EMOTIONAL CLARITY AS A PREDICTOR OF DECENTERING CAPACITIES

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CHAPTER I.
ABSTRACT

The present investigation sought to elucidate whether the capacity to decenter (i.e., create healthy distance from emotional stimuli) via implicit and explicit instruction was associated with alexithymia (i.e., inability to identify and distinguish between emotions), as assessed with a commonly used self-report measure, the Toronto Alexithymia Scale (TAS-20). The overall hypothesis of the current study was that individuals with intact abilities to identify and distinguish emotions, assessed via the TAS-20 (i.e., high emotional clarity), would evidence greater abilities to decenter when completing objective behavioral measures of implicit and explicit decentering. The logic leading to this hypothesis was that an individual must first identify and distinguish between their emotions before being able to step back and decenter from that emotion. Participants completed the TAS-20 as a measure of emotional clarity and were subjected to two objective tasks measuring decentering: the first task was an implicit measure in which participants viewed images of objects and decided whether or not each object would fit inside of the palm of their hand or inside a shoebox, and the second task was an explicit measure in which participants either imagined scenes remaining as they had seen it, or imagined receding in size to that of a postage stamp. Results revealed that measures of decentering did not vary as a function of TAS-20 scores. Only one subscale of the TAS-20, TAS-DIF, showed a significant interaction with valence on reaction time. It can be concluded that emotional clarity may not serve to predict one’s ability to decenter.
CHAPTER II.
INTRODUCTION

Public Health Significance of Depression

Major Depressive Disorder (MDD) has profound public health significance for the suffering and impairment it causes, and prevalence rates have increased over the past decade (Kessler et al., 2003). This increase can be attributed to the expanding number of MDD cases within our nation’s youth and among women (SAMHSA, 2008). Approximately one in ten adults is currently living with MDD and it is the leading cause of disability in the United States with 6.7% of the population reporting MDD in a 12-month period and a lifetime prevalence of 16.6% (Kessler et al., 2005a; Kessler, Chiu, Demler, & Walters, 2005b; Murray & Fortinberry, 2005). The defining characteristic of MDD is a sad and dejected mood and it is often accompanied by behavioral and motivational symptoms in the form of slower movements and lack of activity, drive, and initiative (Beck & Alford, 2009). Depressed individuals also experience physical symptoms including an overall general pain, feelings of being fatigued, and disruptions in eating and sleeping patterns. However, among the most destructive and disabling characteristics of MDD are the cognitive symptoms, which include extreme negative and pessimistic views of one’s self as inadequate or undesirable (Segal, Gemar, & Williams, 1999). The reoccurrence of these negative thoughts and emotions become patterned and elicit automatic cognitions in the mind. Teasdale and colleagues (2002) suggest that the vulnerability to depression lies in these patterns and automaticity of negative thinking
that become activated as compared to the more trait-like dysfunctional attitudes. It is this cognitive reactivity that presents patients with MDD with an increased risk for relapse than those with lower cognitive reactivity (Segal et al., 2006).

In an attempt to combat the cognitive reactivity and establish a barrier against relapse, many solutions have been proposed for reducing and treating depression. However, not all treatments work for everyone, nor are all treatments created equally in producing long-lasting effects. The conventional wisdom with respect to treating MDD is that when they work, antidepressant medication provides quick reduction in symptoms, but without durable results when the medications are stopped. Conversely, when psychotherapy works, it typically takes longer to achieve the clinical benefits, but the results are often more durable (Segal et al., 2006). Thus, the focus within MDD treatment has shifted towards investigation and development of more durable treatments that also address the patient’s more immediate symptoms (Fresco, Segal, Buis, & Kennedy, 2007). Finding a treatment that will address both short-term and long-term goals is especially important because it has been shown that individuals who received only acute or short-term treatment are prone to recurrence and relapse; 50% of patients report recurrence within the first two years of remission.

One therapy in particular, cognitive behavioral therapy (CBT), has received much attention as being a depression intervention with twice the durability as that of antidepressant medication (Hollon, Stewart, & Strunk, 2006). CBT is a form of psychotherapy involving an attempt to address problematic cognitions, dysfunctional emotions, and maladaptive behaviors through problem-focused practices (Barlow, 2007;
Beck, 1976). Through the course of treatment patients are challenged to change their destructive thoughts, emotional responses, and behaviors as a means to return to normative functioning. Segal and colleagues (2006) examined the difference between CBT and antidepressant medications and found an increase in cognitive reactivity for participants who had received antidepressant medication as compared to decreases in cognitive reactivity for participants who had received CBT. They also reported that patients presenting increases in cognitive reactivity were at a higher risk for relapse than those with a lower cognitive reactivity. This finding may be explained by the idea that although cognitive reactivity may temporarily help an individual deal with the arising of negative emotions, cognitive reactivity is not always constructive because it never fully helps an individual recover from stress (Watkins, 2008). Therefore, the lower rates for CBT patients may be attributed to the idea that CBT targets the cognitive structures and schemas in an individual's mind and more permanently changes one’s perceptions and thoughts in order to protect against future stress and the chance for relapse. Other studies have also shown that the degree to which change is made among cognitive structures and thoughts has been proposed as a predictor of relapse (Segal et al., 1999). Therefore, it may become apparent that understanding how emotion is dysregulated in depression in relation to cognitive reactivity may help produce a better understanding for improved MDD treatment techniques and therapies. More specifically, there is a need beyond reducing physical symptoms via antidepressant medication because such medications are not capable of altering thinking patterns, thoughts, or feelings that often become
automatic during depressive mood and in future events that may elicit these depressive moods (Segal et al., 2006).

One possible way to improve the understanding into the nature and treatment of MDD is to better understand the interplay of cognition, emotion, and emotion regulation. Virtually all instances in our lives are marked by the arising of thoughts and emotions generated in response to stimuli within and outside of our bodies. As an individual comes in contact with different situations, he or she will attend to the situation in a multitude of ways and the emotion that is provoked will be determined by the way in which the situation is interpreted and given meaning (Gross, 2010). An individual’s emotional response can occur at several points from the beginning to end of an emotional experience, and the individual is able to choose if and when he or she would like to adjust or change the emotion and/or situation. This alteration of emotional experience is known as emotion regulation.

