26, $p < .01$). Fit indices for these two models can be directly compared in Table 7. Although both models provided a very good fit to the data, the model comparison test indicated that the alternative model provided a better fit to the data than the hypothesized data.
Table 7

*Fit Indices for the Hypothesized and Alternative Structural Models Associated with Hypotheses 1 and 2*

<table>
<thead>
<tr>
<th>Model</th>
<th>SB $\chi^2$</th>
<th>df</th>
<th>CFI</th>
<th>RMSE A</th>
<th>RMSEA 90% CI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesized Model</td>
<td>156.73</td>
<td>70</td>
<td>.99</td>
<td>.041</td>
<td>.032, .049</td>
<td>.04</td>
</tr>
<tr>
<td>Alternative Model</td>
<td>143.96</td>
<td>69</td>
<td>.99</td>
<td>.038</td>
<td>.029, .047</td>
<td>.03</td>
</tr>
</tbody>
</table>

Recommended Cutoffs (Hu & Bentler, 1999)

≥ .95  ≤ .06  ≤ .08

*Note.* SB = Sattora-Bentler; df = degrees of freedom; CFI = comparative fit index; RMSEA = root mean square error of approximation; CI = confidence interval; SRMR = standardized root mean square residual.

Further, as an additional test of the alternative model, the alternative model was compared to a model that also included a direct path between maladaptive perfectionism and disclosure, since mediators of this relationship were also tested in the overall structural model. This second alternative model did not provide a significantly different fit to the data in comparison with the alternative model, ($\Delta$SB $\chi^2 (1, N = 745) = 1.10, p > .05$). The primary reason for this appeared to be that the direct relation between maladaptive perfectionism and disclosure was not significant in the structural model, thus the addition of this path did not alter the overall model fit. For all of these reasons, the alternative model was determined to be the final structural model associated with Hypotheses 1 and 2. Figure 4 shows this final model, with the only difference between Figure 3 and Figure 4 being that significant paths are highlighted in Figure 4 for ease of interpretation.
Figure 4

*Final Structural Model Associated with Hypotheses 1 and 2*

After determining the final structural model, it was important to explore the variance explained in the model as well as the indirect effects between latent variables. In order to determine the variance explained, the squared multiple correlation coefficients ($R^2$) were used. This model explained 28% of the variance in rumination, 10% of the variance in emotional avoidance, 57% of the variance in emotional disclosure, and 60% of the variance in depression. Thus, the model predicted a large amount of the variation in emotional disclosure and depression, and smaller amounts of the variance in rumination and emotional avoidance. This difference may best be explained by the fact
that rumination and emotional avoidance each had only one predictor, while the other two variables had more than one predictor.

It was also important to test the significance of indirect effects of variables in this model, as knowledge of these indirect effects was necessary for testing the meditational hypotheses. Indirect effects were obtained by multiplying the pairs of path coefficients involved in each hypothesized mediation effect (Mallinckrodt et al., 2006). For instance, to obtain the indirect effect of maladaptive perfectionism on emotional disclosure through the proposed mediator of emotional avoidance, I multiplied the path coefficient for the relation between maladaptive perfectionism and avoidance (.31) by the path coefficient for the relation between emotional avoidance and emotional disclosure (-.76). The resulting indirect effect was -.24. Indirect effects are interpreted in the same way as path coefficients (Kline, 2011).

After obtaining indirect effect values, I tested their significance using a bootstrapping approach (Shrout & Bolger, 2002). Specifically, this approach involved obtaining 10,000 bootstrap parameter estimates by continuously drawing random samples (with replacement) from the study sample. Bootstrapping is a highly recommended approach for testing indirect effects because it generates asymmetric confidence intervals for parameter estimates meant to approximate the desired population. Obtained bootstrapping 95% confidence intervals around the indirect effect parameter are then examined to determine significance of the indirect effect (Mallinckrodt et al., 2006). Confidence intervals that did not include zero represented indirect effects that were significant at the .05 level, and confidence intervals that included zero represented non-significant indirect effects.
Significance testing of the indirect effects was used to test Hypotheses 1 and 2. To begin, I assessed the indirect effects of maladaptive perfectionism on disclosure through the potential mediators of rumination and suppression. This represented a test of Hypothesis 1a. The indirect effect of maladaptive perfectionism on disclosure through rumination was not significant (.02; CI = -.01, .05; \( p > .05 \)), while the indirect effect of maladaptive perfectionism on disclosure through emotional avoidance was significant (-.24; CI = -.29, -.18, \( p < .01 \)). Thus, rumination was not a mediator in the relation between maladaptive perfectionism and disclosure. This was expected because the path coefficient between rumination and disclosure was not significant. In regard to emotional avoidance, the results suggested higher levels of maladaptive perfectionism were related to lower levels of disclosure through the mediator of greater emotional avoidance.

A test of Hypothesis 1b did not require the assessment of indirect effects, as this hypothesis was related to the direct relationship between emotional disclosure and depression. This hypothesis was best tested by looking at the direct effect between these two variables, which was -.19 (see Figure 4). Thus, lower levels of emotional disclosure were indeed related to higher levels of depression.

In order to test Hypothesis 2, I tested the indirect effects of maladaptive perfectionism on depression through the potential mediators of rumination and emotional avoidance. The indirect effect of maladaptive perfectionism on depression through rumination was significant (.34; CI = .28, .41; \( p < .01 \)), while the indirect effect of maladaptive perfectionism on depression through emotional avoidance was non-significant (-.02; CI = -.06, .01, \( p > .05 \)). Thus, the results support rumination as a mediator between maladaptive perfectionism and depression, with higher levels of
maladaptive perfectionism being associated with higher levels of depression through the mediator of greater rumination. In regard to emotional avoidance, the results do not support emotional avoidance as a mediator in the relationship between maladaptive perfectionism and depression. This is reasonable considering that the direct path coefficient between emotional avoidance and depression was not significant. However, it is important to note that emotional disclosure was found to be a significant mediator in the relation between emotional avoidance and depression, with higher levels of emotional avoidance being associated with higher levels of depression through the mediator of less emotional disclosure (.15, CI = .06, .23, p < .01). Further, the indirect effect of maladaptive perfectionism on depression through both mediators of emotional avoidance and emotional disclosure together was also significant (.05, CI = .02, .07, p < .01). Thus, although the results suggest that emotional avoidance is not directly related to depression, it does appear to have an indirect effect on depression.

**Hypothesis 3.** Hypothesis 3 concerned the potential moderating roles that the two insecure attachment orientations may have in the relationship between maladaptive perfectionism and specific emotion regulation strategies. First, I hypothesized that attachment avoidance would moderate the relation between maladaptive perfectionism and emotional avoidance, such that the relationship between maladaptive perfectionism and emotional avoidance would be stronger for individuals higher in attachment avoidance (Hypothesis 3a). I also hypothesized that attachment anxiety would moderate the relation between maladaptive perfectionism and rumination, such that the relationship between maladaptive perfectionism and rumination would be stronger for individuals higher in attachment anxiety (Hypothesis 3b.).
Due to the complex nature of testing moderation in SEM, I first tested the hypothesized moderating effects with hierarchical multiple regression in order to determine whether the proposed interactions existed in these simpler models. If I found significant interactions that were consistent with study hypotheses, my plan was to incorporate these moderation effects into the final model associated with Hypothesis 1 and 2. Since this did not occur, only the tests of the simpler moderation effects are presented. Testing of these moderation models involved the following variables: maladaptive perfectionism (Hypotheses 3a and 3b), attachment avoidance (Hypothesis 3a), emotional avoidance (Hypothesis 3a), attachment anxiety (Hypothesis 3b), and rumination (Hypothesis 3b). In the regression models, each of these variables was measured using scales from the primary study measures. Thus, no latent variable analysis was performed in the analyses related to Hypothesis 3.

**Hierarchical Linear Regressions.** Prior to testing the proposed relationships with latent variable analysis, I conducted several hierarchical multiple regressions as a preliminary assessment of potential interaction effects. Hierarchical multiple regressions are the preferred way of testing for moderation (i.e., interaction effects) with observed variables that are measured continuously (Frazier et al., 2004). In order to conduct these regressions, I followed Frazier et al.’s recommendations regarding conducting moderation analyses with hierarchical multiple regression. First, I standardized the scores on the predictor (i.e., maladaptive perfectionism) and moderator (i.e., attachment anxiety and attachment avoidance) variables by converting them to z-scores. I then used these newly created z-scores to generate product terms that would enable testing of the interaction effects. Specifically, z-scores for maladaptive perfectionism were separately
multiplied by z-scores for attachment avoidance and attachment anxiety to create two product terms: MPxAvo and MPxAnx. Neither the product terms nor the outcome variables in the regressions (i.e., emotional avoidance and rumination) needed to be standardized (Frazier et al., 2004).

Following the creation of all required variables, I conducted hierarchical multiple regression analyses to test for moderation relationships. When conducting these regressions, I first entered the predictor and moderator variable in one block of the equation and then in the second block I added the product term. This was done in order to account for the high levels of multicollinearity that are likely to occur between predictor and moderator variables and their corresponding product term (Frazier et al., 2004). To determine if there was a significant moderation effect, I assessed the $R^2$ change (i.e., percent of variation explained) that occurred between the two steps of the regression for significance. If the interaction term increased the $R^2$ value a significant amount, the results of the moderation effect were to be interpreted. However, as will be seen, this did not occur with any of the moderation tests, thus each of the analyses was stopped at this point.

To begin, I first conducted a hierarchical multiple regression assessing for the moderating role of attachment avoidance in the relationship between maladaptive perfectionism and emotional avoidance. Because there was a significant difference in the regression coefficients for attachment avoidance between genders ($z = 2.07, p < .05$), I conducted separate regressions for each gender (Paternoster, Brame, Mazerolle, & Piquero, 1998). The results of these analyses are presented in Table 8. As can be seen in this table, the $R^2$ change associated with adding in the interaction term was not significant
(p > .05) for either gender. This suggests that the moderation effect of attachment avoidance in the relationship between maladaptive perfectionism and emotional avoidance was not significant. Thus, this proposed relationship was not tested any further.

