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Friendship as a Modifying Factor of
Depressive Symptoms and Social Self-Efficacy in
Obese and Non-Overweight Children and Adolescents
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Chapter I: Review of the Literature

The prevalence of obesity in the United States, especially in youth, has increased dramatically with rates doubling in the last two decades (American Academy of Pediatrics, 2003; Latner & Stunkard, 2003). Along with this, the bias towards and stigmatization of obese people has increased in Western culture (Latner & Stunkard), and it has been found that children as young as pre-school age possess negative attitudes toward being overweight or obese (Musher-Eizenman, Holub, Miller, Goldstein & Edwards-Leeper, 2004). Obesity in childhood and adolescence is especially concerning because few other pediatric conditions are thought to have a comparable impact on a child or adolescent’s emotional development (Strauss & Pollack, 2003). To date, empirical studies of the psychosocial factors associated with pediatric obesity have focused primarily on the assessment of child/adolescent emotional well being. Research is needed that broadens the scope of investigation and looks more closely at social factors that are potentially related to obesity and the emotional well being of the obese child.

Peer relations play a central role in school-age children’s healthy social and emotional development (Erdley, Nangle, Newman and Carpenter, 2001; Hartup, 1992; Hartup & Moore, 1990; Ladd, 1999). Friendship, specifically, has been characterized as a “bilateral construct in that it takes place between two individuals who have reciprocated positive feelings for one another” (Erdley et al., p.5). Central elements of this type of relationship are reciprocity, equality, cooperation and communication. This is differentiated from peer acceptance in that a child may be generally accepted by his or her peers yet have no friends, or have friends and be generally unaccepted by the larger peer group (Erdley et al.). Also, peer acceptance does not specify the need for reciprocity, which is defined as mutual feelings of friendship from both a
child and the peer he or she has designated as a ‘friend’; this is used as a defining feature of a friendship (Hartup, 1992; Erdley et al.).

Findings involving the importance of friendships for children’s emotional well being, such as the relationship between lacking a close friendship in childhood and depression later in life, appear to be relatively well established within the literature (Hartup, 1992; Lawhon & Lawhon, 2000; Martin, Cole, Clausen, Logan & Strosher, 2003). However, there are several other factors of importance that have not been specifically investigated. One such factor is that of social self-efficacy, which is defined as the beliefs relating to a person’s perceived ability to interact competently and complete a ‘target behavior’ in a social situation (Coleman, 2003; Fan & Mak, 1998). A person’s perception of how effective he or she is when he or she interacts with others is important to the process of making and keeping friends (Bandura, Pastorelli, Barbaranelli & Caprara, 1999).

There are several external variables that play into the level of a person’s social self-efficacy, one of which is of particular relevance to the obese population. That variable is the person’s physical appearance, which is further influenced by the pressure our culture places on obtaining the ‘thin ideal’ and the amount of personal responsibility associated with a person’s body size (Gammage, Martin Ginis & Hall, 2004; Musher-Eizenman, Holub, Edwards-Leeper, Persson & Goldstein, 2003). In fact, “the more individuals…deviate from our culture’s body ideals, the more likely they are to be perceived (by self and peers) as personal failures, and the lower their physical and social attractiveness” (Klczynski, Goold & Mudry, p. 308, 2004). Therefore, one could assume that obese youth are lacking in social attractiveness and this “failure” may be internalized. This could result in the children taking less initiative to make and keep friends and placing them at greater risk for depressive symptoms.
Friendship

Friendship is an invaluable aspect of human life that is often taken for granted when it is present. For those who have difficulty making and keeping friends, this concept and its importance are much more salient. When children have close friendships they learn compromise, interaction, competition, perspective taking, and empathy with others (Erdley et al., 2001). Those who engage in positive interactions with their peers are responded to encouragingly, and in doing so are more likely to be chosen as friends, which then positively reinforces the behaviors (Asher, Oden & Gottman, 1974). If a child does not have the confidence to interact with his or her peers, that child will continuously miss out on these opportunities to learn pertinent skills and he or she will not receive any positive reinforcement for adaptive social behaviors or positive self-concept.

Recent research has begun to examine how important friendships are to human development. These studies have concluded that those who do not have close friendships as children are at a much higher risk for social, behavioral, and emotional problems (Martin et al., 2003). According to Erdley and colleagues (2001), “the absence of a strong affective bond may lead to the experience of loneliness and depression” (p.11). Friendlessness has also been found to be more common among individuals seeking help for emotional and behavioral problems than better-adjusted individuals (Rutter & Garmezy, 1983). In a longitudinal study conducted over a span of twelve years, it was found that “the presence of depressive symptomatology in adulthood is uniquely associated with the lack of a friendship during preadolescence, even when peer rejection is also included as a predictor of these symptoms” (Erdley et al., 2001, p. 15). It is important to note that it is the quality rather than the quantity of friendships that is important and because of this the developmental literature has found that a child needs but one quality
friendship to benefit from the protective nature of that relationship (Erdley et al.; Nangle et al., 2003).

Many studies throughout the past few decades have found protective effects associated with the presence of friendships in a child’s life, as well as the harmful effects associated with friendlessness. Ladd (1990) found that children entering the first grade had better attitudes about school if they had friends and were able to maintain old friendships while making new ones. It was also found that children making the transition from primary school to middle school had fewer psychological disturbances when they were making the transition with a friend (Berndt & Keefe 1992). Bagwell, Newcomb, & Bukowski (1998) observed that self-esteem in adults who had friends as children was greater than adults who did not have friends as children. In fact, according to Hartup (1994), the single best predictor of adult adaptation is the adequacy with which the child gets along with other children. However, it is not only the presence of friendship that is important, but it is also the quality of those friendships. It has been widely accepted in the literature that poorer adjustment is directly related to not having close friendships because it is in these relationships where children learn intimacy, how to demonstrate affection, and the meaning of a dependable alliance (Erdley et al., 2001). La Greca (1993) supports this notion by stating that, “children with close, supportive friendships reported less social anxiety, less depression, and more positive self-esteem and had better academic achievement” (p.294).