This paper will review characteristics of emotions, emotion regulation, and therapy techniques that may be important factors contributing to the treatment of MDD and, therefore, reducing the public health significance of MDD. A closer look will be taken at the fundamentals of emotion, particularly the differences between normative and dysfunctional emotions that are qualities of healthy and depressed populations respectively. Within normative emotional functioning, there will be an emphasis on one facet of healthy emotion regulation, specifically an individual’s emotional clarity, or the ability to distinguish between emotions and describe the emotion that one is feeling—a skill that is typically lacking among depressed individuals. There will also be a further
consideration of decentering, which is often defined as taking a step back and viewing one’s thoughts or feelings from an objective point of view, instead of personally identifying with them (Teasdale et al., 2002). The capacity for decentering is often lacking in depressed individuals, and may be an important byproduct of effective CBT. Finally, following this literature review and synthesis, I will propose, conduct, and report on the findings of a study that attempts to elucidate the relationship of emotional clarity to decentering and then propose some possible implications to the nature and treatment of MDD.

Normative Emotion Functioning

One promising area of investigation to improve our understanding into the nature and treatment of conditions like MDD lies within the study of normative emotion functioning. Most emotion theorists (e.g., Ekman, 1999) view emotions as important to our survival by both spurring us to certain actions when conditions in our lives call for it and helping us effectively communicate with one another. The emotions that most organisms experience and display have been refined and shaped through natural selection and possess survival value. In day to day life, emotions help us make choices about actions that can have consequences related to life and death as well as love and loss (Ekman, 1999). Finally, emotions also influence the responses we learn in life and help us learn from past experiences.

Gross (2010) has described three common features of emotions: emotions arise when an individual attends and attaches meaning to a situation, emotions are multifaceted
and are linked to the impulses that generate action, and emotions are malleable, which allows for emotion regulation. In accordance with these three features, Gross (2010) has proposed a modal model of emotion and emotion regulation. The modal model illustrates five stages or points in time during which individuals attempt to regulate emotion. The first and earliest point in the arising of an emotion is situation selection in which individuals purposefully place themselves in situations that will elicit desired emotions that they prefer to have, or steer away from situations that will elicit emotions that they prefer not to have. Once in a particular situation, an individual can choose to modify the unfolding of the experience in an attempt to change its emotion-provoking tendencies. The third means to regulate emotion is seen in the individual’s capability to attend to or redirect attention onto another aspect within the situation, known as attentional deployment. More involved than changing the situation or one’s attention is changing one’s cognitions, which is the fourth point on the emotion regulation continuum. Cognitive change consists of reappraising the situation’s importance, or attempting to think differently about the situation in order to change the meaning and emotions associated with the situation. The last and latest attempt at emotion regulation in Gross’s (2010) modal model is response modulation, which looks at one’s experiential and behavioral responses after the individual’s response is already under way. The most commonly studied kind of response modulation is called expressive suppression, which describes an individual’s attempts at diminishing his or her emotion-expressive behavior that is enduring.
It can be seen that alterations of one’s emotion can happen at the very early stages of emotional processing and at the very late stages of emotional processing, as well as all of the stages in-between. Gross (2010) posits that the earlier efforts in the unfolding of an emotional experience (e.g., situation selection, attentional change) require less cognitive elaboration while the later stages assessing cognitive change require greater elaboration and effort. However, the greater the elaboration, the more depletion of cognitive resources, suggesting that there is not one specific stage that is better than the other, but rather the individual should assess their resources and the situation to determine which regulatory response is most fitting. Therefore, it is important for individuals to have the capacity for broad and flexible behaviors, reflecting a normative emotion regulation response.

However, not all of these attempts for emotion regulation may be deliberate and require effort; individuals can ‘incidentally’ regulate emotions (Berkman & Lieberman, 2009). It is suggested that situational cues within the context of an emotion-provoking event can distract an individual from experiencing an emotional response and there are also neural regions in the brain that can become automatically activated and elicit neuropsychological processes without one’s conscious awareness. In more broad terms, neurocognitive systems can function spontaneously. Therefore, with the many ways in which an individual can experience emotion regulation, it can be seen that an attempt to return to a more normative emotion functioning is essential and an almost natural tendency for healthy individuals.
Disordered Emotion Functioning

In contrast to normative emotion regulation, emotion dysregulation is defined by deficits in emotion generation, deficits in emotion motivation, and deficits in emotion regulation (Fresco, Mennin, Heimberg, & Ritter, 2013). More specifically, deficits in emotion generation are generally regarded as having strong emotion responses to all situations. In addition, emotion generation deficits can include an insensitivity to emotional cues both positive and negative (Mennin, Holaway, Fresco, Moore, & Heimberg, 2007). This lack of sensitivity corresponds to the decrease of positive affect that is overshadowed by excessive negative affect experienced by individuals suffering from MDD (Bylsma, Taylor-Clift, & Rottenberg, 2011; Mennin et al., 2007). The inability to seek new selections and find a driving force or path in life outlines dysfunctional emotion motivation. Finally, deficits in emotion regulation can be defined as individuals experiencing tendencies toward regulatory responses reflecting that of attending strategies and the earlier stages of emotional processing, with a lack of responses from later attempts at emotion regulation, such as reappraisal and cognitive strategies. Several studies have indicated that individuals attending to his or her emotions will often become so involved in their emotions that they often begin cycles of rumination, which impairs interpersonal functioning and emotional well-being (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995; Salovey, Stroud, Woolery, & Epel, 2002). In correspondence with these findings, results showed that the extended attention to emotions seemed to be positively correlated with depression.
Mennin and colleagues (2007) proposed a model of emotion dysfunction comprised of four components. The first component of emotion dysfunction is heightened intensity, which characterizes individuals with MDD as experiencing negative emotions to a greater extent and with greater intensity (Bylsma et al., 2011; Mennin & Fresco, in press; Wisco & Nolen-Hoeksema, 2011), or often with emotional experiences that are prompted more easily and more quickly (Mennin et al., 2007). Emotion dysfunction is also characterized by a negative reactivity to emotions, which is often expressed in terms of fear or discomfort and negatively-held beliefs after an emotional experience. With an abundance of negative affect it has been shown that MDD participants report a greater number of unpleasant events and an overall daily negative affect relative to healthy controls (Bylsma et al., 2011). The reoccurrence of these negative thoughts and emotions become patterned and elicit automatic cognitions in the mind. Teasdale and colleagues (2002) suggest that the vulnerability to depression lies in these patterns and automaticity of negative thinking that become activated as compared to the more trait-like dysfunctional attitudes.