Table 8

R² Change Associated with the Hierarchical Multiple Regression Testing for Moderation in the Maladaptive Perfectionism-Emotional Avoidance Relationship

<table>
<thead>
<tr>
<th>Model</th>
<th>R² Change</th>
<th>F Change</th>
<th>df1, df2</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Participants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. APS-R Discrepancy</td>
<td>.195</td>
<td>.195</td>
<td>57.718</td>
<td>2, 477</td>
</tr>
<tr>
<td>2. ECR Avoidance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. APS-R Discrepancy</td>
<td>.197</td>
<td>.002</td>
<td>1.534</td>
<td>1, 476</td>
</tr>
<tr>
<td>2. ECR Avoidance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. MPxAvo</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Participants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. APS-R Discrepancy</td>
<td>.133</td>
<td>.133</td>
<td>19.923</td>
<td>2, 259</td>
</tr>
<tr>
<td>2. ECR Avoidance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. APS-R Discrepancy</td>
<td>.137</td>
<td>.003</td>
<td>1.012</td>
<td>1, 258</td>
</tr>
<tr>
<td>2. ECR Avoidance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. MPxAvo</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. N Females = 480; N Males = 262; Emotional avoidance was measured using the Suppression scale of the Emotion Regulation Questionnaire; APS-R = Almost Perfect Scale-Revised; ECR = Experiences in Close Relationships Scale
Next, I conducted multiple regressions to assess for the potential moderating role of attachment anxiety in the relationship between maladaptive perfectionism and rumination. Since rumination was measured in two different ways (i.e., RRS Brooding and RRQ Rumination), a separate multiple regression was performed using each of these measures as the outcome variable. There were no significant differences between genders in the regression coefficients for these analyses, thus they were assessed with the entire sample.

Table 9

*R² Change Associated with the Hierarchical Multiple Regression Testing for Moderation in the Maladaptive Perfectionism-Rumination Relationship*

<table>
<thead>
<tr>
<th>Outcome Measure</th>
<th>Model</th>
<th>R² Change</th>
<th>R² Change</th>
<th>F Change</th>
<th>df1, df2</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRS-B</td>
<td>1. APS-R Discrepancy</td>
<td>.257</td>
<td>.257</td>
<td>128.168</td>
<td>2, 742</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>2. ECR Anxiety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. APS-R Discrepancy</td>
<td>.260</td>
<td>.003</td>
<td>3.215</td>
<td>1, 741</td>
<td>.073</td>
</tr>
<tr>
<td></td>
<td>2. ECR Anxiety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. MPxAnx</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RRQ-Rum</td>
<td>1. APS-R Discrepancy</td>
<td>.289</td>
<td>.289</td>
<td>150.529</td>
<td>2, 742</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>2. ECR Anxiety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. APS-R Discrepancy</td>
<td>.294</td>
<td>.005</td>
<td>5.155</td>
<td>1, 741</td>
<td>.023</td>
</tr>
<tr>
<td></td>
<td>2. ECR Anxiety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. MPxAnx</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* N = 780; Emotional avoidance was measured using the Suppression scale of the Emotion Regulation Questionnaire; APS-R = Almost Perfect Scale-Revised; ECR = Experiences in Close Relationships Scale
Table 9 displays the results from both of these analyses. In regard to the regression that used the RRS Brooding scale as a measure of rumination, the $R^2$ change was not significant ($p > .05$). Thus, the moderation effect in this hierarchical multiple regression was not significant. However, the $R^2$ change in the regression model using the RRQ Rumination scale as a measure of rumination was significant at the .05 level. Additionally, the $R^2$ change associated with this significance test was .005, which is a very small effect. Frazier et al. (2004) noted that interactions can sometimes be significant with small effect sizes; however, they defined a small effect size as an $R^2$ change that was at least .02. It seemed likely that the large sample size associated with this test may have been the reason for the significance at the .05 level.

To further assess this, the regression was conducted separately for each gender thereby reducing the sample size for each analysis. In these analyses the $R^2$ change was not significant for men ($R^2$ change = .008, $p = .111$), nor was it significant for women ($R^2$ change = .005, $p = .066$). This suggests that the significant $R^2$ change found when using the whole sample was likely due to the sample size. In addition, although this effect was statistically significant at an alpha level of .05, the magnitude of the $R^2$ change was so small it is not likely theoretically or practically significant. For these reasons, this interaction effect was not considered to be meaningful enough to be interpreted. Therefore, the moderation effect of attachment anxiety in the relationship between maladaptive perfectionism and rumination was determined to not be significant when using either outcome measure of rumination. Thus, this proposed relationship was not tested any further.
**Exploratory Hypothesis.** The final hypothesis in the current study was exploratory in nature, as there was not yet enough evidence to incorporate these relationships into the larger model proposed in Hypotheses 1 and 2. Specifically, I hypothesized that maladaptive perfectionism would be related to higher levels of shame, and that higher levels of shame would be related to decreased levels of emotional disclosure. Additionally, if these relationships were found, I proposed investigating a meditational SEM model with shame as a mediating variable in the relation between maladaptive perfectionism and emotional disclosure. The correlational analyses involved the following measured variables: maladaptive perfectionism as measured by scores on the APS-R Discrepancy Scale, shame as measured by scores on the TOSCA-3 shame-proneness scale, and emotional disclosure as measured by scores on the DDI. The follow-up SEM analysis involved the following latent variables and their associated indicators: maladaptive perfectionism, shame, and emotional disclosure.

**Correlations.** As can be seen in Table 2, the correlation between maladaptive perfectionism and shame ($r = .37$) was significant. This correlation suggests that higher levels of maladaptive perfectionism were related to higher levels of shame. This was consistent with what was hypothesized in the Exploratory Hypothesis. Contrary to what was hypothesized, the correlation between shame and emotional disclosure ($r = .01$) was not significant.

Due to the significant mean difference in shame between men and women, as well as the moderate-to-large nature of the effect size associated with this difference, I chose to explore what happened when this correlation was calculated separately with male and female participants from the sample. When this was done, the correlation between shame
and emotional disclosure was still not significant for men \((r = .08, p > .05)\); however, there was a significant negative correlation between these two variables for women \((r = -.11, p < .05)\). Thus, the hypothesized relationship between shame and emotional disclosure was supported, but only for women in the sample. Because of this gender difference in correlations, the subsequent meditational model testing the indirect effect of maladaptive perfectionism on disclosure was only tested using female participants from the sample.

**Measurement Model.** The first step in testing this meditational model for female participants was to test the measurement model. This allowed for determining the fit of the indicator variables to the latent variables. Overall, the measurement model provided a good fit to the data. As can be seen in Table 10, the CFI, RMSEA, and SRMR were all within the guidelines proposed by Hu and Bentler (1999). Modification indices did not suggest that any changes be made within the model. Therefore, because the measurement model was considered to provide a good fit to the data, I interpreted it and the structural model was then tested in the following step.

Table 10

*Fit Indices for the Measurement Model Associated with the Exploratory Hypothesis*

<table>
<thead>
<tr>
<th>Model</th>
<th>SB (\chi^2)</th>
<th>df</th>
<th>CFI</th>
<th>RMSEA</th>
<th>90% CI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Model</td>
<td>47.00</td>
<td>24</td>
<td>.99</td>
<td>.045</td>
<td>.025, .064</td>
<td>.03</td>
</tr>
<tr>
<td>Recommended Cutoffs (Hu &amp; Bentler, 1999)</td>
<td>≥ .95</td>
<td>≤ .06</td>
<td>≤ .08</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* SB = Sattora-Bentler; df = degrees of freedom; CFI = comparative fit index; RMSEA = root mean square error of approximation; CI = confidence interval; SRMR = standardized root mean square residual.
Table 11 displays the standardized factor loadings for this measurement model. All factor loadings were significant. The factor loadings for the indicators associated with the latent variables of maladaptive perfectionism and depression were all above .89. The factor loadings for the latent variable of shame were all between .71 and .75. Correlations among latent variables for the model are presented in Table 12. All correlations were significant, and were consistent with the nature of the hypothesized relationships. Specifically, higher maladaptive perfectionism was related to higher levels of shame and lower levels of disclosure; and higher levels of shame were related to lower levels of disclosure.

Table 11

<table>
<thead>
<tr>
<th>Measure and Variable</th>
<th>Standardized Factor Loading</th>
<th>SE</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maladaptive Perfectionism</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP1</td>
<td>.93</td>
<td>.01</td>
<td>87.52</td>
</tr>
<tr>
<td>MP2</td>
<td>.89</td>
<td>.01</td>
<td>67.46</td>
</tr>
<tr>
<td>MP3</td>
<td>.92</td>
<td>.01</td>
<td>72.11</td>
</tr>
<tr>
<td>Shame</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sha1</td>
<td>.71</td>
<td>.03</td>
<td>22.55</td>
</tr>
<tr>
<td>Sha3</td>
<td>.75</td>
<td>.03</td>
<td>23.89</td>
</tr>
<tr>
<td>Sha3</td>
<td>.74</td>
<td>.03</td>
<td>21.67</td>
</tr>
<tr>
<td>Emotional Disclosure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD1</td>
<td>.94</td>
<td>.01</td>
<td>101.19</td>
</tr>
<tr>
<td>DD2</td>
<td>.95</td>
<td>.01</td>
<td>105.95</td>
</tr>
<tr>
<td>DD3</td>
<td>.90</td>
<td>.01</td>
<td>76.44</td>
</tr>
</tbody>
</table>

*Note. Z scores above 1.96 are significant at the .05 level; MP1, MP2, MP3 = Maladaptive Perfectionism Parcel 1, Maladaptive Perfectionism Parcel 2, Maladaptive Perfectionism Parcel 3; Sha1, Sha2, Sha3 = Shame Parcel 1, Shame Parcel 2, Shame Parcel 3; DD1, DD2, DD3 = Distress Disclosure Parcel 1, Distress Disclosure Parcel 2, Distress Disclosure Parcel 3*
Table 12  
*Correlations Among Latent Variables Associated with the Exploratory Hypothesis*

<table>
<thead>
<tr>
<th>Latent Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Maladaptive Perfectionism</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Shame</td>
<td>.48**</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>3. Emotional Disclosure</td>
<td>-.22**</td>
<td>-.12*</td>
<td>--</td>
</tr>
</tbody>
</table>

*Note. N* female participants = 480; *p* < .05; **p* < .01

**Structural Model.** Following this test of the measurement model, I tested a structural model with shame as a mediator in the relation between maladaptive perfectionism and emotional disclosure. This model also included a direct path between maladaptive perfectionism and disclosure because shame was not hypothesized to fully account for the relationship between maladaptive perfectionism and disclosure. As described previously, I tested this model using only female participants from the sample. The hypothesized structural model provided a good fit to the data. The fit statistics for the model were, SB $\chi^2$ (24, $N = 480$) = 47.004, $p < .01$; CFI = .99; RMSEA = .045 (CI = .025, .064); and SRMR = .03.
As can be seen in Figure 5, two of the three path coefficients for this model were significant. Specifically, higher levels of maladaptive perfectionism significantly predicted higher levels of shame and lower levels of disclosure. However, the relationship between shame and disclosure was not significant, suggesting that shame was not a significant predictor of disclosure in this model that also included the direct relationship between maladaptive perfectionism and disclosure. Due to this non-significant relationship, the indirect effect of maladaptive perfectionism on disclosure through the mediator of shame was also not significant ($- .01, CI = -.06, .04, p > .05$). Taken together, results from both the earlier correlations and this structural model indicated that shame was not a mediating variable in the relationship between maladaptive perfectionism and disclosure for women or men in the sample.
Post-Hoc Analysis 1. The results of my Exploratory Hypothesis suggested that although maladaptive perfectionism is a predictor of shame, shame does not necessarily impact the disclosure of maladaptive perfectionists. Thus, I wondered if shame might instead impact another common emotion regulation strategy used by perfectionists, namely rumination. Indeed, correlations between shame and measures of rumination in this study ($r = .37$, $r = .50$) suggested a significant positive relationship between shame and rumination such that higher levels of shame were related to higher levels of rumination. Previous research on the relationship between shame and rumination has indicated that shame tends to elicit rumination, and that rumination may explain why shame can have such a negative impact on individuals (Orth, Berking, & Burkhardt, 2006).

