IMPLICIT AND EXPLICIT SOCIAL ISOLATION IN EATING DISORDERED INDIVIDUALS

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ABSTRACT

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Disordered eating is a pervasive problem among people of all different backgrounds. Researchers believe the schemas a person has about the self will influence that individual’s behavior. Implicit measurement of self-schemas has been used in various samples, but very few studies have examined eating disorder symptoms. The current investigation uses the Implicit Associations Test to measure implicit beliefs about social isolation, an explicit measure of 18 negative self-schemas (including social isolation), and a measurement of eating disorder symptoms. Results indicated that individuals with higher scores on the eating disorder measure had a higher prevalence of explicit negative-self schemas, the implicit measure of social isolation was also correlated with the explicit measure of social isolation. Finally, there was not a significant relationship between eating disorder symptoms and the implicit measure of social isolation.
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INTRODUCTION

Prevalence of Eating Disorders

Disordered eating is a behavioral pattern that occurs among persons of different ages, races, ethnicity, gender, and socioeconomic status. Hudson and colleagues evaluated data collected from 2,980 individuals who were surveyed as part of the National Comorbidity Survey Replication. The National Comorbidity Researchers interviewed participants using a structured diagnostic interview that screened for the presence of several psychiatric disorders. They reported that the lifetime prevalence for anorexia nervosa was 0.9 percent for women and 0.3 percent for men (Hudson, Hiripi, Pope, & Kessler, 2007). Bulimia nervosa was experienced by 1.5 percent of women and 0.5 percent of men in the 2,980 individuals surveyed. Finally, 3.5 percent of women and 2 percent of men had experienced binge eating disorder at some point in his or her lifetime (Hudson, et al., 2007).

The role of implicit cognitions is a potentially important area of research in eating disorders. Implicit cognitions can be conceptualized as “automatic thoughts” or cognitive processes (Williamson, Muller, Reas, & Thaw, 1999). Importantly, it appears that implicit cognitions may influence the eating behaviors of persons with anorexia, bulimia, and binge eating disorder (Vartanian, Polivy, & Herman, 2004).

In this paper, the Cognitive Behavioral model for eating disorders and the role of schemas in eating disorders is reviewed. First, I will explore how cognitive behavioral models help researchers understand eating disorders and the role that schemas play in their onset and maintenance. Then, I will critically examine research that investigates schemas and core beliefs associated with eating disorders. I will argue that the Implicit Association Test (IAT, Greenwald, McGhee, & Schwartz, 1998) is an important, but underused, method of collecting...
data on schemas and core beliefs. Subsequently, I will explain why it is important to study the implicit self-concept of eating disordered individuals using the IAT. Finally, I will describe the current investigation, which is designed to explore the role of implicit beliefs among individuals who have eating disorders.

A Cognitive-Behavioral Model of Eating Disorders

One of the more empirically supported theories of eating disorders has been labeled the “Cognitive Behavioral Model” (Decaluwe & Braet, 2005; Shafran, Lee, Cooper, Palmer, Fairburn, 2008; Strauss, & Ryan, 1988; Vartanian, Polivy, & Herman, 2004; Williamson, White, York-Crow, & Stewart, 2004). This model posits that an individual who is vulnerable to developing an eating disorder places great importance on weight and shape when evaluating his or her self-worth (Fairburn, Cooper, & Shafran, 2003 as cited in Jones, Leung, & Harris, 2007). This emphasis on weight and shape can then increase the likelihood that the individual will restrict her food intake as a means to maintain a sense of well being and to reduce perceived threats to self worth. For some individuals, dietary restraint leads to binge eating. The binge episode, combined with the aforementioned weight and shape concerns, can then trigger intense anxiety. As a result, some individuals will engage in purging behavior in order to reduce anxiety and restore feelings of well being (Decaluwe & Braet, 2005). The Cognitive Behavioral Model for eating disorders has been supported in a number of empirical studies (see review by Williamson et al., 2004).

A critical element of the cognitive behavioral model is the position that eating disordered individuals have strong and persistent beliefs about the importance of weight and shape in evaluating self-worth. These strong and persistent beliefs have been investigated in self-schema theory (Markus, 1977 as cited in Ahern & Hetherington, 2006). Self-schema theory posits that
people form schemas or cognitive categories that are used to quickly and efficiently process information. Some researchers refer to schemas as “core beliefs” (Jones, et al., 2007). The schemas a person develops over his or her lifetime can influence what type of information an individual attends to, encodes, and evaluates. These schemas can also influence subsequent thoughts, feelings, and behaviors (Ahern & Hetherington, 2006).

Schemas have been investigated in the eating disordered population in many studies. The primary emphases in these investigations were to identify the form and function of schemas in eating disorder onset and maintenance. A number of schemas or core beliefs have been identified (see Table 1).

A detailed review of the research in Table 1 reveals that an important core belief is social isolation. Researchers have examined the role of identity disturbances in individuals with eating disorders (Bruch, 1979; 1981; 1982, as cited in Stein & Corte, 2007). Many individuals develop eating disorders during adolescence, when identity development is paramount. More specifically, social identity and social interactions are critical to the development of a healthy self-image (Stein & Corte, 2007). Individuals who are socially isolated may have a higher risk of placing self worth on weight and shape, and as a result develop maladaptive eating behaviors. For example, an adolescent female who perceives herself to be socially isolated may try to manipulate her weight and appearance in order to fit in. While researchers have consistently demonstrated a significant relationship between social isolation and eating disorder symptoms, the exact nature of the relationship remains unclear.

It is also evident from Table 1 that the Young Schema Questionnaire (Young, 1994) is the most commonly used measure in this research. The YSQ was not created for eating disorder research. However, it has been found useful in identifying the belief systems of individuals with
anorexia and/or bulimia. The current form of the YSQ has 18 subscales that are designed to measure separate schemas. The subscales are: abandonment, mistrust/abuse, emotional deprivation, defectiveness/shame, social isolation, dependence/incompetence, vulnerability to harm, enmeshment, failure to achieve, entitlement, insufficient self-control, subjugation, self-sacrifice, emotional inhibition, unrelenting standards, approval seeking, negativity/pessimism, and punitiveness. By using a likert-type scale, an individual rates himself or herself as to how well the items describe the individual. A higher score on any item suggests that an individual holds that maladaptive core belief (Jones et al., 2007).

While self-report measures are useful in many areas of research, they also have limitations. For example, van de Mortel and colleagues (2008) found that out of 14,275 studies that used a self-report measure, only 31 (0.2%) used a social desirability scale to determine whether participants’ responses were influenced by their wish to appear socially acceptable. Out of those 31 studies, 43% found that social desirability was significantly associated with the self-report measure (van de Mortel, 2008). This finding suggests that self-report measures may be vulnerable to the social desirability of participants. Additionally, self-report measures are vulnerable to variation in an individual’s awareness of behavior, emotional experiences, and thought processes.

