THESIS

TRAUMA, SYMPTOMOLOGY, AND MEANING IN LIFE: A COMPARISON BETWEEN

CLINICAL SAMPLES AND HEALTHY CONTROLS

Submitted by

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ABSTRACT

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Research has shown that people who report living meaningful lives are better able to cope with trauma, integrate the past, present, and future into a guiding narrative, and report higher levels of self-esteem and life-satisfaction (Baumeister et al., 2013). Most research to date has examined meaning in life among psychologically healthy individuals, with a very limited number of studies examining meaning in life among psychologically disordered individuals. The current study seeks to address this gap in the literature by comparing levels of meaning in life between a sample of individuals diagnosed with eating disorders and OCD (n=101) and comparing it with data from a nationally representative control group (n=2014). This study also examined how meaning in life related to symptom severity and trauma history within the clinical sample and proposed that presence of meaning may moderate the relationship between trauma history and symptom severity. Results revealed significant differences between the clinical and control group in levels of both presence of meaning and search for meaning. However, meaning in life did not significantly relate to symptom severity or trauma history in this sample. Implications and future directions for research are discussed.

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CHAPTER I: INTRODUCTION

Research has shown that people who report living meaningful lives are better able to cope with trauma, integrate the past, present, and future into a guiding narrative, and report higher levels of self-esteem and life-satisfaction (Baumeister et al., 2013). Whereas measures of happiness indicate that "all is well", meaning in life is thought to be just as essential for the dynamic process of coping with life's challenges as it is for prospering from the "good times." As Victor Frankl wrote, "In some way, suffering ceases to be suffering at the moment it finds a meaning" (p. 113). Because of its promise as a source of strength and solace in the face of adversity, meaning warrants particular study among those in distress.

Unfortunately, while researchers have often studied how meaning in life serves as a support to normal-functioning people after a traumatic event or during discrete periods of stress, little is known about how psychologically disordered people use meaning to cope with the chronic hardship of mental illness. Conceptualizing how meaning in life may serve as a source of resilience to those in psychological distress requires the following: a clear definition of the multi-faceted nature of meaning in life, an overview of the research indicating that meaning in life is a critical component of human well-being, and a review of the specific factors which might affect the maintenance of meaning in life among people dealing with psychopathology.

Overview of Meaning in Life

Meaning in life captures the degree to which people feel their lives matter in a larger sense, that they feel their life story has coherence and significance. Consensus on the nature of meaning in life has determined that there are both cognitive and motivational aspects to this construct (Steger, Sheline, Merriman, & Kashdan, 2013.) Meaning in life is often described in the cognitive sense, as a process by which people make sense of the world around them. People

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with a strong cognitive sense of meaning in life are thought to be adept at finding significant patterns or themes in their own life stories, which may contribute to their cognitive schema that "life makes sense." This facet of meaning in life may be referred to as Comprehension or Coherence (Steger, 2009; Steger, Frazier, Oishi, & Kaler, 2006).

The other theoretically distinct facet of meaning is the motivational quality of life, which is almost ubiquitously referred to as Purpose across the meaning in life literature. Purpose drives people forward in life, encompassing their overarching aspirations and aims to provide a highly valued set of over-arching goals (Kashdan & McKnight, 2009; McKnight & Kashdan, 2009; Steger et al., 2013). According to meaning in life theory, the relationship between purpose and comprehension can be thought of as a "feedback loop." Striving towards a goal (purpose) informs the cognitive process of seeing life as a coherent story (comprehension), which then enhances the motivation inherent in a strong sense of purpose. Combining these two conceptions provides the working definition of meaning in life for the current study: "the degree to which an individual makes sense of and sees significance in their life and believes their life to have an overarching purpose" (Steger et al., 2013, p. 5).

In addition to the distinct dimensional qualities of meaning in life, important differences exist between the *presence* of meaning and the *search* for meaning. Research on the dynamic between search and possession of meaning suggests that, while lacking possession of meaning typically leads people to search for meaning, searching does not generally lead to the presence or experience of meaning (Steger, Kashdan, Sullivan, and Lorentz, 2008). Furthermore, while research frequently cites the possession of meaning as an indicator of well-being, the search for meaning is more commonly associated with suffering. Possession of meaning in life has been shown to correlate positively with constructs such as constructive life change (Kashdan & Kane,

2011), adaptive coping skills (Park & Folkman, 1997), ability to cope with emotionally stressful situations (Ishida & Okada, 2006), positive affect (Hicks, Trent, Davis & King 2012), self-esteem (Scannell, Allen, & Burton, 2002), gratitude (Kashdan & Breen, 2007), and life satisfaction (Scannell et al., 2002; Steger & Kashdan, 2007; Triplett, Tedeschi, Cann, Calhoun, & Reeve, 2011). Throughout this study, the term 'meaning in life' will signify meaning-making on a broad level (including both search for and presence of meaning) whereas the terms 'presence' and 'search' will refer specifically to the aforementioned components of meaning-making.

Other concepts which appear to influence meaning and suffering include aging, illness, and mortality cues. Specifically, the correlation between meaning in life and positive affect increases when people anticipate uncertain futures or feel their time in the world may be short (i.e. as people face signs of aging or illness; Hicks et al., 2012). As existential anxiety is often inherent in thoughts of death or signs of its impending arrival, it seems that meaning may play an especially important role among those faced with this anxiety. Additionally, this finding is concurrent with research indicating that the possession of meaning in life demonstrates an inverse relationship with fear, anxiety and depression (Duffy & Raque-Bogdan, 2010; Park et al., 2010; Steger et al., 2009) as well as posttraumatic stress and experiential avoidance (Kashdan & Kane, 2011).

In contrast, *searching* for meaning in life typically correlates positively with a variety of undesirable outcomes. Searching for meaning may range from the effort to establish a minimal level of meaning in life to viewing life as a constant process of meaning-making and deepening of purpose (Steger et al., 2013). Those with high scores on the Meaning in Life Questionnaire's (MLQ) Search subscale tend to score higher on measures of neuroticism, fear, sadness, anxiety,

and depression (Duffy & Raque-Bogdan, 2010; Park et al., 2010; Steger et al., 2006; Steger et al., 2009). Finally, in a variety of samples, a negative correlation is noted between the MLQ's Presence subscale and its Search subscale (Steger et al., 2006, Steger & Shin, 2010).

Differences in the effects of presence of and search for meaning in life also reveal themselves in the ways in which people cope with adversity. A large portion of the meaning in life literature focuses on how psychologically healthy people may draw on an existing sense of meaning in life as a buffer or coping mechanism when faced with traumatic or stressful life events (Davis, Nolen-Hoeksema, & Larsen, 1998; Janoff-Bulmann, 1992; Kashdan & Kane, 2009; Krause, 2007; Linley & Joseph, 2011; Triplett et al., 2011). These studies indicate that, among healthy individuals, the presence of meaning in life plays a significant role in the process of coping with adverse life events.

While the presence of meaning may serve as a coping mechanism following adversity, stressful life events also commonly incite the search for meaning in life (Thompson, 1985). As stated previously, those who search for meaning are typically lacking in presence of meaning (Steger et al., 2007). Therefore, one of the mechanisms by which the absence of meaning in life could serve as a risk factor for people faced with stressful life events is by triggering a search for meaning. Although those with a previously existing sense of meaning in life may be able to draw on meaning as a source of resilience (Park & Folkman, 1997), others may respond to adversity by searching for answers. Distress and vulnerability caused by adversity may naturally motivate people to search for meaning through cognitive acceptance of the event; however, there are no guarantees that an acceptable explanation may be found which may leave searchers in precarious psychological states (Park & Folkman, 1997; Thompson, 1985). Research on the search for meaning after experiencing the death of a loved one supports this point. Although striving to

situate the death of a loved one within one's worldview was important for adjustment in the short term (6 months post-loss), long term adjustment to a death required participants to find real life-changing benefits associated with the loss (i.e. "I am stronger than I used to be" or "I faced my worst fear and survived"; Davis et al., 1998). Likewise, research also indicates that when a negative life event occurs which challenges the viability of one's worldview (Park & Folkman, 1997), high levels of distress, anxiety, and cognitive dissonance often ensue (Linley & Joseph, 2011; McCann & Pearlman, 1990). This sequence of events may require people to look at their existing set of assumptions or internal beliefs about themselves and the world around them (Janoff-Bulman, 1992; Janoff-Bulman & Timko, 1992). Whereas the presence of meaning in life may serve as a buffer against life's difficulties, actively searching for meaning may be a significantly frustrating process for people directly after facing major life stressors.

Meaning in Life and Psychopathology

The current conception of how both presence of and search for meaning in life affect people following adversity is largely derived from research conducted on psychologically healthy individuals dealing with acute life stressors (i.e. traumatic events, death in the family, or unforeseen events such as natural disasters and terrorism). Whereas better understanding how mentally healthy people cope with suffering is critical to the field of meaning, it is also imperative to understand how presence of and search for meaning might relate to the range of challenges faced by psychologically disordered individuals. Stressful life events have been implicated in the etiology of a wide range of psychological disorders. Therefore, the process of searching for and experiencing meaning among those with clinical disorders may be simultaneously influenced by acute adverse life events (trauma) as well as the chronic stress of managing symptoms and behaviors caused by mental illness. Understanding individual

differences in meaning-making between psychologically healthy and unhealthy people is critical in conceptualizing how meaning in life influences and is influenced by adversity.