However, I could find no studies that examined the links between maladaptive perfectionism, shame, and rumination. This seems important to understand, as feelings of shame may underlie the rumination behavior that maladaptive perfectionists tend to engage in. Therefore, in a post-hoc analysis I decided to test a meditational model assessing the indirect relationship between maladaptive perfectionism and rumination through the mediating variable of shame. If supported, this model would indicate these relationships should be further explored and possibly integrated into the final structural model associated with Hypotheses 1 and 2 in future studies.

Measurement Model. In order to test this proposed meditational model using SEM, I first tested a measurement model that included maladaptive perfectionism, shame, and rumination. As with all previous hypotheses testing, the measurement model was tested for variations in fit based on gender prior to interpretation. In this case, a model
with all factor loadings and correlations between variables held equal across groups had a significantly different fit to the data than a model where these parameters were allowed to vary by gender (ΔSB $\chi^2 (5, N = 745) = 12.06, p < .05$). Thus, results for this analysis will be presented separately based on gender.

Table 13

*Fit Indices for the Measurement Models Associated with Post-Hoc Analysis 1*

<table>
<thead>
<tr>
<th>Measurement Model</th>
<th>SB $\chi^2$</th>
<th>df</th>
<th>CFI</th>
<th>RMSEA A</th>
<th>RMSEA 90% CI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Participants</td>
<td>48.51</td>
<td>17</td>
<td>.99</td>
<td>.06</td>
<td>.042, .083</td>
<td>.04</td>
</tr>
<tr>
<td>Male Participants</td>
<td>25.46</td>
<td>17</td>
<td>.99</td>
<td>.04</td>
<td>.000, .077</td>
<td>.03</td>
</tr>
<tr>
<td><strong>Recommended Cutoffs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Hu &amp; Bentler, 1999)</td>
<td></td>
<td></td>
<td></td>
<td>$\geq .95$</td>
<td>$\leq .06$</td>
<td>$\leq .08$</td>
</tr>
</tbody>
</table>

*Note. SB = Sattora-Bentler; df = degrees of freedom; CFI = comparative fit index; RMSEA = root mean square error of approximation; CI = confidence interval; SRMR = standardized root mean square residual*

Table 13 displays the overall model fit for each measurement model. As can be seen, both models provided a good fit to the data, with all fit indices within the guidelines proposed by Hu and Bentler (1999). Table 14 shows the standardized factor loadings for each of the measurement models, and Table 15 and 16 present the correlations between each of the latent variables for these models. In terms of factor loadings, all factor loadings were significant. The indicators of maladaptive perfectionism were all above .88 for both genders. Factor loadings for shame varied by gender, with the factor loadings from the measurement model for female participants ranging from .72 to .74 and factor loadings from the measurement model for male participants ranging from .66 to .76.

Rumination factor loadings ranged from .69 to .83 across gender. In regard to correlations between latent variables, all correlations were significant. Both models showed positive relationships between maladaptive perfection and shame and rumination. The models
also had positive correlations between shame and rumination. However, the measurement model for female participants had a stronger positive correlation between these two variables than the measurement model for male participants.

Table 14

*Factor Loadings for the Measurement Models Associated with Post-Hoc Analysis 1*

<table>
<thead>
<tr>
<th>Measure and Variable</th>
<th>Standardized Factor Loading (Female Participants)</th>
<th>Standardized Factor Loading (Male Participants)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SE</td>
<td>Z</td>
</tr>
<tr>
<td>Maladaptive Perfectionism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP1</td>
<td>.93</td>
<td>.01</td>
</tr>
<tr>
<td>MP2</td>
<td>.88</td>
<td>.01</td>
</tr>
<tr>
<td>MP3</td>
<td>.92</td>
<td>.01</td>
</tr>
<tr>
<td>Shame</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sha1</td>
<td>.73</td>
<td>.03</td>
</tr>
<tr>
<td>Sha3</td>
<td>.74</td>
<td>.03</td>
</tr>
<tr>
<td>Sha3</td>
<td>.72</td>
<td>.03</td>
</tr>
<tr>
<td>Ruminuation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RRS-B</td>
<td>.69</td>
<td>.04</td>
</tr>
<tr>
<td>RRQ-Rum</td>
<td>.83</td>
<td>.03</td>
</tr>
</tbody>
</table>

*Note. N Females = 480; N Males = 262; Z scores above 1.96 are significant at the .05 level; MP1, MP2, MP3 = Maladaptive Perfectionism Parcel 1, Maladaptive Perfectionism Parcel 2, Maladaptive Perfectionism Parcel 3; Sha1, Sha2, Sha3 = ShameParcel 1, Shame Parcel 2, Shame Parcel 3; RRS-B = Brooding Scale of the Ruminative Responses Scale; RRQ-Rum = Ruminination Scale of the Ruminations-Reflection Questionnaire*
Table 15

*Correlations Among Latent Variables Associated with Post-Hoc Analysis 1 (Female Participants)*

<table>
<thead>
<tr>
<th>Latent Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Maladaptive Perfectionism</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Shame</td>
<td>.48**</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>3. Rumination</td>
<td>.52**</td>
<td>.71**</td>
<td>--</td>
</tr>
</tbody>
</table>

Note. N = 480; ** p < .01

Table 16

*Correlations Among Latent Variables Associated with Post Hoc Analysis 1 (Male Participants)*

<table>
<thead>
<tr>
<th>Latent Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Maladaptive Perfectionism</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Shame</td>
<td>.43**</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>3. Rumination</td>
<td>.54**</td>
<td>.54**</td>
<td>--</td>
</tr>
</tbody>
</table>

Note. N = 262; ** p < .01

**Structural Model.** Since both measurement models provided a good fit to the data, the structural models could then be tested. Specifically, the structural models had direct paths from maladaptive perfectionism to shame, from maladaptive perfectionism to rumination, and from shame to rumination. Since the measurement models for this analysis were significantly different based on gender, it was not surprising that there were also significant gender differences associated with the structural model (ΔSB $\chi^2 (5, N = 745) = 13.75, p < .05$). Thus, structural models were also tested separately for female
participants and male participants. Both structural models provided a good fit to the data (Hu & Bentler, 1999) and fit indices for these models are reported in Table 17.

Table 17

*Fit Indices for the Structural Models Associated with Post-Hoc Analysis*

<table>
<thead>
<tr>
<th>Measurement Model</th>
<th>SB $\chi^2$</th>
<th>$df$</th>
<th>CFI</th>
<th>RMSEA</th>
<th>90% CI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Participants</td>
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<td>.06</td>
<td>.042, .083</td>
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<td>17</td>
<td>.99</td>
<td>.04</td>
<td>.000, .077</td>
<td>.03</td>
</tr>
</tbody>
</table>

**Recommended Cutoffs**
(Hu & Bentler, 1999)

$\geq .95$, $\leq .06$, $\leq .08$

*Note.* SB = Sattora-Bentler; $df$ = degrees of freedom; CFI = comparative fit index; RMSEA = root mean square error of approximation; CI = confidence interval; SRMR = standardized root mean square residual

Figures 6 and 7 display the results of the structural models for both men and women. As can be seen in these figures, all paths are significant in each of the structural models. Thus, the results indicate that for both genders higher levels of maladaptive perfectionism were predictive of higher levels of shame and higher levels of rumination. In addition, for both genders, higher levels of shame were predictive of higher levels of rumination. The primary differences in the two structural models were related to the strength of these relationships. In particular, the path coefficient between shame and rumination was stronger in model for female participants than in the model for male participants, and the coefficient between maladaptive perfectionism and rumination was stronger in the model for male participants than in the model for female participants. The path coefficients between maladaptive perfectionism and shame were relatively similar for each of the models.
Figure 6

*Structural Model Associated with Post-Hoc Analysis 1 (Female Participants)*

Note. $N = 480$; ** $p < .01$; MP1, MP2, MP3 = Maladaptive Perfectionism Parcel 1, Maladaptive Perfectionism Parcel 2, Maladaptive Perfectionism Parcel 3; Sha1, Sha2, Sha3 = Shame Parcel 1, Shame Parcel 2, Shame Parcel 3; RRS-B = Brooding Scale of the Ruminative Responses Scale; RRQ-Rum = Ruminaton Scale of the Ruminative-Reflection Questionnaire

Figure 7

*Structural Model Associated with Post-Hoc Analysis 1 (Male Participants)*

Note. $N = 262$; ** $p < .01$; MP1, MP2, MP3 = Maladaptive Perfectionism Parcel 1, Maladaptive Perfectionism Parcel 2, Maladaptive Perfectionism Parcel 3; Sha1, Sha2, Sha3 = Shame Parcel 1, Shame Parcel 2, Shame Parcel 3; RRS-B = Brooding Scale of the Ruminative Responses Scale; RRQ-Rum = Ruminaton Scale of the Ruminative-Reflection Questionnaire
Because all of the direct effects in these models were significant, I conducted significance testing of the indirect effects. To begin, I used bootstrapping to assess the indirect effect of maladaptive perfectionism on rumination through the potential mediator of shame for women. This indirect effect was significant (.29; CI = .22, .35; \( p < .01 \)). I then used this process to test the indirect effect of maladaptive perfectionism on rumination through the potential mediator of shame for men. This indirect effect was also significant (.16; CI = .09, .24; \( p < .01 \)). Taken together, these findings suggest that higher levels of maladaptive perfectionism were related to higher levels of rumination through the mediator of higher levels of shame for both genders.

