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## The Benefits of Yoga on Eating Disorder Recovery: Perspectives from Those in Recovery

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GRSW 682

The Benefits of Yoga on Eating Disorder Recovery: Perspectives from Those in  
Recovery

MSW Clinical Research Paper  
Submitted by Jennifer Grant  
May, 2012

MSW Clinical Research Paper

The Clinical Research Project is a graduation requirement for MSW students at St. Catherine University/University of St. Thomas School of Social Work in St. Paul, Minnesota and is conducted within a nine-month time frame to demonstrate facility with basic social research methods. Students must independently conceptualize a research problem, formulate a research design that is approved by a research committee and the university Institutional Review Board, implement the project, and publicly present their findings. This project is neither a Master's thesis nor a dissertation.

School of Social Work  
St. Catherine University and the University of St. Thomas

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## **i. ABSTRACT**

This study is aimed at gaining a better understanding of the perceived benefits of yoga to eating disorder recovery through the subjective experiences of those in recovery. Qualitative interviews with seven women in recovery from eating disorders who regularly practice yoga were used to identify the specific ways in which yoga contributed to the recovery process. Findings indicated that the perceived benefits of yoga to eating disorder recovery include improved mind-body awareness, greater self-acceptance and more positive feelings about body image. Respondents also indicated that the practice of yoga can be a spiritual experience and a vehicle through which to develop a sense of calmness that helps to buffer the stress of everyday life. Implications for social work practice and future research are provided.

## **ii. ACKNOWLEDGEMENTS**

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## Introduction

It is estimated that as many as 24 million individuals in the United States suffer from eating disorders (Renfrew Center, 2003). Clinicians treating these individuals are faced with the challenge of addressing co-occurring mood disorders that are characteristic of this population, as well as the chronic lack of body awareness that results from the prolonged denial of body signals, such as hunger (Hudson et.al, 2007; Dale, et al, 2009). In recent years, yoga has gained popularity as a complement to other eating disorder treatment modalities as a way to facilitate greater body awareness and help in the development of self-soothing and relaxation techniques (Douglass, 2011). Studies on the use of yoga as a therapeutic tool for eating disorder recovery, however, are scarce. Further, very few studies explore the subjective experience of those with eating disorders concerning their perceptions about the effects of yoga on their recovery. A greater understanding of the specific elements of yoga that may have a positive impact on eating disorder recovery, from the perspective of those in recovery, will help expand the knowledge base about the use of yoga as a treatment modality in a meaningful way.

Approximately 95% of those who struggle with eating disorders, including anorexia, bulimia and binge eating disorder, are females between the ages of 12 and 25 (Renfrew Center, 2003). Although the symptomology varies with each disorder, a growing body of research indicates that they all may play an important role in the regulation of emotional states (Fox & Harrison, 2008; Cooper, 2004). A number of clinical studies suggest that eating disordered behaviors are utilized in order to cope with painful emotions that can't be expressed directly, such as anger and disgust (Fox & Harrison, 2008; Geller, Cockell & Goldner, 2000). Other studies link the presence of negative emotions, particularly those related to dissatisfaction with body shape or weight, in the development and maintenance of eating disordered behavior (Killen

et al, 1994; Stice, 2001). Additionally, there is a strong correlation between eating disorders and co-existing mental health issues, the most common of which are anxiety and depression (Hoek, 2007; Hudson, Hiripi, Pope & Kessler, 2007).

The practice of yoga promotes body awareness, or the in-the-moment experience of physical and emotional states, that is often lost among those suffering from eating disorders (Douglass, 2009). The manipulation of appetite, through activities such as food restriction and bingeing and purging, to quell emotional disturbance has the long-term consequence of a decreased capacity for attunement with the body's cues for physical states such as hunger and fatigue (Spoor, Bekker, Van Heck, Croon & Strien, 2005). Further, when self-destructive eating behaviors are utilized for emotional self-regulation, they can ultimately lead to a lack of awareness of emotional states through the practice of suppression and avoidance (Fox & Power, 2009). This disconnection from physical and emotional experience, referred to as poor interoceptive awareness, may be exacerbated by a disproportionate amount of energy spent in pursuit of a physical ideal among those with active eating disorders (Frederickson & Roberts, 1997). Given this clinical backdrop, the practice of yoga, with its focus on the mind-body connection, holds merit as a component of eating disorder treatment.

A review of the literature on the use of yoga as a therapeutic tool uncovered numerous studies indicating yoga's effectiveness in reducing symptoms of clinical depression (Pilkington, Kirkwood, Rampes & Richardson, 2005). Additionally, the regular practice of yoga has been demonstrated to reduce anxiety and stress (Brown & Gerbarg, 2005; Granath, Ingvarsson, von Thiele & Lundberg, 2005).

The relatively few studies on the efficacy of yoga in the treatment of eating disorders indicate that there may be a positive connection between yoga practice and reduction in eating disorder symptomology. One study, for example, indicates that yoga's focus on responding to body signals can help reduce the experience of self-objectification and lead to a reduction in eating disordered attitudes (Daubenmier, 2005). Another study links the practice of yoga with a decrease in eating disorder symptoms and levels of food preoccupation (Carei, Fyfe-Johnson, Breuner & Brown, 2009). With little qualitative research on the individual experience of yoga practice, however, the clinical knowledge base lacks subjective detail that can enrich our understanding of the potential of this intervention.

The aim of this study is to gain a better understanding of the impact of yoga on eating disorder recovery, through the eyes of those who incorporate this practice in their recovery process. Through semi-structured interviews, this study will utilize a qualitative approach to address the following research question: What are the benefits of yoga to eating disorder recovery, from the perspective of those in recovery?

## **Review of the Literature**

The literature review that follows will focus on three areas: (1) clinical research on the use of eating disordered behaviors to regulate affect and the resulting impact on mind-body awareness; (2) the use of yoga in the treatment of mood disorders; and (3) the effectiveness of yoga as a component of eating disorder treatment.

### **Eating disorders and affect regulation**

Considerable research supports the conceptualization of eating disordered behavior as a mechanism through which to manage negative emotional states. In one well-referenced theoretical construct termed Escape Theory, Heatherton & Baumeister (1991) suggest that binge eating (including patterns with purging features) represents an attempt to remove oneself from the painful state of negative self-awareness. In their study, the authors review existing literature linking characteristics of binge eaters to elements of escape theory, including: comparison of self with high standards; significant negative self-awareness and negative affect; a shift in cognition to limit thinking to the present moment; the relaxation of inhibitions; and the presence of irrational beliefs (Heatherton & Baumeister, 1991). Their application of escape theory to binge eating patterns is supported by clinical research, in particular, high levels of negative self-awareness (Cash & Brown, 1987; Garner, Garfinkel & Bonato, 1987) and negative affect (Strober & Humphrey, 1987; Gross & Rosen, 1988) among binge eaters and lowered inhibitions which facilitate eating binges (Herman & Polivy, 1980; Spencer & Fremouw, 1979). As the authors note, however, an inherent drawback of their study is the retroactive application of escape theory to previous research. Additionally, it remains unclear whether binge eating is the catalyst for reduced self-awareness that permits the emotional escape, or whether reduced self-awareness is what prompts the binge eating process (Heatherton & Baumeister, 1991).

Similarly, Cooper Wells and Todd (2004) developed a cognitive model to describe bulimic behavior. Based on escape theory (Heatherton & Baumeister, 1991) and other related literature that connects disordered eating to the management of negative affect, these authors suggest that a binge eating episode is preceded by negative beliefs about the self, which could be related to body shape or weight, a perceived personal shortcoming, or a perceived negative event. The negative beliefs, in turn, trigger negative emotional states, which create discomfort. In this state, the bulimic develops conflicting feelings about an eating binge: on the one hand, it is what is known to provide relief from negative emotional states; on the other hand, it perpetuates new negative feelings about the self, related to the consequences of the binge. Ultimately, the authors argue, the bulimic develops an alternative thought, that their eating is out of their control, to allow the binge episode to take place (Cooper, Wells & Todd, 2004). A number of clinical studies support these theories on the connection between disordered eating and affect regulation, particularly in the suppression of emotion.