Together these studies demonstrate the importance close friendships have in children’s lives. Without the presence of another person a child considers an equal with whom he or she can relate to and interact with, he or she is left vulnerable to a host of psychological difficulties and later maladjustment. This adds to the concern for the increasing prevalence of pediatric obesity and the effects weight has on social interactions and self-concept.
**Obesity**

Obesity in youth is defined as a body mass index (kg/m2) above the 95th percentile for age and sex (Strauss & Pollack, 2003; Troiano & Flegal, 1998). The current rates of obesity have reached such high levels that it is now being classified as an epidemic and is considered a chronic physical condition (Musher-Eizenman et al., 2003). According to Troiano and Flegal, in the end of the last decade the prevalence rates of obesity and overweight for some subgroups in the population were at 30 percent or greater. More recently, it has been shown in the data from the 1999-2000 National Health and Nutrition Examination Survey (NHANES), which is a nationally representative survey in the United States of the non-institutionalized population, that the prevalence of a BMI at or above the 95th percentile was significantly higher for non-Hispanic African Americans and Mexican Americans than for non-Hispanic Caucasians ages 12 to 19, with no significant difference between males and females (Ogden, Flegal, Carroll & Johnson, 2002).

**Obesity and Friendship**

In addition to the multitude of physical health problems associated with obesity, such as hypertension, heart disease and diabetes, there are mental health problems that relate to obesity due, in part, to social implications of body size (Ogden et al., 2002). It has been shown in the literature that certain characteristics are perceived based on body type and that the thinner a person is, the more positively others see them (Pine, 2001). Children are not immune to this physical stereotyping. It has been found that children view their overweight peers as lacking in social skills (Musher-Eizenman et al., 2004) and being less-desirable friends, while their thinner peers are seen as having more friends (Pine; Strauss & Pollack, 2003), all of which could be internalized by the obese child and affect how he or she views his or herself socially.
Many of the beliefs about obesity are negative and lead to the stigmatization of obese people (Klaczynski et al., 2004; Strauss & Pollack, 2003). Klaczynski and colleagues discuss a person's social attractiveness, which is based on how far a person deviates from the social norm of physical attractiveness. Again, the thin ideal in our Western culture makes it difficult for an obese person to be seen as attractive and this often leads to stigmatization. This stigmatization is then further complicated by the Western ideal of individualism and personal responsibility that leads our society to see obesity as a personal failure or extreme laziness on the part of the obese person (Klaczynski et al.), further adding to the negative attitudes held toward this population. According to Kaczynski and colleagues, previous research has shown that, “a consistent finding among pediatricians and psychologists is that the obese are more negatively stigmatized than almost all other social groups” (p.308). In fact, studies have shown that obese persons are seen in a more negative light than other physically diverse groups such as those confined to a wheelchair and amputees (Staffieri, 1967; Wiener, Perry & Magnusson, 1988). Klaczynski and colleagues explain this distinction of obesity as being a result of obese individuals being viewed as personally responsible for their condition. Our society places a great deal of emphasis on losing weight, exercising, and eating healthily making it seem that anybody can reach the thin ideal. This fuels the assumption that those who are not thin are personally responsible for the failure (Klaczynski et al., 2004). Such an attribution of failure could potentially be internalized and have a negative effect on an obese child's depressive symptoms or social self-efficacy.

As children grow up there appears to be a shift toward how friends are chosen. Friendships tend to arise out of similarities and mutual interests. This has been found to be true in adolescents' reciprocal friendships with some of the most prominent characteristics being age, sex, ethnicity and activity preference (Ritchey & Fishbein, 2001). This leads to friends grouping together based on similarities, which raises the question of whether or not groups of friends

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would share similar attitudes and stereotypes as well. If this were true, it could be that the obese children are being rejected from these groups of friends based on shared negative beliefs about obese people. In Ritchey & Fishbein’s study of Caucasian adolescents and group prejudices, dyadic friendships were not based on shared beliefs, indicating that the friendships developed out of behavioral similarities such as a shared interest in specific activities. This raises the question of whether friendlessness in the obese population is also not entirely due to a shared group prejudice against obesity, but rather to another intrinsic factor of the obese child. However, if a prejudice against obesity is not necessarily shared throughout a group of friends, it is almost certainly present in some individuals.

Research from the past few decades has investigated the question of whether or not obese persons would have fewer friends due to the bias and stigmatization that tends to lead to lower self-efficacy and an increase in expectation for rejection by peers. This research has been inconsistent with some studies showing that obese children have a more negative social experience and that other children prefer them the least as a friend or classmate (Latner & Stunkard, 2003; Mush er-Eizenman et al., 2003; Sallade, 1973), while others show that obesity has little or no effect on friendships (Baum & Forehand, 1984; Phillips & Hill, 1998). More recently, Strauss and Pollack (2003) found results in the middle ground stating that the obese adolescents in their sample tended to receive fewer nominations as a friend, as well as having the tendency to lay on the outside of the social network, as opposed to being disliked or not receiving any friendship nominations. There is an important distinction to be made between Strauss and Pollack’s study and the past research on reciprocated friendships—this difference is in the methodology. All previous research used an approach that asked children whether or not they would be friends with a hypothetical obese peer, while Strauss and Pollack asked whether or not they are friends with an actual peer within a social network. This approach gives a much
more accurate picture of reciprocated friendships as it takes real peers and friendships into account.

Based on the existing literature, it remains unclear whether being obese is directly related to having fewer friends (Bell & Morgan, 2000; Hill & Silver, 1995; Phillips & Hill, 1998). Past research has mainly been focused on asking children to rate how much they prefer a hypothetical peer as a friend based on physical attributes (Latner & Stunkard, 2003; Musher-Eizenman et al., 2003). However, this has not been found to be the case when children are asked the same question about actual peers (Strauss & Pollack, 2003). This suggests that the past studies using hypothetical peers may not actually be measuring what they are intending to measure—obese children’s friendships. This is important to note as much of our current thinking about obesity and the social consequences associated with obesity is based upon that past research.

Whether the relation between obesity and having reciprocated friendships varies dependent on demographic variables such as gender and race remains unknown. It is known however that females in general are particularly affected by obesity in regards to how others view them socially, as was found in studies involving Caucasian, African American and Hispanic participants, but it is unknown if there is a difference in the way females view themselves socially (Sallade, 1973; Strauss & Pollack, 2003). Further, obese African American girls specifically have been found to be more satisfied with their body and have a more positive sense of self (Latner & Stunkard, 2003; Strauss & Pollack) which has been suggested to be associated with the greater level of acceptance for obesity in the African American culture (Latner & Stunkard). It has been hypothesized therefore, that African American girls may not experience the same level of social stigmatization as Caucasian females, and are at lower risk for obesity’s negative social and psychological effects. (Kimm & Obarzanek, 2002; Strauss & Pollack). The absence of studies involving the concept of reciprocal friendships gives evidence
to the paucity of research in the area of psychosocial problems and ethnic and gender differences, in the obese population.