A notable aspect inherent in the process of coping with mental illness is the struggle to develop a strong sense of self-worth (Wimberly, 2012). Comprehension, the cognitive component of meaning in life, shares a conceptual link to self-worth in that comprehension is thought to be influenced by the feeling that life itself *matters* or, at the very least, is not pointless. The feeling that life matters conceptually relates to valuing life (life-satisfaction) and may naturally lead to the sense that one's very self matters. Additionally, having a strong sense of self-worth may also lead one to be satisfied with life and feel that life matters. Thus, the inability to cognitively recognize that life and the self are of value may play a significant role in the development of mental distress.

Another important facet of the cognitive piece of meaning in life is the sense that one understands or comprehends life. A natural link should exist between comprehension of life and self-understanding (Steger, 2006). Research supporting this idea was found in a large sample of adolescents- namely, that understanding of the self related to a greater sense of meaning in life (Davey, Eaker, & Walters, 2003). This connection between life comprehension and self-understanding proves important as it has been shown that a lucid understanding of one's self relates to well-being (Campbell, 1990). In contrast, a lack of self-understanding is often noted in those with psychopathology including those with personality disorders. Often, a pervasive goal in improving mental health and functioning in therapy is insight into one's self and one's experiences. Specifically, narrative therapy asserts that understanding of the self is shaped by one's real or perceived life narrative and that one's story can be rewritten.

The motivational or purposive quality of meaning in life may also relate directly to psychopathology. Motivation can refer to goal-directed activity, long term planning, or an affective sense of desire (Gollwitzer, 1999; Higgins, 1990; Little, Salmela-Aro, & Phillips, 2006; Myeong-Gu, Feldman-Barrett, & Bartunek, 2004). Noted in many psychological disorders is a lack of goal-directed behavior, indecisiveness, and feelings of low motivation or low interest (Steger et al., 2006). As all of these factors contribute to a sense of purpose or vision, the disruption of goals, decision-making, and interest inherent in some diagnoses (including depression) can deeply affect the course of one's life. Therefore, understanding how psychopathology might disrupt the process of developing an overarching sense of purpose is essential to meaning in life theory.

The limited number of studies that have examined meaning in life among clinical populations require replication and further examination of differences in levels of meaning in life between clinical samples and healthy controls. One of the first studies examining meaning in life in a sample of patients diagnosed with schizophrenia revealed that actively psychotic patients scored higher on a measure of meaning than participants in three different comparison groups including: nurses working at a psychiatric hospital, Anglican priests, and a group of psychiatric patients in remission from active psychosis (Roberts, 1991). These results implicated the possibility that the formation of delusions may actually provide a strong, albeit non-reality based, sense of meaning among those in psychotic phases. However, the experimental group in this study included only 17 actively psychotic patients making replication of this study with a larger sample size necessary.

Contrary to these findings, research focusing on the development of the Sense of Coherence Scale (SOC) revealed that participants in a clinical sample scored lower on the SOC

than participants in the control group (Antonovsky's, 1993). However, it has been argued that, while the SOC may positively correlate with other meaning in life measures, this scale was actually constructed to measure one's ability to cope with or manage negative life experiences making it closer to measures of resilience or hardiness (Antonovsky, 1987; Sammallahti, Holi, Komulainen, & Aalberg, 1996; Steger, 2006). This issue indicates the need to conduct further studies utilizing a measure that more accurately operationally defines the theoretical construct of meaning in life.

Later research on meaning in life within clinical populations enhanced this line of research by examining the construct using larger samples sizes and more well established measures. Participants receiving inpatient treatment for drug abuse scored significantly lower on a measure of meaning in life than matched healthy controls (Nicholson et al., 1994). Findings of this study suggest that the experience of addiction and recovery may disrupt the development and maintenance of meaning; however, it is unclear precisely which aspects of living with substance abuse issues influenced the clinical sample to score lower on measures of meaning in life. It is possible that those who abuse drugs may do so because their lives lack meaning; however, living with substance abuse issues may also lead to a diminished sense of meaning in life.

Existential well-being has also been shown to relate to symptom severity among those receiving treatment for eating disorders (Fox & Leung, 2009). The clinical sample in this study was split into two groups: one group including anorexic patients between the ages of 18 and 30 and another group including patients over the age of 30. Both groups scored lower on a measure of existential well-being than healthy control groups. However, existential concerns were only significantly positively related with eating disorder symptoms in the older sample. Furthermore, while results of this study indicated that meaning in life is impacted by living with an eating

disorder, existential well-being was measured using a scale which encompassed meaning in life, purpose in life, and life satisfaction making it difficult to tease out the exact role which meaning in life played in this sample of eating disordered individuals.

Recently, the first study was conducted examining the psychometric properties of the Meaning in Life Questionnaire (MLQ) among patients with serious mental illness (schizophrenia-spectrum (50%), schizoaffective disorder (27%), major depressive disorder (20%), and bipolar disorder (3%) (Schulenberg, Strack, & Buchanan, 2011). In this sample, presence of meaning in life was slightly higher among those diagnosed with serious mental illness when compared to other psychologically healthy samples reported in the literature (including foreign samples, undergraduates, and smoking cessation group samples). Results of this study did not delineate scores between different diagnoses in the serious mental illness group making it unclear whether differences were noted between patients with psychotic disorders (those with schizophrenia and schizoaffective disorders) and those with mood disorders (major depression and bipolar disorders).

One possible explanation for the higher scores on the MLQ Presence subscale noted in the serious mental illness group was the lack of a well-matched control group in terms of age, education level, and socioeconomic status. The mean age of the serious mental illness group was 44. This poses an issue as the current knowledge of meaning in life indicates that meaning in life is higher among successively older samples (Steger & Shin, 2010). Therefore, when comparing an older sample with a younger one (undergraduates), the covariate of age must be taken into consideration. Evidence for this logic is provided in the study itself which noted a much closer comparison in Presence subscale scores when comparing the clinical sample's mean scores (28.16) to mean scores of an older smoking cessation group (27.78) (Steger, Mann, Michels, &

Cooper, 2009). Despite mixed results, the aforementioned research indicates that replicate studies regarding meaning in life among clinical populations may benefit this field of research by further examining how a clinical disorder might shape one's sense of meaning in life. The current study seeks to achieve this aim by administering the Meaning in Life Questionnaire among clinical populations (specifically among those receiving treatment for OCD or eating disorders) and comparing results with a healthy control group.

The rationale for examining the role of meaning in life among those with eating disorders is rooted in research which shows that those with eating disorders often feel that their disorders are a formative and important part of who they are and how they view the world (Fox & Leung, 2009; Manlick, Cochran, & Koon, 2013; Serpell et al., 1999). Evidence indicates that people with eating disorders struggle with existential concerns including the need to establish themselves as significant or unique from others, and most notably, the need to feel in control. While their internal and external worlds may feel chaotic, those with eating disorders often report that food intake feels like one area in which they can assert control (Fox & Leung, 2009). People suffering from eating disorders may experience their maladaptive thoughts, attitudes, and behaviors as important aspects of themselves (i.e. 'I am special if I am thin', 'I am in control of food', or 'my eating disorder makes me feel safe'). Therefore, eating disorders are considered 'ego syntonic', as those with eating disorders often feel that their disordered behaviors are achieving their underlying wants and needs (Manlick, Cochran, & Koon, 2013). The prevalence of online communities known as "Pro Ana" (Pro-Anorexia) illustrates the ego syntonic nature of eating disorders as people join these communities in order to enhance their motivation to restrict food intake and lose weight. Unfortunately, as eating disorders progress, they typically consume more and more of a person's physical and mental energy and often result in a diminished life

rather than a meaningful one (Fox & Leung, 2009). Given this knowledge, examining what factors may influence the meaning-making process among those with eating disorders is a crucial aspect of understanding the nature of eating disorders themselves.

To date, research has not specifically examined how aspects of meaning or existential concerns might relate to obsessive-compulsive disorder. However, a closer look at common symptoms experienced among those diagnosed with obsessive-compulsive disorder demonstrate how the meaning-making process could be impacted among people with OCD. One such experience common to those with OCD is the feeling that their internal and/or external worlds are "not just right." While most people (with or without OCD) have had this experience at some point in their lives, excessively high activity in the orbitofrontal cortex of those with OCD often creates a near constant feeling that "something is not just right" (Schwartz, Gulliford, Stier, & Thienemann, 2005). As a major component of meaning-making involves creating sense out of both positive and negative experiences, the feeling that one's world is "not just right" impedes the comprehension process inherent in meaning-making. Trying to make their internal or external world feel ordered by engaging in compulsions likely distracts those with OCD away from purpose-oriented activity, an important aspect of the motivational process involved in meaning-making. Therefore, research examining factors which may influence levels of meaning in life among those with OCD could provide insight into the experience of those suffering from obsessive-compulsive disorder.