For example, Corstorphine, Mountford, Tomlinson, Waller & Meyer (2005) examined specific ways in which those with eating disorders experience difficulty with distress tolerance in order to better inform therapeutic interventions. They compared a group of 72 women who met criteria for an eating disorder with 62 women with no eating disorder history, in their responses to a Distress Tolerance Scale, which grouped emotional coping strategies into three categories: anticipate and distract; avoidance of affect; and accepting and managing emotion. Results indicated a statistically significant connection ( $p < .001$ ) between the eating disordered group and the “avoidance of affect” scale. In contrast, the non-eating disorder group demonstrated statistically significant ( $p < .026$ ) scores on the “accept and manage” scale. Thus, avoidance

emerged as a specific way in which those with eating disorders cope with difficult emotions (Corstorphine et. al, 2005).

Other research has been directed at uncovering specific emotional states that may be suppressed through eating disordered behavior. For example, Geller, Cockell & Goldner (2000) examined the role of anger suppression in anorexic symptomology. Using a quasi-experimental, quantitative research design, their study compared a group of 21 women with anorexia, 21 women with various psychiatric disorders and a control group of 21 women with no mental health diagnoses on a variety of established scales, including the Silencing Self Scale (STSS) and the State-Trait Anger Expression Inventory (STAXI). The findings demonstrated a statistically significant association ( $p < .001$ ) between the anorexic women and the suppression of anger. Additionally, there was a significant connection ( $p < .001$ ) between the anorexic group and the reported avoidance of self-expression to preserve relationships. One limitation of this study is the fact that the psychiatric control group was less symptomatic than the eating disordered group in measures related to depression and self-esteem, which may have influenced outcome measures. In another study, Fox & Harrison (2008) investigated the presence of anger and its relationship to the experience of disgust among a group of 25 bulimics, as compared with a control group of 25 without eating disorder behaviors. Like the Geller et. al (2005) study mentioned above, this study was quantitative and quasi-experimental in nature and the STAXI scale was used to measure the experience of anger in both groups of participants. Results indicated that the eating disorder group had significantly higher levels ( $p < .05$ ) of state anger than the control group, following the recollection of a recent event that made them feel angry. Further, the bulimic group demonstrated a greater tendency to suppress feelings of anger. Thus, this study suggests that not only do bulimics experience anger with greater intensity, they are much more likely to

suppress direct expression of this emotion. It is important to note that differences in baseline scores on depression and self-esteem scores between the anorexic group and control group in this study may have impacted outcome measures. Additionally, small sample size is a limitation in the three studies discussed above.

In yet another study, Fox (2009), took a qualitative approach to examining attitudes towards the expression of emotion among a group of anorexic women in both inpatient and outpatient treatment settings. In this study, 11 participants were interviewed about their level of understanding of emotional states and patterns of emotional expression. Among the themes that emerged through the data analysis were the perception of anger and sadness as “toxic” emotions to be avoided, both through internal experience and external expression, and the use of food restriction specifically to dull the power of these painful emotional states (Fox, 2009). The small sample size, recruited from a single location, is a key limitation of this study.

A related body of research suggests that difficulty regulating negative affect directly related to body dissatisfaction may have a causal relationship in eating disordered behavior. Sim & Zeman (2005) investigated whether difficulty regulating negative emotions related to body dissatisfaction led to bulimic behavior in girls. In their quantitative study, a total of 234 girls in grades six through eight were administered a series of standard questionnaires to measure body dissatisfaction, bulimic symptoms, negative affect, emotional awareness and emotional coping skills. Results indicated statistically significant connections ( $p < .0001$ ) between body dissatisfaction and negative emotionality, poor emotional awareness and limited skills for coping with negative emotion states. Additionally, there was a statistically significant correlation ( $p < .0001$ ) between negative emotional states and bulimic behavior. Finally, negative affect, lack of emotional awareness and poor emotional coping skills were found to partially mediate the

relationship between body dissatisfaction and bulimic behavior (Sim & Zeman, 2005). Importantly, this study was the first to demonstrate that lack of awareness of emotional states may contribute to eating disordered behavior (Sim & Zeman, 2005). In another study, Downey & Chang (2007) explored the relationship between body dissatisfaction, specifically related to internal and external standards of perfection, and negative affect in the development of bulimic symptoms among women. In a cross-sectional design, a total of 307 college females completed a series of questionnaires, including scales within the Multidimensional Perfectionism Scale, the Body Area Satisfaction Scale, the Negative Affect Scale and the Bulimia Scale of the Eating Disorders Inventory. Results indicated that, within the group of women who had average levels of body dissatisfaction, negative affect played a significant mediating role ( $p < .001$ ) between external, or socially dictated, standards of perfection and bulimic symptoms. Although the descriptive nature of this study limits the exploration of the cause-effect relationships, it does suggest that bulimic symptoms may develop in order to cope with negative feelings related to body image (Downey & Chang, 2007).

The theoretical underpinnings of the use of eating disordered behavior as a tool to regulate affect are well-supported in the research literature. Additionally, research in this area has prompted clinical research focused on disturbances in the mind-body connection that result from active engagement in eating disorders. Understanding the relationship between eating disorder symptomology and diminished mind-body, or interoceptive, awareness is essential to evaluating the benefits of mind-body practices, such as yoga, in eating disorder treatment. Following is a discussion of the literature that examines the impact of eating disordered behavior on the experience of the physical and emotional self.

## **Eating Disorders and Interoceptive Awareness**

Interoceptive awareness has been described as the capacity to understand and identify basic body signals, such as hunger and fullness, emotional states, and to differentiate between emotional and physical experiences (Brown, Smith & Craighead, 2010). Within the eating disordered population, repeated avoidance of emotional discomfort through eating disordered behavior may interfere with the ability to clearly identify emotional and physical states, thus leading to a reduction in interoceptive capacities (Fox & Power, 2009; Spoor, Bekker, Van Heck, Croon & Van Strien, 2005).

Several studies indicate that poor interoceptive awareness is characteristic of those with eating disorders. Spoor, et. al (2005) explored the connection between appearance focus and eating disorder behaviors with inner body awareness by comparing an eating disordered group with a randomized control sample of women. A total of 118 women with active eating disorders, including anorexia, bulimia and binge eating disorder and 373 randomly selected women completed standard questionnaires measuring appearance orientation, eating disorder symptoms, internal body awareness and somatization. Results demonstrated that, while there was not a strong relationship between appearance orientation and body awareness among the eating disorder group, there was a statistically significant connection ( $p < .0001$ ) between eating disorder symptoms and the inability to anticipate and notice body signals, as compared with the general population sample. As the authors point out, a key limitation of this study was the use of self-report questionnaires, which don't allow for direct observation or control for the tendency among those with eating disorders to minimize symptomology (Spoor et. al, 2005). However, the statistically significant relationship between eating disordered behavior and lack of awareness of basic body signals suggests a separation between body and mind within this population.

Another study investigated levels of interoceptive sensitivity, or the ability to accurately perceive a variety of bodily signals, among anorexics (Pollatos, Kruz, Albrecht, Schreder, Kleeman, Schopf, et al., 2008). Using a quantitative, experimental design, a group of 28 anorexic females and a control group of 28 healthy females were given a “heartbeat perception task,” an established measure of autonomic awareness, in which they were asked to count their own heartbeats for an interval of time. Participants also completed several questionnaires to measure depression and anxiety levels. After controlling for anxiety and depression, results demonstrated a statistically significant correlation between the anorexic group and poor interoceptive sensitivity ( $p < .01$ ) and a statistically significant difference ( $p < .05$ ) in interoceptive sensitivity between the control group and the anorexic group. Further, there was a significant relationship ( $p < .001$ ) between the anorexic group and poor interoceptive awareness, which was also significantly correlated with depression ( $p < .001$ ) and anxiety ( $p < .001$ ). Based on these results, the authors suggest that anorexics may have a limited capacity to accurately perceive a wide range of body signals, including hunger, fullness and fatigue, as well as a diminished ability to identify and describe emotional states (Pollatos, et. al, 2008). It is important to note, as the authors point out, that study results may have been impacted by participants’ expectations about their heart rates.