**Obesity and Depressive Symptoms**

Initially, obesity appears to be related to the presence of depressive symptoms. For example, on a self-report version of the Child Behavior Checklist obese sixth and seventh grade children identified themselves as more depressed when compared to non-overweight controls (Tweddle Banis et al., 1988). However, this sample was not representative of national demographics as the majority of the children were Hispanic and African American. In addition, the premise that obesity is accountable for the presence of psychopathology in obese children as a sole factor has not been supported in the literature (Epstein et al., 1996; Zeller, Saelens, Roehrig, Kirk & Daniels, 2004). In the study by Zeller and colleagues, the medical charts of children and adolescents, along with their mothers, who were enrolling in an interdisciplinary weight management clinic were assessed on the variables of BMI, psychological adjustment as measured by the Behavior Assessment System for Children and the Symptom Checklist 90-Revised. This study found that in a population of 121 treatment-seeking obese youth, 54.5% of which were Caucasian and 45.4% of which were African American, mothers described their children as being at-risk for internalizing symptoms, but the children did not report a higher level of psychological difficulties than a normative population (Zeller et al.). In addition, a study of children referred for a family-based behavioral weight management program found that the majority of the obese children, 66 percent of whom were female, did not show indications of significant psychological problems. However, of the troubles reported, social problems and depressive symptoms were of the most common (Epstein, Klein & Wisniewski, 1994).

On the other hand, there has also been evidence that obese children who present for treatment have significantly more psychological problems, such as depressive symptoms, than
the general pediatric population (Epstein, Myers & Anderson, 1996; Erermis et al., 2004; Stunkard, Faith & Allison, 2003). In a retrospective German study of 47 extremely obese adolescents and young adults, greater than the 97th percentile, it was found that high rates of mood disorders were present and the participants felt that these disorders arose after the onset of obesity, leading the investigators to presume that the disorders partially resulted from the obesity (Britz, Siegfried, Ziegler, Lamertz, Herpert-Kahlmann, Remschmidt, Wittchen & Hebebrand, 2000). However, there appears to be some agreement in the literature that there are psychological consequences of pediatric obesity, especially depression (Erermis, Cetin, Tamar, Bukusoglu, Akdeniz & Goksen, 2004). In Erermis and colleagues study of obese, treatment-seeking adolescents, ages 12 to 16, the negative psychological and social implications of obesity are more significant as adolescence brings an increased concern with body image and perceived bodily defects. The authors found that treatment-seeking obese adolescents had higher scores on the CDI than the non-treatment-seeking obese adolescents, as well as significantly higher depressive symptoms than the non-overweight controls, suggesting that this particular population of obese persons is in need of psychological interventions. Erermis and colleagues noted that there is a need for further research to be conducted in order to examine whether the depressive symptoms are a risk factor for or a result of obesity. These studies show that depression is not a function of obesity alone and it could be suggested that there are other factors involved, such as the presence of a reciprocated friendship and/or social self-efficacy.

It is unclear exactly how depression is related to obesity. Once again the findings are mixed as Stunkard and colleagues (2003) report that there has been evidence that clinical depression predicts obesity, while there have also been studies that failed to find associations between subclinical depression and obesity, suggesting that it is the severity of depression that moderates development of obesity. On the other hand, they note that the highest prevalence of
depression is found among the most obese people, suggesting that it is the severity of the obesity that moderates the development of depression. Stunkard and colleagues also reviewed possible mediating factors relating depression and obesity, with one being the negative social interaction of teasing. The authors cite a study that found teasing to mediate the relationship between obesity and depression, which lends to the supposition that it is possible that other socially-related variables, such as having a reciprocated friendship, may also have some mediating qualities. It is strongly recommended in this article that the relationship between obesity and depression be further investigated.

**Social Self-Efficacy**

Social self-efficacy includes the knowledge of socially appropriate behaviors, confidence to engage in those behaviors, and the belief that those whom the person will interact with are going to be supportive of his or her attempts (Coleman, 2003). A deficit in self-efficacy is characterized by a person lacking confidence because he or she doesn’t believe that he or she can use his or her skills, rather than the person lacking the skills or social knowledge that he or she needs. The end result is then perceived as a behavioral deficit rather than a knowledge deficit (Wichmann, Coplan & Daniels, 2004).

Social self-efficacy is considered a powerful determinant of behavior and behavioral change due to the influence of a person’s expectancy that he or she is able to engage in a behavior (Fan & Mak, 1998). Bandura, Pastorelli, Barbaranelli and Caprara (1999) included in the definition of children’s social self-efficacy the “perceived capabilities to develop and maintain social relationships, work collegially with others, and manage socially conflictful situations” (p. 259). It is also believed that imagery is a noteworthy component of self-efficacy that may play into a person’s willingness to engage in a behavior. It appears that before a person engages in the target behavior, he or she will imagine his or herself performing it. If he or she is
unable to imagine successful performance of a behavior then that person is going to be less confident and subsequently possess a low level of self-efficacy (Rodgers, Munroe & Hall, 2001-2002). This is significant because any attempts to help a person develop his or her self-efficacy should contain this imagery component to facilitate his or her growth in confidence, as well as the belief that he or she is competent. In general, the concept's key feature is that the person believes he or she is able to successfully engage in a desired behavior, resulting in the likelihood that the person will attempt the behavior.

Social self-efficacy has also been found to include the personal characteristics of "independence, mastery, self-reliance, and assertiveness" (Hermann & Betz, 2004). In order for children to interact with their peers efficiently, some of these characteristics must be present. For example, making friends most often requires an initiator who approaches the other person and instigates a social interaction. The above characteristics facilitate being that initiator. For a child who is deficient in this area and does not believe that he or she can be assertive, or feels that he or she is socially incompetent, that child will not enact the behaviors required for a social interaction (Wichmann et al., 2004).

As mentioned previously, friendship is a crucial element of children's adjustment and well being, and when low social self-efficacy is present in a child he or she is at-risk for a lack of friendships. It has been found in a population of Caucasian undergraduates that shyness and social self-efficacy are significantly and inversely related, indicating that as the self-efficacy increases the shyness decreases. Thus it could then be postulated that there is a relationship between social self-efficacy and likelihood of making and maintaining friendships (Hermann & Betz, 2004).

Social self-efficacy is an important construct in the discussion of friendship and psychopathology because the level social self-efficacy that a child experiences is related to
making and keeping friendships, which in turn is inversely related to levels of depressive symptoms (Hermann & Betz, 2004; Strauss, Smith, Frame & Forehand, 1985). In this case, the presence of a friendship seems to be a key moderator for the occurrence of depressive symptoms. According to Bandura et al. (1999), the area of social interaction and social support is often highly valued by human beings and is an area in which we strive to achieve success. A sense of inefficacy in an area of one’s life that is so highly valued produces devaluation of the self and depression.