**Post-Hoc Analysis 2.** Finally, because I was fortunate enough to have a much larger sample of participants than I expected, I also obtained a larger sample of non-white participants than have been included in previous research studies in the area. Thus, I chose to conduct a follow-up exploratory analysis to see if any of the relationships between primary study variables (i.e., those included in primary study model associated with Figure 4), varied based on participant race. In particular, I focused on the subset of African-American participants because this group was much larger (\( n = 94 \)) than any of the other non-white participant groups. Unfortunately, I could not test the entire primary SEM model with this group of participants because I would have needed at least 200 participants to do this with enough power (MacCallum et al., 1996). Instead, I examined bivariate correlations between these key study variables.

Specifically, I focused on the relationships between the following variables: maladaptive perfectionism, emotional avoidance, rumination, emotional disclosure, and depression. I then compared the patterns of significance for the obtained correlations.
between these variables for African-American participants to the same set of correlations for Caucasian/European-American participants. It is very important to highlight that these comparisons were only made to place the correlations obtained for African-American participants within the context of the current literature, which has primarily been based on predominately white samples. Thus, the comparisons were intended to highlight possible areas in the model that future researchers may wish to explore further in regard to African-American samples.

Visual inspection of the correlation matrices for both groups indicated that a majority of the bivariate correlations were similar in significance and strength for both groups. However, one key difference emerged. In the African-American subset of participants, the correlations between emotional disclosure and depression as measured by the IDAS ($r = -.04, p > .05$), as well as depression as measured by the CES-D ($r = .03, p > .05$) were not significant. Yet, in the Caucasian/European-American subset of participants, the correlations between emotional disclosure and depression as measured by the IDAS ($r = -.23, p < .01$), as well as depression measured by the CES-D ($r = -.19, p < .01$) were significant. The magnitude of this second set of correlations was consistent with past research studies assessing the relationship between disclosure and depression (e.g., Garrison et al., 2011; Kahn et al., 2012).

Due to this difference, I then chose to investigate the internal reliabilities of the disclosure and depression measures to assess if these constructs were being measured adequately for each group. In regard to the measure of disclosure (i.e., the DDI), the Cronbach’s alpha level was high for each group, with the alpha for African-American participants being .92 and the alpha level for Caucasian/European-American participants
being .94. Similarly, the Cronbach alpha levels were also high for each set of participants in regard to both measure of depression. For the scores on the IDAS, the alpha level was .91 for both groups. For scores on the CES-D, the alpha level was .96 for African-American participants and .94 for Caucasian/European-American participants.

Thus, these results indicate that the observed differences in correlations are not likely due to issues with the measures that were selected. Instead, there may be something about the disclosure-depression relationship that is different for African-American and Caucasian/European-American college students who are attending a predominately white university. While this finding is only tentative at this point, it certainly signifies that the disclosure-depression relationship should be further explored in another, larger sample of African-American participants. Such an examination of these variables could not be found in the existing literature. If similar findings are obtained, it would then be important to integrate the findings into the primary study SEM model.

**Summary of Results**

In summary, there were several key findings that emerged from the data analysis of the current study. In regard to Hypothesis 1a, I found that emotional avoidance, but not rumination, was a mediator of the relation between maladaptive perfectionism and emotional disclosure. Specifically, higher levels of maladaptive perfectionism were related to lower levels of emotional disclosure through the mediator of higher levels of emotional avoidance. In terms of Hypothesis 1b, I found a negative relationship between disclosure and depression, suggesting that lower levels of disclosure were predictive of higher levels of depression. For Hypothesis 2, I determined that rumination, but not emotional avoidance, mediated the relation between maladaptive perfectionism and
depression. In particular, I found that higher levels of maladaptive perfectionism were related to higher levels of depression through the mediator of rumination. However, it is also important to note that I found emotional avoidance to have an indirect relationship with depression through the mediating variable of emotional disclosure. All of these relationships are depicted in Figure 4.

In regard to Hypothesis 3, I did not find support for either part of this hypothesis. Specifically, my preliminary testing of these hypotheses indicated that attachment avoidance was not a moderating variable in the relation between maladaptive perfectionism and emotional avoidance (Hypothesis 3a). Additionally, I did not find attachment anxiety to be a moderating variable in the relation between maladaptive perfectionism and rumination (Hypothesis 3b). Due to these findings, I did not test these proposed relationships using SEM.

My Exploratory Hypothesis was only partially supported. For men, I found that maladaptive perfectionism and shame were significantly positively correlated, but shame and emotional disclosure were not significantly correlated. For women, I found that maladaptive perfectionism and shame were significantly positively correlated and shame and emotional disclosure were significantly negatively correlated. However, I did not find that shame functioned as a mediator in the relationship between maladaptive perfectionism and emotional disclosure when I tested this model using only female participants from the study sample. A post-hoc follow-up analysis related to this hypothesis revealed that shame may instead function as a mediator in the relationship between maladaptive perfectionism and rumination. Specifically, in this analysis higher
levels of maladaptive perfectionism were related to higher levels of rumination through the mediator of increased levels of shame.

Finally, in an additional post-hoc analysis I found that the relationship between emotional disclosure and depression was not significant when tested with African-American participants in the study sample. Though this finding is tentative due to sample size and missing information about these participants (i.e., racial identity), it suggests that future researchers should further investigate racial differences in emotional disclosure.
CHAPTER IV
DISCUSSION

In this final chapter I provide a discussion of the primary findings of the current study. First, I review the major findings associated with my analyses and highlight potential explanations for these findings. Next, I describe the limitations of this study, followed by additional ideas for future research in the area. I end the chapter with a discussion of the implications associated with the research findings.

Major Findings

The primary aim of this study was to further explore relationships between maladaptive perfection, emotion regulation strategies, and depression symptoms with the intention of filling key gaps in the literature. In particular, I wanted to learn more about how the disclosure tendencies and depression levels of maladaptive perfectionists may be influenced by their use of emotional avoidance and rumination as emotion regulation strategies. Further, I was curious about how adult attachment orientations and shame may separately impact the emotion regulation strategies used by these individuals.

Results from the current study added several novel and important findings to the literature in each of these areas. In the remainder of this section, I cover each of these key findings in detail. First, I discuss findings related to the relationships among maladaptive perfectionism, emotion regulation strategies, and depression. Then, I review study findings about the impact of adult attachment orientations on the relationship between maladaptive perfectionism and the emotion regulation strategies of emotional avoidance and rumination. After this, I describe exploratory findings regarding the role that shame
may play in the emotion regulation tendencies of maladaptive perfectionists. Finally, I address tentative findings related to potential racial group differences in the relationship between emotional disclosure and depression symptoms.

**Maladaptive Perfectionism, Emotion Regulation, and Depression.** In my first two hypotheses, I proposed a model linking the following variables: maladaptive perfectionism, emotional avoidance, rumination, emotional disclosure, and depression symptoms. Specifically, I hypothesized that emotional avoidance and rumination would mediate the relationship between maladaptive perfectionism and emotional disclosure (Hypothesis 1a), and that levels of emotional disclosure would contribute to increased levels of depression (Hypothesis 1b). Additionally, I also hypothesized that emotional avoidance and rumination would mediate the relationship between maladaptive perfectionism and depression symptoms (Hypothesis 2).

Using this model, I was able to test several relationships that were not previously explored in the literature. In particular, no study I am aware of has addressed how the emotion regulation strategies of perfectionists may impact their levels of emotional disclosure. Further, this study also was the first time, to my knowledge, that the emotion regulation strategies of emotional avoidance and rumination were assessed together in one model linking maladaptive perfectionism and depression symptoms. Overall, results of this study provided partial support for the entire set of hypotheses assessed through use of this model.

**Maladaptive Perfectionism, Emotional Avoidance, and Rumination.** First, higher levels of maladaptive perfectionism were found to be predictive of both higher levels of emotional avoidance and higher levels of rumination. Thus, this model suggests
that maladaptive perfectionists may tend to avoid expressing and experiencing their emotions, while also constantly thinking about their distress and its meaning. Potential explanations for these connections are likely rooted in the essence of maladaptive perfectionism. Specifically, individuals high in maladaptive perfectionism tend to set unrealistically high standards for themselves that they are then often unable to meet (Slaney et al., 2002). Thus, it seems reasonable that these individuals may at times be reluctant to experience their emotions or display their emotions to others, especially when they experience emotions they view as being unacceptable (i.e., distressing emotions).

Additionally, implied in the definition of maladaptive perfectionism is a sense of evaluation and critiquing of the self. Therefore, these individuals may consistently think about their distressing experiences, and their own role in these experiences, as a part of this evaluation process.

Further, rumination itself may also have the potential to be thought of as a form of avoidance. This is because individuals who ruminate are repeatedly talking about things, but are not doing so in a way that is productive (e.g., would generate insight) nor are they taking action regarding the subject of their rumination. Thus, it may also be possible that maladaptive perfectionism is related to an overall tendency to avoid coping with distressing events in various ways. This would include not experiencing or sharing emotions, as well as repeatedly thinking about and focusing on perceived shortcomings instead of taking some type of action. Such avoidance may be reinforcing for maladaptive perfectionists at times, as it would allow them a temporary escape from potentially feeling overwhelmed or frustrated with their perceived inability to live up to the high standards they set for themselves.
Indeed, this set of findings supports previous research linking perfectionism with emotional avoidance (e.g., Bergman et al., 2007; Santanello & Gardner, 2006) and rumination (e.g., Olson & Kwon, 2008; Rudolph et al., 2007). Moreover, although these past studies have separately linked perfectionism with emotional avoidance and rumination, the findings of the current study suggest that both of these emotion regulation strategies are still relevant to understanding the emotion regulation processes of maladaptive perfectionists when placed together in a single model. This represents a step forward in understanding the difficulties these individuals may experience when trying to effectively regulate their emotions, and also lends support to previous researchers who have emphasized the role of emotion dysregulation in maladaptive perfectionism (e.g., Aldea & Rice, 2006). Furthermore, the finding that maladaptive perfectionism was significantly related to emotional avoidance and rumination was important to this particular study because several hypothesized relationships (i.e., those utilizing emotional avoidance and rumination as mediators) relied on these direct connections.