In contrast, Merwin, Zucker, Lacy & Elliott (2010) suggest that interoceptive awareness deficiencies among those with eating disorders are related to non-acceptance of emotional states, rather than lack of awareness about these emotional states. Using a cross-sectional research design, the authors administered self-report questionnaires, including the Eating Disorder Examination (EDE-Q) the Eating Disorder Inventory (EDI-3) and the Difficulties in Emotion Regulation Scale (DERS) to 50 women participating in an outpatient eating disorder treatment

program. The study found that the Non-Acceptance of Emotional Response sub-scale within the DERS was significantly related to dietary restraint ( $p < .025$ ), while the Lack of Clarity subscale did not have a significant relationship to restricted eating. Interestingly, neither non-acceptance nor lack of clarity was significantly related to binge eating (Merwin, et. al, 2010). One key limitation of this study is the use self-report questionnaires, which measure attitudes rather than actual behaviors. However, the results suggest that the active avoidance of unpleasant feelings is more closely tied to eating disordered behavior than is lack of awareness about feeling states.

In contrast, Brown, Smith & Craighead (2010) found that appetite awareness was more directly related to binge eating behavior than emotional awareness. Using an experimental research design, 68 undergraduate and graduate students who had enrolled in a five-week outpatient eating disorders prevention program, were randomly assigned to receive treatment or to a waitlist control group. The experimental group attended five weekly group sessions, the first three weeks of which focused on healthy eating and how to recognize hunger and fullness. Week four focused on recognizing and coping with emotional states that trigger unhealthy eating patterns. At the end of the five week period, the baseline and post-test scores of self-report questionnaires, including the Introceptive Awareness Questionnaire (IAQ-E), were compared and analyzed. Results indicated that treatment participants experienced a significant improvement in appetite awareness ( $p < .001$ ) versus the control group, which, in turn, had a significant relationship to a reduction in binge-eating behaviors and beliefs ( $p < .05$ ) and an increase in eating self-efficacy ( $p < .05$ ). Emotional awareness, on the other hand, did not change significantly from baseline levels in either group. It is important to note, as the authors indicate, that emotional awareness was not discussed within treatment until the fourth week, which may

not have provide sufficient time for participants to realize changes in emotional awareness (Brown et. al, 2010).

Based on this research documenting the interplay between diminished awareness of emotional and physical signals and eating disordered behavior, the practice of yoga, with an emphasis on cultivating mind-body awareness, may offer an effective component in the treatment of eating disorders. Following is a review of the literature discussing yoga's impact on the mood disorders that are most common within the eating disordered population, as well as research examining yoga's impact within eating disordered populations.

### **The Impact of Yoga on Depression and Anxiety**

While there are many styles of yoga, many of them share an emphasis on breathing, postures and meditation as a way to enhance mind-body awareness and promote mental and physical health (Riley, 2004). A number of studies indicate that practice of yoga may be effective in managing symptoms of anxiety and depression, which frequently co-occur among individuals suffering from eating disorders (Shapiro, Cook, Davydov, Ottaviani, Leuchter & Abrams, 2007; Kozasa et. al, 2008). However, variation in research design makes direct comparison between studies difficult. For example, in a meta-analysis of research on the use of yoga in treating depression, Plkington, Kirkwood, Rampes & Richardson (2005) found that, among the five randomized clinical studies that reported the positive impact of yoga in the reduction of depression symptoms, there was a lack of consistency in measured levels of depression among participants, missing details in methodology descriptions and differences in length and type of intervention used.

Study limitations aside, research suggests that yoga may be a promising component in the treatment of mood disorders. For example, in one study involving 17 males and females diagnosed with major depression in partial remission, participants completed a total of 20 Iyengar yoga classes, involving various sitting and standing poses, breathing exercises and relaxation techniques, over an eight week period (Shapiro, et. al, 2007). At the time of intake and post-intervention, participants completed several standard personality tests, such as the Hamilton Depression Scale (HAM-D) and the Spielberger State Trait Anxiety Inventory (STAI). Additionally, before and after each class, participants completed a self-report mood scale, grouped in categories of positive, negative and energy-arousing. Results demonstrated significant reductions ( $p < .001$ ) in both HAM-D scores and STAI scores ( $p < .05$ ) for all 17 participants. Additionally, among all participants, there was a significant increase in self-reported positive mood and energy-arousing mood scores, as well as a significant decrease in negative mood scores ( $p < .0001$ ) immediately after each yoga class. Interestingly, the average levels of the “happy” mood increased significantly ( $p < .03$ ) over the course of the eight weeks. As the authors note, lack of a control group in this study limits the consideration of outside factors on mood changes among participants. Additionally, self-report mood scores may be influenced by a sense of expectation among participants (Shapiro et. al, 2007).

In a similar study, Woolery, Myers, Sternlieb & Zeltzer (2004) explored the effectiveness of yoga as a treatment for mild depression. A total of 28 individuals, the majority of whom were female, between the ages of 18 and 29 and experiencing mild depression, were randomly assigned to either a 5-week course of Iyengar yoga or to a wait list control group. All participants completed the Beck Depression Inventory (BDI), the STAI and the Profile of Mood States (POMS) pre-intervention, at the mid-point of intervention and following the intervention.

Findings included significant decreases in depression levels among the yoga participants ( $p < .001$ ), but not the control group, after the five-week period. Additionally, the yoga group experienced a significant reduction in trait anxiety ( $p < .001$ ) that was not found in the control group post-intervention. While the validity of this study is enhanced by random assignment of participants, the use of a wait-list control prevents the elimination of expectation among participants as a factor in the results. In yet another study, Kozasa et. al (2008) tested the effectiveness of Siddha Samadhi Yoga, which involves rotating sequences of meditation and yogic-style breathing exercises, in alleviating symptoms of depression and anxiety. This study included 22 volunteer participants, 20 women and two men, who reported symptoms of anxiety and who had no previous experience with yoga. A total of 14 participants were randomly assigned to a two-week yoga intervention, and eight were assigned to a wait list control group. All participants completed the Spielberger State-Trait Anxiety Inventory and the Beck Depression Inventory before the yoga intervention and one month after the completion of the intervention. The yoga group demonstrated statistically significant reductions in state anxiety ( $p < .02$ ), trait anxiety (.001) and depression ( $p < .01$ ) symptoms as compared to the control group. There are a number of limitations to this study, including no discussion of differences in pre-intervention depression and anxiety levels among participants, a small sample size and the inability to rule out other factors that may have contributed to reductions in anxiety and depression symptoms at the one-month follow up point.

In contrast, Javnbakht, Kenari & Ghasemi (2008), found that an Ashtanga yoga intervention was more effective in reducing symptoms of anxiety than depression. In their study, 65 women without psychological disorders who were referred to a women's yoga clinic were randomly assigned to either a two month Ashtanga (Iyengar Method) yoga intervention of two,

90-minute classes per week or to a wait list control group. All participants completed the Beck Depression Inventory (BDI) and the Spielberger State Trait Anxiety Inventory questionnaires before and after the yoga intervention. Notably, there were not significant differences in levels of depression or anxiety between the two groups prior to the intervention. At the conclusion of the yoga intervention, there was a statistically significant decrease in state anxiety ( $p < .03$ ) and trait anxiety scores ( $p < .001$ ) in the yoga group as compared to the control group. However, changes in the level of depression were not significant in either group after the completion of the yoga intervention.

In another study, Streeter et. al (2010) sought to compare the effects of yoga versus a walking intervention on mood, anxiety and brain levels of GABA. In this case, a total of 34 participants without diagnosed mood disorders and without a history of participation in mind-body exercises, were randomly assigned to either a 12-week yoga or walking intervention, each taking place for 60 minutes, three times per week. Several psychological scales, including the Exercise-Induced Feeling Inventory (EIFI) and the Spielberger State-Trait Anxiety Scale (STAI) were used to measure changes in mood and anxiety at baseline, at regular intervals during the intervention and following the intervention. Results indicated that the yoga group experienced significant increases in positive mood categories of “revitalization” ( $p < .001$ ) and “tranquility” ( $p < .002$ ) versus the control group and a significant reduction in anxiety among the yoga group ( $p < .04$ ) versus the walking group. Interestingly, the study also found a significant positive relationship between increased “revitalization” and “tranquility” scores and levels of thalamic GABA ( $p < .001$  and  $p < .03$ , respectively), which has been shown to be diminished among individuals suffering from mood and anxiety disorders (Streeter et. al, 2010). The randomized

comparison of yoga with an alternative exercise in this study lends support to yoga's effectiveness in improving mood.