The third component of emotion dysfunction proposed by Mennin and colleagues (2007) is maladaptive management of emotions, which refers to the difficulty in knowing how or when to investigate and appreciate, or steer away from emotional experiences appropriate to the context of the situation. Individuals unable to assess the situation and understand when to decrease their emotional experience will develop an even greater emotion dysfunction. This deficit may correspond to a poor understanding of emotions, which is the last proposed component of emotion dysfunction. Individuals with MDD
experience blended or mixed feelings and emotions in which there is no distinction between emotions or there appears to be several aspects to one feeling (Heavey, Hurlburt, & Lefforge, 2012). This lack of distinction and unawareness as to which emotion he or she is experiencing means that the individual does not have any idea of how to approach or regulate the emotional experience. This inability to understand emotions is similar to the construct known as alexithymia, which is reported to have a strong relationship to MDD symptoms and depression (Parker, Bagby, & Taylor, 1991; Salovey et al., 1995, 2002).

Alexithymia is defined as inability of individuals to identify and describe their feelings (Frawley & Smith, 2001; Larsen, Brand, Bermond, & Hijman, 2003; Marchesi, Brusamonti, & Maggini, 2000; Parker, Taylor, & Bagby, 2003; Swinkels & Giuliano, 1995), as well as having interruptions in experiencing and expressing emotions, which results in a lack of awareness of one’s emotions (Sifneos, 1994; Taylor, 1984). Also, when individuals with alexithymia experience emotional arousal they often cannot distinguish between bodily sensations and feelings, and falsely interpret their somatic sensations, which oftentimes leads to the individual seeking help for physical problems instead of emotional concerns (Marchesi et al., 2000). The term alexithymia was coined by psychotherapist Peter Sifneos in 1973 as a personality construct to describe individuals who were “mood unaware,” (Bar-On & Parker, 2000). The alexithymic construct has been refined more specifically into a difficulty in identifying feelings, difficulty in describing feelings, and a tendency for externally oriented thinking, or a concentration on external, often fantastic, events (Marchesi et al., 2000). In
correspondence with this division and specificity of alexithymia, Bagby, Parker, and Taylor (1994) constructed a three-factor self-report to measure alexithymia called the Toronto Alexithymia Scale (TAS-20).

The Toronto Alexithymia Scale is comprised of 20 items assessing alexithymia; 7 items measure an individual’s ability or difficulty in identifying feelings and separating feelings from bodily experiences (DIF), 5 items measure an individual’s ability or difficulty in describing and communicating feelings (DCF), and 8 items measure externally oriented thinking (EOT). Sample DIF statements from the TAS-20 include: I am often confused about what emotion I am feeling and I have feelings that I can’t quite identify. Statements measuring DCF consist of: It is difficult for me to find the right words for my feelings and People tell me to describe my feelings more. EOT statements include: I prefer to just let things happen rather than to understand why they turned out the way and Looking for hidden meanings in movies or plays distracts from their enjoyment. All 20 items are rated based off of a five-point Likert Scale, which correspond to 1=Strongly Disagree and 5 = Strongly Agree, and 5 items are negatively keyed. Once the scores have been totaled, then the TAS-20 distinguishes alexithymia as a total score greater than or equal to 61, possible alexithymia as a total score between 52 and 60, and non-alexithymia as a total score less than or equal to 51. Several studies have tested the validity and reliability of the TAS-20, which have consistently concluded test-retest reliability (.77, p<.01), as well as good internal consistency (Cornbach’s alpha =.81), and constant repeatability across clinical and non-clinical samples (Bagby et al., 1994; Parker
et al., 2003). There seems to be clear evidence for the TAS-20 to remain being used as a measure of the alexithymic construct.

There have been several studies that have not only tested the validity and reliability of the TAS-20, but have used the TAS-20 to examine the relationship between alexithymia and other constructs, including age, gender, education, and psychopathology (Parker et al., 2003). Although no significant differences were found among age and level of education, there did seem to be a slight difference in gender scores with women scoring lower than men. More importantly, the totally TAS-20 scores were found to be positively correlated with negative affectivity, and negatively correlated with mindfulness, emotional self-awareness, empathy, and openness to experience.

Corresponding with negative affectivity, the TAS-20 is strongly correlated to neuroticism, depression, and anxiety (Bagby et al., 1994; Marchesi et al., 2000; Mayer, Salovey, Gomberg-Kaufman, & Blainey, 1991). Suggestions for the findings can be related to several studies indicating that individuals attending to his or her emotions when emotions cannot be easily identified will often become so involved in their emotions that they often begin cycles of rumination, which impairs interpersonal functioning and emotional well-being (Salovey et al., 1995, 2002). In correspondence with these findings, results showed that the extended attention to emotions seemed to be positively correlated with depression and anxiety. On the other hand, decreases in rumination were discovered for individuals who were able to easily discriminate between emotions; their emotions were very clear to them (Salovey et al., 1995). Therefore, emotional clarity, a construct that is described as being the opposite of alexithymia, was reported as being negatively
correlated with depression and anxiety, as well as with neuroticism and vulnerability to
distress reactions. Those individuals who are able to easily identify their emotions in
times of stress will spend less time reflecting on the negative experience because once the
emotion is identified the individual can activate their previous knowledge of how to
regulate that particular emotion and move on to focusing on other tasks. Therefore, it may
be evident that the presence of alexithymia can keep individuals with MDD from being
able to break through the impairments and boundaries of depression.

*Emotional Clarity: Facilitating Adaptive Emotion Functioning*

In contrast to the findings of alexithymia, which are presented as a barrier for
healthy emotion regulation, it may become evident that enhancing an individual’s
emotional clarity can produce beneficial effects for individuals with MDD. Emotional
clarity is defined as the degree to which an individual is aware of what emotion he or she
is feeling and the degree to which an individual is able to discriminate between the
emotions that he or she is experiencing (Salovey et al., 1995, 2002). If an individual is
successful in identifying and discriminating between emotions, then oftentimes they will
attach a label to each emotion, which can be referenced in similar situations to help them
understand and conduct their behavior in the appropriate manner (Gardner, 1983; Salovey
et al., 1995).

Swinkels and Giuliano (1995) further examined the impact of clarity under a
general study of mood awareness. Mood awareness is simply an individual’s focus on
their mood states. Similar to emotional clarity, mood labeling suggests that once labeled,
emotions can easily be identified in future situations, which allows for quick mood repair.
Quick mood repair is particularly important for instances of negative mood, so that an
individual does not dwell, but rather is able to focus one’s attention to other, more
important matters. Mood labeling was shown to be negatively correlated to measures of
depression and positively correlated to positive affect, extraversion, self-esteem, and life
satisfaction.