Meaning in Life and Symptom Severity

Psychological disorders are characterized by a number of symptoms that meet critical levels of intensity, duration, and impairment in one's life. As symptom number and severity increases, so does the presumed severity of the mental illness (*DSM–5*; American Psychiatric

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Association [APA], 2013). Research has demonstrated that symptom severity is one factor which may relate to levels of meaning in life among those with clinical disorders (Bamford & Sly, 2009; Fox & Leung, 2009; Ishida & Okada, 2006; Steger & Shin, 2009; Triplett et al., 2011). One common finding is that meaning in life inversely relates to severity of depression (Crumbaugh & Maholick, 1964; Flannery, & Flannery, 1990; Flannery et al., 1994; Harlow, Newcomb, & Bentler, 1986; Kleftaras & Katsogianni, 2012; Kleftaras & Parras, 2012; Lester & Badro, 1991; Lewis, Lanigan, Joseph, & de Fockert, 1997; Mascaro et al., 2004; Phillips, 1980; Ryff, 1989; Ryff & Keyes, 1995; Scheier & Newcomb, 1993; Simon et al., 1998; Steger et al., 2006; Steger et al., 2013; Zika & Chamberlain, 1992; Debats, 1990; Debats et al., 1993) and suicidal ideation (Edwards & Holden, 2001; Gomez & Fisher, 2002; Grygielski, Januszewska, Janusxewska, Juros, & Oles, 1984; Harris & Standard, 2001). Recent research further supports the role of meaning-making in suicidal ideation and behavior as presence of meaning in life was found to predict decreased suicidal ideation over an 8-week period of time (Kleiman & Beaver, 2013) and decreased lifetime odds of experiencing suicidal ideation and suicide attempts (Kleiman, Adams, Kashdan, & Riskind, 2013).

Research on existential concerns among those receiving treatment for eating disorders revealed significant relationships between severity of eating disorder symptoms and existential well-being (measured by scores on a scale encompassing life satisfaction, meaning in life, and purpose in life; Fox & Leung, 2009). The authors of this study suggest that symptoms of eating disorders may be resistant to treatment efforts due to this relationship between existential concerns and eating disorder behaviors. While it is still unclear exactly how existential concerns might influence symptom severity, Fox and Leung (2009) note that eating disorder symptoms may, "Function as an attempt to distract attention away from existential concerns…that anorexia

nervosa may serve as a maladaptive attempt to deal with negative states regarding control and meaning in life, in that the disordered behaviors seem to provide an exaggerated sense of control and inflated sense of uniqueness" (p. 25).

Research on those diagnosed with serious mental illness revealed no significant relationship between scores on the Brief Symptom Inventory (BSI) and scores on the Presence subscale associated with the MLQ (Schulenberg et al., 2011). However, scores on the Search subscale in this sample were significantly related to scores on the BSI, indicating that participants with a greater perceived need for meaning tended to report more severe symptoms. When utilizing a regression analysis to determine an interaction effect between the Presence and Search subscales, scores on the MLQ accounted for a significant amount of the variance in symptom severity and main effects for both subscales were found. Furthermore, Presence of meaning was associated with decreased symptom severity while Search for meaning was associated with increased symptom severity. This finding fits with contemporary research on the association between psychological distress and Search subscale scores on the MLQ (Schulenberg et al. 2011).

Whereas research has established a relationship between general symptoms of depression, anxiety, suicidal ideation and meaning in life, very little is known regarding how symptom severity may relate to meaning in life among those receiving treatment for OCD and eating disorders. Participants in the current study were completing treatment in a residential treatment facility indicating that their symptoms were severe enough to lead them from an outpatient to an inpatient care setting. One important factor involved in the decision to move to a higher level of care is how disruptive the symptoms of a specific disorder are to one's daily life. For example, among those with OCD – spending hours ritualizing may lead one to lose

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relationships or employment. Among those with eating disorders, restriction of food intake or cycling between bingeing and purging can lead to serious health consequences and impairment in occupational, social, and other important aspects of life. As symptoms become more severe among those with OCD or eating disorders, life typically begins revolving around the various behaviors involved in these disorders and often at the expense of meaningful relationships and occupational goals (Manlick, Cochran, Koon, 2013). Given the level of engagement in maladaptive behaviors and the cost it has on one's life, it makes sense that symptom severity and meaning in life would share an inverse relationship among those with OCD and eating disorders.

Meaning in Life and Trauma

Exposure to trauma is known to increase the risk of developing a psychological disorder and has also been shown to exacerbate psychological distress (Brown et al., 2013). Additionally, research has demonstrated a significant relationship between post-traumatic stress disorder (PTSD) and eating disorder symptoms (Pratt, 2004), greater risk for meeting diagnostic criteria of OCD among those exposed to trauma (Bomyea et al., 2013), and increased severity of depressive symptoms among those with a history of trauma when compared to those with no trauma history (Cook et al., 2001). Therefore, trauma is an important contextual factor involved in the psychological experience of those with mental disorders.

In addition to links between trauma and symptom severity, research has indicated that experiencing trauma at any point during the lifespan relates to a diminished sense of meaning in life (Krause, 2005). Interestingly, in a sample of older adults (65+), those who had experienced trauma between the ages of 18 and 30 years old reported the lowest levels of meaning in life when compared to those who had experienced trauma during childhood, adolescence, or late adulthood. Similarly, a study conducted on meaning in life among those diagnosed with PTSD

indicated that participants who struggled to cope with exposure to traumatic events experienced both a general and a spiritual loss of meaning in life (Fontana & Rosenheck, 2005). In this sample, loss of religious faith and loss of meaning in life were conceptualized as parallel processes by which existing schemas of the world are challenged.

While meaning in life may be diminished as a result of having experienced a traumatic life event, several studies have also suggested that presence of meaning in life may have a moderating effect on the relationship between trauma history and both depressive symptoms (Krause, 2007; Owens et al., 2009) and PTSD symptoms (Owens et al., 2009). In a sample of adults with a history of trauma, participants with a strong sense of meaning in life reported lower levels of depression while those individuals with a weak or average sense of meaning in life reported higher levels of depression (Krause, 2007). Similar results were found among military veterans exposed to traumatic events, with more severe symptoms of PTSD being reported by veterans reporting low levels of meaning in life (Owens et al., 2009). In samples of college students with a history of trauma, both well-being (Triplett et al., 2011) and posttraumatic growth (Kashdan & Kane, 2011) have been shown to correlate positively with levels of meaning in life as measured by the MLQ. Additionally, among a sample of undergraduates studied shortly after the September 11th terrorist attacks, those with high levels of meaning in life reported posttraumatic growth while those with low meaning in life experienced higher levels of posttraumatic distress (Steger, Frazier, & Zacchanini, 2008). Therefore, in normal-functioning individuals, meaning in life has been demonstrated as an indicator of adaptive coping following the experience of a traumatic event.

Current Study

Much is still unknown regarding differences in meaning-making between those who are psychologically healthy and those who suffer from mental illness. While a very limited number of studies have been conducted on meaning in life among psychotic patients (Roberts, 1991; Schulenberg et al., 2011), eating disordered patients (Fox & Leung, 2009), and substance abusers (Nicholsan, et al., 1994), research has largely neglected how those with clinical disorders might experience and draw on a sense of meaning in life differently than psychologically healthy individuals. The previous outline of research pertaining to meaning in life, psychopathology, symptom severity, and trauma history indicates that examining the potential relationships between these variables is a promising field of inquiry.

The current study will examine the following research questions: 1) Whether any differences in levels of meaning in life exist between a clinical sample and a healthy control group, 2) whether presence of or search for meaning in life is related to symptom severity, 3) whether presence of or search for meaning in life is related to trauma history in the clinical sample, and 4) whether meaning in life operates as a moderator between trauma history and symptom severity in a clinical sample.

Hypothesis 1: It is hypothesized that the clinical sample will score significantly lower than the control group on the MLQ Presence subscale. It is also hypothesized that the clinical sample will score significantly higher than the control group on the MLQ Search subscale.

Hypothesis 2: Regarding meaning in life and symptom severity, it is hypothesized that symptom severity will be negatively correlated with presence of meaning in life. It is also hypothesized that symptom severity will be positively correlated with search for meaning in life.

Hypothesis 3: Regarding meaning in life and trauma history, it is hypothesized that frequency of past trauma will correlate negatively with presence of meaning in life. It is also hypothesized that frequency of past trauma will correlate positively with search for meaning in life.

Hypothesis 4: It is hypothesized that presence of meaning in life (as measured by the MLQ Presence subscale) will moderate the relationship between frequency of past trauma and symptom severity in the clinical sample.

CHAPTER II: METHOD

Participants

The clinical sample included 103 individuals who participated in data collection from June 2012 to March 2013 at a large residential treatment facility located in the Midwestern United States. Two cases were removed from data analysis due to missing over 75% of data. Primary diagnoses of participants in this study included obsessive-compulsive disorder and eating disorders (including anorexia nervosa, bulimia nervosa, binge eating disorder, and unspecified eating disorders) Participants in the clinical sample were offered no compensation and their participation in the study was on a completely voluntary basis.

Participants in the clinical sample included 31 (30.7%) males and 70 (69.3%) females. Three (3.0%) participants reported their ethnicity as African American/Black, 92 (91.1%) as Caucasian/White, 2 (2.0%) as Hispanic/Latino, and 4 (4%) self-reported as other. Ages among those in the clinical sample ranged from 18 to 67 ($M = 25.05$, $SD = 8.09$). In regards to diagnosis, 49 (48.5%) participants had a primary diagnosis of OCD and 51 (51.5%) were diagnosed with eating disorders. Regarding level of education, 0(0%) obtained less than a high school degree, 21 (20.8%) participants obtained a high school degree, 54 (53.5%) had completed some college, 22 (21.8%) had obtained a bachelor's degree, and 4 (4.0%) participants had obtained a graduate degree.