**Maladaptive Perfectionism and Emotional Disclosure.** In addition to garnering support for the direct relationships between maladaptive perfectionism and the emotion regulation strategies of emotional avoidance and rumination, in the current study I also provided support for an indirect relationship between maladaptive perfectionism and emotional disclosure. Specifically, I found that higher levels of maladaptive perfectionism were predictive of lower levels of emotional disclosure through the mediator of higher levels of emotional avoidance. This finding partially supports Hypothesis 1a, and suggests that the negative correlation between maladaptive perfectionism and emotional disclosure in this study \( r = -.19 \) can at least be partially
attributed to the tendency maladaptive perfectionists have to avoid their emotions. Thus, this result indicates that these individuals are likely to suppress their emotional experiences, and are subsequently unlikely to verbally share these experiences with others. This pattern is very consistent with previous empirical literature connecting higher levels of emotional avoidance with lower levels of emotional disclosure (e.g., Kahn & Garrison, 2009; Kahn et al., 2012).

Further, there are a number of potential explanations for why this pattern of emotion regulation may occur in the context of maladaptive perfectionism. First, as previously alluded to, it is possible that since individuals high in maladaptive perfectionism may tend to view their negative emotions as unacceptable, they may be reluctant to experience or share these emotions with others for fear of appearing imperfect. Similarly, both the acknowledgement of emotions and the process of expressing and sharing emotions with others demand a certain degree of vulnerability from the individual. Experiencing higher levels of perfectionism, which have been linked to obsessive thoughts and desire for control (Moulding & Kyrios, 2007), may make it difficult for individuals to be vulnerable with others. Thus, not only may these individuals worry about not presenting as perfect, but they may also not be comfortable with the uncertainty and loss of control that accompany sharing their distress with another person. Therefore, it is possible that the perceived consequences of disclosure (i.e., appearing imperfect, being too vulnerable in a social situation) may make disclosure feel too unsafe for maladaptive perfectionists. Indeed, research suggests that individuals are less likely to engage in disclosure when they anticipate strong risks to be associated with their disclosure (e.g., Greenland et al., 2009; Vogel & Wester, 2003).
Additionally, it is also possible that individuals high in maladaptive perfectionism tend to avoid their emotions and choose not to engage in emotional disclosure because they are lacking skills in these areas. If, over time, these individuals have developed a reliance on these particular coping skills, they may not have had a chance to learn how to experience their negative emotions without feeling overwhelmed or how to share their distress with others. Thus, it may be easier for these individuals to avoid their emotions than to try out these new skills, and experience an initial inability to perform them effectively. This may be especially likely if individuals high in maladaptive perfectionism apply the same high standards to their coping abilities that they tend to place on other areas of their lives.

Although the results of the present study provided support for emotional avoidance as mediator of the relation between maladaptive perfectionism and emotional disclosure, they did not provide support for rumination as a mediator of this relationship. Specifically, the results of the study indicated that the path from rumination to disclosure was not significant, and as a result neither was the test of the indirect relationship between maladaptive perfectionism and emotional disclosure through the mediator of rumination. This was in contrast to what I proposed in Hypothesis 1a. Originally, I reasoned that maladaptive perfectionists’ tendency to engage in rumination would lead them to engage in high levels of disclosure that would not be productive in terms of reducing their distress levels. This was based on Stroebe, Schut, and Stroebe’s (2009) discussion of the topic in which they suggested that individuals who engage in rumination may disclose at high levels, but may not experience the benefit of insight that
is often associated with disclosure because their disclosures are likely to be of a repetitive nature.

While it is plausible that rumination is unrelated to problematic levels of disclosure, as the current results suggest, this may not be the best explanation of study findings. To begin, a recent experimental study found that after participating in a guided disclosure exercise, individuals with high levels of rumination experienced a significant decrease in depression symptoms (Sloan, Marx, Epstein, & Dobbs, 2008). The authors explained that this task was likely helpful for these individuals because it prompted them to confront feelings and engage in problem-solving regarding their distress. Thus, this study, and other similar studies (e.g., Gortner, Rude, & Pennebaker, 2006) suggest that engaging in guided disclosure is helpful for those who ruminate, which implies that they may not initially be using disclosure effectively as a means of regulating their emotions. Therefore, it is likely premature to use the results of the current study to conclude that rumination and disclosure have no relationship with each other.

Instead, it is possible that the lack of a significant relationship between rumination and emotional disclosure in the current study may be due to the way in which rumination was measured. In this study, rumination was assessed using two measures that tapped into participants’ general rumination tendencies. Specifically, many items on these measures assessed individuals’ tendencies to ruminate about their perceived shortcomings and inadequacies (e.g., “My attention is often focused on aspects of myself I wish I’d stop thinking about.”), while a smaller number of items assessed individuals’ tendencies to ruminate about recent situations (e.g., “...think about a recent situation, wishing it had gone better”). The implications of disclosing information about these two
different subjects of ruminative thoughts may be quite different. For example, it may be more difficult for maladaptive perfectionists to disclose information about their faults than about particular situations. Thus, there may not be a positive relationship between rumination and disclosure for ruminative thoughts that are self-evaluative, but such a relationship might occur for ruminative thoughts that are related to particular situations. The measures used in this study were likely unable to capture this subtle difference.

One way to capture this difference may have been to use a daily measure of rumination related to negative events. For instance, a recent study found that when rumination was assessed through a daily rumination measure, higher levels of daily rumination predicted higher levels of emotional disclosure (Garrison, Kahn, Miller, & Sauer, 2013). However, this same study also found that when rumination (measured by the brooding scale of the RRS) and emotional avoidance (measured by the Suppression scale of the ERQ) were both included in a model predicting disclosure, the relationship between rumination and disclosure was not significant (Garrison et al., 2013). This is consistent with what was found in the present study. Thus, these discrepancies in findings based on the way in which rumination is measured clearly indicate that the relationship between rumination and disclosure warrants more attention in the literature. For this reason, the path between rumination and disclosure was retained in the final model of this study (see Figure 4) so that future researchers could continue to evaluate it using alternative measures.

**Maladaptive Perfectionism and Depression.** This study also provided support for both an indirect and a direct relationship between maladaptive perfectionism and depression symptoms. In terms of the indirect relationship, the results indicated that
higher levels of maladaptive perfectionism were related to higher levels of depression symptoms through the mediator of higher use of rumination. This finding partially supports Hypothesis 2, and suggests that rumination partially accounts for the relationship that exists between maladaptive perfectionism and depression. This result provides support for previous empirical studies that have also found rumination to be a mediating variable in the relation between maladaptive perfectionism and depression symptoms (e.g., Harris et al., 2008; O’Conner et al., 2007). Additionally, this result is meaningful because it indicates that in a model incorporating the potential mediating variable of emotional avoidance, as well as a direct relationship between maladaptive perfectionism and depression, the mediation effect of rumination was still present. Thus, this suggests rumination likely plays a key role in maintaining depression symptoms in those who are high in maladaptive perfectionism.

There are a variety of potential reasons why rumination may be of importance when trying to understand the relation between maladaptive perfectionism and depressive symptoms. As previously noted, rumination, as measured in this study, involves a strong component of continual critical self-evaluation regarding various abilities and actions (e.g., coping abilities). Indeed, maladaptive perfectionists tend to ruminate (e.g., Rudolph et al., 2007) and to engage in a high degree of self-evaluation that often results in the conclusion that they did not live up to whatever standards they set (Slaney et al., 2002). Thus, it is easy to imagine that over time this process would impact these individuals’ moods. For instance, if those who are high in maladaptive perfectionism perceive an inability to ever meet their standards, and they tend to repeatedly focus on this, it is possible that they may develop feelings of hopelessness. Such feelings have been shown
to have a strong relationship with depression symptoms (e.g., Alloy, Black, Young, Goldstein, & Shapero, 2012), and even have been linked to more severe depression symptoms that include suicidal thoughts (Lamis & Lester, 2013). Additionally, this kind of repetitive thought process may also place maladaptive perfectionists in a position where they not only doubt their abilities, but also their self-worth. Specifically, not only do these individuals perceive constant failure, but also their repetitive thinking about these perceived failures is likely to keep this sense of failure at the forefront of their minds. This pattern of cognitions may then lead maladaptive perfectionists, who tend to base a large amount of their self-worth on their successes (Sturman, Flett, Hewitt, & Rudolph, 2009), to experience a low level of self-worth. Feeling a low sense of self-worth may then partially contribute to their increased feelings of depression. Overall, this process of rumination in maladaptive perfectionists appears to have important implications for these individuals’ levels of depression symptoms, and also highlights just how hard these individuals may tend to be on themselves.

Further, in addition to finding this indirect path from maladaptive perfectionism to depression symptoms through the mediating variable of rumination, the model also supported a significant direct effect from maladaptive perfectionism to depression symptoms. In particular, higher levels of maladaptive perfectionism were predictive of higher levels of depression symptoms, even when the potential mediating variables of rumination, emotional avoidance, and disclosure were included in the model. This suggests that the mediating variables included in the model do not fully account for the relationship that exists between maladaptive perfectionism and depression. Instead, there are likely other aspects of maladaptive perfectionism that also contribute to increased
depression symptoms. For instance, maladaptive perfectionism has been related to loneliness, as well as a perceived lack of social support (Sherry et al., 2008). Thus, this may represent an additional correlate of maladaptive perfectionism that may influence these individuals’ levels of depression. Further, additional correlates of perfectionism, such as lower levels of self-esteem (Rice & Dellwo, 2002) and higher levels of daily stress (Chang & Rand, 2000) may also potentially contribute to depression symptoms. Therefore, these potential risk factors for depression should continue to be explored in the context of maladaptive perfectionism.

In addition to the supported direct and indirect effects of maladaptive perfectionism on depression symptoms, there was also one proposed indirect effect that was not significant. Specifically, contrary to what I proposed in Hypothesis 2, emotional avoidance did not function as a mediating variable in the relationship between maladaptive perfectionism and depression symptoms. Although the higher levels of maladaptive perfectionism were predictive of higher levels of emotional avoidance in the current study, higher levels of emotional avoidance were not predictive of higher levels of depression symptoms. Therefore, because this direct effect was not significant, neither was the indirect effect of maladaptive perfectionism on depression symptoms through the use of emotional avoidance. In creating this hypothesis, I drew on research that supported a positive relationship between maladaptive perfectionism and emotional avoidance (e.g., Santanello & Gardner, 2006), as well as research supporting a link between higher levels of emotional avoidance (i.e., expressive suppression) and increased levels of depression (e.g., Campbell-Sills et al., 2006). Therefore, I originally reasoned that emotional
avoidance may partially explain the link between maladaptive perfectionism and depression symptoms.