In summary, research has found that there are potential differences in reported core beliefs of people who have eating disorders relative to those who do not have eating disorders. One such belief is social isolation. While social isolation has been consistently observed, measurement of this construct may be adversely affected by the exclusive reliance on self-report methodology.
Measurement of Implicit Beliefs

The implicit beliefs a person holds may influence his or her thoughts, emotional experiences, and actions without the person being fully aware of them (Williamson et al., 2004). In order to measure implicit beliefs, researchers use alternative measurement methods since self-report methodology can only access cognitive experiences that a person can reliably identify and report.

There are a few primary ways that researchers measure implicit beliefs among eating disordered populations. The first is the Stroop task (Stroop, 1935; e.g., Johansson, Ghaderi, & Andersson, 2004; Sackville, Schotte, Touyz, Griffiths, & Beumont, 1997). During the Stroop task the participant is presented with a list of words printed in different colors. The participant is then asked to report the color of each word rather than the word itself. If it takes the participant a longer amount of time to name the color of each word it becomes clear that the semantic meaning of the word is interfering with the participant’s ability to name the word color (Stroop, 1935).

A modified Stroop task, which employs the emotional salience of words, has been used in eating disordered research (Johansson et al., 2005). Participants are presented with words deemed emotionally salient to an eating disordered individual (e.g. stomach, cookie, fat, etc.) as well as neutral words (e.g. chair, rose, tree) and instructed to ignore the semantic meaning of the word and simply name the color.

A meta-analysis was conducted on data from 27 studies that used the Stroop task to evaluate differences between eating disordered and healthy controls (Johansson et al., 2005). Researchers found that overall, eating disordered participants had longer response latencies when naming the color for food or body shape-related words than for neutral words relative to control
participants. Researchers concluded that eating disordered participants were more distracted by the food and body shape words.

Another method used by researchers to measure implicit beliefs is the Implicit Associations Test (IAT, Greenwald, McGhee, & Schwartz, 1998). This measure was developed in the mid-1990s by researchers who sought to measure implicit cognitions in a more valid and reliable way. The test measures response latencies while an individual categorizes stimuli into pairs of concepts (Lane et al., 2007). Using a computerized version of the IAT, participants are presented with words and/or images that appear in the middle of the computer screen, and asked to categorize them (Ahern & Hetherington, 2006). Two separate categories are represented by the same response key during the critical trials of the IAT. For example, during a critical trial, an image of an African American man may appear in the middle of the screen, and the participant will either push “E” to choose the left side of the keyboard which has the terms “black” or “bad” listed on the top left side of the screen or the participant can push “I” to choose the right side of the keyboard which has the terms “white” or “good” listed on the top right side of the screen (see Figure 1.)

The amount of time it takes for a participant to press the “E” or “I” key is called response latency. The response latency for the critical trial described above is then compared to the response latency for a trial of a reversed combined task. This requires participants to categorize the stimuli in the center of the computer screen once more, but the attribute categories are reversed (See figure 2.)

Researchers argue that the time it takes for a participant to categorize the stimuli will smaller when it is easier for the participant to respond to the word pairing as a single item (Ahern & Hetherington, 2006). In other words, an individual’s ability to categorize the stimuli into a word pairing will increase in speed and accuracy when the word pairing is more closely related
in that individual’s mind. By comparing the response latencies, researchers can detect implicit beliefs or schemas (Greenwald, et al., 1998) that may or may not as apparent in self-report measures.

For example, if a person who believes that African American people are associated with negative characteristics were to take the IAT described above, it would be predicted that the response time to the first task (Figure 1) would be faster than the second task (Figure 2). The second task would take longer because in order to classify the image of the African American man into the “black” category, the person would need to process the “good” category as well. This takes a longer time to do than if the person implicitly believes the African American man belongs in the “bad” category because it creates incongruence or cognitive interference.

Currently, there are seven blocks of trials used in an IAT. The computerized version of the IAT has columns on the right and left side of the screen where words are placed (See Figure 1). The individual is asked to press either the “E” key or the “I” key to categorize the words or images that appear in the middle of the screen.

Block 1 is the target discrimination in which participants are taught the different words used for each category (e.g. if one category is “black,” set 1 will teach participants the different images used in this category). Block 2 teaches the participants the different words used for the positive and negative attributes. For example, if one attribute category is “good” the participant learns that “nice,” “pleasant,” “wonderful” and “enjoyable” are all words that belong to that category. Both sets 1 and 2 have 20 trials each.

Block 3 is the initial combined task in which participants are asked to pair the stimuli into target and attribute words. With the above example, participants would be instructed to pair images of white people and words that represent “good” into the “White or Good” side.
Alternatively, images of black people and words that represent “bad” would be categorized into the “Black or Bad” side (See figure 3). Set 3 has 20 trials.

Block 4 is the same task as in set 3; however it is the critical trial that is used in data analysis, and therefore has 40 trials. The amount of time it takes for the participant to categorize each stimuli presented is recorded in the form of response latencies.

In Block 5, participants are again asked to categorize the stimuli into good or bad, but the location of each column is reversed. For example, if in the preceding 4 blocks, the “good” words were on the left side of the computer screen and the “bad” words were on the right side of the screen, in block 5 those placements would be reversed. This block allows the participant to practice the placement of the reversed stimuli before the reversed combined task (See Figure 4).

Block 6 is the practice set for the reversed combined task in which participants are asked to pair the stimulus words/images into the categories opposite of where they have been categorized thus far. For example, participants will be instructed to categorize an image of a black person into the “Black or Good” side, while placing the image of a white person into the “White or Bad” side (See Figure 5.) The 6th block has 20 trials.

Participants are asked to do the same task in set 7 as they did in set 6. The 7th set has 40 trials, however, and is the critical trial for which the response latencies are compared to the response latencies from the initial combined task in set 4.

The final result when comparing response latencies for the different blocks of the IAT is called an “IAT effect” which is a measurement of the strength of association between word pairings. For example, if a participant had shorter response latency for categorizing the presented stimuli into “Black or Bad” and “White or Good” than he or she had for categorizing the stimuli into “Black or Good” and “White or Bad” researchers would indicate that the
participant demonstrated an implicit belief that African American individuals are more strongly associated with bad attributes and White individuals are more strongly associated with good attributes.

The psychometric properties of the IAT have been evaluated in a number of studies. The internal reliability of the IAT is typically found to be acceptable. For example, a meta-analysis done by Hofman, Gawronski, Gschwedner, Le, and Schmitt (2005) found the Chronbach’s alpha averaged .79 across 50 studies (as cited in Lane, Banaji, Nosek, and Greenwald, 2007). Test-retest reliability was reported to be .69 in a review of seven empirical studies that used multiple administrations of the IAT ranging from during the same session to a year later (Lane et al., 2007).