These studies indicate yoga's possible effectiveness in helping to alleviate symptoms of depression and anxiety, both of which often go hand-in-hand with eating disorders. Positive results in this area of research, combined with yoga's focus on mind-body awareness, suggest that yoga may be an effective component of eating disorder treatment.

### **Yoga as an Intervention in the Treatment of Eating Disorders**

Yoga has been adopted as a complement to more traditional eating disorder treatment models based, in large part, on studies that link the practice of yoga to reduced symptoms of anxiety and depression and a focus on mind-body awareness that is often lacking among those actively engaged in eating disordered behaviors (Douglass, 2011). Yoga's emphasis on the in-the-moment experience of physical and mental states promotes increased awareness of the connection between body and mind, which may help foster healthier attitudes and behaviors among those struggling with eating disorders (Douglass, 2011; Boudette, 2006). Clinical research demonstrating yoga's effectiveness in the treatment of eating disorders, however, is still in its infancy and results thus far are mixed. The majority of studies evaluating yoga's impact on eating disorder treatment are quantitative in nature.

One of the earliest studies in this area focused on the impact of yoga practice on self-objectification and eating disordered behavior among women without diagnosed eating disorders (Daubenmier, 2005). Specifically, this study sought to determine whether yoga has a mediating effect between self-objectification, a state in which an individual experiences the self as subject to the scrutiny of others, and eating disordered behaviors through changes in body awareness and

body responsiveness. The first phase of the study included 139 women (mean age of 37.16) and the second phase included 133 female undergraduates (mean age of 20.46) each divided into three categories: those who practiced yoga but not aerobic exercise, aerobic exercisers not practicing yoga, and a control group who hadn't participated in aerobic exercise or yoga in two years. All participants completed a survey, which included questionnaires to measure self-objectification, eating disordered symptoms, and levels of body awareness and body responsiveness. Results among both groups indicated that body responsiveness played a significant mediating role ( $p < .01$ ) between self-objectification and eating disordered behaviors. Further, yoga was found to have a significant relationship to both body responsiveness and body awareness ( $p < .01$ ) among those in the first group, suggesting that yoga may play a role in reducing eating disordered thinking and behaviors (Daubenmier, 2005). It should be noted that a limitation of both phases of this study was the fact that overweight and obese women were not included, so generalization of the results to these populations are not possible.

Other studies have focused on eating disordered populations. For example, Carei, Fyfe-Johnson, Breuner & Brown (2010) evaluated the impact of yoga on eating disorder symptoms among 50 adolescents (50 girls and four boys) between the ages of 11 and 21 who were pursuing treatment in an outpatient eating disorder treatment program. A total of 27 participants were randomly assigned to standard outpatient care and 26 to standard care plus a yoga intervention, which consisted of twice weekly one-hour yoga sessions for eight weeks. All participants completed the Eating Disorder Examination, the Beck Depression Inventory and the State-Trait Anxiety Inventory prior to the intervention, at week nine and again at week 12. Results indicated that the yoga group demonstrated a greater, although not significant, reduction in overall EDE scores than the no-yoga group, and that this reduction continued from week nine until the 12

week follow up point. In contrast, within the no yoga group, EDE scores at the 12 week follow up point matched baseline scores. Further, the yoga group experienced a significant reduction in food preoccupation scores ( $p < .01$ ) after each yoga session. Interestingly, significant decreases in levels of depression ( $p < .01$ ), state anxiety ( $p < .02$ ) and trait anxiety ( $p < .001$ ) were achieved in both groups (Carei et. al, 2010).

A related, quasi-experimental study examined the impact of a multi-dimensional eating disorder prevention program that included yoga, on eating disordered attitudes within a group of fifth grade females (Scime & Cook-Cottone, 2008). In this study, five separate girls' groups, each including a yoga component, were conducted weekly for a period of 10 weeks over the course of two years. The 69 participants in the five girls' groups and 55 participants in a non-randomly assigned control group completed a series of questionnaires, including subscales of the Eating Disorder Inventory-2 scale, the Perceived Stress Scale and the Multidimensional Self-Concept Scale, before and after the group intervention. It is important to note that the control group data was collected at one post-intervention point, whereas the girls' group data was collected before and after each 10-week session. Results indicated that those in the girls' groups had significantly lower levels of body dissatisfaction ( $p < .001$ ) after completion of the group, versus those in the control group who experienced an increase in this measure. Additionally, girls' group participants demonstrated a significant decrease ( $p < .02$ ) in the bulimia scale, which measures the frequency of thinking about uncontrolled eating or engaging in bulimic behavior, while the control group experienced no change in this variable. Limitations in this study include a single, non-randomized control group and the use of self-report questionnaires. Additionally, as the authors note, both girls' group participants and those in the control group demonstrated

low scores on the bulimia scale, both pre-and post-intervention, which limits the possible effects of the treatment group.

In a smaller, non-experimental study, Dale, Mattison, Greening, Galen, Neace & Matacin (2009) evaluated the impact of a six-day yoga workshop on mood as well as physical and emotional awareness among adult women with a history of eating disorder behaviors. Participants were five women between the ages of 22 and 36, who practiced yoga regularly and were enrolled in a six-week yoga workshop that also included healthy eating and cooking classes, meditation and group time. Participants completed a series of questionnaires, including the Eating Disorder Inventory-3 and the Profile of Mood States at baseline, after completing the workshop, and at a one-month follow up period. Results indicated that there were significant improvements ( $p < .05$ ) in awareness and response to emotional states, as well as a significant increase ( $p < .05$ ) in the ability to identify and tolerate various mood states. Additionally, there was a significant decrease among participants ( $p < .05$ ) in levels of anger, unstable mood and self-destructive behaviors. All of these changes were statistically significant both at the post-workshop and the one-month follow up points (Dale, et. al, 2009). There are several major limitations to this study, including the participants' history of yoga practice, which could have impacted results, as well as the small sample size.

Counter to the research results presented above, one study concluded that yoga is not more effective than other interventions in the treatment of eating disorders (Mitchell, Mazzeo, Rausch & Cook 2007). In this study, the authors compared the impact of a cognitive dissonance treatment versus yoga among a group of undergraduate female students. Using an experimental design, 30 women were randomly assigned to the cognitive-dissonance intervention, 33 to a yoga and meditation intervention and 30 to a control group. Each intervention took place for 45

minutes once a week for six weeks. All participants completed a series of questionnaires to measure eating disorder symptomology and behaviors, binge eating behaviors, depression and anxiety levels and body shape perceptions, at pre- and post-intervention. Results indicated significant decreases ( $p < .05$ ) in scores measuring eating disorder symptomology, drive for thinness and body dissatisfaction and trait anxiety among the cognitive dissonance group, post-intervention. In contrast, there was no significant change in these scores within the yoga group. It should be noted, however, that the yoga intervention utilized in this study did not include mind-body awareness elements specifically targeting disordered eating attitudes (Mitchell, et.al, 2007).

In one of the few studies to include qualitative data in this area, Dittman & Freedman (2009) conducted a mixed methods study to investigate the relationship between yoga and attitudes about eating and body image among 129 women who regularly practiced yoga. In the quantitative component of the study, participants were divided into two groups: the first group included women who practiced yoga for spiritual reasons; the second group practiced yoga for primarily physical fitness benefits. All participants completed questionnaires, including a subscale of the Five Facet Mindfulness Questionnaire, the Intuitive Eating Scale and a series of questions designed to measure spiritual readiness. A total of 18 participants with eating disorder histories also completed phone interviews for a qualitative exploration of the benefits of yoga practice. Results of the quantitative study indicated no significant differences in measures of body awareness, body responsiveness, body satisfaction or intuitive eating between the two groups, suggesting that reasons for practice were not correlated with specific improvements in body image. The qualitative component of the study uncovered several themes highlighting the positive benefits of yoga in both eating attitudes and body image. Among these themes were the

connection between the practice of yoga and increased awareness of physical and emotional states (“I have better awareness of the connection between mind and body”), improvements in body image (“Yoga has been the only thing that has significantly helped me deal with my [body image] issues”) and a connection to the body as something that is lived in (“Now I see my body as a tool, home...”). Importantly, these qualitative interviews don’t provide details on the type of yoga practiced by participants or their reasons for practicing. Those who practice yoga for physical fitness benefits may participate in more physically rigorous, less-meditative styles of yoga. Overall, however, these subjective reports indicate that those with a personal connection to eating disordered behaviors perceive the practice of yoga as helpful to bolstering interoceptive awareness and a more positive body image.