One of the main reasons the direct effect of emotional avoidance on depression symptoms was not significant likely has to do with the inclusion of emotional disclosure in the overall model. Specifically, results of the current study supported an indirect effect of higher levels of emotional avoidance on higher levels of depression symptoms through the mediating variable of lower levels of emotional disclosure. Thus, it is possible that once the path from emotional avoidance to emotional disclosure was included in the model, this accounted for the relationship between emotional avoidance and depression symptoms that was originally suggested based on bivariate correlations alone ($r = .22$ with the IDAS, $r = .18$ with the CES-D). Further supporting this idea, the study results also yielded a significant indirect effect of maladaptive perfectionism on depression through the joint mediators of emotional avoidance and emotional disclosure.

Therefore, what is suggested by these findings is that emotional avoidance may primarily impact maladaptive perfectionists’ depression levels through its connection with decreased levels of emotional disclosure. Thus, individuals high in maladaptive perfectionism may have a tendency to avoid their emotions, subsequently not disclose these emotions to others (i.e., the mediation effect supported in the test of Hypothesis 1a), and then this lack of disclosure impacts their levels of depression. This finding is consistent with previous research (e.g., Frattaroli, 2006; Kahn et al., 2012; Pennebaker & Seagal, 1999), which indicates that individuals who engage in low levels of disclosure are not as likely to experience the health benefits of disclosure as individuals who engage in higher levels of disclosure. Health benefits of emotional disclosure include reduced levels
of depression and distress. In addition, disclosure can aid problem-solving efforts by facilitating insight and increasing individuals’ perceived sense of social support (Kennedy-Moore & Watson, 2001). Thus, maladaptive perfectionists are likely missing out on all of these benefits of disclosure, and in turn, this is partially contributing to increased levels of depression symptoms. Finally, it is important to note that since this is the first study I am aware of to find this indirect effect of emotional avoidance on depression symptoms in this kind of a model, the direct path between emotional avoidance and depression was retained in the final model (see Figure 4) so that this system of relationships can be further tested by future researchers.

**Emotional Disclosure and Depression.** Further, in addition to being a mediating variable in the relation between emotional avoidance and depression symptoms, emotional disclosure also had a direct effect on depression symptoms. In particular, lower levels of disclosure were related to higher levels of depression symptoms. This finding is consistent with the body of literature just discussed, and also provides partial support for Hypothesis 1b. However, my hypothesis that higher levels of disclosure, in addition to lower levels of disclosure, would also be related to increased levels of depression symptoms (i.e., a curvilinear relationship between disclosure and depression) was not supported.

In the current model, this is not a surprising finding given that the path from rumination to emotional disclosure was non-significant. Thus, rumination did not increase levels of disclosure as hypothesized, and in the structural model emotional avoidance ended up being the only latent variable with a direct impact on disclosure. It is possible that future research using other measures of rumination (i.e., daily measures)
may find a relationship between rumination and heightened levels of disclosure. In this instance, it seems there would still be the potential for a curvilinear relationship between disclosure and depression symptoms to exist.

**Attachment, Maladaptive Perfectionism, and Emotion Regulation.** In Hypothesis 3, I proposed that attachment orientations would moderate the relationships between maladaptive perfectionism and emotion regulation strategies. This hypothesis was informed by research and theory linking insecure attachment orientations with maladaptive perfectionism (e.g., Rice et al., 2005) and the emotion regulation strategies of emotional avoidance and rumination (e.g., Mikulincer et al., 2003). Thus, I believed that maladaptive perfectionists who also experienced high levels of these insecure attachment orientations would engage in increased levels of the particular emotion regulation strategy primarily associated with the dimension of attachment insecurity that was elevated for them. However, neither portion of Hypothesis 3 was supported in the current study. Specifically, attachment avoidance was not a moderating variable in the relationship between maladaptive perfectionism and emotional avoidance (tested in Hypothesis 3a), and attachment anxiety was not a moderating variable in the relationship between maladaptive perfectionism and rumination (tested in Hypothesis 3b).

These results suggest that there is not an additive effect of maladaptive perfectionism and the two dimensions of attachment insecurity on these specific emotion regulation strategies. Thus, attachment does not appear to amplify the tendency for certain maladaptive perfectionists to engage in emotional avoidance and for others to engage in rumination. Instead, it is likely that maladaptive perfection, attachment avoidance, and attachment anxiety function as separate predictors of emotional avoidance.
and rumination. Indeed, past research has generated support for strong positive relationships between maladaptive perfectionism and emotional avoidance (e.g., Santanello & Gardner, 2006), attachment avoidance and emotional avoidance (e.g., Caldwell & Shaver, 2012), maladaptive perfectionism and rumination (e.g., Rudolph et al., 2007), and attachment anxiety and rumination (e.g., Saffrey & Ehrenberg, 2007). Further, correlations in the present study also echo these patterns (see Table 2).

Although it is clear that there are significant associations among these variables, it is not as clear whether perfectionism and attachment are separate predictors of emotional avoidance and rumination, or if there is a high degree of overlap between these predictors. For example, attachment insecurity and perfectionism could separately develop in individuals as a response to interactions with their caregivers. Potential experiences with caregivers that may impact both of these include parental expectations and levels of parental criticism (Rice et al., 2005). Thus, in this scenario attachment and perfectionism would function as parallel constructs with unique contributions to individuals’ emotion regulation tendencies.

On the other hand, it may also be possible that one of these develops first and then influences the other. For instance, attachment orientation may develop as a result of interactions with caregivers and then perfectionism may, in part, develop based on one’s attachment orientation. Thus, in this case insecure attachment would be a precursor to maladaptive perfectionism, and then one or both of these variables would impact preferred emotion regulation strategies. No study I am aware of has looked at the variables of maladaptive perfectionism, insecure attachment orientations, emotional avoidance, and rumination together in either of these ways. Therefore, future studies of
this nature may be particularly helpful in teasing apart the ways in which attachment orientations and maladaptive perfectionism may jointly predict use of particular emotion regulation strategies.

**Maladaptive Perfectionism, Shame, and Emotional Disclosure.** In my Exploratory Hypothesis, I proposed that there would be relationships between maladaptive perfectionism, shame, and emotional disclosure. Results of this study provided partial support for the relationships I proposed. To begin, I believed that there would be a positive correlation between maladaptive perfectionism and shame, with higher levels of maladaptive perfectionism being related to higher levels of shame. Indeed, a significant positive correlation was found between these two variables. This finding lends further support to past research indicating this connection between perfectionism and shame (e.g., Ashby et al., 2006; Fedewa, et al., 2004; Kilbert et al., 2005). Further, the finding also supports theory related to maladaptive perfectionism, as shame seems likely to be a potential consequence of constantly engaging in negative evaluations of the self.

I also had hypothesized that there would be a correlation between levels of shame and emotional disclosure, such that higher levels of shame would be correlated with lower levels of emotional disclosure. In both the whole sample of participants and the subsample of male participants, this correlation was not significant. However, in the subsample of female participants, this proposed negative relation between shame and emotional disclosure was supported. Thus, the relationship found between these variables in female participants was consistent with Greenland et al.’s (2009) finding, and suggest that women experiencing higher levels of shame may also tend to engage lower levels of
disclosure than individuals with lower levels of shame. Conceptually, this seems reasonable, as individuals who feel a sense of shame regarding their experiences may not want to share these experiences with others.

Moreover, a particularly interesting aspect of this finding was that the relationship between shame and emotional disclosure varied based on participant gender. Additionally, in the current sample, female participants tended to have higher levels of both shame and emotional disclosure than male participants. These mean differences are reflective of consistent patterns found in previous research studies regarding emotional disclosure (e.g., Kahn & Hessling) and shame (e.g., Tangney & Dearing, 2002). Further, these patterns can likely be attributed to ways in which men and women tend to be socialized in Western culture. In regard to emotional disclosure, men are often taught to avoid being vulnerable, while women are encouraged to share their emotions with others (Chaplin, Cole, & Zahn-Waxler, 2005; Wester, Vogel, Pressly, & Heesacker, 2002). Due to these patterns of socialization, men may then tend to rely less on disclosure as a means of coping with emotions than women.

Relatedly, research on gender socialization and shame suggests women are often taught to be more concerned with relationships, to be more aware of others, and to be more responsive to others than men are. Thus, it may create a context in which shame is more likely to develop because women are likely to be more aware of how others are responding to them, and to feel shame or guilt when the response is not positive (Reimer, 1996). Therefore, one reason for the men’s lower levels of shame may be that they are not as keyed into relational cues that may exacerbate feelings of shame. Additionally, it is also possible that there is a reporting effect regarding shame. Specifically, men may
report lower levels of shame because their socialization likely tends to create a viewpoint in which vulnerable emotions, such as shame, are less acceptable than more aggressive emotions such as anger. Thus, the lack of a relationship between disclosure and shame for men may also be rooted in this socialization pattern. Specifically, if men are not experiencing or reporting levels of shame high enough to prompt disclosure, then the two variables would not be related for these individuals.

As an additional assessment of my Exploratory Hypothesis, I also tested a meditational model for female participants with shame as a potential mediating variable in the relationship between maladaptive perfectionism and emotional disclosure. However, the results did not support this meditational model. Specifically, when maladaptive perfectionism was included in the model as a predictor of disclosure, the previously found relationship between shame and disclosure was not significant. Thus, for women, maladaptive perfectionism likely plays a greater role in their disclosure behavior than the tendency to experience shame. Additionally, shame does not appear to account for the relationship between maladaptive perfectionism and emotional disclosure for these individuals.

One potential reason for this non-significant relationship between shame and emotional disclosure in women, as well as for the previously established lack of correlation between shame and disclosure in men, may have to do with the way in which shame was measured in this study. Specifically, the measure used assessed participants’ overall tendency to experience shame and not their levels of shame regarding particular personal feelings, beliefs, or experienced situations. It is possible that one’s overall tendency to experience shame may have a weak or non-significant relationship with
disclosure, but one’s shame about specific feelings or events may directly impact
disclosure of these particular feelings or events.