Optimal emotion regulation is likely difficult without first identifying the
particular emotion one is experiencing (Salovey et al., 1995); an increased ability to
identify and distinguish emotions showed an increased ability to recover or repair moods
(Salovey et al., 2002). It was also shown that increased emotional clarity and high mood
repair were positively correlated with mental health, vitality, and satisfaction in life
(Salovey et al., 1995, 2002). Emotional clarity has also been found to be correlated with
self-esteem, which may be explained by the accomplishment and optimism that an
individual may feel after successful identification and regulation of one’s emotions
(Salovey et al., 1995). As an individual experiences increases in emotional clarity, and
hence, increased occurrences of accomplishment, one may begin to feel more
comfortable and confident in communicating their feelings to others in social and
interpersonal relationships (Salovey et al., 2002). Overall, emotional clarity has been
found to predict improved psychological and physical adjustment (Salovey et al., 1995,
2002).

From these studies it can be seen that when emotional clarity is high, not only
does one experience beneficial effects such as increased life satisfaction, but more
importantly an individual has the capacity for quick mood repair. Conversely, when emotional clarity is low an individual may experience more maladaptive means for repairing emotions, giving way for increased cognitive reactivity. As one can see, emotional clarity may be one of the aspects that can be key to identifying a means of reducing depression and build a barrier against relapse.

**Decentering: Reducing Cognitive Reactivity**

Decentering is often defined as the means by which an individual is able to view his or her thoughts and feelings as temporary, objective events in mind (Fresco et al., 2007). The term decentering was first introduced through Jean Piaget’s theory of perceptual development (Elkind, 1967). Piaget theorized that as a young child one’s perceptions are centered on the principal components of one’s visual field. However, as persons age, their perception is freed from the restricted visual field and becomes progressively more decentered. Decentration involves individuals becoming capable of understanding the differing perspectives of others (Mayer, 2005), as well as detaching and exploring personal internalized actions and the nature of the stimulus itself (Elkind, 1967). In recent years, psychologists in Western society have picked up the term decentering and have started looking more in-depth at this process. With Piaget’s notion of decentering as a guide, decentering has been defined as taking a step back and viewing one’s thoughts or feelings from an objective point of view, instead of personally identifying with them (Teasdale et al., 2002). Decentering has been studied in respect to many factors, such as the impact of decentering on healthy individuals versus depressed
individuals, the effects of decentering versus the effects of antidepressant medication, or simply the long-term effects of decentering versus not decentering.

Similar to the concept of decentering, the Self-Reflection Paradox suggests that thinking about one’s deepest thoughts and feelings associated with negative experiences helps individuals to create explanations for negative events, producing mental and physical health benefits (Kross, Duckworth, Ayduk, Tsukayama, & Mischel, 2011). On the other hand, searching for an understanding of one’s thoughts and feelings can often lead to rumination in which an individual consistently concentrates on the causes and symptoms of their mood, which may lead to sustaining negative mood, distress, and various damaging health effects. There have been many studies that have taken a closer look at decentering in order to examine whether this self reflection of emotions, thoughts, and feelings is productive or counterproductive in attempting to reduce the negative affect and underlying factors of depression (Wisco & Nolen-Hoeksema, 2011).

Several studies proposed that the type of self-perspective that an individual assumes as he or she examines his or her negative emotions will determine how successful they are at adaptively analyzing negative encounters (Kross & Ayduk, 2008, 2009; Kross et al., 2011). There were two self-perspectives identified in the studies: self-immersed perspective and self-distanced perspective. By adopting the self-immersed perspective when confronted with a negative situation, an individual relives the event through their concentration on concrete aspects, which increases negative arousal. However, individuals assuming the self-distanced perspective will decrease negative arousal by taking a step back seeing one’s self as through the eyes of a fly on the wall and
working through emotions by assigning meaning and closure (Kross, Ayduk, & Mischel, 2005; Kross et al., 2011). This self-distanced perspective is often associated with mindfulness and meditation, (Kross et al., 2005) and is often referred to as psychological distance, which relates to the distance people create between themselves and their emotions (Kross et al., 2011). By increasing psychological distance an individual is able to detach their emotions from an arousing experience, aiding in emotion regulation.

In accordance with this definition, psychologists have been able to study decentering as a therapeutic mechanism in CBT. Previous research has suggested that if a person is able to decenter, then one is able to take a step back and create psychological distance between an emotion and one’s own personal self (Kross et al., 2011). In doing so, a person is able to objectively view that emotion aside from any personal connections or personal distress. This allows for a person to become more aware of their emotions, leading to better coping strategies or ways in which to handle emotions.

Several studies have examined the role of decentering in the recovery from MDD with CBT or antidepressant medication (Fresco et al., 2007; Teasdale et al., 2002). The researchers attempted to determine if there was a relationship between treatment response and gains in decentering. Findings demonstrated that the benefits of decentering for individuals who had undergone cognitive behavioral therapy treatments prior to the study were more prominent than for the individuals who had instead received solely antidepressant medication. Therefore, individuals recovering with CBT may be protected against relapse of MDD through their decentering capacities.
Another significant finding emerged in support of these findings, showing that among the participants with low decentering ability, those individuals who also displayed lower cognitive reactivity were more likely to experience relapse (Fresco et al., 2007). In contrast, individuals with a low decentering ability and higher cognitive reactivity displayed the likelihood for a more durable treatment response. This finding may be explained by prior knowledge that individuals with depression typically have decreased emotional reactivity, which allows them to pass by negative situations without having to experience the emotional upheaval. However, this lack of emotional reactivity means that depressed individuals never take a chance to analyze or confront their negative emotions, which results in greater depression severity, longer episodes of depression, and lower levels of psychosocial functioning. Therefore, not surprisingly, high decentering creates a barrier against episodes of relapse for individuals with MDD, especially for the individuals who had received CBT; CBT was able to reduce the risk of relapse by about 40% (Teasdale et al., 2002). It is clear that the durability of CBT seems to be positively impacted by an individual’s ability to decenter (Fresco et al., 2007; Teasdale et al., 2002). Thus, preventing relapse may lie in training all individuals in the ways of cognitive therapy and how to utilize the technique on their own in future situations, especially in accordance with metacognitive awareness (Kross et al., 2011).