While there is a growing body of research indicating yoga’s usefulness in the treatment of eating disorders, study results are far from conclusive. Further, the prevalence of quantitative data limits the clinical understanding of the specific elements of yoga practice that may be most helpful among different eating disordered populations. Expanding the qualitative research base in this area will provide important information about the benefits of yoga in eating disorder treatment.

### **Conceptual Framework**

There are a number of theories on the etiology of eating disorders, including psychodynamic, cognitive-behavioral, feminist and socio-cultural, which are beyond the scope of this study. The two theoretical constructs that are most useful in understanding the affect regulation function of eating disordered behaviors and resulting disconnect in mind-body awareness are Escape and Objectification Theories.

Escape Theory, as outlined by Heatherton & Baumeister (1991), posits that eating disorders are motivated by the attempt to avoid or “escape” distressful emotional states through a shift in self-awareness which enables disordered eating behaviors. According to this theory, individuals have access to both high and low levels of self-awareness, which vary in meaning. High-level awareness includes more meaningful cognitive and emotional constructs, in which the view of self is compared with standards and norms, problems are considered in greater complexity, and inhibitions act to regulate behavior. Low-level awareness, in contrast, is characterized by in-the-moment experiences of self, more basic cognitions through which problems and situations are reduced to their simplest elements and inhibitions are lowered.

A key component of Escape Theory is the idea that painful high-level awareness states result from the comparison of self with high standards. When the individual falls short in comparison with external standards, such as a specific body type or a career achievement, or internal standards related to personality characteristics or expectations for success, the resulting emotional distress triggers the impulse to escape through a shift to a lower level of self-awareness (Heatherton & Baumeister, 1991). It is this shift from high-level to low-level awareness that facilitates eating disordered behavior; specifically, the painful self-awareness state is avoided through thought processes that enable the individual to engage in eating disordered behavior without meaningful consideration of the consequences (Heatherton & Baumeister, 1991).

While Escape Theory provides a context through which to understand the role of eating disordered symptomology in affect regulation, Objectification Theory illustrates the way in which self-objectification contributes to reduced awareness of physical and emotional states that are characteristic of those suffering from eating disorders. As presented by Frederickson &

Roberts (1997), Objectification Theory is based on the premise that women are continually exposed to external scrutiny, through culturally perpetuated norms and individual encounters, through which they are sexually objectified. The state of objectification is one in which the person is viewed as a “body,” existing for the pleasure of others. Over time, constant exposure to this state of objectification becomes internalized in the form of “self-objectification,” in which the individual views the self as an object, subject to external monitoring and validation (Frederickson & Roberts, 1997).

One of the consequences of this externalized view of self is a preoccupation with outward appearance and a sense of identity that is connected with how one looks, rather than with how one feels. The body then, becomes a target for validation or rejection. The long-term psychological ramifications of self-objectification, according to the theory, include body shame that results from a negative comparison of the physical self with others, including culturally communicated ideals (Frederickson & Roberts, 1997).

In addition to a negative self-view that can result from objectifying the self, Objectification Theory holds that a constant focus on external, rather than internal, experiences reduces awareness of physical and emotional states. One of the reasons for this detachment from internal self-states is the constant preoccupation with conforming to ideal physical standards, which leaves little energy left over to devote to awareness of physical and emotional sensation. Additionally, women who engage in restrictive eating or otherwise manipulate hunger signals in the pursuit of a body ideal, eventually become less aware of natural hunger states (Frederickson & Roberts, 1997).

Taken together, Escape Theory and Objectification Theory help to illustrate the dynamics involved in eating disordered behavior related to the avoidance of negative affect and the resulting diminished capacity for awareness of physical and emotional states. It is within this context that therapeutic interventions focused on improving the mind-body connection hold merit.

## **Methodology**

### **Introduction to Methodology**

This study is aimed at gaining a better understanding and identifying the perceived benefits of yoga as a component of eating disorder recovery by examining the subjective experiences of those in recovery. Based on existing research that links the practice of yoga to reductions in eating disorder symptomology and body dissatisfaction (Carei et. al, 2010; Scime & Cook-Cottone, 2008), greater ability to identify and tolerate various mood states (Dale, et. al, 2009), and improved awareness of the mind-body connection (Daubenmier, 2005; Dittman & Freedman, 2009), semi-structured interviews were used in this qualitative study to explore these themes. The research question that was addressed is: What are the benefits of yoga on eating disorder recovery, from the perspective of those in recovery?

### **Sample**

The sample for this study included seven females who are currently in recovery from an eating disorder (anorexia, bulimia, or binge eating disorder) and incorporate the practice of yoga in their recovery. Participants included individuals who have been in recovery, defined as actively participating in outpatient eating disorder treatment, for a minimum of six months and

who practice at least one, one-hour yoga session per week. Due to the sensitive nature of the study, individuals under the age of 18 were not included.

Four participants were between 18 and 30 years of age and three participants were between the ages of 41 to 50. Two participants had been actively involved in their eating disorder recovery for between six months and one year, three participants had been in recovery for between one and two years, one participant had been in recovery for between three and five years and one participant had been in recovery for more than five years.

Four participants indicated that they had been practicing yoga for more than five years, taking between three and five, one-hour classes per week. Two participants stated that they had been practicing yoga for approximately one year, taking between one and two, one-hour classes each week. One participant stated that she had been practicing yoga for three months, taking one, one-hour class each week.

A non-probability purposive sampling strategy was utilized in order to gather a sample that met the criteria outlined. Participants were individuals who responded to copies of a flyer (see Appendix A) posted by licensed therapists and yoga instructors at outpatient eating disorder treatment centers.

### **Data Collection/Procedures**

After receiving IRB approval and the signed agency consent form from the eating disorder treatment center, copies of fliers (see Appendix A) were distributed to the treatment center and posted in the lobbies of the center's three outpatient treatment locations. The flyer provided details about the study, indicated that those interested in participating can contact this researcher confidentially through a private phone number. The flyer also indicated that

information about the decision to participate in the study would not be made available to anyone, including the professionals at the treatment center. Those who were interested in participating contacted this researcher at the phone number provided to address any questions or concerns they have about the study and to decide whether or not they would like to participate. Interviews were scheduled with those individuals who indicated their willingness to participate in the study.

Each interview was conducted in a quiet, confidential setting of the participant's choice. Interviews were audio recorded for later transcription. Prior to beginning the interview, each participant was asked to review and sign a consent form (see Appendix B). Participants were reminded that they could decide not to participate at any time during the interview.

At the end of the interview, a list of resources was made available to any participant who experienced any uncomfortable emotions as a result of the interview (see Appendix C). Additionally, a debriefing was offered to any participant who experienced emotional discomfort as a result of the interview. Participants were provided with contact information for the researcher and research supervisor and were encouraged to contact either one with any questions or concerns about their participation in the research study. Participants were also offered the opportunity to receive a summary of the research results, when completed, in May, 2012.

## **Measurement**

Two measurement instruments created by this researcher were used in this study: the first, a demographic questionnaire (Appendix D); the second, a semi-structured interview (Appendix E). The demographic questionnaire consists of three questions designed to capture key characteristics of the sample.

The semi-structured interview, which lasted between 30 to 45 minutes, included 10 open-ended questions focused on participants' experience with yoga and the impact of yoga on eating disorder recovery, including body image, (Carei et. al, 2010; Scime & Cook-Cottone, 2008), awareness of and tolerance for mood states (Dale, et. al, 2009) and understanding of the connection between mind and body (Dittman & Freedman, 2009). Additionally, participants were asked to discuss any other benefits of yoga to their recovery that may have not been addressed in the interview questions.

### **Data Analysis**

Analysis of the data was completed using an inductive, grounded theory method. First, each interview was transcribed to create a paper document. Next, each transcript was coded through the process of open coding, involving a word-by-word, line-by-line examination of the interview for the identification of codes, or key words, that emerged in the text (Berg, 2009). Similar codes were grouped together according to themes. Each theme consisted of three or more similar codes, supported by three or more direct quotes from the interview transcripts. In this way, grounded theory was used to move from the individual units of content (words) to more abstract concepts (themes) (Berg, 2009).