In order to examine possible differences in levels of meaning in life between the clinical sample and the healthy control group, data on the MLQ was gathered from a nationally representative sample obtained through a large survey which was verbally administered by the Research Triangle Institute (RTI) located in Chicago, IL. The control group consisted of 2,119

participants. Of these participants, 105 cases were deleted due to missing over 75% of the data

derived from the MLQ, leaving 2014 cases left for comparison with the clinical sample.

Participants in the healthy control sample included 990 (49.2%) males and 1024 (50.8%)

females. Additionally, 162 (8.0%) participants reported their ethnicity as African

American/Black, 1559 (77.4%) as Caucasian/White, 173 (8.6%) as Hispanic/Latino, 54 (2.7%)

as two plus races or "mixed", and 66 (3.3%) self-reported as other. The average age was 50.16

years (SD = 16.60). Regarding level of education, 167 (8.3%) participants obtained less than a

high school degree, 558 (27.7%) had completed a high school degree, 596 (29.6%) completed

some college, 414 (20.6%) had obtained a bachelor's degree, and 279 (13.9%) participants had

obtained a graduate degree.

Measures

Meaning in Life Questionnaire (MLQ)

The Meaning in Life Questionnaire (Steger et al., 2006) is a 10-item self-report

questionnaire aimed at measuring both perceived meaning in life and the search for meaning in

life (see Appendix A). While respondents typically answer questions on a 7-point scale, ranging

from 1 (*absolutely untrue*) to 7 (*absolutely true*), participants in the current study answered

questions based on a 5-point scale to provide ease of verbal administration in the healthy control

group. The 5-point scale in this study will range from 1 (*strongly disagree*) to 5 (*strongly agree*).

This questionnaire consists of two subscales: Presence and Search. Items on the Presence

subscale (1, 4, 5, 6 and 9) assess the degree to which respondents perceive their lives as

meaningful (e.g., "I understand my life's meaning"). Items on the Search subscale (2, 3, 7, 8 and

10) assess the degree to which respondents are searching for meaning in their lives (e.g., "I am

searching for meaning in my life"). Scores on the original MLQ scale range from 5 to 35;

however, due changes in the Likert scale associated with the current study, scores on each scale will range from 5 to 25. Typically, negative correlations between the Presence and Search subscales have been noted (ranging from -.02to -.30 in American college populations); however, a small positive correlation between Search and Presence subscale scores (.12) was found in a sample diagnosed with psychotic disorders (Schulenberg et al., 2011).

Mean scores on the MLQ among samples of college students are typically in the low to mid 20's on both the Presence and Search subscales (Duffy & Raque-Bogdan, 2010; Kashdan & Breen, 2007; Steger et al., 2006). In adult populations (samples recruited online and smoking cessation patients), means on the Presence subscale typically ranged from the mid to high 20's (Park et al., 2010, Steger et al., 2009; Whittington & Scher, 2010). Means on the Search subscale in similar samples typically range from the low to mid 20's. Among psychotic patients in Schulenberg et al.'s (2011) clinical samples, means on the Presence subscale were in the high 20's. Finally, both Presence and Search means tend to be lower in international samples (Steger et al., 2008; Steger, Kawabata, Shimai, & Otake, 2008).

Internal consistency has been well-established for scores on the MLQ. On the Presence and the Search subscales, coefficient alphas range from the low .80's to the low .90's (Duffy & Raque-Bogdan, 2010; Kashdan & Breen, 2007; Park et al., 2010; Schulenberg et al, 2011; Steger et al., 2006; Steger & Kashdan, 2007; Steger et al., 2009; Whittington & Scher, 2010). Scores on the MLQ have demonstrated moderate stability over a 13-month period and good test-retest reliability over a 1 month period (Dik et al., 2008; Steger et al., 2006; Steger & Kashdan, 2007). Support for the validity of the MLQ is found in its relationship to alternative measures of perceived meaning including the Purpose in Life test and the Life Regard Index. As outlined previously, scores on the MLQ also correlate in the expected direction with several constructs.

For example, scores on the Presence subscale of the MLQ have been shown to correlate positively with a number of indicators of well-being including: constructive life change (Kashdan & Kane, 2011), adaptive coping skills (Park & Folkman, 1997), ability to cope with emotionally stressful situations (Ishida & Okada, 2006), self-esteem (Scannell et al., 2002), gratitude (Kashdan & Breen, 2007), and life satisfaction (Scannell et al., 2002; Steger & Kashdan, 2007; Triplett et al., 2011).

Yale-Brown Obsessive Compulsive Scale, Self-Report (Y-BOCS-SR)

To measure symptom severity among those diagnosed with OCD, participants' admission scores on the Y-BOCS-SR (Goodman et al., 1989) were obtained through records at the data collection site. The Y-BOCS-SR is a 10-item self-report questionnaire that has been used worldwide to assess the presence and severity of obsessive-compulsive symptoms. The 10 items are rated on a 5-point Likert scale. Severity of obsessions and compulsions are rated separately (5 items for each scale which measure distress, frequency, interference, symptom control, and resistance; Storch et al., 2005). After its development in 1989, the YBOCS-SR has been considered the gold standard for measurement of OCD symptoms (Storch et al., 2010). Scores for obsessions and compulsions range from 0 to 20 (maximum total score is 40). The Y-BOCS-SR displays excellent total score interrater reliability (correlations ranging from .80 to .97) and excellent two-week test-retest reliability (correlations ranging from .81 to .97.)

Eating Disorder Inventory-3 (EDI-3)

Participant admission scores on the EDI-3 were obtained from the data collection site to measure symptom severity among those diagnosed with eating disorders. The EDI-3 (Garner, 2004) is the most recent revision of a widely used self-report measure of presence and severity of thoughts, behaviors, and attitudes commonly associated with eating disorders. This inventory is a

91-item measure organized into 12 primary scales. Test-retest reliability for this scale is very high (.98) across clinical samples. Reliability across diagnostic groups is also high and ranges from .90 to .97. Correlation between conceptually related scales (i.e. Drive for Thinness and Body Dissatisfaction scales) from the EDI-3 is high, ranging from .96 to .97. Finally, scores on the EDI-3 are highly correlated with other measures of eating disordered thoughts and behaviors (Cumella, 2006).

Demographic Information

Descriptive information about the clinical sample was gathered using a form to determine demographics (see Appendix B). This form includes items to determine age, gender, race, education level, all current diagnoses of clinical disorders, and length of time since first being diagnosed with a clinical disorder. Descriptive information about the control sample including age, gender, race, and education level was collected through a demographic survey administered by Research Triangle Institute during the survey administration process.

Trauma History

Presence of trauma in this study was considered as having experienced one of the following nine incidents: 1) Death of a close loved one, 2) Very serious medical problem, 3) Close friend, significant other, or family member experience a serious medical condition, 4) Accident that led to serious injury to themselves or someone close to them, 5) Place of residence being damaged by fire or other natural causes, 6) Endured a divorce, 7) Physically or sexually assaulted, 8) Victims of a crime such as robbery or mugging and 9) Being stalked. This definition of trauma was taken directly from Triplett et al.'s (2011) research on trauma history and meaning in life in samples of college students. As a part of this survey, participants in the

clinical sample were asked to indicate frequencies pertaining to each traumatic event and note when the traumatic event occurred (see Appendix C).

Procedure

Participants in the clinical sample were recruited through in-person, individual, verbal contact from the principal investigator. Permission to do so was obtained from the clinical director and board of directors of the treatment center where data collection took place. Participation in the study was voluntary for each resident at the treatment facility and no incentive or compensation was provided. Verbal explanation of the study was provided and once verbal consent was obtained, participants received two written informed consents (see Appendix D). Participants read, signed, and returned one consent and kept the other for their personal records. Upon completion of the informed consent process, participants in the clinical sample were asked to complete surveys including the Meaning in Life Questionnaire, a survey to determine trauma history, and a form to obtain demographic information. Participants' admission scores on EDI-3 or Y-BOCS-SR were obtained through hospital records after the participant had consented and completed the surveys.

In Spring 2013, participants in the healthy control group were verbally administered the Meaning in Life Questionnaire by means of a phone interview conducted by trained members of the Research Triangle Institute. Participants were read the questions from the MLQ and asked to respond verbally. Research team members recorded answers to the individual questions on the MLQ and sent the resulting MLQ and demographic data to the researcher associated with the current study in April 2013. All procedures and methods employed in this study were approved by the Colorado State University Human Subjects Committee/Institutional Review Board.

CHAPTER III: RESULTS

Prior to running correlations or regression analyses, a confirmatory factor analysis (CFA) was performed in order to confirm the factor structure of the MLQ in both the clinical and the healthy control groups. CFA was performed as opposed to exploratory factor analysis (EFA) as it was hypothesized prior to analyses that items associated with the MLQ would load onto two factors (Presence and Search) in both samples. Extensive research has supported the two factor of the MLQ in multiple samples (Steger & Shin, 2010; Steger, Frazier, Oishi, & Kale, 2006), including clinical samples (Schulenberg et al., 2012). Assumptions of CFA include that all variables included in the analyses are measured at the continuous level (Kline, 1998). This assumption was met as both the Search and the Presence subscale associated with the Meaning in Life Questionnaire are measured continuously with scores on the Presence subscale ranging from -1 to 20 in this sample (Question 9 is reverse coded) and scores on the Search subscale ranging from 5 to 25.