*Emotional Clarity as Predictor of Decentering Capacities*

This literature review suggests that emotional clarity and decentering are two constructs that facilitate normative emotion functioning and reduce cognitive reactivity. It
can be seen that an individual’s capacity for each of these constructs separately may be a predictor in the successful treatment of MDD. However, there appears to be a lack of research examining the connection between emotional clarity and decentering. There have been hints at the connections between the two constructs throughout the span of research; however, no studies have explicitly looked at this relationship.

One of the closest examples examining the emotional clarity-decentering relationship is found in a study by Teasdale and colleagues (2002). These researchers were interested in the effects that mindfulness-based cognitive therapy (MBCT) had on the results of the measure of awareness and coping in autobiographical memory (MACAM) in order to determine if both function as a means of metacognitive awareness. MBCT is a cognitive behavioral therapy developed to inoculate previously depressed individuals from relapse, which incorporates mindfulness as a means of being attentive to the negative emotions and experiences that an individual is feeling, but using the basis of CBT to accept and observe those emotions without personal criticism or identifying with them (Raes, Dewulf, Van Heeringen, & Williams, 2009; Teasdale et al., 2002).

The researchers administered MBCT to half of the depressed participants, while the other half of depressed participants only received antidepressant medication. After 22 weeks of treatment participants were administered the MACAM to assess metacognitive awareness. Results from the study indicated that lower levels of metacognitive awareness via lower scores on the MACAM are found in depressed individuals who scored significantly lower than nondepressed individuals. However, findings also suggested that depressed individuals who received MBCT had increased metacognitive awareness
(Teasdale et al., 2002). Improved metacognitive awareness indicates that individuals were successful in changing their harmful cognitive structures and beliefs associated with negative thoughts and emotions, which can lead to less rumination and reduced risk of relapse. Findings from other studies utilizing MBCT support this assumption; MBCT was successful in reducing depressive symptoms (Raes et al., 2009). It appears that metacognitive awareness, also referred to as decentering, may be a possible mediator in improved treatment and decreased relapse among depressed individuals. It can also be inferred that in order for individuals to prevent relapse they must first successfully gain skills in emotional clarity in order to climb to the level of being able to decenter on the MACAM scale. However, no direct and explicit measures were performed to measure the extent of emotional clarity.

The Current Study

A current research study has been devised to examine the relationship between emotional clarity and decentering in an attempt to fill critical gaps that are lacking in research. Results from this study are proposed to attempt to fill a gap in previous research by taking a closer look at the effects of decentering that can be applied to the MDD population. Of utmost importance is the attempt to investigate emotional clarity as a moderator of decentering, which is also lacking in current research. It can be inferred from previous research that in order for a person to be able to decenter, or take a step back from one’s feelings and emotions to view them from an objective point of view, one must first identify the particular emotion. If this is true, then individuals with alexithymia,
or individuals lacking emotional clarity, will not be able to decenter as easily as individuals who have higher emotional clarity.

As a means of examining and comparing these two constructs, the Toronto Alexithymia Scale (TAS-20), a scale for measuring emotional clarity, has been proposed to be incorporated alongside two objective tasks measuring decentering. The first task is an explicit measure in which participants are aware of the task at hand and use effort in an attempt to decenter; the psychological distance is manipulated consciously. Previous research has primarily only used explicit measures such as this as a means of studying decentering. However, the second task is an implicit task in which the participants are not aware of the decentering; the psychological distance is manipulated below the threshold of consciousness. Emotional reactivity is measured in both tasks and is used to examine the degree to which individuals are able to decenter.

Including the TAS-20 as a measure of emotional clarity is not only important in determining its association to the extent to which an individual will be able to decenter, but it is also important because clarity is often associated with depression. Previous research has suggested that individuals with depression have lower emotional clarity than healthy individuals; the boundaries of emotions for individuals with MDD are often blurred together and cannot be distinguished from one another. Therefore, results of this study with the TAS-20 included may show that understanding the emotional clarity of depressed individuals is another important aspect in studying the effects of decentering and will uncover more layers in the understanding of decentering as a therapeutic mechanism in cognitive therapy. Also, as no other studies have directly connected the
dots between emotional clarity and decentering, this study may represent the beginning of a program of research.

It is hypothesized that higher emotional clarity will be associated with a greater decentering ability. In contrast, lower emotional clarity will be associated with less capacity to decenter. If the hypothesis is correct, then there will be a greater understanding as to the relationship of an individual’s emotional clarity and one’s capacity to decenter; having the ability to identify and distinguish between emotions must take place before one can take a step back and create psychological distance between one’s self and that particular emotion.
CHAPTER III.

METHOD

Participants

Participants consisted of 47 undergraduate students (9 men, 38 women; mean age $= 19.21$, $SD = 2.32$) recruited from the psychology participant pool at Kent State University. Students participated in this study for either fulfillment of a course requirement or payment of $15.

Measures

Self-report Measure

Participants completed a battery of self-report measures including the Toronto Alexithymia Scale (TAS-20; Bagby et al., 1994), the self-report measure of alexithymia and emotional clarity, described above.

Objective Behavioral Tasks

Participants also completed two computer tasks assessing decentering ability. The first task was designed as an implicit measure of decentering. Participants viewed a series of 144 images of objects, which were previously standardized for emotional valence (72 neutral objects (e.g., flashlight) and 72 negative objects (e.g., spider)). Images were segregated by valence and presented in blocks. Before each block, participants received one of two instructions: 1) Determine whether or not each image would fit either in the palm of their own hand, or 2) Determine whether or not each object would fit inside of a
shoebox. In other words, each block contained only one instruction for all images and images of one emotional valence. Response choices of “yes,” “don’t know,” or “no” to the objects were made via key press on the keyboard. Reaction time to respond to each image was recorded. Image blocks were counterbalanced between instruction (hand vs. shoebox) and emotional valence (neutral vs. negative). Before the first block, as well as after each subsequent block, participants rated their level of negative affect by indicating the extent to which they felt different emotions on a sliding scale from “not at all” to “very much.” Average reaction times to respond were calculated for each block of images as a measure of emotional reactivity. Longer reaction times were taken to indicate greater emotional interference, and serve as a direct measure of emotional reactivity, to complement self-report ratings of negative affect.