A second way that social self-efficacy is related to depressive symptoms is through the positive interactions that result from social relationships. Often, positive social relationships provide psychological support and allow for better stress management. Without these relationships there is a greater likelihood of children engaging in alienating behaviors, which decreases the chances for potential positive interactions (Bandura et al., 1999). The authors write, “people have to go out and find, create, and maintain supportive relationships for themselves. These interpersonal attainments require a strong sense of social efficacy” (p. 259). Therefore, if a child does not believe that he or she can approach others and does not initiate social interactions, he or she will not have the chance to experience positive social interactions.

Social self-efficacy has also been found to have a direct correlation with psychopathology (Hermann & Betz, 2004; Jenkins, Goodness & Buhrmester, 2002). For example, it has been found to be related to ability to adapt to change in general in both high school and college students, and to the lack of emotional problems, specifically, of high school students (Fan & Mak, 1988). Therefore, it appears that social self-efficacy is an especially important variable with concern to friendship and the development of psychopathology such as depressive symptoms, at least in adolescents. How this construct relates specifically to obese children and their interactions with their peers has yet to be investigated.
**Obesity and Social Self-Efficacy**

Obese children may be specifically impacted by social self-efficacy because of the "sociocultural pressure to be thin" (Musher-Eizenman, p.260, 2003), which was previously mentioned, and the possibility that they have fewer friendships from which they would theoretically develop a sense of social self-efficacy as they learn socially appropriate behaviors and build confidence in engaging in those behaviors through reinforcement from their friend or friends. Also, in relation to the pressure to be thin, obese children are more likely to be the victims of peer teasing linked to their weight. Young-Hyman, Schlundt, Herman-Wenderoth and Bozylinski (2003) found body size and peer teasing in social situations to be related, and that the teasing predicted global self-worth and appearance self-esteem, suggesting an internalization of the beliefs surrounding the thin-ideal. Young-Hyman and colleagues also found that in a population of five to ten year old African American children there was a decrease in social acceptance of obese children and an increase in the amount of attention their peers focused on their weight. This lends support to the hypothesis that obese children are at a disadvantage for development of social self-efficacy as they may lack friendships and are, therefore, at an increased risk for the development of depressive symptoms. However, there is no current research in the literature pertaining to obesity and social self-efficacy.
Chapter II: Rationale and Hypothesis

The prevalence of obesity has reached an all-time high and is now considered an epidemic. This chronic condition is related to many negative physical, social and emotional consequences, especially in children. This is reflected in the literature by a general sense that obesity is in some way related to higher levels of psychopathology. It has been found that children as young as pre-school age harbor negative attitudes about overweight and obese children and few other pediatric conditions are thought to have a comparable impact of a child’s emotional development.

While the relationship between obesity and a child’s emotional well being have been studied in the past, there is a need for the examination of the social factors, as well as factors that are within the child, related to obesity and psychopathology. As was previously mentioned, there is a pressure from society to meet an ideal body type that affects a person’s beliefs about his or herself, as well as the beliefs others have about him or her in relation to social attractiveness. We also know from previous research that there is an inverse relationship between friendship and depression and a relationship, both direct and indirect, between social self-efficacy and depressive symptoms. What have not been examined are the relationships between a person’s social self-efficacy, obesity, level of depressive symptoms and how the presence or absence of friendships relates to these factors. In fact, there is no current literature pertaining to the relationship of social self-efficacy to obesity, hence, the need for the current study to investigate this connection.

Due to the obese population being at-risk for a lack of friendships and for psychological symptoms without the presence of specific knowledge of what contributes to such a status, it is important to investigate possible related factors. Furthermore, the lack of research in the area of pediatric obesity and psychological sequelae results in difficulty establishing effective
interventions. The proposed study has several hypotheses that are to be investigated in order to further the knowledge base in psychological factors relating to pediatric obesity. The first aim of this study is to examine whether obese and non-overweight youth ages 8 to 16 differ in their levels of social self-efficacy, depressive symptoms and the number of reciprocated friendships. The second aim will examine the association of obesity status with social self-efficacy and depressive symptoms, and whether these associations vary by the presence of a reciprocated friendship. Gender and race will also be explored in relation to these variables, however, no formal hypothesis will be made because the literature is not as advanced in this area and the available research findings are conflicting.

This study will utilize the methodology of asking children and adolescents about their current, real life peers to ascertain the presence of reciprocated friendships within the classroom setting for both obese children and non-overweight controls in order to obtain a more accurate picture of friendships. To determine the presence of a friendship in the classroom, reciprocal friendship nominations, defined as two children both nominating each other as a friend, will be employed as they have been used successfully in the past to classify children with friendships. Given the findings in the developmental literature that state only one friendship is needed to provide protective effects on a child’s emotional well being, the friendship variable will be dichotomized into having a friend or not having a friend for some of the analyses. It is hypothesized that:

1) Obese youth will have significantly fewer reciprocated friendships than non-overweight controls.

2) Obese youth will self-report lower social self-efficacy than non-overweight controls.
3) Obese youth will self-report higher levels of depressive symptoms than non-overweight controls.

4) The association between being obese and level of social self-efficacy will vary by whether or not the child has a reciprocated friendship. Lack of a reciprocated friendship is expected to strengthen the association between being obese and lower levels of social self-efficacy.

5) The association between being obese and level of depressive symptoms will vary by whether or not the child has a reciprocated friendship. Lack of a reciprocated friendship is expected to strengthen the association between being obese and higher levels of depressive symptoms.
Chapter III: Method

Participants

The data for this study will be drawn from an existing data set in which the participants were children and adolescents recruited from Cincinnati Children’s Hospital Medical Center’s (CCHMC) HealthWorks!™ program. This is a family-based, behavioral weight management treatment program that requires the patient be (1) physician-referred, (2) have a Body Mass Index (BMI) greater than the 95th percentile for age and gender, and (3) have no exogenous cause of obesity (i.e. genetic syndromes, metabolic disorders). Inclusion criteria for the present study include that the participant (1) be between 8-16 years of age, (2) not be receiving full time special education and (3) live within 50 miles of the medical center. The earliest data was collected was in November, which gives the children at least two months in school to make friends.