### **Protection of Human Subjects**

A number of steps were taken to safeguard the confidentiality of all the participants in this study. Interviews were conducted in quiet and confidential spaces that are convenient to participants. Audio-taped recordings of the interviews, consent forms and all other research data were stored in a locked file that only this researcher will have access to. Participants were assigned an interview code number that was used in data transcription. Additionally, the

researcher did not use any identifying information in quotes or vignettes from interviews in the study or any presentations that result from the study. Written and recorded information from participant interviews will only be shared with members of the research committee and the research chair.

Participants were informed of the risks involved in this study and efforts to minimize risks, both verbally and in writing, throughout the recruitment and interview processes. Participants were informed of their right to withdraw from the study at any point in time and their right not to answer any questions that they did not feel comfortable answering. Risks to participants were included in the flyer invitation, discussed during the initial phone call, and reviewed thoroughly in person before conducting the interview, both verbally and in writing on the consent form. Participants were informed of the confidential nature of the study.

Before beginning each interview and before the consent form was signed, each participant was asked to explain to the researcher her understanding of the study procedures, the confidential nature of the study and her right to withdraw at any point during the study. Asking each participant to share their understanding of this information ensured that informed consent was obtained. Once it was clear that the participant understood the risks of the study and her rights, the consent form was signed and the interview began. Once the interview was completed, the researcher spent time debriefing each participant, shifting the conversation away from the interview content to more general and positive conversation topics. Additionally, each participant was provided with a list of local counseling resources she could access in the event that any of the interview material had been distressing for her (see Appendix E).

The list of resources provided to each participant will include crisis and non-crisis resources. Contact information for the National Eating Disorders Association, an information and referral source, was provided, along with contact information for the outpatient treatment center.

## **Findings**

Several themes related to the benefits of yoga to eating disorder recovery emerged through analysis of participant interview data, including: the importance of gentle, meditative-styles of yoga; the role of yoga in promoting self-acceptance; yoga practice as a way to experience a meaningful mind-body connection; the positive impact of yoga on body image; and yoga as a way to experience a spiritual connection.

### **The Importance of Gentle Yoga Practice**

Participants were asked to describe their involvement with yoga, in terms of how they became involved in yoga and what type (s) of yoga they practice. Six participants (85%) indicated that their involvement with yoga began with physically rigorous types of yoga, such as Power or Ashtanga yoga, with the goal of weight loss or weight control; however, as they became more invested in their eating disorder recovery, their practices shifted toward gentler styles of yoga, such as restorative yoga, which emphasize stretching and meditative breathing exercises. All participants associated the benefits of yoga to their eating disorder recovery specifically with these gentler types of yoga.

As one participant stated: “I used to do a lot of yoga at the Y [MCA] and the focus was very much on exercise and I got caught up in that. Now, yoga isn’t my form of physical exercise

and I do mostly less intense classes, like restorative. It feels really good on my body, when I do [yoga], but now I look for it as a kind of peace and a place to pause my brain.”

### **The Role of Yoga in Increased Self-Acceptance**

Participants were asked to identify the key contributions of yoga to their eating disorder recovery, both in terms of physical and psychological benefits. Among the psychological benefits, all participants interviewed credited their yoga practice with an increase in self-acceptance. Further, all participants described this process as a gradual shift from critical self-judgment and the comparison of self with others to a growing acceptance of one’s own capabilities and limitations. As one participant, who had been practicing yoga between three and four times per week for three years, stated: “I used to look around and think, ‘that person has the perfect practice and I’ll never be where they’re at.’ Then, the more I practiced, the less I compared myself with other people and really focused on what I could do.”

One participant indicated that yoga practice with others in eating disorder recovery was integral to developing greater self-acceptance: “There’s something about being in a group of other recovering overeaters.... everyone looks the same, everyone has different abilities, you know, I am able to stay on my mat and not judge myself or compare myself with others.”

### **Yoga Practice and the Experience of Mind-Body Connection**

Another psychological benefit that participants linked to the regular practice of yoga was mind-body awareness; that is, the experience of connecting with the body helped them to identify and experience a variety of emotions. Five participants (71%) described this process as learning to be present in the moment, without outside distractions, in order to become more in tune with emotional states. As one participant stated: “When I’m in class, I become more aware

of what emotions are going on for me and I can deal with them in class. It's like, once I connect with what I'm feeling physically, I somehow get connected with what I feel emotionally."

Another participant described a feeling of safety experienced in yoga classes that enabled her to explore the mind-body connection: "It used to be, most of the time, um, I lived from the neck up and doing yoga, you're kind of forced to be present in your body, in a nice, gentle, non-threatening way. It's a way to honor your body, and sort of connect mind, body and spirit."

### **The Positive Impact of Yoga on Body Image.**

Participants were asked whether or not the practice of yoga had an impact on the image of their body. Five participants (71%) attributed their yoga practice with an overall improvement in body image; specifically, more positive feelings about body size and shape. In most cases, improvements in body image were attributed to the experience of being present in the body. As one participant, who participates in a weekly yoga and body image class stated: "Well, a big part of it is being in my body, um, being present. Like I said, for a long time, I lived from my neck up and feeling really detached from my body, only knowing that I disliked my body. But, yoga has helped me be able to feel present in my body and much better, in terms of my body image."

Three participants (43%) described a more positive body image as being directly related to a shift in focus from body appearance toward a sense of respect for and appreciation of one's physical abilities. As one participant described it: "Over the years, I just began to accept what my body could do. I used to be able to do more advanced poses and that really felt important to me. And, I'm not able to do some of those poses now, and it just doesn't matter. You know? So, I just, I just feel positive about my body."

### **Yoga as a Spiritual Connection.**

Participants were asked whether or not there was a spiritual aspect to their yoga practice. Six of the seven participants (85%) indicated that yoga contained a spiritual element. Four participants described this spiritual aspect as a sense of connectedness between body and mind. In this way, the feeling of integration between the physical body and the emotional self created a feeling of connection with something larger than self. As one participant stated: “There is something really spiritual about being present in your body and feeling connected to all aspects of yourself. Not feeling that separation from mind and body feels spiritual to me.”

Two participants (29%) described the spiritual aspect of yoga as the feeling of being in touch with a unifying energy that develops through feeling one’s own energy combined with the collective energy of others in each yoga class. One participant stated: “...but, yoga is spiritual to me in a way, because it makes me feel in touch with a kind of energy – my own energy and the energy I get from others.”

### **Incorporating A Sense of Calmness into Daily Life**

The final theme to emerge from the data was in response to the interview question in which participants were asked to identify any other ways in which yoga has made a positive impact on their lives. Six participants (85%) indicated that the regular practice of yoga fostered a sense of calmness that enabled them to better handle the challenges of daily life. These participants all described the ability to replicate the feeling of calmness that they experienced in their yoga classes when faced with stressful situations at work or at home, in order to respond to these situations in new ways. As one participant described it: “After practicing yoga for several

years, I noticed I would just feel safer and calmer in the world. Um, so it helps me deal with the stress of work and life.”

## **Discussion**

This study was aimed at gaining a better understanding of the benefits of yoga to eating disorder recovery from the perspective of individuals in recovery. The themes uncovered through qualitative interviews with seven women in eating disorder recovery revealed a number of consistencies with the existing literature on the positive impact of yoga on eating disorder treatment, including: increased mind-body, or interoceptive, awareness (Douglass, 2011; Daubenmier, 2005); overall improvements in body image and self-acceptance (Dittman & Freedman, 2009; Scime & Cook-Cottone, 2008); and an ability to respond more positively to negative or stressful life events (Dale et. al, 2009).

Participants described yoga’s contribution to interoceptive awareness in terms of in-the-moment experiences of the physical self which, in turn, fostered greater awareness of and attunement with the emotional self. This theme is significant in two ways: first, it supports clinical studies linking diminished interoceptive awareness with eating disordered behavior (Spoor et. al, 2005; Pollatos et. al, 2008); secondly, it supports research connecting the practice of yoga with improvements in interoceptive awareness among eating disordered populations (Douglass, 2011; Daubenmier, 2005).