The IAT’s validity is less well established. In order to measure the convergent validity of the IAT, or any other measure, it must be taken by the same participant. However, whichever measure the participant completes first may prime them for the following measure(s). It is therefore very difficult to measure the convergent validity of multiple implicit measures (Lane et al, 2007). In one study that was able to compare two implicit measures (the IAT and the Implicit Relational Assessment Procedure; IRAP; Barnes-Holmes, Barnes-Holmes, Power Hayden, Milne & Stewart, 2006) the two measures were not significantly associated (Barnes-Holmes, Waldron, Barnes-Holmes & Stewart, 2009). The researchers described a procedural difference that may explain why the two measures were not strongly associated. The strength of association between words used in the IAT was unknown, which may have contributed to the lack of congruence between the IAT and the IRAP results (Barnes-Holmes et al., 2009).

Researchers have also demonstrated that implicit attitudes can account for variance in behavior that is independent from the variance associated with explicit attitudes (Perugini, 2005).
Two empirical studies that employed the IAT revealed that while the correlation between implicit and explicit attitudes may be informative in a descriptive capacity, the two types of attitudes are not uniformly predictive of behavior. Perugini (2005) emphasized the importance of measuring both the implicit as well as the explicit attitudes when studying any psychological construct.

Use of the Implicit Associations Test in Eating Disorder Research

Two studies have used the IAT to measure the implicit beliefs among eating disordered individuals. Ahern, Bennett, and Hetherington (2008) used an IAT designed to measure implicit beliefs about positive associations with underweight fashion models. In their study, participants with eating disordered symptoms {as measured by The Eating Disorders Inventory—2 (Garner, Olmstead, & Polivy, 1983) and The Dutch Eating Behavior questionnaire Restraint Scale (Van Strien, Frijerts, Bergers, & Defares, 1986)} viewed a series images paired with attribute words. Images of underweight fashion models were paired with both positive and negative attribute words. Alternatively, normal weight images were paired with positive and negative attribute words. Results demonstrated that the participants with a higher drive for thinness also demonstrated a stronger association between the underweight models and positive attributes than between the normal weight models and positive attributes.

In the second investigation conducted by Thomas, Judge, Brownell, and Vartanian (2006), participants were instructed to read either an eating disorder memoir or a control book. Self-report measures of eating disorder symptoms {Eating Attitudes Test-26 (Garner, Olmsted, Bohr, & Garfinkel, 1982), the Eating Disorders Inventory Drive for Thinness subscale, and a measure created for this study, the Perceived prevalence of Eating disorder Symptoms Scale (Thomas et al., 2006)} as well as attitudes of anorexia being associated with either glamour or
danger were taken (by use of an IAT) before and after reading the book. Results indicated that
the reading of memoirs had little effect on the participants’ self-reported symptoms as well as
implicit associations of anorexia after reading the eating disorder memoir (Thomas, Judge,
Brownell, & Vartanian, 2006). Additionally scores on the eating disorder measure were not
significantly associated with variation in IAT results. However, the sample was comprised of
individuals with only mild to moderate eating disorder symptoms.

The research in the area of implicit attitudes with individuals with eating disorders is
clearly limited. Researchers have yet to investigate the role of implicit social isolation even
though it has been an important construct when studied explicitly. Based on the findings of
Perugini (2005) it is important to understand both the explicit and implicit attitudes an individual
has about a psychological construct such as social isolation. More research is required to obtain
a more complete picture of the cognitive behavioral model of eating disorders.

Hypotheses

Research has shown that people who exhibit eating disordered symptoms report stronger
beliefs about social isolation. A limitation of this line of research is that this core belief was
measured using only self-report inventories.

Researchers investigating the implicit beliefs of individuals with eating disorders have
found differences in the way individuals with eating disorders respond to implicit stimuli when
compared to healthy controls (Johansson et al., 2005; Ahern, et al., 2006). However, none of the
studies using implicit belief measures have investigated the presence of social isolation among
persons with eating disorders.

The current study was designed to examine the role of implicit beliefs about social
isolation in a sample of participants who exhibit eating disorder symptoms. It was hypothesized
that participants who reported more eating disordered symptoms would also demonstrate a higher IAT effect for social isolation. It was also hypothesized that participants who scored higher on the EAT would endorse higher rates of negative self-schemas as measured by the YSQ, including the subscale of social isolation, when compared to individuals with low scores on the EAT based on the prior findings of research. Finally, it was hypothesized that implicit social isolation and explicit social isolation would interact in predicting eating disorder symptoms. This interaction effect was predicted based on the research by Perugini (2005) that focused on both types of information that influence an individual’s decision-making. For example, an individual prone to eating disorder symptoms is influenced by both implicit and explicit processes when making choices about eating behavior. Therefore, the biggest influence on decision-making will occur if they experience social isolation both implicitly and explicitly.
METHOD

Participants

A total of sixty-six college students who were enrolled in psychology classes were recruited using SONA; an online system designed to involve students in research. Participants were told that in addition to receiving credit for participating in research, they also had the opportunity to enter their names into a drawing for one of three $25 gift certificates to the university bookstore. All participants were women, and their mean age was 19.5 (SD = 1.35). The breakdown of year in school was as follows: 43.9% freshmen, 18.2% sophomore, 24.2% junior, and 13.6% senior. The university Human Subjects Review Board (HSRB) approved the use of human subjects for this study.

Measures

Demographics. The questionnaire was used to collect information regarding age in years and year in school. To obtain participants’ height and weight, a digital scale and a measuring tape were placed in the lab and used during data collection (see Appendix A).

The Eating Attitudes Test (EAT-26). The EAT was originally developed by Garner and Garfinkel in 1979. The EAT-26 is a shortened version of the original EAT, created by factor analysis, which was found to be significantly correlated (r = .98) with the original version (Garner, Olmsted, Borh, & Garfinkel, 1982). It has 26 items to which individuals respond on a Likert scale, with responses ranging from “never” to “often.” The questions include items such as, “I am terrified of being overweight” and “I give too much time and thought to food.” It is widely used for the measurement of eating disorder characteristics (See Appendix B).
The reliability and validity of the EAT-26 has been investigated in several studies. A study by Garner et al., (1982) found the internal consistency score of alpha = .90 which is high. Another study reported a Chronbach’s alpha of .85 (Johansson et al., 2004). In this sample of participants, data from the EAT-26 was analyzed by calculating a total score for each participant. Possible scores range from 0-78. In this sample, EAT scores ranged from 0 to 68 with an average score of 10.95, and a standard deviation of 12.48. The Chronbach’s alpha was .93, which is consistent with the high alpha reported in other studies.

The Implicit Associations Test (IAT). The IAT for this study was adapted from Lane et al. (2007), as illustrated in Appendix D. The IAT was designed to measure each participants’ implicit sense of how isolated she was from others. Words used for the “isolated” category were: alone, lonely, solitary, and different. For the opposing “connected” category, the words were: intimate, friend, together, and social. The words for the “Me” attribute category were: self, I, and myself. Finally, the words for the “Not Me” attribute category were: other, they, and them. Words for each category were obtained using an online thesaurus (http://thesaurus.com).