The participants (n=149) include 78 obese and 71 non-overweight children and adolescents. Of the target group (n=78), 41% are male, 59% are female, 51% are Caucasian and 49% are African American. The average BMI for the target group is 35.57 (z=2.43). Control participants (n=71) were recruited on a case-by-case basis for each target obese child. Class rosters identified classmates who were not overweight, a BMI less than the 85th percentile (average BMI= 18.64, z=–0.02), and who were of the same race and gender. These classmates were then prioritized with respect to date of birth. The family of the child identified as a potential control, by having the closest birth date to the target child, was invited to participate in Phase II of the larger study, which involved home data collection. If a family declined to participate the next child with the closest birth date was contacted, and so on. This procedure for obtaining controls provided a comparison child with similar social and demographic profiles. Of the control group, 46% are male, 54% are female, 56% are Caucasian and 44% are African American.
American. Trained research staff determined the overweight status of potential controls during the school data collection (Phase I).

Using GPOWER for power calculations (Faul & Erdfelder, 1996), the sample of 149 obese and non-overweight control participants will yield ample power (.86) to detect medium effect sizes for t-tests (d = .5) and for interactions in all 2 X 2 ANOVAs (f = .25). All analyses will be conducted using SPSS version 12.0.

*Measures*

*Sociometric Measure*

Friendships were identified using the “Three Best Friends” nomination method. With this method, each child is told to write down the names of his or her three best friends in the class from a class roster. Nominations are tallied and analyzed for reciprocal nominations to assess the presence of friendships within the classroom. The targeted obese children will then be identified as either having friends (meaning one to three reciprocal nominations within the class), or having no friends (meaning no reciprocal nominations). This method of assessment has been shown as a more precise method of identifying friendships than other sociometric methods (Bierman, 2004).

*Self-Efficacy Measure*

To assess the children’s social self-efficacy the Children’s Self-Efficacy for Peer Interaction Scale (CSPI) was used (Wheeler & Ladd, 1982). This measure is designed to appraise children’s sense of self-efficacy for verbally persuasive skills in social situations. The measure uses a 4-point Likert scale ranging from *very hard* to *very easy*, with lower scores indicating a lack of social self-efficacy for peer interaction and higher scores indicating greater confidence in this area (Kim & Cicchetti, 2003). It has been shown to have an internal consistency of .73-.85 (Wheeler & Ladd, 1982).
**Depression Measure**

To measure the level of depressive symptoms present the Children’s Depression Inventory (CDI) was employed. The CDI is a self-report inventory developed to measure depressive symptomatology in children and adolescents. This tool is the most commonly used in assessing childhood depressive symptoms and has been extensively researched with extensive data supporting its reliability and validity (Kovacs, 1992; Romano & Nelson, 1988). Romano and Nelson found that children as young as 8 can give valid accounts of their depressive symptoms with the CDI. A review in the Mental Measurements Yearbook 11 indicates that the CDI has an internal consistency of .86 with a pediatric-medical outpatient group, and a test-retest reliability of .84 with school children (Kavan, 1992). For the present analyses, the total raw score was utilized, with higher scores reflecting more depressive symptoms. A total raw score ≥ 20, which is considered a conservative estimate, indicates depressive symptoms in the clinical range (Kovacs).

**Procedure**

**Data Collection**

This study is drawn from a larger project investigating the psychosocial correlates of pediatric obesity within the child and/or family or peer environments that are potential barriers to weight management. Data collection was a two-phase process. Phase I involved the collection of sociometric measures in school classrooms for both groups. Phase II involved family visits to collect data on emotional well being and family functioning from the identified obese child and his/her parents and from the non-overweight comparison family identified in Phase I.

In the first phase, the school data collection, children from the HealthWorks!™ program who met the previously stated inclusion criteria were approached during their initial visits to the program. Those who agreed to participate were then asked permission to contact the child’s
school principal and teacher. Principals were sent a packet of information describing the study and follow-up calls were made to address concerns and attain agreement to participate. A visit with the child’s teacher was conducted to explain the study and to obtain cooperation and informed consent. Teachers were then asked to distribute consent forms to the class, without any mention of obesity or CCHMC. Those children who returned a signed consent form were asked, during a visit to the school by investigators, to fill out the Three Best Friends nominations and several additional measures, which were part of the larger study. The average participation rate in a classroom was 87%. In the second phase of data collection investigators went to the home of each participant, both the obese participants and non-overweight controls, and had the child/adolescent fill out the depression measure, self-efficacy measure and additional measures not used in this study. Families were reimbursed for their contribution of time.
Chapter IV: Proposed Analyses

To test hypotheses 1, obese youth will have fewer reciprocated friendships than non-overweight controls; a two-tailed independent t-test will be used to compare groups on the number of reciprocated friendships (Three Best Friends). To test hypothesis 2, obese youth will self-report lower social self-efficacy than non-overweight controls, a two-tailed independent t-test will be used to compare groups on level of social self-efficacy (Total score: Children’s Self-Efficacy for Peer Interaction Scale (CSPI)). To test hypothesis 3, obese youth will self-report higher levels of depressive symptoms than non-overweight controls, a two-tailed independent t-test will be used to compare groups on depressive symptoms (Total score: Children’s Depression Inventory (CDI)).

To test hypotheses 4, the association between being obese and level of social self-efficacy will vary by whether or not the child has a reciprocated friendship, and 5, the association between being obese and level of depressive symptoms will vary by whether or not the child has a reciprocated friendship, reciprocated friendship (Three Best Friends) will be dichotomized (no reciprocated versus at least one reciprocated). Analyses will utilize two 2 (obese vs. non-overweight control) X 2 (presence/absence of a reciprocated friendship) analyses of variance (ANOVAs) to test group x friendship differences in social self-efficacy (CSPI) and depressive symptoms (CDI). Exploratory analyses will utilize two 2 (obese vs. non-overweight control) X 2 (gender or race) analyses of variance (ANOVAs) to test group x demographic differences in social self-efficacy (CSPI) and depressive symptoms (CDI). In order to control for Type I error, a traditional Bonferroni adjustment will be made and an alpha level of .025 will be used for the exploratory analyses.
References


CINCINNATI CHILDREN'S HOSPITAL MEDICAL CENTER
CONSENT TO PARTICIPATE IN A RESEARCH STUDY

STUDY TITLE: Exploring barriers to treatment in pediatric medical conditions

SPONSOR NAME: National Institutes of Health

SPONSOR STUDY NUMBER: 1K23DK60031-01

CCHMC IRB # 02-10-28X

IRB APPROVAL DATE: 11/05/02

INVESTIGATOR INFORMATION

PRINCIPAL INVESTIGATOR NAME: Meg Zeller, Ph.D.

24 hr EMERGENCY PHONE CONTACT: CCHMC Division of Psychology On-call service
(513) 636-3497

Subject Name: ___________________________ Date of Birth: ___/___/___

Throughout this document, references to “You” may stand for either the research study subject
or for the parents or legal guardians of the research study subject if the subject is under 18 years
of age or otherwise unable to legally give informed consent to participate in the research study.
The signature(s) at the end will clarify whether the research study subject is signing this consent
form on their own behalf or via a legal guardian or legal personal representative.