Improvements in body image and self-acceptance were conceptualized by participants as the experience of being present in the body in a way that helped shift focus away from scrutiny of outward appearance toward an appreciation of one’s physical abilities. This theme corresponds to research linking yoga to the experience of the body as a “home,” and a way in

which individuals in eating disorder recovery find enjoyment in what the body can do, rather than how the body looks (Dittman & Freedman, 2009).

Several participants described an ability to incorporate the sense of calmness they experienced in their yoga classes into their daily lives, in order to better manage stressful situations at home or at work. This theme supports at least one study that demonstrated a connection between yoga and the ability of individuals in eating disorder recovery to better tolerate negative moods and to experience a significant decrease in overall levels of anger (Dale et. al, 2009).

Finally, participants indicated that yoga helped them to develop a sense of spirituality, a theme that hasn't been widely addressed in the existing research. Many participants described this sense of spirituality as a connection to something bigger than ones' self. Several conceptualized this as a connection between mind and body that they hadn't before experienced.

It is important to note that all participants associated these benefits with gentler styles of yoga, such as Restorative Yoga, which emphasize stretching and meditative exercises.

There are a number of limitations to this study. All participants were receiving outpatient treatment for their eating disorder, suggesting that they may be more vested in their recovery than individuals not currently in treatment. Additionally, all participants had taken, or were currently taking, a yoga and body image class as part of their outpatient treatment, which may have resulted in a predisposition toward viewing yoga as beneficial to recovery. Finally, the small sample size significantly limits the ability to generalize results to the larger eating disordered population.

Despite these limitations, the results of this study have several implications for social work practice. First, the findings suggest that yoga practice, specifically, through the experience of increased mind-body awareness, may be an effective way for those in eating disorder recovery to connect with and give language to feelings they may not be able to easily access in more traditional talk therapy approaches. Given the strong connection between emotional avoidance and eating disordered behavior (Fox & Power, 2009; Spoor et. al, 2005), it seems reasonable to conclude that yoga can be utilized as a therapeutic tool to help those in recovery increase their awareness and acceptance of emotional states.

Secondly, the results of this study support the use of yoga as a vehicle through which those in eating disorder recovery may experience greater body acceptance and improvements in body image, primarily through a feeling of being present in the body and gaining an appreciation for one's physical abilities (and limitations), rather than one's physical appearance.

Finally, the findings add to the qualitative knowledge base on the benefits of yoga to eating disorder recovery from the important vantage point of those currently in recovery. A deeper understanding of the specific ways in which yoga supports recovery helps to inform the therapeutic use of yoga with this population.

### **Implications for Future Research**

Based on the limited clinical research base on the benefits of yoga to eating disorder recovery, additional qualitative and quantitative research in this area is needed. Future studies could focus on more heterogeneous populations, including those in eating disorder recovery who are not in outpatient treatment and are in various stages of recovery. Additionally, longitudinal studies could help shed light on the possible long-term benefits of yoga practice and identify any

changes in perceived benefits over time. Finally, research to evaluate the impact of various styles of yoga (e.g., Restorative, Hatha, Vinyasa) could provide important information to clinicians on specific yoga interventions that are most effective with this population.

In addition to directions for further research on the therapeutic use of yoga in eating disorder treatment, themes uncovered in this study support the need for further research on the application of yoga in the treatment of other populations. For example, positive experiences with increased mind-body awareness reported in this study suggest that certain types of yoga may be beneficial to victims of sexual abuse or individuals struggling with other types of trauma that can compromise awareness of and connection between physical and emotional states.

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## **Appendix A – Flier for Distribution to Possible Study Participants**

### **Is Yoga Part of Your Recovery?**

#### **If so, I'd love to hear about your experience.**

I am conducting a research study on the benefits of yoga in eating disorder recovery, from the perspectives of those in recovery, and would like to understand your experience with yoga in the recovery process. Participation in the study would include the completion of a brief demographic questionnaire followed by a confidential interview that will be audio-recorded for later transcription.

If you decide to participate, your participation will be entirely confidential. No identifying information will be used in connection with any data from your interview that may be referenced in the study. Information about your decision to participate or not to participate will not be made available to anyone, including staff members at your outpatient treatment center. All participants who complete an interview will receive a \$25 Target gift card. Please note that your participation in this study may create uncomfortable emotions.

If you are interested in the study, please contact me, Jennifer Grant, at this confidential phone number: (917) 449-6180. I would be happy to answer any questions or concerns you might have about the study. You can also leave a confidential voice mail message with your contact information.

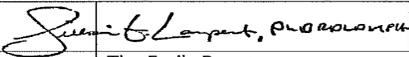
## Appendix B- Agency Consent Form

### Agency CONSENT FORM

Researcher: Please provide your agency with the information about your project and have your agency contact complete this form.

Agency: Please read this form and ask any questions you may have before agreeing to allow this study to take place at your agency. Please keep a copy of this form for your records.

<b>Project Name</b>	Yoga and Eating Disorder Recovery	<b>IRB Tracking Number</b>	286572-1
<b>General Information Statement about the study:</b>			
This study is designed to explore the benefits of yoga to eating disorder recovery, from the perspective of those in recovery.			
Your agency is invited to participate in this research.			
<b>The agency was selected as a host for this study because:</b>			
The agency offers outpatient eating disorder treatment and incorporates yoga as a treatment modality.			
<b>Study is being conducted by:</b>		Jennifer Grant, graduate student, University of St. Thomas	
<b>Research Advisor (if applicable):</b>		Colin Hollidge, Ph.D., LICSW, University of St. Thomas	
<b>Department Affiliation:</b>		School of Social Work	
<b>Background Information</b>			
The purpose of the study is:			
To expand the qualitative knowledge base concerning the benefits of yoga to eating disorder recovery, through the perspective of those in recovery. This study will involve semi-structured interviews, conducted with women who are in recovery from an eating disorder and practice yoga, in order to understand the specific ways in which they perceive yoga to be beneficial to their recovery process. The aim of this study is to help inform the use of yoga as a component of eating disorder treatment.			
<b>Procedures</b>			
Study participants will be asked to do the following: <i>State specifically what the subjects will be doing, including if they will be performing any tasks. Include any information about assignment to study groups, length of time for participation, frequency of procedures, audio taping, etc.</i>			
Complete a brief demographic questionnaire and participate in an in-person interview that will take approximately 45 minutes to one hour and will be audio taped for later transcription.			
<b>Risks and Benefits of being in the study</b>			
The risks involved for subjects participating in the study are:			
The possibility of uncomfortable emotions as a result of the interview.			

<p>The direct benefits the agency will receive for allowing the study are:          There are no direct benefits to the agency.</p>	
<p><b>Compensation</b>          Details of compensation (if and when disbursement will occur and conditions of compensation) include:          N/A</p>	
<p><b>Confidentiality</b>          The records of this study will be kept confidential. The types of records, who will have access to records and when they will be destroyed as a result of this study include:          All records, including printed transcripts, audio tapes and demographic questionnaires will be kept in a locked file drawer in a locked room, accessible only to the researcher. Electronic transcript files will be stored on a password-protected computer, accessible only to the researcher. Participant data will be de-identified through the use of interview code numbers and will only be shared with the research advisor and two members of the research committee. No identifying information will be included in the published research results or any presentations of those results. All data will be destroyed by May 31, 2012.</p>	
<p><b>Voluntary Nature</b>          Allowing the study to be conducted at your agency is entirely voluntary. By agreeing to allow the study, you confirm that you understand the nature of the study and who the participants will be and their roles. You understand the study methods and that the researcher will not proceed with the study until receiving approval from the UST Institutional Review Board. If this study is intended to be published, you agree to that. You understand the risks and benefits to your organization.</p>	
<p>Should you decide to withdraw, data collected about you will NOT be used in the study</p>	
<p><b>Contacts and Questions</b>          You may contact any of the resources listed below with questions or concerns about the study.</p>	
Researcher name	Jennifer Grant
Researcher email	gran3825@stthomas.edu
Researcher phone	917-449-6180
Research Advisor name	Colin Hollidge
Research Advisor email	cfhollidge@stthomas.edu
Research Advisor phone	651-962-5818
UST IRB Office	651.962.5341
<p><b>Statement of Consent</b>          I have read the above information. My questions have been answered to my satisfaction and I consent to allow the study to be conducted at the agency I represent. By checking the electronic signature box, I am stating that I understand what is being asked of me and I give my full consent.</p>	
Signature of Agency Representative	
<input type="checkbox"/> Electronic signature	Date 1/11/12
Print Name of Agency	The Emily Program

Representative			
Signature of Researcher		Date	
<input type="checkbox"/> Electronic signature*			
Print Name of Researcher		Jennifer Grant	

\*Electronic signatures certify that:

The signatory agrees that he or she is aware of the policies on research involving participants of the University of St. Thomas and will safeguard the rights, dignity and privacy of all participants.