The IAT was set up in seven blocks. In each block, participants were presented with a target word (self, me, myself, other, they, they’re) in the middle of the computer screen. Participants were then asked to pair the target word with category words that were located on the top left and top right hand corners of the computer screen. To pair the target word with the top left hand category word they pressed the “E” key. To pair the target word with the top right hand category word they pressed the “I” key.

In the first block of the IAT, participants simply learned the words for the “Me” and “Not me” categories. They were instructed to indicate if the target word belonged to the “Me”
category by pressing the “I” key or the “Not me” category by pressing the “E” key (See Figure 6).

In the second block, participants learned the words for the “connected” and “isolated” categories. They were instructed to categorize “connected” words by pressing the “E” key and “isolated” words by pressing the “I” key (See Figure 7).

In the third block, participants paired words such as “alone” or “myself” into either “Me”/“Isolated” or “Not Me”/“Connected.” They placed a target word into the “Me”/“Isolated” category by pressing the “I” key, and into the “Not Me”/“Connected” category by pressing the “E” key (See Figure 8). During all of these blocks response times were recorded. Block four asked participants to do the same task as in block three, however it had twice as many trials.

In block five participants were asked to again identify words from the “Me” and “Not me” categories, however their placement on the computer screen was opposite (See Figure 9).

During block six, participants were asked place words into either “Not me”/“Isolated” or “Me”/“Connected,” while the placement of “Me” and “Not Me” was still the opposite of the first half of the IAT (See Figure 10). Block seven was the same task as block six, though like block four, it had twice as many trials.

The scoring algorithm used to calculate an IAT effect for each participant was based on the method developed by Greenwald and colleagues in 2003. The test statistic, $D$, was computed by using the response latencies from each of the critical trials (i.e. trials 3, 4, 6, and 7). The first step in calculating $D$ was to compute the standard deviation of response times for an individual participant within blocks 3, 4, 6 and 7. The mean response time was also calculated for each
block. Then, the mean differences between block 6 and block 3 \((\text{Mean}_{\text{Block 6}} - \text{Mean}_{\text{Block 3}})\) as well as block 7 and block 4 \((\text{Mean}_{\text{Block 7}} - \text{Mean}_{\text{Block 4}})\) were each divided by the corresponding standard deviation. Finally, an overall \(D\) was computed by averaging the aforementioned two ratios.

The overall \(D\) was used as a measurement of strength of association between social isolation words and self-words. Negative scores indicate a negative association between social isolation words and self-words. Positive scores indicate a positive association between social isolation words and self-words. In this sample, there was a range from -2.31 to 1.36, \((M = 0.15, SD = 0.59)\).

The Young Schema Questionnaire- Short Form (YSQ-S). The YSQ has been used by researchers to measure 18 core beliefs. The beliefs measured by the YSQ are general cognitions an individual has about himself and others (Lawson, Emanuelli, Sines & Waller, 2008). It is a 90-item self-report questionnaire that has been commonly used in research with eating disordered individuals. The YSQ has been found to have a Chronbach’s alpha of .80 or higher for each of the 18 subscales (Lawson, et al. 2008; Waller et al., 2001). The subscales measured by the YSQ are: emotional deprivation, abandonment, mistrust/abuse, social isolation, defectiveness/unlovability, failure to achieve, dependence/incompetence, vulnerability to harm, enmeshment, subjugation, self-sacrifice, emotional inhibition, unrelenting standards, entitlement/superiority, and insufficient self-control, admiration/recognition seeking, pessimism/worry, and self-punitiveness (Young, 2003). Each subscale score can range from 1 to 6, with scores of 1 indicating a response of “completely untrue of me,” and a score of 6 indicating a response of “describes me perfectly.” A higher number indicates a higher level of negative self-schema endorsement. To compute a total YSQ score, all the subscale scores are
combined. In this sample, the total YSQ score ranged from 114 to 499, \((M = 210, SD = 8.49)\).

For each individual subscale, a Chronbach’s alpha was computed which can be seen in Table 2. As shown in the table, most alpha scores fell within acceptable and good ranges, and there were three subscales that fell within the excellent range.

**Procedure**

The participants scheduled an individual time to come to the lab. After arrival at the lab, informed consent was obtained, and they completed the Implicit Associations Test. After the completion of the IAT, the participants completed the demographic questionnaire, the Young Schema Questionnaire-Short Form, and the Eating Attitudes Test. The sequence of measures was kept constant in order to avoid priming effects on the IAT. After the completion of all measures, the experimenter measured and recorded the height and weight of each participant. Finally, the participants were debriefed.
RESULTS

Construct Validation

The IAT in this study was designed to measure social isolation. Participants also completed the social isolation subscale on the YSQ. The IAT and the social isolation subscale of the YSQ were significantly correlated, $r(66) = .41, p < .05$, which suggests that they were measuring similar constructs.

Hypotheses Tests

It was predicted that participants who reported more disordered eating would also demonstrate a higher IAT effect for social isolation. A Pearson correlation calculated between the IAT and the EAT-26 indicated that the relationship was not significant, $r(66) = .046, p > .05$.

In hypothesis 2, it was predicted that participants who endorsed more disordered eating as measured by the EAT-26 would also endorse a higher level of negative self-schemas as measured by the total score of the YSQ. The observed relationship between the EAT-26 and the total YSQ scores was reliable and of medium magnitude, $r(66) = .49, p < .05$. This finding supports hypothesis 2. In other words, participants who demonstrated a higher rate of eating disordered thoughts and behaviors also endorsed more negative self-schemas. Additionally, the social isolation subscale of the YSQ was also significantly correlated with the EAT data, $r(66) = .30, p < .05$.

In hypothesis 3, it was predicted that explicit and implicit attitudes would interact in predicting EAT scores. Using the data from the YSQ, the IAT and the EAT, a hierarchical regression was performed. The first step of the regression used the IAT score and the total YSQ scores to predict scores on the EAT. The overall model was significant, $F(2, 63) = 9.928, p < .001$, with an adjusted R squared equal to .22. The standardized beta coefficients revealed that
while the YSQ data was significantly contributing to the overall variance, $t(65) = 4.44, p < .001$, the IAT data did not contribute significantly to the model, $t(65) = -.304, p = .762$. The next step of the regression added an interaction term; the total YSQ score multiplied by the IAT score. Again, the overall model was significant, $F(3, 62) = 6.62, p = .001$, with an adjusted R squared equal to .21. As can be seen in Table 3, while the overall model was significant, the construct that was driving the significance was the total YSQ score, and not the interaction between the YSQ and the IAT. Therefore, the data were not consistent with a multiplicative model.