INTRODUCTION:
You have been asked to participate in a research study. Before agreeing to participate in this
study, it is important that you read and understand the following explanation. It describes, in
words that can be understood by a lay person, the purpose, procedures, benefits, risks and
discomforts of the study and the precautions that will be taken. It also describes the alternatives
available and the right to withdraw from the study at any time. No guarantee or assurance can
be made as to the results of the study. Also, participation in the research study is completely
voluntary. Refusal to participate will involve no penalty or loss of benefits to which you are
otherwise entitled. You may withdraw from the study at any time without penalty.

WHY IS THIS RESEARCH BEING DONE?
The purpose of this study is to better understand how chronic medical conditions impact children
and families. In particular, the study is concerned with identifying how school-aged children with
chronic medical conditions are getting along at school and at home.

WHY HAVE YOU BEEN ASKED TO TAKE PART IN THIS RESEARCH STUDY?
You are being asked to participate in this study because the study works with two groups of
families: 1) a group of families in which a child has been referred for treatment for their chronic
medical condition at Children's Hospital Medical Center, and 2) a group of families from the
same neighborhood with a similar aged child who does not have a chronic medical condition, or
a "control group". This will allow the comparison of responses from these two groups of families to better understand what differences may exist between families with and without a child with a chronic medical condition.

**WHO SHOULD NOT BE IN THE RESEARCH STUDY?**
Children below the age of 8 and older than age 17 should not participate in this study.

**HOW LONG WILL YOU BE IN THE RESEARCH STUDY?**
We understand that our participation will require approximately 3 hours for adults and 2 hours for our child. This consent, unless you choose to withdraw it, shall remain in effect until the end of the research study.

**WHO IS CONDUCTING THE RESEARCH STUDY?**
This study is sponsored by the National Institutes of Health. The study is directed by Dr. Meg Zeller, the researcher at Cincinnati Children's Hospital Medical Center.

**HOW MANY PEOPLE WILL TAKE PART IN THE RESEARCH STUDY?**
Approximately 60 families will take part in this study at Cincinnati Children's Hospital Medical Center.

**WHAT IS INVOLVED IN THE RESEARCH STUDY?**
If we agree to participate in this study we understand that we will be asked to complete 10 questionnaires and be weighed and our height measured. We understand that our child will complete 8 questionnaires, a story-telling task, and be weighed and measured. We also understand that if our child/adolescent represents the participant group with a chronic medical condition, existing medical information in the patient's medical chart will also be used.

**WHAT ARE THE RISKS AND DISCOMFORTS OF THE RESEARCH STUDY?**
There are minimal risks to child or adult participants in this study. All questionnaires and interviews used in this study are standardized and have been used in research without any reported negative effects. A potential risk may be loss of confidentiality. Please see the section of this consent form entitled How Will Information About You Be Kept Private And Confidential to learn steps that will be taken to reduce the risk of loss of confidentiality. Finally, there may be unknown or unforeseen risks associated with study participation.

**ARE THERE DIRECT BENEFITS TO TAKING PART IN THE RESEARCH STUDY?**
If you agree to take part in this research study, there is not a direct medical benefit for you. The information learned from this research study may benefit other patients with chronic medical conditions in the future. Through your participation, researchers hope to influence the manner in which health professionals work with families to provide more optimal care.

**WHAT OTHER CHOICES FOR CARE ARE THERE?**
We may choose not to participate in the study and this will not affect my child's care at Cincinnati Children's Hospital Medical Center.

**HOW WILL INFORMATION ABOUT YOU BE KEPT PRIVATE AND CONFIDENTIAL?**
Every effort will be made to maintain the confidentiality of your medical and research information ("Protected Health Information" or "PHI"), consisting of you and your child's responses to questionnaires, you and your child's height and weight measurements, and, if our child is a
participant of the chronic medical condition group, medical information related to his/her medical treatment at the Cincinnati Children's Hospital Medical Center.

Protected Health Information is defined as health information, whether verbal or recorded in any form (such as on a piece of paper or entered in a computer), that identifies you as an individual or offers a reasonable basis to believe that the information could be used to identify you.

By signing this consent form you are giving permission for representatives of the Cincinnati Children's Hospital Medical Center ("CCHMC"), the Investigator and CCHMC employees involved with the research study including the Institutional Review Board and the Office for Research Compliance, and any sponsoring company or their appointed agent to be allowed to inspect sections of your medical and research records related to this study.

The information from the research study may be published; however, you will not be identified in such publication. The publication will not contain information about you that would enable someone to determine your identity as a research participant without your authorization.

Cincinnati Children's Hospital Medical Center and/or the Investigator will take the following precautionary measures to protect your privacy and confidentiality of your research and/or medical records. All questionnaires and the results of the study will be treated in strict confidence. Participants will remain anonymous as all information is coded to a number, not to you or your child or family's name. The information will be kept in locked cabinets in the Principal Investigators’ offices at Children's Hospital Medical Center. The names associated with the identifying numbers will be kept in a locked cabinet separate from the questionnaires.

A copy of this consent form will be included in your medical record. You will be registered in the Children's Hospital Medical Center's computer system as a research subject which may be beneficial for future clinical care.

**USE AND DISCLOSURE OF YOUR PROTECTED HEALTH INFORMATION**

The Protected Health Information described in the section above will be used /disclosed for the purpose of research by CHMCC to the other persons or entities identified above.

"Use" of an individual's health information is defined as the sharing, examination or analysis (break down) of the information that is collected and maintained for the length of the research study.

"Disclosure" of an individual's health information is defined as the release, transfer, providing access to, or to reveal in any other manner, the information outside the persons or entity holding the information as described in the section "How Will Information About You Be Kept Private And Confidential" in this consent form.

Once your Protected Health Information is disclosed, the information may be subject to re-disclosure and may no longer be protected by the federal privacy regulations.

**AVAILIBILITY OF INFORMATION?**

If we have questions or would like more information about the study we may contact Dr. Meg Zeller (513-636-2712).
WHAT ARE YOUR COSTS TO BE IN THIS STUDY?
There are no costs associated with participating in this study with the exception of the time allotted to complete the study (i.e., 2-3 hours).

WILL YOU BE PAID TO PARTICIPATE IN THIS RESEARCH STUDY?
Your family will receive $100 dollars cash as compensation for your participation in the research study. You will receive this money at the end of data collection.