In the clinical sample, all 10 items on the Meaning in Life Questionnaire loaded significantly onto their respective factors (loadings ranged from .51 to .74 on the Presence subscale and from .48 to .60 on the Search subscale). A modest to medium negative correlation between Presence and Search ($r = -.25$, $p < .05$, $d = .52$) was found which is consistent with correlations demonstrated in multiple American samples (Schulenberg et al., 2012). Goodness of fit in the clinical sample was assessed with various indices, as is widely recommended (with scores at .95 or above indicating good model fit, and scores below .90 indicating acceptable fit, per Hu & Bentler, 1999). Using these standards, examination of the Comparative Fit Index (CFI = .97) and the Bentler-Bonett index (.96) indicated good fit of MLQ's two-factor model within the clinical sample. With regard to the root-mean-square error of approximation (RMSEA),

values below .10 indicate adequate fit while values equal to or less than .05 indicating good model fit (Brown & Cudeck, 1993). The RMSEA in this sample was estimated at .07, further indicating acceptable model fit within the clinical sample.

In the healthy control group, all 10 items on the Meaning in Life Questionnaire loaded significantly onto their respective factors (loadings ranged from .54 to .75 on the Presence subscale and from .54 to .80 on the Search subscale). A small negative correlation between Presence and Search (r = -.06, $p < .01$, d = .12) was also found in this sample. Several goodness of fit indices indicated a good fit of the MLQ's two-factor model within the healthy control group (CFI = .97, Bentler-Bonett = .97). Chi-square values from both groups as well as all goodness of fit index scores are provided in Table 1.

Hypothesis 1

In order to determine whether the following demographic variables: age, gender, race, and education level (AGE, GENDER, RACE, EDUCATION) should be controlled for in the comparisons between the clinical and the control groups, a multiple regression analysis was conducted to determine whether any of these variables were significant predictors of this research question's dependent variables (PRESENCE, SEARCH). Multiple regression analyses demonstrated that both age (b = .04, $p \leq .001$) and gender (b = .44, $p \leq .05$) were significant predictors of presence of meaning in life (PRESENCE) in the healthy control group. Age and presence of meaning in life shared a significant positive relationship (r = .16, $p < .01$, d = .32) and women scored higher on presence (M = 12.99, SD = 4.87) than men (M = 12.57, SD = 4.93). Effect size for the mean differences in presence observed between men and women in the control group was minimal (d = .09). Regarding search for meaning in life (SEARCH), gender was not a significant predictor of search (b = -.19, $p > .05$). However, age was a significant

predictor of search for meaning in life in the healthy control group (b = -.06, $p \leq$ .001) and correlated negatively with search (r = -.12, $p <$ .01, d = .24). Based off of these results, age and gender were entered in as covariates when comparing mean differences in MLQ subscale scores (PRESENCE, SEARCH) between the clinical and healthy control groups.

In order to test the hypothesis that those in the clinical group would score lower on presence of meaning in life (PRESENCE) and higher on search for meaning in life (SEARCH), an analysis of covariance (ANCOVA) was conducted. The ANCOVA was chosen over t-tests or a one-way ANOVA because an ANCOVA allows the inclusion of covariates (Cochran, 1957). The independent variable present in this analysis was group condition (CLINICAL, CONTROL). The dependent variables in the first ANCOVA analysis was presence of meaning in life (PRESENCE). Search for meaning in life (SEARCH) was entered in as the dependent variable in the second ANCOVA conducted. As stated previously, both age (AGE) and gender (GENDER) were entered in as covariates in both of the ANCOVA analyses. Additionally, prior to running analyses, all assumptions for ANCOVA were met. Specifically, the homogeneity of the regression effect was evident for the covariates, and the covariates were linearly related to the dependent measure. The Holm's sequential Bonferroni procedure was used to control for Type I error across the two pairwise comparisons.

Results of the ANCOVA analysis examining levels of presence of meaning in life between groups (PRESENCE) were significant, (F (3, 2115) = 94.92, $p <$ .001; see Table 3). As predicted, after controlling for age and gender, the clinical group scored significantly lower (see Figure 1; M = 8.38, SE = .10) on the MLQ Presence subscale than the control group (M = 13.06, SE = .47). The effect size (d = .99, r = .46) was found to exceed Cohen's (1988) convention for a large effect (d = .80). Overall, the independent variable defined as group membership

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(CLINICAL, CONTROL) accounted for approximately 28% of the variance in Presence

subscale scores ($R^2 = .28$).

The ANCOVA including search for meaning in life (SEARCH) as the dependent variable

was also significant (F (3, 2115) = 26.62, $p < .001$; see Table 4). As predicted, after controlling

for age and gender, the clinical group scored significantly higher (see Figure 2; $M = 17.60$, $SE =$

.54) on the MLQ Search subscale than the control group ($M = 14.76$, $SE = .11$). The effect size

($d = .53$, $r = .25$) was found to exceed Cohen's (1988) convention for a moderate effect ($d = .50$).

Overall, group membership (CLINCAL, CONTROL) accounted for approximately 18% of the

variance in Search subscale scores ($R^2 = .18$).

Hypothesis 2

To properly conduct multiple linear regression analyses, several assumptions about the

data must be met. To test for violations of normality, each of the predictor variables included in

the regression analyses were examined separately. The distribution of scores on all three of the

independent variables (SEARCH, PRESENCE, TRAUMA) and on both of the dependent

variables which were measures of symptom severity within the clinical sample (YBOCSADM,

EDIADM) were inspected for evidence of skew and kurtosis. All variables demonstrated suitable

normality except for the frequency of trauma variable (TRAUMA), which displayed a significant

positive skew. In order to correct for this assumptive violation, TRAUMA was transformed

using a logarithm equation before it was entered into the regression analyses. This type of

transformation procedure is often recommended for the statistical investigation of positively

skewed data (Cohen, Cohen, West & Aiken, 2003; Tabachnik & Fidel, 2007).

Multiple regression also assumes the presence of linearity and homogeneity of variance

across levels of the predictor variables (homoscedasticity). To check for violations of these

assumptions, scatter plots were generated using the predicted values for all possible pairs of independent and dependent variables. Upon visual inspection of the plots, it was verified that linearity and homoscedasticity were maintained. It is important to note that, while heteroscedasticity may have been an issue prior to the logarithm transformation for frequency of trauma described earlier, the transformation successfully eliminated the heteroscedasticity of the frequency of trauma (TRAUMA) variable.

Multiple regression techniques are particularly sensitive to outliers (very high or very low scores) making it critical to check for the presence of extreme scores that may exert undue influence on the relationship between the independent and dependent variables. Outliers were located through a variety of methods. Graphic depictions of the data were generated using box-plot graphs, which are helpful in the visual detection of extreme scores. Additionally, analyses of studentized residuals, which provide a statistical representation of each case's residual error and resulting influence on the overall model, were used to supplement visual scanning of the data (Cook, 1982). Cases were identified as potentially problematic when resulting in a studentized residual exceeding +/- 2 (Belsey et al., 1980). Using this criteria, one case in the clinical sample which was associated with an outlier on frequency of trauma variable (TRAUMA) was removed.

Preliminary Analyses

Prior to conducting regression analyses, an assessment of the direction and strength of the relationship between the independent variables (SEARCH, PRESENCE, TRAUMA) and the dependent variables (YBOCSADM, EDIADM) was conducted using multiple Pearson's product moment correlation coefficients. Means, standard deviations, and intercorrelations for all independent and dependent variables are shown in Table 2. A moderate negative correlation between SEARCH and PRESENCE (r=.-25, p <.01, *d* = .52) was observed in the clinical sample.

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A moderate negative correlation between presence subscale scores (PRESENCE) and symptom severity in the eating disorder group (EDIADM) was noted (r= -.33, p < .05, $d = .70$); however, no such correlation between symptom severity and either presence of or search for meaning was noted among those in the sample who were diagnosed with OCD. Additionally, no significant correlations were observed between frequency of trauma (TRAUMA) and symptom severity as measured by the EDI-3 or the YBOCS-SR. Finally, no significant correlations were noted between frequency of trauma and either presence of or search for meaning.

Determination of Control Variables

To determine whether demographic variables including age, gender, race, or education level should be included as control variables in analyses conducted within the clinical sample, multiple regression analyses were conducted to determine whether these variables were significant predictors of either presence of or search for meaning in life (PRESENCE, SEARCH). Analyses within the clinical sample revealed no significant correlations between age, gender, race, or education and either presence of or search for meaning in life. Therefore, these variables were not controlled for in the analyses that were conducted strictly within the clinical sample.

A multiple linear regression analysis was conducted to determine the relationship between both presence of and search for meaning in life (PRESENCE, SEARCH) and symptom severity among those diagnosed with eating disorders (EDIADM) and among those diagnosed with OCD (YBOCSADM; see Table 5; Baron & Kenny, 1986). Presence of meaning in life (PRESENCE; $r = -.33$, $p < .05$, $d = .70$) was significantly negatively correlated with symptom severity among those diagnosed with eating disorders (EDIADM; Table 2). However, no significant correlation was found between presence of meaning in life (PRESENCE; $r = .24$, $p >$

.05, $d = .49$) and symptom severity among those diagnosed with OCD (YBOCSADM; Table 2).