Since the IAT data was significantly correlated to the social isolation subscale of the YSQ, a hierarchical regression was created using just the data from that subscale. The first step in this regression used the IAT score and the social isolation subscale of the YSQ to predict scores on the EAT. The overall model was not significant, $F(2,63) = 3.04, p = .055$, though just barely. The adjusted R squared for this model was equal to .06. The standardized beta coefficients demonstrated that while data from the social isolation subscale was significantly contributing to the overall variance, $t(65) = 2.44, p = .018$, the IAT data, again, did not contribute significantly to the model, $t(65) = -.13, p = .900$. The next step of the regression added an interaction term; the social isolation score from the YSQ multiplied by the IAT score. The overall model was not significant, $F(3, 62) = 2.18, p = .100$, with an R squared equal to .05. Finally, the only term that significantly contributed to the model was the social isolation subscale, $t(65) = 2.45, p = .017$, while the IAT data $t(65) = .571, p = .570$, and the interaction term, $t(65) = -.701, p = .486$, did not (See Table 4).

**Other Findings**

In order to evaluate any important correlations among variables in this study, a correlation matrix was created using demographic data as well as scores from the IAT, the YSQ,
and the EAT-26. As displayed in Table 5, there was a significant correlation between BMI and total YSQ score. This correlation reveals that participants who had a higher BMI also endorsed more negative self-schemas.

Further analysis indicated there were several self-schemas measured by the subscales of the YSQ that drove the significant relationship with BMI. The five YSQ subscales that were found to be significantly correlated with BMI were: abandonment, $r (66) = .32, p < .05$, subjugation, $r (66) = .32, p < .05$, self-sacrifice, $r (66) = .28, p < .05$, approval/recognition seeking, $r (66) = .32, p < .05$, and pessimism/worry, $r (66) = .35, p < .01$. 
DISCUSSION

A number of researchers have focused on the importance of core beliefs in the onset and maintenance of eating disorders. Of particular interest are the findings that self-schemas such as social isolation, abandonment, and emotional deprivation are correlated with eating disorder symptoms (e.g., Leung & Price, 2007; Luck et al., 2005; Stein & Corte, 2007; Waller, 2002). This study was designed to evaluate interrelationships among social isolation and eating disorder symptoms using explicit and implicit measurement strategies.

Researchers have found that social isolation is positively related to eating disorder symptoms and behaviors even after controlling for depression and low self-esteem (Zaitsoff, Fehon, Grilo, 2009). Many people who have disordered eating typically develop symptoms in early adolescence, which is a critical time for peer relationships and social behavior. When young people fail to create adequate social networks, or do not view themselves as being capable of and confident in their social skills, this may contribute to the development of poor self-image and disordered eating (Zaitsoff et al., 2009).

It was predicted that individuals who endorsed more eating disorder symptoms would also have a stronger implicit belief that they are socially isolated. Additionally, it was predicted that individuals who endorsed higher eating disorder symptoms would report a stronger explicit belief that they are socially isolated. Finally, it was hypothesized that a combined explicit and implicit measure of negative self-schemas would account for unique variance in eating disorder symptoms. In the following paragraphs the results and implications for each hypothesis are discussed.

Correlation Between Eating Attitudes Test and Young Schema Questionnaire
Consistent with previous research (e.g. Cooper, Rose, and Turner, 2006), participants who reported higher levels of eating disorder symptoms as measured by the EAT-26 also reported a higher levels of the 18 negative self-schemas measured by the YSQ. As shown in the results, the specific negative self-schemas correlated with eating disorder symptoms were: emotional deprivation, abandonment, mistrust, social isolation, defectiveness/unlovability, failure to achieve, incompetence/dependence, vulnerability to harm, enmeshment, subjugation, insufficient self-control, approval/ recognition-seeking, pessimism, and self-punitiveness. These findings are consistent with the self-schema domains describe by Young (2003). Five of the total fourteen subscales that were significantly correlated with eating disorder symptoms (abandonment, mistrust, emotional deprivation, defectiveness/unlovability, and social isolation) make up the domain labeled, “disconnection and rejection.” An additional four subscales (incompetence/dependence, vulnerability to harm, enmeshment, and failure to achieve) make up the domain “impaired autonomy and performance.”

Researchers have used longitudinal studies to demonstrate the importance of negative self-schemas in the development and maintenance of eating disorder behaviors (Stein & Corte, 2008). This empirical evidence supports the identity impairment model (Stein, 1996) which suggests people who develop eating disorders experience problematic identity development. The findings of the current study fall in line with this theory of eating disorders, and illustrate several of the specific self-schemas experienced by those with eating disorder symptoms.

**Correlation Between IAT Social Isolation and YSQ Subscale of Social Isolation**

One important finding was the significant correlation between the IAT measure of social isolation and the explicit measure of social isolation that was measured by the subscale on the YSQ. This finding suggests that the newly developed IAT measure of social isolation was
related to an already established measure of explicit measure of social isolation. The magnitude was of moderate, which suggests that the two measures were not redundant, but measuring common and unique aspects of social isolation.

**Correlation Between IAT Social Isolation and Eating Disorders**

Given that (a) the IAT measure of social isolation was correlated with the explicit measure of social isolation and (b) the explicit measure of social isolation was correlated with eating disorder symptoms, one would expect that there would be a significant relationship between the IAT measure of social isolation and eating disorder symptoms. However, the results of the present study did not yield a significant correlation between IAT data and eating disorder symptoms. There are several possible explanations for this lack of association.

First, it may be that the IAT that was created for this project may be tapping into a different aspect of social isolation relative to the YSQ. For example, some researchers have argued that the IAT is “double-barreled” (Blanton, Jaccard, Christie, & Gonzales, 2007) meaning that the participants in this study were asked not only to attend to the association between “Me” words and “Isolated” words, but also to the paring of “Other” words and “Social” words. Thus, a higher bias score could represent a strong association between either pairing (i.e., me-isolated or others-social). The YSQ does not have this type of ambiguity. The questions asked on the YSQ are very clear (e.g. “I need other people so much that I worry about losing them”) and elicit a clear response from the participant depending on how much he or she agrees to the given question. These differences in ambiguity between the two measures may help explain why one measure had a significant relationship with eating disorder symptoms and why the other did not.

Another potential explanation for the lack of relationship between the EAT data and the IAT data has to do with the type of measurement. The measure of eating disorder symptoms was
an explicit one, meaning that participants could have considered their options and chosen a response after being influenced by a variety of things (e.g. social desirability, core values, societal pressure). Conversely, the IAT was designed to measure constructs on an “automatic” processing level. Researchers developed the IAT to gain access to information that may be confounded with social desirability and lack of self-awareness (Greenwald et al., 1998; Greenwald & Farnham, 2000; Greenwald, Nosek & Banaji, 2003). The IAT has been used to significantly predict avoidance behaviors, decision-making, and social judgments (Poehlman, Uhlmann, Greenwald, & Banaji, 2005). Perhaps the implicit information gathered by the IAT in this particular study would have had a significant relationship to actual eating behavior rather than reported behavior.