This task is considered to be an implicit measure of decentering because participants are not directly aware that they are attempting to create distance between themselves and the negative objects presented in the images. More specifically, the imagining of placing objects in a shoebox, as opposed to imagining the same objects being brought close to the body and being placed in one’s own hand is thought to create greater distance between the individual and the objects. Therefore, it is expected that negative objects under the instruction of “shoebox” will elicit less emotional reactivity (i.e., lower levels of negative affect and shorter reaction times) than negative objects under the instruction of “hand,” which are proposed to elicit greater emotional reactivity (i.e., higher levels of negative affect and longer reaction times). We did not expect to find an effect of distance on negative affect or reaction time for neutral objects. The difference
in negative affect or reaction time between “hand” and “shoebox” conditions is taken as an index of decentering capacity, or the ability to create psychological distance from distressing stimuli. This task was previously tested and validated in a separate group of participants; specifically, greater task decentering predicted lower levels of depressive symptomology, and better emotion regulation skills as indicated by self-report measures (Shepherd & Fresco, 2012).

The second task was designed as an explicit measure of decentering consisting of 48 photographs of scenes chosen from the International Affective Picture System (IAPS) database, which are standardized for emotional valence and arousal (24 neutral (e.g., a highway) and 24 negative (e.g., a car crash)), and present participants with one of two instructions, “NO CHANGE” or “AWAY”. In the instance of a “NO CHANGE” instruction the participants were instructed to imagine the photograph as they had seen it in an empty frame that is the same size as the original photograph. In the instance of an “AWAY” instruction the participant was instructed to imagine the photograph receding in size to the dimensions of a postage stamp, which was guided by an empty frame that was reduced incrementally in size. The photographs were presented in groups of 4 trials and are counterbalanced between instruction (no change vs. away) and emotional valence (neutral vs. negative) within each trial. At the conclusion of each trial participants were prompted to rate their level of arousal on a visual analog scale, as a measure of emotional reactivity.

This task is an explicit measure of decentering because participants are instructed to use effort to create distance between themselves and the scenes. Distance is created
between the viewer and the photograph through the imagining of scenes reducing to the size of a postage stamp. Therefore, it is expected that negative scenes in the “AWAY” instruction will elicit lower emotional reactivity (i.e., lower levels of valence and emotional arousal) than negative scenes presented in the “NO CHANGE” instruction, which are proposed to elicit higher levels of emotional reactivity (i.e., higher levels of valence and emotional arousal). We did not expect an effect of instruction on neutral objects.

Procedure

Following IRB approval to conduct the study, participants provided informed consent and were seated in front of a computer monitor upon arrival. The experimenter then administered the online survey of self-report measures. Following completion of the self-report measures the experimenter introduced the first computer task assessing implicit decentering ability, which was followed by the computer task assessing explicit decentering ability. Following completion of the study, participants were debriefed and awarded their choice of points or money.
CHAPTER IV.

RESULTS

Analysis Plan

Preliminary Analysis

As a manipulation check on the two objective decentering tasks, a series of 2 (Valence: Neutral, Negative) x 2 (Distance: Near, Far) repeated measures ANOVA were conducted with negative affect and reaction time as the respective dependent measures.

Study Analysis

For both implicit and explicit tasks a series of 2 (Valence: Neutral, Negative) x 2 (Distance: Near, Far) repeated measures ANCOVAs were conducted. Significant interactions with covariates (i.e., self-reported TAS-20) were qualified by examining effects at high (above the median) and low (below the median) levels of the covariate.

Preliminary Analysis

Implicit Task

Consistent with previous findings, it was hypothesized that negative images would elicit more negative affect than neutral images and that when the objects were near (hand) they would elicit more negative affect than when they were far (shoebox). A significant main effect of valence on negative affect was found, $F(1,46) = 16.28$, $p < .001$, $\eta^2_p = .26$, confirming that negative object images ($M = .13, SD = .02$) elicited more negative affect than neutral objects ($M = .06, SD = .01$). However, there was no main
effect of distance on negative affect, $F(1,46) = .77, p > .05, \eta^2_p = .02$, meaning that when objects were near ($M = .09, SD = .01$) they did not elicit more negative affect than when they were far ($M = .1, SD = .02$). Finally, there was no significant interaction between valence and distance on negative affect. This finding suggests that before accounting for alexithymia (i.e., the covariate), the effect of distance on negative affect did not vary as a function of object valence.

It was also hypothesized that negative images would elicit longer reaction times than neutral images and that when the negative objects were near (hand) they would elicit a longer reaction time than when they were far (shoebox). A significant main effect of valence on reaction time was found, $F(1,46) = 4.99, p < .05, \eta^2_p = .1$, confirming that reaction times were longer for negative object images ($M = 1303$ ms, $SD = .46.67$ ms) than for neutral objects ($M = 1246.01$ ms, $SD = 44.46$ ms). However, there was no main effect of distance on reaction time, $F(1,46) = 1.86, p > .05, \eta^2_p = .04$, showing that reaction times were not different when objects were near ($M = 1300.54$ ms, $SD = 50.06$ ms) versus when they were far ($M = 1248.82$ ms, $SD = 45.12$ ms). There was also no significant interaction between valence and distance on reaction times, suggesting that the effect of distance on reaction time did not vary as a function of object valence.

Explicit Task

Consistent with previous findings, it was hypothesized that negative scenes would elicit more emotional arousal than neutral scenes and scenes that were near would elicit more emotional arousal than scenes that were far. A significant main effect of valence on emotional arousal was found, $F(1,46) = 182.98, p < .001, \eta^2_p = .80$, confirming that
negative scenes ($M = 5.88, SD = .28$) elicited more arousal than neutral scenes ($M = 2.49, SD = .21$). There was no main effect of distance on emotional arousal, $F(1,46) = 2.82, p = .10, \eta_p^2 = .06$, demonstrating that when scenes were near ($M = 4.13, SD = .21$) they were not more arousing than when they were far ($M = 4.24, SD = .21$). There were no significant interactions between valence and distance on arousal, suggesting that the effect of distance on arousal did not vary as a function of valence.

**Implicit Task**

**Negative Affect**

It was hypothesized that higher levels of self-report alexithymia (assessed with the TAS-20) would be associated with smaller reductions in emotional reactivity to distressing, negative stimuli as a function of increasing distance. In contrast to predictions, no significant interactions were found between the TAS-20 total score or individual TAS-20 subscales (covariates) and distance or valence on negative affect. Contrary to prediction, this finding does not support the hypothesis, but rather demonstrates that the relationship between distance and valence did not change as a function of the TAS-20 scores; levels of negative affect did not change based on whether individuals scored high or low on the TAS-20.