Search for meaning in life (SEARCH) was not significantly correlated with symptom severity

among those with OCD (YBOCSADM; $r = .10$, $p > .05$, $d = .20$; Table 2) or among those with

eating disorders (EDIADM; $r = .02$, $p > .05$, $d = .04$; Table 2). Likewise, MLR analyses revealed

that presence of meaning (PRESENCE) significantly predicted symptom severity within the

eating disorder group (EDIADM; $b = -.33$, $p < .05$); however, did not predict symptom severity

within the OCD group (YBOCSADM; $b = .24$, $p > .05$). Search for meaning (SEARCH) was not

a significant predictor of symptom severity scores within the eating disorder group (EDIADM; b

$= -.10$, $p > .05$) or the OCD group (YBOCSADM; $b = -.02$, $p > .05$).

Hypothesis 3

A multiple linear regression analysis was conducted to determine the relationship

between both presence of meaning in life (PRESENCE) and search for meaning in life

(SEARCH) and number of past traumas (TRAUMA; see Table 6; Baron & Kenny, 1986).

Neither presence of meaning in life (PRESENCE; $r = -.07$, $p > .05$, $d = .14$) nor search for

meaning in life (SEARCH; $r = .11$, $p > .05$, $d = .22$) were significantly correlated to number of

past traumas (TRAUMA). Likewise, multiple regression analyses revealed that trauma history

was not a significant predictor of presence (PRESENCE; $b = -.04$, $p > .05$) or search for meaning

in life (SEARCH; $b = .10$, $p > .05$)

Hypothesis 4

In order to test the hypothesis that presence of meaning in life (PRESENCE) would

moderate the relationship between frequency of past trauma (TRAUMA) and symptom severity

among those with OCD (YBOCSADM) and eating disorders (EDIADM), a moderation model

was conducted using multiple linear regression analysis (MLR). Prior to testing a moderation

model, MLR requires that each of the continuous independent and dependent variables included in the analyses be centered at the mean (Aiken & West, 1991). Centering the variables both reduces the potential for multicollinearity and enhances the interpretability of the results (Barron & Kenny, 1986). Therefore, centered variables for each of the continuous main effect variables were created by subtracting each variable's mean from each individual observation (Cohen, Cohen, West, & Aiken, 2003).

According to the model tested, presence of meaning in life (PRESENCE) significantly predicted symptom severity in the eating disorder sample (EDIADM; b = -.33, $p \leq .05$); however, number of traumatic life events (TRAUMA) did not significantly predict symptom severity (EDIADM; b = .16, $p > .05$). Additionally, presence of meaning in life did not moderate the effect of trauma history on symptom severity in the eating disorder sample (TRAUMA*PRESENCE; b = .16, $p > .05$). Overall, the three predictors in this model accounted for approximately 18% of the variance in eating disorder symptom severity (EDIADM; R^2 = .18, p = .08).

Testing this same model among those with OCD in the clinical sample indicated that presence of meaning in life (PRESENCE) did not significantly predict symptom severity (YBOCSADM; b = .20, $p > .05$). Likewise, number of traumatic life events (TRAUMA) did not significantly predict symptom severity among those with OCD in the clinical sample (YBOCSADM; b = .08, $p > .05$). Additionally, presence of meaning in life did not moderate the effect of number of traumatic events on symptom severity among those with OCD (TRAUMA*PRESENCE; b = -.11, $p > .05$). Overall, the three predictors in this model accounted for approximately 7% of the variance in OCD symptom severity (YBOCSADM; R^2 = .07, $p > .05$). Results of the moderation analyses are presented in Table 7.

CHAPTER IV: DISCUSSION

While the human quest for meaning is an arduous journey in its own right, those struggling with mental illness may face unique challenges in the meaning-making process. The primary purpose of this research was to assess whether differences exist in levels of meaning in life between participants in a clinical sample and a healthy control group. Beyond examining possible differences between these groups, understanding what may be related to differences in levels of meaning in life was also a central aim of this study. Results add to a growing body of literature including meaning in life and posttraumatic growth research which indicate that the ability to find meaning in suffering, especially among those with mental illness, is a critical component of well-being (Fox & Leung, 2009; Linley, Joseph, & Goodfellow, 2008; Schulenberg et al., 2012).

The data from this study yielded two significant findings with implications for future research and clinical methods involving the meaning-making process. First, those with clinical disorders in this study reported significantly lower levels of presence of meaning in life and significantly higher levels of search for meaning in life. These results indicate that the struggle with mental illness may compromise or impede the natural process of meaning-making. Additionally, the importance of understanding unique factors which may lead to deficits in presence of meaning and increased levels of search for meaning among those with mental illness is crucial in understanding what therapeutic and systemic interventions may be most effective in clinical populations.

In trying to understand factors which may be related to meaning-making in clinical populations, this study explored the possibility that symptom severity and trauma history may be related to the presence of and search for meaning in life. While a significant inverse relationship

was found between eating disorder symptom severity and presence of meaning in life, no significant relationships were found between levels of meaning in life and symptom severity among those with OCD. Additionally, trauma history was not a significant predictor of symptom severity or levels of meaning in life (either search or presence) in this study. These findings are surprising given numerous studies which have demonstrated moderate to strong inverse relationships between presence of meaning in life and measures of psychological distress (Duffy & Raque-Bogdan, 2010; Park et al., 2010; Steger et al., 2009). Similar relationships between symptom severity scores were expected but not found in the clinical sample associated with the current study. Likewise, given research which links trauma history to a diminished sense of meaning in life, (Fontana & Rosenheck, 2005; Krause, 2005, 2007; Owens et al., 2009), significant relationships between trauma history and both presence of and search for meaning in life were expected but not found in the current study. Finally, as research indicates that presence of meaning in life has a protective or moderating effect between trauma history and symptom severity (Kashdan & Kane, 2011; Tedeschi et al., 2011), it was expected that the same moderating effect might be found among the clinical sample in this study; however, presence of meaning did not play such a role in this study.

While results of this study were mixed and perplexing given what the current literature in meaning-making would predict, several limitations deserve mentioning. First, due to the cross-sectional design, drawing conclusions regarding the causal direction of the relationship between the variables in this study was not possible. Furthermore, as the YBOCS-SR and EDI-3 specifically measure severity of eating disorder and obsessive-compulsive behaviors – it is possible that general subjective measures of psychological distress (i.e. measures of depression or anxiety) would have yielded results more consistent with studies which have demonstrated a

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significant relationship between meaning in life and psychological distress (Fox & Leung, 2009; Linley, Joseph, & Goodfellow, 2008; Schulenberg et al., 2012).

A significant limitation associated with the current study is the fact that the only symptom severity scores available from the clinical sample were scores at time of admission. This posed an issue as the survey packet associated with this study was completed by those in the clinical sample at varying points in their treatment. Therefore, it is possible that timing issues associated with the administration of symptom severity measures and the MLQ confounded the relationship between symptom severity and meaning in life in this study. Furthermore, the transition from outpatient to inpatient or residential care is an element associated with this sample that could also have affected results obtained from the outcome measures. Significant life changes occur upon being admitted to a residential treatment facility including intensive therapies and treatment, separation from friends and loved ones, suspension or separation from employment, the formation of new relationships with fellow residents and staff members, and implementation of a new and highly structured routine. While the symptom severity scores were gathered for participants directly upon admission, the Meaning in Life Questionnaire was administered to participants at varying points in their stay at the residential care facility. Therefore, the true relationship between symptom severity and levels of both search for and presence of meaning in life in this sample would have been more accurately reflected if the surveys had been administered at the same point in time.

Further limitations include issues with the trauma survey utilized within this study. The trauma history survey did not ask participants to rate the distress levels associated with each type of trauma they experienced. Similar to the limitations inherent in the symptom severity measures, it is possible that meaning in life may share a stronger relationship with the relative

psychological distress associated with the experience of trauma as opposed to the sheer number of traumatic events one has experienced. Finally, the clinical sample was small (101) and composed of a disproportionate number of Caucasian (91.1%) and female (69.3%) participants, thus limiting the generalizability of results to all clinical populations. Overall, it would be desirable to replicate this study within a larger, less homogenous clinical sample using general measures of psychological distress and a trauma survey that allows for the rating of distress relative to each trauma experienced.

Implications

Despite these limitations, the results of this study demonstrate a clear difference in levels of meaning in life between those with clinical disorders and those without. This is concerning as people struggling with the acute and chronic stressors associated with mental illness may be among those most in need of a strong sense that they matter and that their lives are meaningful. Furthermore, the results present an important opportunity for research to examine and understand what precisely may be impacting levels of meaning in life among those with clinical disorders and whether difficulties developing a strong sense of meaning may play a role in the development or maintenance of mental illness.

The main inquiry embedded in this study is intrinsically related to questions asked by researchers in the area of posttraumatic growth, namely: Are traumatic experiences, challenges, or mental health issues somehow at odds with having a life worth living or is it possible to thrive during or after exceptionally difficult times? (Tedeschi & Calhoun, 1995; 1996). If it is possible – how can we best help those who are suffering to persist in the knowledge that they are not determined or lessened by their traumatic experiences and their chronic or acute mental health issues? While the literature on the facilitation or enhancement of the meaning-making process is

only now beginning to develop, it is preemptive to discuss what the specific therapeutic implications associated with this study are. However, a possible critical component of applying meaning in life research to therapeutic practice is a clinician's awareness of how therapy might be used to enhance their clients' sense of meaning in life in addition to symptom remediation. This orientation naturally places the therapeutic emphasis on the client's inner resources for healing and growth rather than on viewing mental health concerns merely as glitches or faults.