WHAT ARE YOUR RIGHTS AS A PARTICIPANT?
Your participation in this study is completely voluntary. You may choose either to take part or not to take part in this research study. Your decision whether or not to participate will not result in any penalty or loss of benefits to you and the standard medical care for your condition will remain available to you.

If you decide to take part in the research study, you are free to withdraw your consent and discontinue participation in this research study at any time. Leaving the study will not result in any penalty or loss of benefits to you. You may revoke (choose to withdraw) this consent at any time after you have signed it by providing Dr. Meg Zeller (Cincinnati Children's Hospital Medical Center, Mail Location D-3015) with a written statement that you wish to withdraw this consent. Your withdrawal of this consent will be effective immediately and your Protected Health Information can no longer be used/disclosed for research purposes by CCHMC and the other persons or entities that are identified in the "Use or Disclosure of Your Protected Health Information" section of this consent, except to the extent that CCHMC and/or the other persons or entities identified above have already taken action in reliance upon your consent.

The investigators will tell you about significant new findings developed during the course of the research and new information that may affect your health, welfare, or willingness to stay in this study.

If you or any family member is an employee of Cincinnati Children's Hospital Medical Center, an employees refusal to participate or withdrawal from the study will not jeopardize any of the employee's opportunities, rights or benefits.

If you have questions about the study, you will have a chance to talk to one of the study staff or your regular doctor. Do not sign this form unless you have had the chance to ask questions and have received satisfactory answers.

Nothing in this consent form waives any legal rights you may have nor does it release the investigator, the sponsor, the institution, or its agents from liability for negligence.

For further information about your rights, please see CCHMC Notice of Privacy Practices.

ABILITY TO CONDITION TREATMENT ON PARTICIPATION IN THIS STUDY
You have a right to refuse to sign this consent to use/disclose your Protected Health Information for research purposes.

If you refuse to sign this consent, your rights concerning treatment, payment for services, enrollment in a health plan or eligibility for benefits will not be affected.
WHO DO YOU CALL IF YOU HAVE QUESTIONS OR PROBLEMS?
For questions about this research study or to report a research-related injury, you can contact the researcher Dr. Meg Zeller at (513)636-2712, Division of Psychology, Cincinnati Children’s Hospital Medical Center. Researchers are available to answer any questions you may have about the research at any time.

If you have general questions about your rights as a research participant in this research study, you can call the Cincinnati Children’s Hospital Medical Center Institutional Review Board at 513-636-8039.

WITNESSING AND SIGNATURES
I have read the information given above. The investigator or his/her designee have personally discussed with me the research study and have answered my questions. I am aware that, like in any research, the investigators cannot always predict what may happen or possibly go wrong. I have been given sufficient time to consider if I (or my child) should participate in this study. I hereby consent for myself (or my child) to take part in this study as a research study subject.

Check box if verbal assent is obtained from the child who is the research subject □

__________________________
Subject’s signature indicating consent (1) or assent (2)

__________________________
Parent/Legal Guardian (3) (Signature)

__________________________
Parent/Legal Guardian (3) (Signature)

Date:____________________

Date:____________________

I have witnessed the voluntary signing of this document by the research subject, or the legally authorized representative of the research subject.

__________________________
Witness (4) as to the voluntary nature of the Signatures noted above (Signature)

__________________________
Date:____________________

Investigator (5) or specific individual who has been designated to obtain consent (Signature)

__________________________
Date:____________________

Investigator (6) (Signature)

This research study and consent form have been reviewed and approved by the Cincinnati Children’s Hospital Medical Center Institutional Review Board (telephone number 513-636-8039).
Appendix B

RESEARCH PARTICIPATION INFORMED CONSENT FORM

We have freely consented to allow our child to take part in a study about friendships being conducted by researchers at the University of Cincinnati and the Ohio State University.

The study has been explained to us and we understand the explanation that has been given and what the participation of our son/daughter will involve. We understand that our child will be asked to fill out questionnaires in the classroom taking approximately 30-45 minutes.

We understand that our son/daughter is free to discontinue participation in the study at any time without penalty; we also are aware that his/her involvement or lack of involvement in the study will not penalize our child.

We understand that the results of the study will be treated in strict confidence and that our child will remain anonymous. Also we understand that general results of the research will appear in professional journals and will be presented at professional meetings.

We understand that our child's participation in the study does not guarantee any beneficial results to us or to the members of our family, however, many children who participate find the experience positive. They enjoy being a part of a science project and feel good about themselves because they are helping others. We understand that there are no foreseeable risks or discomforts that children may experience from taking part in this research.

If you have any questions or concerns, please call Dr. Zeller at (513) 636-2712.

Signed:

_________________________  ___________________________
Parent or legal guardian  Child's name (please print)

_________________________
Date

_________________________
Address

PLEASE RETURN THIS FORM TO YOUR SON/DAUGHTER'S SCHOOL. YOUR CHILD CANNOT PARTICIPATE IN THE WORK WITHOUT IT. THANK YOU.
THREE BEST FRIENDS

My three best friends in this class are:

Best Friend

Second Best Friend

Third Best Friend

Note: The CDI and CSPI are not included due to copyright.
Chapter V: Dissertation

Abstract

The purpose of the current study was to examine the number of reciprocated friendships, social self-efficacy, and depressive symptoms for a group of obese youth in comparison to non-overweight matched controls. In addition, the impact of having a reciprocated friendship on social self-efficacy and depressive symptoms was examined. Gender and race were also explored in relation to these variables. The data for this study were drawn from an existing data set of 78 children and adolescents, ages 8 to 16, seeking behavioral weight-management treatment, and 71 non-overweight classmates of the obese participants. The average body mass index (BMI \( [\text{kg/m}^2] \)) for the target group was greater than the 95th percentile \( (z=2.43) \). Control participants were not overweight \( (\text{BMI} \leq 85\text{th percentile}, z=-0.02) \) and were the same gender, race, and closest in age to the target obese child. No significant differences were identified between obese and non-overweight youth in number of reciprocated friendships, levels of social self-efficacy, or levels of depressive symptoms. Further, the association of obesity status with depressive symptoms and social self-efficacy did not vary by whether or not the participant had a reciprocated friendship, or by gender or race. These findings indicate that obese youth who initiate weight management treatment are not experiencing more depressive symptoms or experiencing a lack of confidence to engage in social interactions relative to their non-overweight peers. Furthermore, despite the literature demonstrating that obese youth are less accepted by their peers, these children do not have fewer reciprocated friendships than their non-overweight classmates.
Friendship as a Modifying Factor of Depressive Symptoms and Social Self-Efficacy in Obese and Non-Overweight Children and Adolescents

The prevalence of obesity in the United States, especially in youth, has increased dramatically with rates doubling in the last two decades (American Academy of Pediatrics, 2003; Latner & Stunkard, 2003). Along with this change, the bias towards and stigmatization of obese people has increased in Western culture (Latner & Stunkard), and it has been found that children as young as pre-school age possess negative attitudes toward being overweight or obese (Musher-Eizenman, Holub, Miller, Goldstein & Edwards-Leeper, 2004). Obesity in childhood and adolescence is especially concerning because few other pediatric conditions are thought to have a comparable impact on a child or adolescent’s emotional development (Strauss & Pollack, 2003). To date, empirical studies of the psychosocial factors associated with pediatric obesity have focused primarily on the assessment of child/adolescent emotional well being. Research is needed that broadens the scope of investigation and looks more closely at social factors that are potentially related to obesity and the emotional well being of the obese child.