Finally, there is a potential that a third variable could be affecting the relationship. For example, researchers have found that depression can be a third variable mediating the relationship between eating disorder symptoms and negative self-schemas (Cooper et al., 2006). Other variables such as depression or emotional state could influence the explicit measures of the EAT and YSQ in a different way than they influence responses on the IAT.

Predictive Model of Eating Disorder Symptoms

Perugini (2005) highlighted the importance of using both implicit and explicit measures when studying a psychological construct. In line with this, it was hypothesized a combination of the two measurements would account for unique variance in eating disorder symptoms. Since the relationship between the EAT and the IAT was not significant to begin with, the predictive model was neither additive nor multiplicative. Other researchers have also failed to find an interaction between implicit and explicit measures when individuals are faced with decision-making tasks (Richetin, Perugini, Prestwich, & O’Gorman, 2007). Some researchers have
attributed the lack of relationship between implicit and explicit measures to a lack of self-awareness (Hofmann, Gschwender, Nosek, & Schmitt, 2005). If an individual has little self-awareness, she may represent herself differently on an explicit measure when compared to an implicit one. Additionally, as mentioned earlier, there may be a third variable such as negative affectivity or social desirability that influenced responses on the EAT such that a predictive model was difficult to construct.

**Limitations**

The sample used in this study was female undergraduate students, so it is not clear whether these findings generalize to older or younger populations, as well as to males. This limitation is often found in eating disorder research since eating disorders have different characteristics among males and females (Striegel-Moore, et al., 2009). Additionally, because this was a subclinical population, it is difficult to know if these results would generalize to individuals with diagnosable eating disorders.

**Conclusions and Further Directions**

The present study examined the relationships among an implicit measure of social isolation, explicit reports of social isolation, and explicit reports of eating disordered symptoms. The results suggest that while explicitly reported social isolation is higher among persons who report higher levels of eating disorder symptoms, an implicit measure of social isolation is not. There are several possible explanations why a significant relationship between the data was not found in this sample, including different influences on implicit and explicit measures such as affective state and social desirability.

Several of the explicit subscales of the YSQ measuring self-schemas (e.g. abandonment, self-sacrifice, insufficient self-control, and pessimism) were found to have significant
relationships with eating disorder symptoms. It may be important to study these other negative self-schemas with implicit measures to more clearly understand the relationship between explicit measures of self-schemas, implicit measures of self-schemas, and eating disorder symptoms.


Cooper, M.J. & Cowen, P. (2009). Negative self-beliefs in relation to eating disorder and depressive symptoms: Different themes are characteristic of the two sets of symptoms in
those with eating disorders and/or depression. *Journal of Cognitive Psychotherapy, 23*(2), 147-159.


APPENDIX A: FIGURES & TABLES

Figure 1. Illustration of the initial combined task in the IAT

Figure 2. Illustration of the reversed combined task in the IAT
Figure 3. Illustration of Block 3 of an IAT

Figure 4. Illustration of Block 5 of an IAT
Figure 5. Illustration of Block 6 of an IAT

Figure 6. Illustration of Block 1 of the Social Isolation IAT
Figure 7. Illustration of Block 2 of the Social Isolation IAT

Figure 8. Illustration of Blocks 3 and 4 of the Social Isolation IAT
Figure 9. Illustration of Block 5 of the IAT

Figure 10. Illustration of Blocks 6 and 7 of the IAT
<table>
<thead>
<tr>
<th>Authors</th>
<th>Date</th>
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<th>Schemas Identified or Measured as Significant</th>
<th>Measure Used</th>
<th>Type of Measure</th>
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<td>Cooper &amp; Cowen</td>
<td>2009</td>
<td>N=193 (16.1% male) X age=38.7</td>
<td>Isolation, Revulsion, Dislikable, Lacking in Warmth, Childlike</td>
<td>Negative Self-Beliefs Questionnaire (Cooper &amp; Cowen, 2009)</td>
<td>Self-report</td>
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<td>Healthy control n=73</td>
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<td>Luck, Waller, Meyer,</td>
<td>2005</td>
<td>N= 458 all female X age=28.1</td>
<td>Primary and secondary avoidance of affect</td>
<td>Young Compensatory Inventory (Young, 1998) &amp; Young-Rygh Avoidance Inventory (Young, 1994)</td>
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<td>open-ended questionnaire, trait adjective ratings</td>
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<td>Waller, Dickson, &amp;</td>
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<td>Waller</td>
<td>2002</td>
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<td>Young Schema Questionnaire (Young, 1994)</td>
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<td>Leung &amp; Price</td>
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<td>Lawson, Emanuelli, Sines &amp; Waller</td>
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<td>Waller, Babbs, Milligan, Meyer, Ohanian, Leung</td>
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<td>All subtypes of cognitive distortions significantly correlated with anger suppression except emotional deprivation</td>
<td>Young Schema Questionnaire-Short Form (Young, 1998), State-Trait Anger Expression Inventory (STAXI; Spielberger, 1996)</td>
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### Table 2

*Chronbach’s alpha scores for subscales of the YSQ*

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<th>Alpha</th>
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<td>Abandonment</td>
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<td>Mistrust</td>
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<td>Self-Sacrifice</td>
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<td>Pessimism/Worry</td>
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<td>Self-Punitiveness</td>
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<td>Total YSQ Score</td>
<td>.97</td>
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Table 3
Hierarchical Regression predicting EAT scores from IAT Data, Total YSQ Scores, and Interaction Term

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<th>Standardized Coefficients Beta</th>
<th>Significance</th>
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<td>YSQ</td>
<td>.494</td>
<td>.000**</td>
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<tr>
<td>IAT</td>
<td>-.034</td>
<td>.762</td>
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<tr>
<td>YSQ x IAT</td>
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<td>.619</td>
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Note: **p < .001

Table 4
Hierarchical Regression predicting EAT scores from IAT Data, Social Isolation subscale of the YSQ, and Interaction Term

<table>
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<th>Standardized Coefficients Beta</th>
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<td>Social Isolation subscale</td>
<td>.349</td>
<td>.017*</td>
</tr>
<tr>
<td>IAT</td>
<td>.571</td>
<td>.570</td>
</tr>
<tr>
<td>Social Isolation X IAT</td>
<td>-.701</td>
<td>.486</td>
</tr>
</tbody>
</table>

Note: *p < .05
Table 5

*Correlation Table for EAT Data, IAT Scores, Total YSQ Scores, and Participant BMI*