Results of this study demonstrate that coping with mental illness may present unique challenges in the struggle to develop a strong sense of meaning or purpose in life. Working to understand what these unique challenges are and how they may be overcome is critical for the progression of meaning in life research and interventions. Finally, the awareness that mental health issues may motivate people to reevaluate their behaviors, relationships, and goals presents an exciting therapeutic opportunity for both clients and clinicians to wrestle with the idea that, rather than meaning-making being compromised by challenges, perhaps one might develop an enhanced sense of meaning by overcoming the challenges inherent in living with mental illness.

TABLES

Table 1.
Summary of Fit Indices for Confirmatory Factor Analyses in Clinical and Control Groups

Group (N)	χ^2	GFI	AGFI	NFI	CFI	IFI	RMSEA
Clinical (101	49.25*	0.92	0.86	0.90	0.97	0.97	0.07
Control (2014)	464.22**	0.96	0.93	0.97	0.97	0.97	0.07

Note. CFI comparative fit index; IFI incremental fit index; RMSEA root-mean-square error of approximation; GFI goodness-of-fit index; AGFI adjusted goodness-of-fit index; NFI normed fit index; * $p < .05$, ** $p < .01$

Table 2.
Variable Means, Standard Deviations, and Intercorrelations

Variables	1	2	3	4	5
1. PRESENCE	1				
2. SEARCH	-.25**	1			
3. YBOCSADM	.24	-.10	1		
4. EDIADM	-.33*	-.02		1	
5. TRAUMA	-.07	.11	.05	.19	1
M	7.60	19.0	22.47	459.08	7.37
SD	4.22	4.03	9.49	99.40	9.65

**Correlation is significant at the .01 level (2-tailed)
*Correlation is significant at the .05 level (2-tailed)

Table 3.

Analysis of Covariance Summary for levels of presence of meaning in life between clinical and control groups.

Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
Contrast	1882.87	1	1882.87	94.92**	0.04
Error	41874.13	2111	19.84		

**$p < .001$

Table 4.
Analysis of Covariance Summary for levels of search for meaning in life between clinical and control groups.

Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
Contrast	691.62	1	691.62	26.62**	0.01
Error	54850.46	2111	25.98		

**$p < .001$

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Table 5.
Multiple regression analyses regarding meaning in life and symptom severity.

	B	SE (B)	t	p
Symptom severity within eating disorder group				
Presence	-.33	2.57	-2.16	$\leq .05$
Search	-.02	3.03	-.12	$> .05$
Symptom severity within OCD group				
Presence	.24	.34	1.56	$> .05$
Search	-.10	.37	-.66	$> .05$

Note. For presence, $R^2 = .11$ in predicting eating disorder symptom severity and .06 in predicting OCD symptom severity. For search, $R^2 = .00$ in predicting eating disorder symptom severity and .01 in predicting OCD symptom severity, $n = 101$.

Table 6.

Multiple regression analyses regarding trauma history and meaning in life.

	B	SE (B)	t	p
Trauma history within clinical group				
Presence	-.07	.98	-.68	> .05
Search	.11	.93	1.11	> .05

Note. For trauma history (frequency of past trauma), $R^2 = .01$ in predicting presence of meaning in life and .01 in predicting search for meaning in life.

Table 7.

Multiple regression analyses to determine whether presence of meaning in life moderates the relationship between trauma history and symptom severity.

	B	*SE (B)*	*t*	*p*
Predicting symptom severity of eating disorder group				
Trauma	.16	24.37	.98	>.05
Presence	-.32	2.59	-2.05	≤ .05
Trauma x Presence	.16	5.93	.99	>.05
Predicting symptom severity of OCD group				
Trauma	.08	3.64	.48	> .05
Presence	.20	.39	1.12	> .05
Trauma x Presence	-.11	.91	-.66	> .05

Note. R^2 = .18 for moderation analyses conducted within the eating disorder group and .07 within the OCD group.
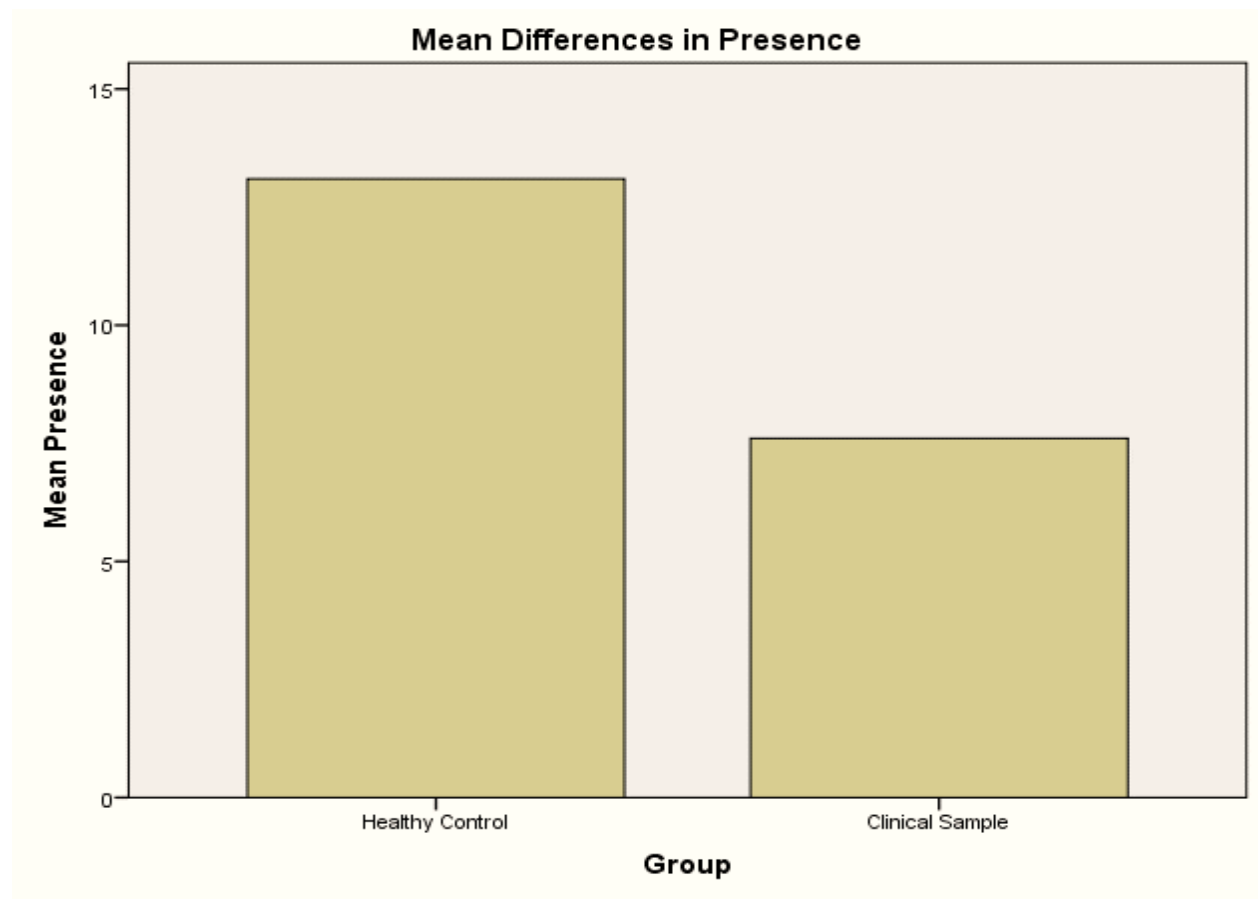
Figure 1. *The clinical group scored significantly lower on the MLQ Presence subscale than the healthy control group.*
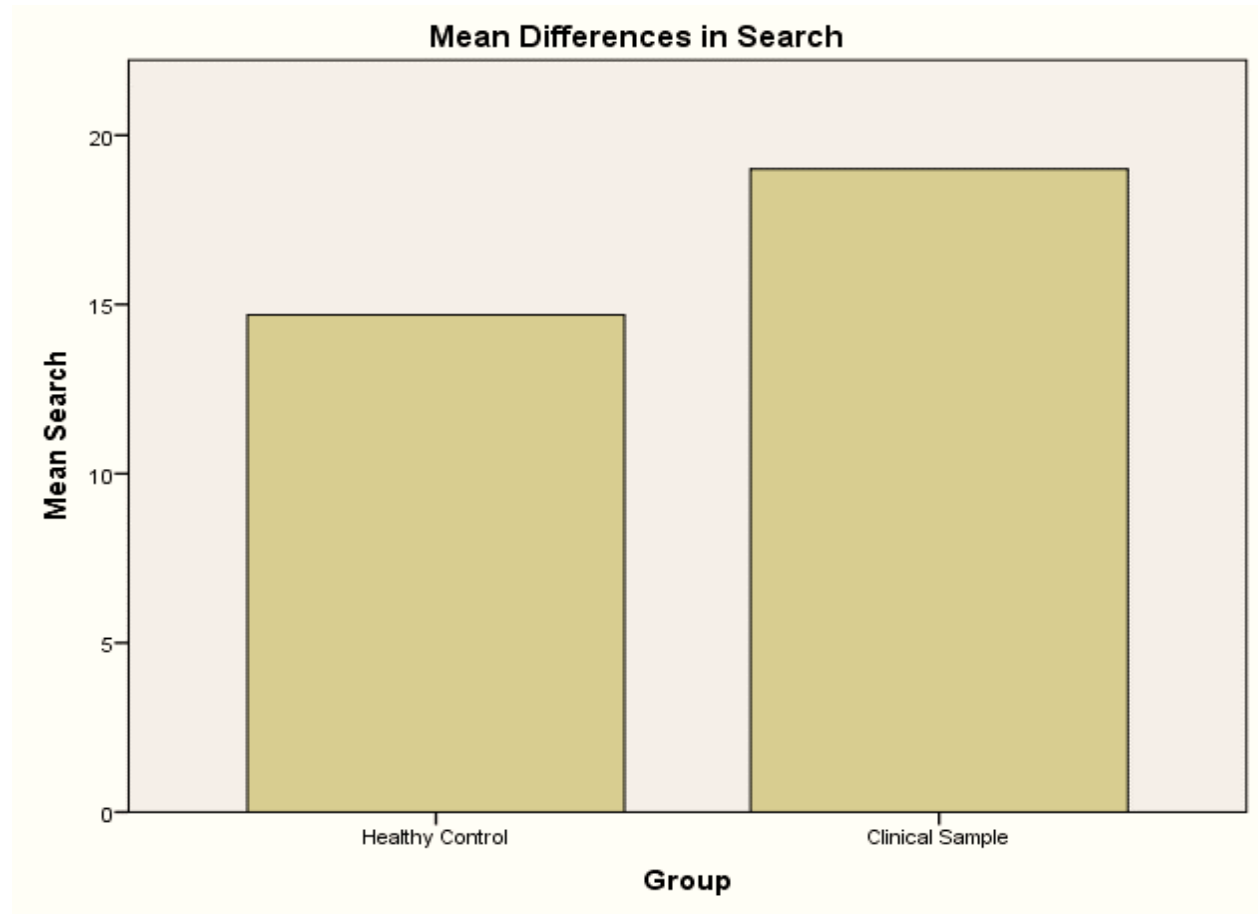
Figure 2. *The clinical group scored significantly higher on the MLQ Search subscale than the healthy control group.*