**Reaction Time**

It was also hypothesized that higher scores on the TAS-20 would be associated with smaller reductions in reaction time to distressing, negative stimuli as a function of increasing distance. In contrast to this prediction, no significant interactions were found.
between the TAS total score or the TAS-20 DCF subscale or the TAS-20 EOT subscale and distance or valence on reaction time, suggesting that the effect of distance and valence on reaction time did not change as a function of these TAS-20 scores; reaction time was not different for individuals scoring high versus for individuals scoring low on the TAS-20. There was, however, a significant interaction between the TAS-20 difficulty identifying feelings subscale (DIF) and valence, $F(1,46) = 4.22, p < .05, \eta_p^2 = .09$. Further inspection of the interaction revealed that at low levels of DIF there was a significant effect of valence on reaction time, $F(1,19) = 7.03, p < .05$, but there was no effect of valence on reaction time at high levels of DIF, $F(1,21) = .24, p > .05$ (Fig. 1). The results demonstrate that individuals who were more adept at identifying their feelings (i.e., low DIF scorers) showed reaction times that were longer for negative objects ($M = 1375.87$ ms, $SD = 75.42$ ms) than neutral objects ($M = 1269.82$ ms, $SD = 62.49$ ms). Individuals who were less skilled at identifying their feelings (i.e., high DIF scorers) took equally long to respond to objects, regardless of object image valence.

**Explicit Task**

**Emotional Arousal**

It was hypothesized that higher scores on the TAS-20 would be associated with smaller reductions in emotional arousal to distressing, negative stimuli as a function of increasing distance. In contrast to prediction, there were no effects of the TAS-20 total score or for any of the TAS-20 subscales on valence, distance, or the interaction between
valence and distance; levels of arousal did not change based on whether individuals
scored high or low on the TAS-20.
CHAPTER V.
DISCUSSION

The present investigation sought to elucidate whether the capacity to decenter (i.e., create healthy distance from emotional stimuli) via implicit and explicit instruction was associated with alexithymia (i.e., inability to identify and distinguish between emotions), as assessed with a commonly used self-report measure, the Toronto Alexithymia Scale (TAS-20). The overall hypothesis of the current study was that individuals with intact abilities to identify and distinguish emotions, assessed via the TAS-20 (i.e., high emotional clarity), would evidence greater abilities to decenter when completing objective behavioral measures of implicit and explicit decentering. The logic leading to this hypothesis was that an individual must first identify and distinguish between their emotions before being able to step back and decenter from that emotion.

Before examining the connection between emotional clarity and decentering, it was important to first demonstrate the validity of the objective decentering measures. Findings from this preliminary analysis were mostly consistent with expectations and past results (Shepherd & Fresco, 2012). It was predicted that across all participants, negative images and scenes would elicit more negative affect, longer reaction times, and more arousal than neutral images and scenes. Findings confirmed this prediction that negative stimuli would indeed create more negative feelings, a longer response time to the stimuli, and increased emotional arousal. Results concur with findings by Kross and
colleagues (2008, 2009, 2011), which evidenced that when individuals were approached with a more negative situation, negative arousal was increased.

Following preliminary analyses, new analyses were conducted with alexithymia as a covariate. It was hypothesized that higher levels of alexithymia (i.e., individuals lacking emotional clarity) would be inversely associated with the capacity to decenter effectively as evidenced by ratings of negative affect and reaction times. However, there did not appear to be any effect of the TAS-20 total score or any effect for the three subscales of the TAS-20 on valence, distance, or the interaction of valence and distance for the implicit task and explicit task. These findings indicate that the effect of valence (negative stimuli vs. neutral stimuli) on negative affect, reaction time, and emotional arousal did not vary as a function of self-reported alexithymia, nor did the effect of distance (near vs. far) on negative affect, reaction time, or emotional arousal vary as a function of TAS-20 scores. Although several of the findings confirmed the hypotheses and begin to reflect the findings of other studies, the original hypothesis that an individual’s emotional clarity (i.e., low levels of alexithymia) would predict the extent to which individuals were able to decenter was not supported.

However, one significant, yet unexpected finding emerged through further investigation of each subscale of the TAS-20. A significant interaction was found between the TAS-DIF subscale and valence on reaction time. To further examine the interaction, a median split was performed on TAS-DIF scores to examine the difference between high and low levels of the covariate. Findings indicated that individuals with lower scores on the TAS-difficulty identifying feelings (TAS-DIF) subscale produced
longer reaction times for negative images than neutral images, whereas higher scorers (i.e., individuals who were better at identifying their feelings) did not take longer to respond to negative images than neutral images.

An explanation for this finding may be the fact that having lower levels of alexithymia, or rather high levels of emotional clarity, means that individuals have the ability to identify and describe these different feelings and emotions (Salovey et al., 1995, 2002). Having this ability indicates that individuals could distinguish between the negative and neutral stimuli, and therefore, would respond differently to the images based on valence. Once the negative images are identified, individuals may attempt to regulate these negative feelings associated with the stimuli, which may require these individuals to spend a longer time returning themselves back to normative emotion functioning (Gross, 2010). A longer time for emotion regulation may be explained by the research of Gross (2010), which identifies regulation strategies of increased elaboration, which require more effort, and thus, may also require a longer time for regulation. This return to normative emotion functioning is also an example of healthy emotion regulation as evidenced by Ekman (1999), in which individuals are alert and react to stimuli in the environment as a means for adaptation or survival.

Conversely, there is evidence to show that people with emotion dysregulation, such as individuals with MDD, do not react to negative stimuli in the same ways as healthy individuals. More specifically, individuals with higher levels of alexithymia who are unable to distinguish between emotions may be labeled as having an insensitivity to emotional stimuli because without being able to identify or describe the emotion, they
tend to respond similarly to all images despite their valence (Mennin & Fresco, in press; Wisco & Nolen-Hoeksema, 2011). Therefore, since these individuals cannot identify the emotion they are feeling provoked by the negative stimuli, they may not see the need to regulate that emotion, which allows for a shorter response time. This ineffective response to regulate emotions is evidenced by Mennin and colleagues’ (2007) research of maladaptive management of emotions. In addition to their research of maladaptive management, the researchers show that depressed individuals also tend to have an insensitivity to emotional stimuli and view all experiences rather similarly. It is therefore speculated that we might expect similar findings of TAS-DIF scores among depressed individuals (Mennin et al., 2007).