Although there has been very little research on the relationship between these
different conceptualizations of shame and emotional disclosure tendencies, research on
disclosure behavior in therapy may offer some initial support for these proposed
differential relations. To begin, Farber and Hall (2002) found that in a sample of current
therapy clients, the participants’ levels of disclosure to their therapists were not impacted
by their levels of shame-proneness. However, in a sample of past and current therapy
clients, Hook and Andrews (2005) found that 72% of their participants cited shame as the
reason they chose not to disclose particular symptoms and feelings to their counselors.
Thus, there may indeed be a different relationship between shame and disclosure if shame
is measured in terms of shame about a particular aspect of individuals’ experiences,
rather than as a general tendency. To further understand this, future researchers may wish
to incorporate qualitative measures regarding individuals’ disclosure patterns or ask
participants to rate both feelings of shame and level of disclosure following personal
negative events into future studies on shame and disclosure.

Maladaptive Perfectionism, Shame, and Rumination. In an effort to further
understand the way in which shame may impact the emotion regulation patterns of
individuals who are high in maladaptive perfectionism, I chose to conduct a post-hoc
analysis of the relation between maladaptive perfectionism, shame, and rumination.
Based on previous research related to these variables, my expectation for this analysis
was that higher levels of shame would mediate the relation between higher levels of
maladaptive perfectionism and higher levels of rumination. Current study findings
supported this proposed meditational model for both genders. Yet, it is important to remember that this analysis was added to the study after data collection, thus the results should be interpreted in a tentative way.

Therefore, these findings offer initial support for shame as a mediating variable in the relationship between maladaptive perfectionism and rumination. Specifically, this finding indicates that the shame maladaptive perfectionists tend to feel may contribute to their increased levels of rumination. This is consistent with previous research citing shame as a predictor of rumination (e.g., Cheung, Gilbert, & Irons, 2004; Joireman, 2004). Further, Orth et al., (2006) explain that because shame involves the assumption of a negative evaluation from others, it can prompt individuals to feel that their relationships or potential for belongingness may be at risk. The authors reason that this fear of loss or threat may be what leads individuals to ruminate on these shameful, self-evaluative thoughts. Thus, it is possible that this process may be occurring for individuals with higher levels of maladaptive perfectionism, and their tendency to experience shame may be part of the reason that they also tend to engage in ruminative thought processes.

Clearly, further research is needed in order to replicate and extend this finding, as this finding was part of a post-hoc analysis. Yet, this finding is meaningful because it is the first time I am aware of that shame has been tested as a potential mediating variable in the relationship between maladaptive perfectionism and rumination. If future researchers are able to replicate this finding, it may indicate that interventions addressing both shame and rumination may be important in addressing depression and distress in individuals with high levels of maladaptive perfectionism. Additionally, future researchers may wish to incorporate shame into the overall model assessed in Hypothesis
1 and 2. If this is done, it may be important to include shame as both a predictor of rumination and depression symptoms, as Cheng et al. (2004) demonstrated that shame independently contributes to depression symptoms above and beyond the indirect effect it has on these symptoms through the variable of rumination.

**Racial Differences in Emotional Disclosure.** Finally, I also conducted a post-hoc analysis to assess whether relationships between key variables in this study differed based on race. The analysis was exploratory in nature and was conducted because this study sample was larger and more diverse than many past samples in this area. In particular, I had a large enough sample of African-American participants that I was able to examine correlations between study variables for this group. This set of correlations was then compared to the correlations for Caucasian/European-American participants to place these new correlations within the context of the literature, which has been primarily based on predominately white samples. Results indicated that a majority of the relationships between key variables were similar for African-American and Caucasian/European-American participants. However, one key relationship differed between these groups. Specifically, the relation between emotional disclosure and depression was not significant for African-American participants, but it was for Caucasian/European-American participants. Further, this difference in relationships does not appear to be related to measurement issues, as measure reliabilities were nearly equal across groups.

Taken together, this finding signifies that there be something inherently different about the disclosure-depression relationship for African-American and Caucasian/European-American college students who attend predominately white
universities. Yet, at this point it is difficult to make much meaning of the results beyond this. To begin, I was unable to locate any literature regarding the relationship between emotional disclosure and depression symptoms with African-American samples in the literature, thus this finding cannot be compared to previous findings. Similarly, there is also little research on disclosure of negative emotions in African-American samples. Studies I did find were related to disclosure in therapy (e.g., Thompson, Worthington, & Atkinson, 1994) or to disclosure of specific negative experiences, such as sexual assault (e.g., Roberts, Watlington, Nett, & Batten, 2010). These contexts are different, as they reflect situational disclosure rather than individuals’ general tendencies to disclose their negative emotions, thus they also did not provide insight into the current findings.

Furthermore, it is likely that inclusion of additional participant information when trying to understand these relationships is important. For instance, gender may be one variable that interacts with race to predict levels of disclosure, while variables such as culture, ethnicity, and racial identity may be variables that could partially explain the impact of race on the disclosure-depression relationship. In this study, I could not include information on these variables in analyses either because subsamples would have become too small (e.g., African-American males, African-American females) or it was not available. Without this additional information, it is difficult to understand how and why race may have contributed to these results.

Despite this, the most important aspect of the results of this post-hoc analysis is that it highlights the need for much additional research in this area. Due to the limits to the exploratory nature of this data analysis, the somewhat limited sample size used, and the difficulties with interpretation that were previously mentioned, these results are only
tentative and do not support alteration of the primary study model at this time. Instead, future researchers need to first replicate these results in different samples. Then, if further support is generated, it is important that researchers unpack these findings by learning more about the different factors that may contribute to these relationships. Such research is likely to generate meaningful findings that may later be incorporated into models that include emotional disclosure and depression.

**Limitations of the Study**

There are a few important limitations to consider when interpreting the results of the current study. To begin, the sample of participants I used limits the generalizability of the research findings. Although this study had enough male participants to assess gender differences in SEM models and enough African-American participants to assess correlational differences regarding key variables, the sample was still limited in certain ways. As previously noted, there were not enough African-American participants to test study SEM models with this subgroup of participants. Additionally, there were not enough participants from other minority racial groups to test for the presence of other group differences. Further, by design, this study only gathered information from college student participants at a predominately white university, and the average participant age was approximately 20-years-old. Thus, it is possible that study findings may differ for individuals who are in a different developmental stage (e.g., high school students, older adults, etc.). Also, it is possible that individuals’ typical coping mechanisms may differ when they are in particular environments (e.g., a predominately white institution vs. a historically black college or university). Due to these limitations, generalizations of study findings should be made cautiously when working with individuals who are not
Caucasian/European-American or are not traditional college students attending a predominantly white institution.

Another potential limitation of this study is that I did not use participants with a particular mental health diagnosis related to depression symptoms (e.g., Major Depressive Disorder) or who reached a certain threshold of perfectionism symptoms. Instead, I used a dimensional view of both of these constructs. The means on each of these dimensional variables were consistent with previous research on college students, and thus the findings can likely apply to a wide range of individuals. Yet, I did not study participants who met certain diagnostic criteria, and therefore do not know whether the relationships found in the study differ in individuals who are and are not clinically depressed and/or severely perfectionistic. Similarly, I also did not assess whether study participants were currently in therapy. There may be some potential differences between participants who have symptoms that prompt them to seek mental health care, and those who do not.

An additional limitation of this study concerns study measures. Specifically, all measures used were self-report measures. This may be problematic, as responses on self-report measures may be influenced by social desirability and retrospective bias (Pervin, 1999). Thus, they can potentially be subject to intended or unintended distortions from participants. However, it is also important to remember that self-reports can provide valuable information because they assess private aspects of behavior that may otherwise be difficult to measure (Heppner, Wampold, & Kivlighan, 2008). For instance, Kahn et al. (2012) suggested that distress disclosure may not be highly observable to others because it involves both disclosure and inhibition of disclosure. As expected, in their
research they found only moderate agreement between self and peer reports of disclosure, and they also found that self-reports were a more accurate predictor of actual disclosure behavior. Therefore, while additional means of measurement should be utilized in future research, it is important that future researchers reflect on the nature of the construct being measured prior to using an alternative measurement strategy.

One final limitation of the current study is that I used a cross-sectional design, thus measures of all variables were gathered at one point in time. Using this type of design did not allow for assessment of the impact these emotion regulation strategies may have over time on the depression levels of maladaptive perfectionists. Subsequent studies may wish to build on these findings by conducting longitudinal studies that assess levels of depression over the course of weeks or months instead of only at one point in time.

**Directions for Future Research**

Although I have mentioned a few suggestions for further research at various points during my discussion of the study results, I also have additional suggestions regarding future research in the area. To begin, researchers should work to address the demographic limitations of the current study. Specifically, researchers should further study the relationships examined in the current study by intentionally recruiting samples of participants who are not Caucasian/European-Americans. These researchers should look at correlations among key study variables, and also test the primary SEM model with these different groups. For example, this process was started using African-American participants from the obtained sample. In addition, these future studies should also include measures of constructs such as racial identity, acculturation, and other
variables that may allow the researchers to further understand the complex nature of the way race interacts with key study variables.

Moreover, future researchers in the area may wish to expand the sample of participants used on other ways. For instance, future researchers could recruit college student participants from institutions that differ from the large, predominately white university that participants in this study attended. Such institutions may include historically black colleges and universities, as well as smaller liberal arts colleges. It is possible that different environments may influence the ways in which maladaptive perfectionists cope with distress. Additionally, future researchers may seek to extend the findings of this study to other age groups in order to assess potential developmental differences in the emotion regulation patterns of individuals high in maladaptive perfectionism. Further, future researchers could use participants with a diagnosis of Major Depressive Disorder and/or participants who are currently in therapy. Applying this research to clinical samples will allow for an understanding of how study variables interact for individuals with high levels of depression. Overall, broadening the nature of samples used in future research will allow research implications to apply to more individuals, and may also highlight particular relationships that differ across demographic groups (e.g., gender, age, race).

Another suggestion for future research is to use a daily diary approach (Bolger, Davis, & Rafaeli, 2003) to study the relationships among maladaptive perfectionism, emotion regulation, and depression symptoms. For example, participants could complete reports at least once per day where they describe the most negative event they experienced during a preset time frame (i.e., the entire day, over a few hours, etc.). Then,
participants could rate their avoidance, rumination, and disclosure of this negative event using a questionnaire designed by the researcher. Participants could also report additional information such as the perceived intensity of the event they experienced and the degree of shame or guilt they felt regarding the negative event. While these would still be self-reports, the decrease in time between events and reports of those events would decrease the retrospective bias in these particular self-reports. Further, past researchers have reported that one’s overall tendency to disclose distress has different implications than one’s daily disclosure behaviors (Garrison & Kahn, 2010). Thus, use of a diary approach could help clarify non-significant findings in the present study by investigating whether proposed relationships occur at the daily level. For instance, it is possible that daily rumination in regard to specific events may impact disclosure of those events, and shame experienced in relation to daily negative events may impact disclosure of those negative events. Such studies could provide further insight into the emotion regulation strategies used by individuals high in maladaptive perfectionism.