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Meaning in Life Questionnaire

MLQ - Please take a moment to think about what makes your life feel important to you. Please respond to the following statements as truthfully and accurately as you can, and also please remember that these are very subjective questions and that there are no right or wrong answers. Please answer according to the scale below:

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

1. _____ I understand my life's meaning.
2. _____ I am looking for something that makes my life feel meaningful.
3. _____ I am always looking to find my life's purpose.
4. _____ My life has a clear sense of purpose.
5. _____ I have a good sense of what makes my life meaningful.
6. _____ I have discovered a satisfying life purpose.
7. _____ I am always searching for something that makes my life feel significant.
8. _____ I am seeking a purpose or mission for my life.
9. _____ My life has no clear purpose.
10. _____ I am searching for meaning in my life.

APPENDIX B

1) **What is your age?** ___ years old

2) **What is your gender?** (please choose one)
   ___ Male
   ___ Female

3) **What race/ethnicity do you identify with the most?** (please choose one)
   ___ African American/Black
   ___ Alaska Native
   ___ American Indian/Native American
   ___ Asian American
   ___ Caucasian/White
   ___ Hawaiian/Pacific Islander
   ___ Latino or Hispanic
   ___ Middle Eastern American
   ___ Other (Please specify: _____)

4) **What is the highest level of education you have obtained?**
   ___ Grade school
   ___ High school
   ___ Some college
   ___ Bachelor's degree
   ___ Master's degree
   ___ PhD

5) **If known, please report all current diagnoses of clinical disorders.** (Please skip this question if you do not wish to respond).

   Diagnoses: _____

6) **At what age were you first diagnosed with OCD/eating disorder?** _____ years old

Have you ever experienced any of the following events? (Check all that apply)

Death of a close loved one _____

If yes, how many times have you experienced this? _____
When was your most recent experience of this event (month/year)? _____

Very serious medical problem _____

If yes, how many times have you experienced this? _____
When was the most recent experience of this event (month/year)? _____

Close friend, significant other, or family member experience a serious medical condition ____

If yes, how many times have you experienced this? _____
When was your most recent experience of this event (month/year)? _____

Accident that led to serious injury to yourself or someone close to you _____

If yes, how many times have you experienced this? _____
When was your most recent experience of this event (month/year)? _____

Place of residence being damaged by fire or other natural causes _____

If yes, how many times have you experienced this? _____
When was your most recent experience of this event (month/year)? _____

Endured a divorce _____

If yes, how many times have you experienced this? _____
When was your most recent experience of this event (month/year)? _____

Physically or sexually assaulted _____

If yes, how many times have you experienced this? _____
When was your most recent experience of this event (month/year)? _____

Victim of a crime such as robbery or mugging _____

If yes, how many times have you experienced this? _____
When was your most recent experience of this event (month/year)? _____

Being stalked _____

If yes, how many times have you experienced this? _____
When was your most recent experience of this event (month/year)? _____

APPENDIX D

Consent to Participate in a Research Study
Colorado State University

Trauma, Symptom Severity, and Meaning in Life

PRINCIPAL INVESTIGATOR: Dr. Michael F. Steger, Department of Psychology, PhD in Counseling and Personality Psychology, Contact Information: michael.f.steger@colostate.edu

CO-PRINCIPAL INVESTIGATOR: Jennifer D. Barenz, Department of Psychology, 2nd year student in Counseling Psychology PhD program at Colorado State University, Contact Information: jennifer.barenz@gmail.com

RESEARCH ASSISTANT: Olivia Bruss, Employee at Rogers Memorial Hospital, 2nd year student in the Social Work Master's program at UW Milwaukee

WHY AM I BEING INVITED TO TAKE PART IN THIS RESEARCH? You are being invited to take part in this research due to your completion of residential or outpatient treatment for OCD or eating disorders at Rogers Memorial Hospital

WHO IS DOING THE STUDY? Dr. Michael Steger and I are completing this study as part of my thesis conducted at Colorado State University. Olivia Bruss is serving as our research assistant for this project.

WHAT IS THE PURPOSE OF THIS STUDY? The purpose of this study is to discover factors which might influence meaning in life among those with clinical disorders. Also, we want to discover whether any possible differences in meaning in life between those with and without clinical disorders.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST? The study will occur at the place you are receiving psychological care (on sight at Rogers Memorial Hospital). It should only take you between 15 and 20 minutes to fill out the surveys.

WHAT WILL I BE ASKED TO DO? You will be asked to fill out several surveys as part of this study: a meaning in life survey, a survey to obtain general information about you as a person (i.e. age, gender, ect…), a survey determining whether you have ever experienced a traumatic or life-changing event, and two surveys regarding emotion. You will also be asked to answer one question regarding how you feel having a disorder has shaped your sense of meaning in life. Finally, researchers at Rogers Memorial Hospital will release your most recent score on the Eating Disorder Inventory-3 and/or YBOCS-SR to either Olivia Bruss or I (Jennifer Barenz) as part of your participation in this study.

ARE THERE REASONS WHY I SHOULD NOT TAKE PART IN THIS STUDY? You should not take this study if you are under the age of 18 years old.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?
➤ There are no known potential physical or psychological risks associated with participating in this study.
➤ It is not possible to identify all potential risks in research procedures, but the researcher(s) have taken reasonable safeguards to minimize any known and potential, but unknown, risks.

ARE THERE ANY BENEFITS FROM TAKING PART IN THIS STUDY? Completing this study may help you discover more about your own perception of meaning in life. This study may benefit individuals in the future. Once we know more about meaning in life among those with clinical disorders, interventions for increasing meaning in life among clinical samples may be developed.

DO I HAVE TO TAKE PART IN THE STUDY? Please note that you participation in this study is not required as part of your treatment at Rogers Memorial Hospital. You are in no way expected to complete this study. Therefore, your participation in this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.

WHO WILL SEE THE INFORMATION THAT I GIVE? We will keep private all research records that identify you, to the extent allowed by law.

Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is. For example, your name will be kept separate from your research records and these two things will be stored in different places under lock and key. Once we link your survey data to your most recent symptom severity score (recorded at Rogers Memorial Hospital), we will delete your name.

WILL I RECEIVE ANY COMPENSATION FOR TAKING PART IN THIS STUDY? You will not receive any compensation for taking part in this study.

WHAT IF I HAVE QUESTIONS? Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions about the study, you can contact the investigator, Jennifer D. Barenz at jennifer.barenz@gmail.com. If you have any questions about your rights as a volunteer in this research, contact Janell Barker, Human Research Administrator at 970-491-1655. We will give you a copy of this consent form to take with you.

This consent form was approved by the CSU Institutional Review Board for the protection of human subjects in research on June 5, 2012.

Your signature acknowledges that you have read the information stated and willingly sign this consent form. Your signature also acknowledges that you have received, on the date signed, a copy of this document containing two pages.

_____   _____
Signature of person agreeing to take part in the study   Date

_____
Printed name of person agreeing to take part in the study

_____   _____
Name of person providing information to participant   Date

_____
Signature of Research Staff