<table>
<thead>
<tr>
<th></th>
<th>EAT total</th>
<th>IAT score</th>
<th>YSQ total</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EAT total</strong></td>
<td>1</td>
<td>.046</td>
<td>.488</td>
<td>.201</td>
</tr>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
<td>.716</td>
<td>.000**</td>
<td>.124</td>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>66</td>
<td>66</td>
<td>66</td>
<td>60</td>
</tr>
<tr>
<td><strong>IAT score</strong></td>
<td></td>
<td></td>
<td>.161</td>
<td>.072</td>
</tr>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
<td>.197</td>
<td></td>
<td>.586</td>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td></td>
<td></td>
<td>66</td>
<td>60</td>
</tr>
<tr>
<td><strong>YSQ total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
<td></td>
<td></td>
<td>.259</td>
<td>.045*</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
</tr>
</tbody>
</table>

*Note: *p* < .05, **p** < .001*
Demographics

What is your age? ______

What is your current year in school?
O Freshman
O Sophomore
O Junior
O Senior
Eating Attitudes Test-26 (Garner & Garfinkel, 1979)

Please respond to each of the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Always</th>
<th>Usually</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am terrified about being overweight.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2. I avoid eating when I am hungry.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3. I find myself preoccupied with food.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4. I have gone on eating binges where</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that I may not be able to stop.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. I cut my food into small pieces.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6. I am aware of the calorie content of foods that I eat.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7. I particularly avoid food with a high</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>carbohydrate content (i.e. bread, rice, potatoes, etc.)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8. I feel that others would prefer if I ate more.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9. I vomit after I have eaten.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10. I feel extremely guilty after eating.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11. I am preoccupied with a desire to be thinner.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12. I think about burning up calories</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>when I exercise.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>13. Other people think that I am too thin.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14. I am preoccupied with the thought</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of having fat on my body.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15. I take longer than others to eat my meals.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Question</td>
<td>Always</td>
<td>Usually</td>
<td>Often</td>
<td>Sometimes</td>
<td>Rarely</td>
<td>Never</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------</td>
<td>---------</td>
<td>-------</td>
<td>-----------</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>16. I avoid foods with sugar in them.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>17. I eat diet foods.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18. I feel that food controls my life.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>19. I display self-control around food.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20. I feel that others pressure me to eat.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>21. I give too much time and thought to food.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>22. I feel uncomfortable after eating sweets.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>23. I engage in dieting behavior.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>24. I like my stomach to be empty.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>25. I have the impulse to vomit after meals.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>26. I enjoy trying rich new foods.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Please respond to each of the following questions:

1. Have you gone on eating binges where you feel that you may not be able to stop?
   (Eating much more than most people would eat under the circumstances)
   Yes ☐ No ☐ If yes, on average, how many times per month in the last 6 months? ☐

2. Have you ever made yourself sick (vomited) to control your weight or shape?
   Yes ☐ No ☐ If yes, on average, how many times per month in the last 6 months? ☐

3. Have you ever used laxatives, diet pills or diuretics (water pills) to control your weight or shape?
   Yes ☐ No ☐ If yes, on average, how many times per month in the last 6 months? ☐
Young Schema Questionnaire- Short Form (YSQ-S3; Young, 2003)

INSTRUCTIONS:

Listed below are statements that a person might use to describe him or herself. Please read each statement and decide how well it describes you. When there you are not sure, base your answer on what you emotionally feel, not on what you think to be true. Choose the highest rating from 1 to 6 that describes you and write the number in the space before the statement.

RATING SCALE:

1 = Completely untrue of me 4 = Moderately true of me
2 = Mostly untrue of me 5 = Mostly true of me
3 = Slightly more true than untrue 6 = Describes me perfectly

1. _____ Most of the time, I haven't had someone to nurture me, share him/herself with me, or care deeply about everything that happens to me.
2. _____ I don't have people to give me warmth, holding, and affection.
3. _____ For much of my life, I haven't felt that I am special to someone.
4. _____ For the most part, I have not had someone who really listens to me, understands me, or is tuned into my true needs and feelings.
5. _____ I have rarely had a strong person to give me sound advice or direction when I'm not sure what to do.
6. _____ I find myself clinging to people I'm close to, because I'm afraid they'll leave me.
7. _____ I need other people so much that I worry about losing them.
8. _____ I worry that people I feel close to will leave me or abandon me.
9. _____ When I feel someone I care for pulling away from me, I get desperate.
10. _____ Sometimes I am so worried about people leaving me that I drive them away.
11. _____ I feel that people will take advantage of me.
12. _____ I feel that I cannot let my guard down in the presence of other people, or else they will intentionally hurt me.
13. _____ It is only a matter of time before someone betrays me.
14. _____ I am quite suspicious of other people's motives.
15. _____ I'm usually on the lookout for people's hidden or ulterior motives.
16. _____ I don't fit in.
17. _____ I'm fundamentally different from other people.
18. _____ I don't belong; I'm a loner.
19. _____ I feel alienated from other people.
20. _____ I always feel on the outside of groups.
21. _____ No man/woman I desire could love me one he/she saw my defects or flaws.
22. _____ No one I desire would want to stay close to me if he/she knew the real me.
23. _____ I'm unworthy of the love, attention, and respect of others.
24. _____ I feel that I'm not lovable.
25. _____ I am too unacceptable in very basic ways to reveal myself to other people.
26. _____ Almost nothing I do at work (or school) is as good as other people can do.
27. _____ I'm incompetent when it comes to achievement.
28. _____ Most other people are more capable than I am in areas of work and achievement.
29. _____ I'm not as talented as most people are at their work.
30. _____ I'm not as intelligent as most people when it comes to work (or school).
31. _____ I do not feel capable of getting by on my own in everyday life.
32. _____ I think of myself as a dependent person, when it comes to everyday functioning.
33. _____ I lack common sense.
34. _____ My judgment cannot be relied upon in everyday situations.
35. _____ I don't feel confident about my ability to solve everyday problems that come up.
36. _____ I can't seem to escape the feeling that something bad is about to happen.
37. _____ I feel that a disaster (natural, criminal, financial, or medical) could strike at any moment.
38. _____ I worry about being physically attacked by people.
39. _____ I worry that I'll lose all my money and become destitute.
40. _____ I worry that I'm developing a serious illness, even though nothing serious has been diagnosed by a physician.
41. _____ I have not been able to separate myself from my parent(s), the way other people my age seem to.
42. _____ My parent(s) and I tend to be over-involved in each other's lives and problems.
43. _____ It is very difficult for my parent(s) and me to keep intimate details from each other, without feeling betrayed or guilty.
44. _____ I often feel as if my parent(s) are living through me--I don't have a life of my own.
45. _____ I often feel that I do not have a separate identity from my parent(s) or partner.
46. _____ I think that if I do what I want, I'm only asking for trouble.
47. _____ I feel that I have no choice but to give in to other people's wishes, or else they will retaliate or reject me in some way.
48. _____ In relationships, I let the other person have the upper hand.
49. _____ I've always let others make choices for me, so I really don't know what I want for myself.
50. _____ I have a lot of trouble demanding that my rights be respected and that my feelings be taken into account.
51. _____ I'm the one who usually ends up taking care of the people I'm close to.
52. _____ I am a good person because I think of others more than of myself.