Additionally, future researchers could assess whether interventions aimed at altering levels of emotional avoidance, rumination, and/or disclosure decrease depression levels in individuals exhibiting signs of maladaptive perfectionism. For instance, participants meeting a certain cutoff level for maladaptive perfectionism could be randomly assigned to a waitlist group and an intervention group. The intervention group could be provided with an educational group experience targeting improvement of one of more of these emotion regulation strategies. Then, levels of depression could be measured before and after the intervention. Findings of a study of this nature could aid in the establishment of a causal think between these variables, which is something that
cannot be done with the results from the current study because they rely on analyses that are based on correlations.

Finally, future researchers may also wish to explore how adaptive perfectionism is related to emotional avoidance, rumination, emotional disclosure, and depression levels. Theoretically, adaptive perfectionism should be related to more adaptive forms of coping (i.e., less avoidance and rumination, and more disclosure), and this should contribute to lower levels of depression. Assessing such a model could provide further information about the unique aspects of maladaptive and adaptive perfectionism. Additionally, this information may also help clarify some of the strengths that are potentially associated with the alternative form of perfectionism.

**Implications**

The findings of this study have a number of implications for counseling psychology theory and research. To begin, the findings from this study expand theory related to perfectionism and emotion regulation. In particular, this is the first study I am aware of to place maladaptive perfectionism and both the strategies of emotional avoidance and rumination together in one model. The current results indicate that maladaptive perfectionism is related to both of these processes, and these processes uniquely impact levels of depression symptoms. Specifically, increased use of rumination is directly related to higher levels of depression symptoms, while increased use of emotional avoidance is indirectly related to higher levels of depression symptoms through decreased use of emotional disclosure.

Thus, those who are high in maladaptive perfectionism are likely experiencing two distinct processes that contribute to increased depression levels. First, they may have
difficulty with knowing how, or even wanting to, experience their distressing emotions. This then likely impacts their ability and desires to share these emotions with others.

Second, these individuals tend to be hard on themselves and often continuously think about their perceived shortcomings and lack of abilities. This new understanding of these two processes lends further support to Aldea and Rice’s (2005) assertion that emotion dysregulation is likely a key component of maladaptive perfectionism.

Moreover, this study also represents the first attempt I know of to connect maladaptive perfectionism with distress disclosure. Study findings show that higher levels of maladaptive perfectionism are related to lower levels of disclosure, and that this relationship is largely accounted for by the tendency to avoid experiencing and expressing emotions. This finding supports past research linking emotional avoidance and lack of emotional disclosure (e.g., Kahn & Garrison, 2009). It also highlights the notion individuals with higher levels of maladaptive perfectionism may not be experiencing the mental health benefits of emotional disclosure, including increased insight related to their distress as well as increased levels of social support (Kennedy-Moore & Watson, 2001). Thus, reluctance to engage in emotional disclosure may place these individuals at an increased risk for depression symptoms. Indeed, findings of the current study found lower levels of emotional disclosure to be predictive of higher levels of depression symptoms in the study sample.

This study’s findings also suggest potential ways in which the constructs of attachment may impact emotion regulation in those with higher levels of maladaptive perfectionism. In regard to insecure adult attachment orientations, these variables were not supported as moderators of the relationship between maladaptive perfectionism and
emotion regulation strategies. Yet, higher levels of attachment anxiety were correlated with higher levels of maladaptive perfectionism and higher levels of rumination, while higher levels of attachment avoidance were correlated with higher levels of maladaptive perfectionism and higher levels of emotional avoidance. This indicates that although attachment and perfectionism may not have an additive effect in predicting use of certain emotion regulation strategies, attachment certainly plays a role in maladaptive perfectionism and both of these emotion regulation strategies. Therefore, it still may be important to consider when trying to understand the background and developmental experiences of those who are high in maladaptive perfectionism.

Further, study findings provided a tentative link between maladaptive perfectionism, shame, and emotion regulation. The previously demonstrated link between maladaptive perfectionism and shame (e.g., Fedewa et al., 2004) was supported in the current study. Additionally, findings suggest that higher levels of shame may mediate the relationship between higher levels of maladaptive perfectionism and higher levels of rumination. Thus, maladaptive perfectionist’s tendency to experience shame may be one of the reasons that they also tend to engage in high levels of rumination. This finding begins to extend what is already known about maladaptive perfectionism and shame in the literature.

The findings of this study also have potential implications for counseling psychology practice. In particular, these results highlight the importance of monitoring the levels of emotional avoidance, rumination, and emotional disclosure used by maladaptive perfectionists, as they represent important points of intervention for helping these clients decrease their levels of depression symptoms. For example, to help decrease
depression symptoms in clients with high levels of maladaptive perfectionism, counselors may want to provide skills training and experiential exercises geared toward decreasing emotional avoidance, increasing emotional disclosure, and decreasing rumination. Though only a tentative finding, counselors may also wish to explore feelings of shame with clients who are high in maladaptive perfectionism, and help them address any factors that are contributing to an increased experience of shame.

Moreover, while individual therapy is likely to be helpful in addressing these emotion regulation processes, it may also be beneficial for counselors who work on college campuses to provide this information to students through prevention and outreach efforts. Such prevention efforts could involve education about different forms of perfectionism and healthy ways to cope with distress, and could also seek to normalize common concerns and stressors college students cope with. These outreach programs could potentially reach students who are experiencing lower levels of maladaptive perfectionism and distress, and allow for an intervention to occur before their symptoms become more severe.

Further, in addition to addressing emotional avoidance, rumination, and emotional disclosure separately with clients or students, counselors may also wish to utilize interventions that have the potential to influence more than one of these intervention points at a time. For example, counselors could work with these individuals on increasing their levels of self-compassion. According to Neff (2003), self-compassion is comprised of three aspects: being kind to oneself as opposed to being judgmental and critical; practicing mindfulness by allowing painful thoughts and feelings to be experienced yet not over-identified with; and the ability to place individual suffering in the context of
common humanity. It seems possible that increasing self-kindness may decrease experiences of shame and levels of rumination, practicing mindfulness may decrease emotional avoidance, and having a sense of common humanity may facilitate connection with others, including increased disclosure. Thus, by increasing levels of self-compassion, rumination, shame, emotional avoidance, and emotional disclosure may all necessarily be impacted. Furthermore, if a counselor chooses to help clients who are higher in maladaptive perfectionism increase their levels of self-compassion a psycho-educational group format may be especially useful. For example, a recent intervention study by Neff and Germer (2013) offers initial support for a structured group program called the Mindful Self-Compassion Program.

**Conclusions**

Overall, in this study I used structural equation modeling to further explore the relationships between maladaptive perfectionism, emotion regulation strategies, and depression symptoms in college students. The current results supported several key relationships among these variables. First, higher levels of maladaptive perfectionism were predictive of higher levels of depression through the mediating variable of higher levels of rumination. Additionally, higher levels of levels of maladaptive perfectionism were predictive of lower levels of emotional disclosure through the mediating variable of higher levels of emotional avoidance. Lower levels of emotional disclosure were then predictive of higher levels of depression. The results of this study also offered tentative support for a relationship between increased levels of shame and increased rumination in individuals high in maladaptive perfectionism. In addition, results indicated that further study on the ways in which adult attachment impacts study variables and how racial
differences may impact the disclosure-depression relationship is warranted. Taken
together, these findings informed a variety of future research ideas and implications
associated with emotion regulation and depression symptoms in individuals with higher
levels of maladaptive perfectionism.
REFERENCES


Appendix A

Demographic Questionnaire
1. What is your age?

2. What is your gender?
   ____ Male
   ____ Female
   ____ Transgender

3. What is your race/ethnicity/cultural background?
   ____ African-American
   ____ Asian-American or of Asian descent
   ____ Biracial or multiracial
   ____ Caucasian/European American
   ____ Latino or Latina
   ____ Middle Eastern descent
   ____ Native American/American Indian
   ____ Other race/ethnicity/cultural background

4. What is your current relationship status?
   ____ Single
   ____ In a dating relationship
   ____ Married
   ____ Separated/Divorced
   ____ Widowed

5. What is your sexual orientation?
   ____ Heterosexual
   ____ Gay/Lesbian
   ____ Bisexual

6. What year in school are you?
   ____ Freshman
   ____ Sophomore
   ____ Junior
   ____ Senior

7. What type of school do you attend?
   ____ Large public university
   ____ Small liberal arts college

8. What is your current undergraduate grade-point average (GPA)?
9. What is your family’s approximate level of household income?
   ___ less than $25,000
   ___ $25,001 - $40,000
   ___ $40,001 - $70,000
   ___ $70,001 - $90,000
   ___ $90,001 or more
Appendix B

Human Subjects Institutional Review Board Approval Letter
Date: September 25, 2012

To: Eric Sauer, Principal Investigator
    Angela Garrison, Student Investigator for dissertation

From: Christopher Cheatham, Ph.D., Vice-Chair

Re: HSRB Project Number 12-09-18

This letter will serve as confirmation that your research project titled “Testing a Model of Perfectionism and Depressive Symptoms” has been approved under the expedited category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note: This research may only be conducted exactly in the form it was approved. You must seek specific board approval for any changes in this project (e.g., you must request a post approval change to enroll subjects beyond the number stated in your application under “Number of subjects you want to complete the study”). Failure to obtain approval for changes will result in a protocol deviation. In addition, if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSRB for consultation.

Reapproval of the project is required if it extends beyond the termination date stated below.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: September 25, 2013
Appendix C

Email to Interested Participants
Hello,

This is Angela Garrison and I am contacting you regarding your expressed interest in participating in a research study. As a reminder, this study involves completing a series of questions about emotional well-being, emotion regulation, and interpersonal relationships. We are interested in the overall responses of all of the people who participate in this study, not the responses of any one participant. Any student 18 years of age or older is eligible to participate in this study. Participation in this study will take a total of approximately 30-45 minutes and will involve responding to a series of questionnaires online. The risks associated with this study are minimal. Although you will be asked to provide personal information about yourself, your name will not be attached to this information. The benefits of participating in this study include the ability to learn about this research once it is completed and potentially gaining course credit or extra credit.

If you are still interested in considering participating in this study, please follow the link below. Additionally, if you have any questions while completing this research study please contact the student investigator, Angela Garrison, at [email address].

[Link here]

Thank you,

Angela