In addition to these predictions, there are a few other alternative explanations for the results. One explanation is that a small sample size of 47 participants with relatively similar characteristics lacks the statistical power to produce expected findings, and provides a restricted range of scores. Research has evidenced that range restriction within a study reduces the correlation between two constructs, which may be explanation as to why there was a lack of findings connecting the TAS-20 and decentering (Schmidt, OH, & Le, 2006). It can also be suggested that this restricted range of scores is more reflective of a healthy population as evidenced through examination of the current study’s mean TAS-20 score of a 49.1, which falls within the non-alexithymia range of TAS-20 scores (Table 1). This suggests that the resulting TAS-20 data is most likely more reflective of normative emotion functioning; however, the TAS-20 is designed to examine the effects in disordered functioning. Therefore, it is predicted that greater statistical power to detect
effects would be evidenced by a larger sample producing a wider spectrum of scores on the objective measures of decentering at high and low TAS-20 scores; the current study presents evidence for low TAS-20 scores, but there is a need for inclusion of a sample with higher TAS-20 scores.

Clinical populations, such as individuals with MDD, have evidenced a higher range of TAS-20 scores. Marchesi, Brusamonti, and Maggini (2000) administered the TAS-20 to an MDD sample, which resulted in average TAS-20 scores of 53.4, with scores approaching the mid 60’s. Previous research has also suggested lower emotional clarity for individuals with MDD as evidenced by the boundaries of emotions for individuals with MDD that are often blurred together and cannot be distinguished from one another (Salovey et al., 1995). Therefore, it is predicted that including an MDD sample within the current study would result in higher scores on the TAS-20 that would fulfill the need to balance out the currently low, or healthier, TAS-20 scores. An MDD sample’s predicted higher TAS-20 scores, reflecting low emotional clarity, may also demonstrate a decreased ability to decenter than the healthy or non-depressed sample. Therefore, understanding the emotional clarity of depressed individuals is another important aspect in studying the effects of decentering. Results of this study with an MDD sample included are proposed to uncover more layers in the understanding of decentering as a therapeutic mechanism in cognitive therapy.

As evidenced above, it is now apparent that there is a high possibility that the study does not include a diverse enough sample to produce extreme or significant results, and that one could expect that including samples on the extreme end of psychopathology
would produce results more congruent with the projected hypothesis (Marchesi et al., 2000; Salovey et al., 1995). It is understood that a sample of university college students may have been insufficient to address the gap in research between emotional clarity and decentering, however, this convenient sample was used as an attempt to begin identifying and analyzing the relationship between emotional clarity and decentering, from which more appropriate or specific populations and samples, such as a clinical MDD sample, can be chosen and studied. Therefore, the limited availability to a clinical sample posits a prominent limitation to the study.

A second limitation of the current study is the use of self-report measure and relying on the subject’s judgment for reliable and honest data. Self-report measures require all individuals to be able to introspect and accurately respond to the items on the measure, which at times may not produce the best or most accurate results because individuals vary in their abilities to do so. However, despite the nature of the TAS-20 as a self-report measure, it is possible that there is simply no relationship, or moderating effect of emotional clarity on one’s capacity for decentering. While the two facets may be similar in their capacity to reduce cognitive reactivity and aid in normative emotion regulation, it is possible that the two do not interact or produce increased effects of decentering when combined with emotional clarity. However, this study is preliminary, and to date no studies have attempted to directly examine the relationship between emotional clarity and decentering. Despite the gap in research, there have been studies that have found correlations between the TAS-20 and constructs similar to decentering, such as mindfulness (Parker et al., 2003), which is defined as operating with an active
mind to accept and observe emotions without personal criticism or identifying with them (Raes et al., 2009; Teasdale et al., 2002). These studies found a negative relationship between the TAS-20 and mindfulness, which indicates that higher levels of emotional clarity are associated with higher levels of mindfulness. This result reflects the direction of our original hypothesis that the higher levels of emotional clarity, the greater the capacity of an individual to decenter. Therefore, there is evidence that replication of the current study and extension of findings is necessary.

This identification of alternative explanations and limitations to the study propose several suggestions and areas for future research. The first suggestion is to advance this study into a more clinical sample, which should hopefully present findings more consistent with the proposed hypothesis. A second suggestion is for the addition of other self-report measures of decentering or mindfulness, as well as self-report measures of emotional clarity, such as the Trait Meta-Mood Scale (TMMS). The TMMS is a scale of emotional clarity that measures an individual’s attention to feelings, clarity of feelings, and mood repair (Salovey et al., 1995, 2002). These three subscales of the TMMS reflect normative emotion functioning (Gross, 2010), which may propose that the TMMS is a better choice of scale to examine emotional clarity because, as previously mentioned, the TAS-20 is a scale more directed toward examining disordered emotion functioning, particularly among a clinical population. With the addition of these other related scales, one should hopefully discover whether the computer tasks are actually measuring what they need to measure; the constructs of the study should gain more power and consistency among findings.
Despite all of the possible alternative explanations and possible limitations to the study, there is a significant implication for theory and practice. Most importantly is the idea that there is a need for further investigation of emotional clarity as a moderator for decentering ability. If future studies find significant results indicating that emotional clarity is a predictor of decentering, then researchers and therapists will be able to identify and target the addition constructs and factors that will aid in the effectiveness and utilization of decentering within their practice. More generally, a more specific and directed approach can be taken for individuals with MDD, which should lead to more effective treatments and limited relapse.
REFERENCES


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*Journal of the American Medical Association, 289*(23), 3095-3105.


Figure 1. The effect of object image valence on reaction time at high and low levels of TAS-DIF.
Table 1

*Range, Mean, and Standard Deviation of the TAS-20 Scores for the Sample*

<table>
<thead>
<tr>
<th>Toronto Alexithymia Scale (TAS-20)</th>
<th>n</th>
<th>Minimum</th>
<th>Maximum</th>
<th>M(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAS-20 total score</td>
<td>47</td>
<td>28.00</td>
<td>70.00</td>
<td>49.13(11.21)</td>
</tr>
<tr>
<td>Difficulty identifying feelings (DIF)</td>
<td>47</td>
<td>5.00</td>
<td>23.00</td>
<td>16.26(5.86)</td>
</tr>
<tr>
<td>Difficulty communicating feelings (DCF)</td>
<td>47</td>
<td>7.00</td>
<td>28.00</td>
<td>12.77(4.41)</td>
</tr>
<tr>
<td>Externally oriented thinking (EOT)</td>
<td>47</td>
<td>13.00</td>
<td>28.00</td>
<td>20.11(3.60)</td>
</tr>
</tbody>
</table>

*Note.* The TAS-20 distinguishes alexithymia as a total score greater than or equal to 61, possible alexithymia as a total score between 52 and 60, and non-alexithymia as a total score less than or equal to 51.