53. _____ I'm so busy doing for the people that I care about, that I have little time for myself.

54. _____ I've always been the one who listens to everyone else's problems.

55. _____ Other people see me as doing too much for others and not enough for myself.

56. _____ I am too self-conscious to show positive feelings to others (e.g., affection, showing I care).

57. _____ I find it embarrassing to express my feelings to others.

58. _____ I find it hard to be free-spirited and spontaneous around other people.

59. _____ I control myself so much that people think I am unemotional.

60. _____ People see me as uptight emotionally.

61. _____ I must be the best at most of what I do; I can't accept second best.

62. _____ I try to do my best; I can't settle for "good enough."

63. _____ I must meet all my responsibilities.

64. _____ I feel there is constant pressure for me to achieve and get things done.

65. _____ I can't let myself off the hook easily or make excuses for my mistakes.

66. _____ I have a lot of trouble accepting "no" for an answer when I want something from other people.

67. _____ I'm special and shouldn't have to accept many of the restrictions placed on other people.

68. _____ I hate to be constrained or kept from doing what I want.

69. _____ I feel that I shouldn't have to follow the normal rules and conventions other people do.

70. _____ I feel that what I have to offer is of greater value than the contributions of others.

71. _____ I can't seem to discipline myself to complete routine or boring tasks.

72. _____ If I can't reach a goal, I become easily frustrated and give up.
73. _____ I have a very difficult time sacrificing immediate gratification to achieve a long-range goal.

74. _____ I can't force myself to do things I don't enjoy, even when I know it's for my own good.

75. _____ I have rarely been able to stick to my resolutions.

76. _____ Having money and knowing important people make me feel worthwhile.

77. _____ If I make a mistake, I deserve to be punished.

78. _____ Even when things seem to be going well, I feel that it is only temporary.

79. _____ Accomplishments are most valuable to me if other people notice them.

80. _____ If something good happens, I worry that something bad is likely to follow.

81. _____ If I don’t try my hardest, I should expect to lose out.

82. _____ Unless I get a lot of attention from others, I feel less important.

83. _____ You can’t be too careful; something will almost always go wrong.

84. _____ If I don’t do the job right, I should suffer the consequences.

85. _____ If I make remarks at a meeting, or am introduced in a social situation, it’s important for me to get recognition and admiration.

86. _____ No matter how hard I work, I worry that I could be wiped out financially and lose almost everything.

87. _____ It doesn’t matter why I make a mistake. When I do something wrong, I should pay the consequences.

88. _____ Lots of praise and compliments make me feel like a worthwhile person.

89. _____ I’m a bad person who deserves to be punished.

90. _____ I worry that a wrong decision could lead to disaster.
January 31, 2011

TO: Justine Ray
Psychology

FROM: Hillary Harms, Ph.D.
HSRB Administrator

RE: HSRB Project No.: H11T124GE7

TITLE: Implicit Social Isolation in Eating Disordered Individuals

You have met the conditions for approval for your project involving human subjects. As of January 28, 2011, your project has been granted final approval by the Human Subjects Review Board (HSRB). This approval expires on January 6, 2012. You may proceed with subject recruitment and data collection.

The final approved version of the consent document(s) is attached. Consistent with federal OHRP guidance to IRBs, the consent document(s) bearing the HSRB approval/expiration date stamp is the only valid version and you must use copies of the date-stamped document(s) in obtaining consent from research subjects.

You are responsible to conduct the study as approved by the HSRB and to use only approved forms. If you seek to make any changes in your project activities or procedures (including increases in the number of participants), please send a request for modifications immediately to the HSRB via this office. Please notify me, in writing (or email: hsr@bgsu.edu) upon completion of your project.

Good luck with your work. Let me know if this office or the HSRB can be of assistance as your project proceeds.

Comments/ Modifications:
Please add text equivalent to the HSRB approval/expiration date stamp to the “footer” area of the electronic informed consent (see attached for specific text).

c: Dr. William O’Brien

Research Category: EXPEDITED #7
Appendix A: Informed Consent

Investigators: Justine Ray, B.A. (graduate student); William H. O’Brien, Ph.D., APBB (Advisor)

Description: The purpose of this research study is to investigate the role of eating attitudes and social relationships in a sample of female BGSU students. You were selected as a possible participant in this study because you are a female BGSU undergraduate student. You must be at least 18 years old to participate.

Summary of Involvement: This study will ask you to participate in two different sessions. During the first session, you will complete an online questionnaire. This session will take approximately 10-15 minutes. After the online survey, you will sign up for a time to come into the computer lab to complete the second portion of the study. During the second session, you will be asked to complete a reaction time activity on a computer as well as another online survey. This study also involves measuring both your height and weight using a height rod and scale in a private room in our laboratory. This session will take approximately 40 minutes. You will receive a quarter credit for the first session and three quarters of a credit for your participation in the second session, totaling one whole credit for the entire study. Your participation in this study is completely voluntary. Deciding to participate or not will not impact your grades, class standing or relationship with the institution.

Potential Risks: The anticipated risks to you in this study may include a greater awareness of eating problems, as well as a greater awareness of problems encountered in your social life. Should you have any concerns arise during this study that you would like to discuss further with a counselor, please contact the BGSU Counseling Center by phone at: (419)372-2081.

Benefits: This study may benefit you by increasing your awareness of your thoughts about eating as well as your social relationships. This study may benefit society by increasing knowledge about the relationship between eating attitudes and social relationships. Additionally, if you choose to complete the study, you may enter a drawing for one of three $25 gift cards to the BGSU bookstore. There will be approximately 110 participants in this study.
Confidentiality: Information you provide will remain confidential, and your identity will not be revealed. All of your online responses will be password protected and only people running the study will have access to them. Your responses will be reviewed by ID number and will not be connected to your name in any way. If you choose to enter the drawing for a gift card, your name will be kept separately from your responses to the survey. If you complete the online survey on a public computer (e.g. in the library or computer lab) please make sure to log off and clear the browser cache in order to maintain confidentiality.

Right to Withdraw: Your participation in this study is completely voluntary, and you can refrain from answering any questions without penalty or explanation. You are free to withdraw consent and end participation in the study at any time. You have the right to have all questions concerning the study answered by the researcher and may request a copy of the results of the study. You will also be provided with a copy of this consent document for your records. Deciding to participate or not will not impact your grades or class standing or relationship to the institution.

Contact Information: If you have any questions or comments about this study, you may contact Justine Ray by phone at 440-724-7959 or by email at justray@bgsu.edu or her advisor, Dr. William H. O'Brien at 419-372-2974 or wobrien@bgsu.edu. You may also contact the Chair of the Human Subjects Review Board by phone at 419-372-7716 or by email at hsrb@bgsu.edu.

Voluntary Consent: I agree to voluntarily participate in this study and I am at least 18 years old.