- The information provided in this form is true and accurate.
- The principal investigator will seek and obtain prior approval from the UST IRB office for any substantive modification in the proposal, including but not limited to changes in cooperating investigators/agencies as well as changes in procedures.
- Unexpected or otherwise significant adverse events in the course of this study which may affect the risks and benefits to participation will be reported in writing to the UST IRB office and to the subjects.
- The research will not be initiated and subjects cannot be recruited until final approval is granted.

## Appendix C – Participant Consent Form

Please read this form and ask any questions you may have before agreeing to participate in the study. Please keep a copy of this form for your records.

<b>Project Name</b>	Yoga and Eating Disorder Recovery	<b>IRB Tracking Number</b>	286572-1
<b>General Information Statement about the study:</b>			
This study is concerned with exploring the benefits of yoga to eating disorder recovery, from the perspective of those in recovery. The main goal of the study is to better understand the specific ways in which yoga is helpful in the eating disorder recovery process.			
You are invited to participate in this research. You were selected as a possible participant for this study because:			
You have indicated that you are in recovery from an eating disorder, that you have not experienced active symptoms for at least six months and that you regularly participate in yoga.			
<b>Study is being conducted by:</b>			
		Jennifer Grant, MSW student, St. Thomas University	
<b>Research Advisor (if applicable):</b>			
		Colin Hollidge, Ph.D., LICSW	
<b>Department Affiliation:</b>			
		School of Social Work, St. Thomas University	
<b>Background Information</b>			
The purpose of the study is:			
To gain a better understanding of the benefits of yoga as a component of eating disorder recovery in order to better inform clinical use of yoga among individuals in recovery from eating disorders. This study is aimed at uncovering the individual experiences of those who use yoga as part of their eating disorder recovery in order to develop more qualitative research in this area.			
<b>Procedures</b>			
If you agree to be in the study, you will be asked to do the following: <i>State specifically what the subjects will be doing, including if they will be performing any tasks. Include any information about assignment to study groups, length of time for participation, frequency of procedures, audio taping, etc.</i>			
Complete a brief demographic questionnaire and participate in an individual interview with the researcher. The interview will be conducted in a confidential setting of your choice and take between 45 minutes to one hour. The interview will be audio-taped, for later transcription by the researcher.			
<b>Risks and Benefits of being in the study</b>			
The risks involved for participating in the study are:			

<p>The possibility of uncomfortable emotions emerging in response to interview questions. In order to minimize this risk, should you experience any emotional discomfort as a result of the interview, the researcher will conduct a debriefing with you, a process through which the conversation will be directed away from the interview content, toward more general and positive topics. Additionally, a list of resources, including contact information for your individual therapist, will be provided at the conclusion of the interview, in case you need to process any uncomfortable feelings from the interview.</p>	
<p>The direct benefits you will receive from participating in the study are:</p>	
<p>You will receive a \$25 Target gift card.</p>	
<p><b>Compensation</b></p>	
<p>Details of compensation (if and when disbursement will occur and conditions of compensation) include:  <i>Note:</i> In the event that this research activity results in an injury, treatment will be available, including first aid, emergency treatment and follow-up care as needed. Payment for any such treatment must be provided by you or your third party payer if any (such as health insurance, Medicare, etc.).</p>	
<p>N/A</p>	
<p><b>Confidentiality</b></p>	
<p>The records of this study will be kept confidential. In any sort of report published, information will not be provided that will make it possible to identify you in any way. The types of records, who will have access to records and when they will be destroyed as a result of this study include:</p>	
<p>Demographic questionnaires, audio taped interviews and transcript files will be kept in a locked drawer in a locked office, accessible only to the researcher. Electronic copies of transcripts will be kept in a password-protected computer, accessible only to the researcher. Participant data will be de-identified through the use of an interview code number and will only be shared with the research advisor and two members of the research committee. No identifying information will be attached to the information gathered from the participant that is used in the study or presentations resulting from the study. All data, including audio recordings, will be destroyed by May 31, 2012.</p>	
<p><b>Voluntary Nature of the Study</b></p>	
<p>Your participation in this study is entirely voluntary. Your decision whether or not to participate will not affect your current or future relations with any cooperating agencies or institutions or the University of St. Thomas. If you decide to participate, you are free to withdraw at any time up to and until the date\time specified in the study. Your referring therapist will not know that you decided to participate in this study.</p>	
<p>You are also free to skip any questions that may be asked unless there is an exception(s) to this rule listed below with its rationale for the exception(s).</p>	
<p>Should you decide to withdraw, data collected about you   will NOT be used in the study</p>	
<p><b>Contacts and Questions</b></p>	
<p>You may contact any of the resources listed below with questions or concerns about the study.</p>	

Researcher name	Jennifer Grant		
Researcher email	gran3825@stthomas.edu		
Researcher phone	917-449-6180		
Research Advisor name	Colin Hollidge		
Research Advisor email	cfhollidge@stthomas.edu		
Research Advisor phone	651-962-5818		
UST IRB Office	651.962.5341		
<b>Statement of Consent</b>			
I have read the above information. My questions have been answered to my satisfaction and I am at least 18 years old. I consent to participate in the study. By checking the electronic signature box, I am stating that I understand what is being asked of me and I give my full consent to participate in the study.			
Signature of Study Participant <input type="checkbox"/> <i>Electronic signature</i>		Date	
Print Name of Study Participant			
Signature of Parent or Guardian (if applicable) <input type="checkbox"/> <i>Electronic Signature</i>		Date	
Print Name of Parent or Guardian (if applicable)			
Signature of Researcher <input type="checkbox"/> <i>Electronic signature*</i>		Date	
Print Name of Researcher	Jennifer Grant		

\*Electronic signatures certify that::

The signatory agrees that he or she is aware of the polities on research involving participants of the University of St. Thomas and will safeguard the rights, dignity and privacy of all participants.

- The information provided in this form is true and accurate.
- The principal investigator will seek and obtain prior approval from the UST IRB office for any substantive modification in the proposal, including but not limited to changes in cooperating investigators/agencies as well as changes in procedures.
- Unexpected or otherwise significant adverse events in the course of this study which may affect the risks and benefits to participation will be reported in writing to the UST IRB office and to the subjects.
- The research will not be initiated and subjects cannot be recruited until final approval is granted.

## Appendix D – Demographic Questionnaire

Q1: What is your age?

18 – 30

31 – 40

41 – 50

51 – 60

60+

Q2: What is the highest level of education you have completed?

Some high school

High school diploma

Some college

Undergraduate college degree

Graduate degree

Q3: How long have you been in recovery from your eating disorder?

Six months – 1 year

1 – 2 years

3 – 5 years

More than 5 years

### Appendix E - Semi-Structured Interview Questions

1. How did you become involved with yoga?
  - a. How long have you been practicing yoga?
  - b. How often do you practice yoga?
2. Sometimes a person's practice changes over time, how would you describe your journey with your yoga practice?
  - a. What does yoga mean to you?
  - b. How would you describe yoga's role in your life?
3. How do you think yoga has contributed to your recovery?
  - a. Physical benefits? Please describe.
  - b. Psychological benefits? Please describe.
4. Do you think yoga has had an impact on your image of your body? Please explain.
5. Are there other ways in which yoga has had a positive impact on your life?
  - a. Professional life?
  - b. Relationships with others?
6. Sometimes people identify spiritual aspects in their yoga practice. Would you say there is a spiritual aspect to your practice? If so, please describe.

## **Appendix F – Participant Resources**

Eating Disorder Treatment Center:           xxx-xxx-xxxx

National Eating Disorders Association:       800-931-2237