Friendship

Findings involving the importance of friendships for children’s emotional well being, such as the relationship between lacking a close friendship in childhood and depression later in life, appear to be relatively well established within the literature (Bagwell, Newcomb & Bukowski, 1998; Hartup, 1992; Martin, Cole, Clausen, Logan & Strosher, 2003). Friendship is an invaluable aspect of human life that is often taken for granted when it is present. For those who have difficulty making and keeping friends, this concept and its importance are much more salient. When children have close friendships they learn compromise, interaction, competition, perspective taking, and empathy with others (Erdley et al., 2001). Those who engage in positive interactions with their peers are responded to encouragingly, and in doing so are more likely to
be chosen as friends, which then positively reinforces the behaviors (Asher, Oden & Gottman, 1974). Friendship, specifically, involves reciprocity, equality, cooperation, and communication. This is differentiated from peer acceptance in that a child may be generally accepted by his or her peers yet have no friends, or have friends and be generally unaccepted by the larger peer group (Erdley et al.; Parker & Asher, 1993). Also, peer acceptance does not specify the need for reciprocity, which is used as a defining feature of a dyadic friendship (Hartup, 1992; Erdley et al.).

Recent research has begun to examine how important friendships are to human development. These studies have concluded that those who do not have close friendships as children are at a much higher risk for social, behavioral, and emotional problems (Martin et al., 2003). According to Erdley and colleagues (2001), “the absence of a strong affective bond may lead to the experience of loneliness and depression” (p.11). La Greca (1993) supports this notion by stating that, “children with close, supportive friendships reported less social anxiety, less depression, and more positive self-esteem and had better academic achievement” (p.294). In fact, the impact of friendlessness during childhood can reach into adulthood. In a longitudinal study conducted over a span of twelve years, it was found that “the presence of depressive symptomatology in adulthood is uniquely associated with the lack of a friendship during preadolescence, even when peer rejection is also included as a predictor of these symptoms” (Erdley et al., 2001, p. 15). It is important to note that it is the quality rather than the quantity of friendships that is important and because of this the developmental literature has found that a child needs but one quality reciprocated friendship to benefit from the protective nature of that relationship (Erdley et al.; Nangle, Erdley, Newman, Mason & Carpenter, 2003).

Together these studies demonstrate the importance close friendships have in children’s lives. Without the presence of another person a child considers an equal with whom he or she
can relate to and interact with, he or she is left vulnerable to a host of psychological difficulties
and later maladjustment. This adds to the concern for the increasing prevalence of pediatric
obesity and the effects weight has on social interactions and self-concept.

**Obesity**

Obesity in youth is defined as a body mass index (kg/m2) above the 95th percentile for
age and sex (Troiano & Flegal, 1998). The current rates of obesity have reached such high levels
that it is now being classified as an epidemic and is considered a chronic physical condition
and Flegal, in the end of the last decade the prevalence rates of obesity and overweight for some
subgroups in the population were at 30 percent or greater. More recently, it has been shown in
the data from the 1999-2000 National Health and Nutrition Examination Survey (NHANES),
which is a nationally representative survey in the United States of the non-institutionalized
population, that the prevalence of a BMI at or above the 95th percentile was significantly higher
for non-Hispanic African Americans and Mexican Americans than for non-Hispanic Caucasians
ages 12 to 19, with no significant difference between males and females (Ogden, Flegal, Carroll
& Johnson, 2002).

**Obesity and Friendship**

In addition to the multitude of physical health problems associated with obesity, such as
hypertension, heart disease, and diabetes, there are mental health problems that relate to obesity
due, in part, to social implications of body size (Ogden et al., 2002). It has been shown in the
literature that certain characteristics are perceived based on body type and that the thinner a
person is, the more positively others see them (Pine, 2001). Children are not immune to this
physical stereotyping. It has been found that children view their overweight peers as lacking in
social skills (Musher-Eizenman, 2004) and being less-desirable friends, while their thinner peers
are seen as having more friends (Pine; Strauss & Pollack, 2003), all of which could be
internalized by the obese child and affect how he or she views his or herself socially.

Many of the beliefs about obesity are negative and lead to the stigmatization of obese
people (Klaczynski, Goold & Mundry, 2004; Strauss & Pollack, 2003). Klaczynski and
colleagues discuss a person’s social attractiveness, which is based on how far a person deviates
from the social norm of physical attractiveness. Again, the thin ideal in our Western culture
makes it difficult for an obese person to be seen as attractive and this often leads to
stigmatization. This stigmatization is then further complicated by the Western ideal of
individualism and personal responsibility that leads our society to see obesity as a personal
failure or extreme laziness on the part of the obese person (Klaczynski et al.), further adding to
the negative attitudes held toward this population. According to Klaczynski and colleagues,
previous research has shown that, “a consistent finding among pediatricians and psychologists is
that the obese are more negatively stigmatized than almost all other social groups” (p.308). The
authors explain this distinction of obesity as being a result of obese individuals being viewed as
personally responsible for their condition. Such an attribution of failure could potentially be
internalized and have a negative effect on an obese child’s psychological well being and social
interactions.

Research from the past few decades has investigated the question of whether or not obese
persons would have fewer friends due to bias and stigmatization. This research has been
inconsistent with some studies showing that obese children have a more negative social
experience and that other children prefer them the least as a friend or classmate (Latner &
Stunkard, 2003; Musher-Eizenman et al., 2003; Sallade, 1973), while others show that obesity
has little or no effect on friendships (Baum & Forehand, 1984; Phillips & Hill, 1998). More
recently, Strauss and Pollack (2003) found results in the middle ground stating that the obese
adolescents in their sample tended to receive fewer nominations as a friend, as well as having the tendency to lay on the outside of the social network, as opposed to being disliked or not receiving any friendship nominations. There is an important distinction to be made between Strauss and Pollack’s study and the past research on reciprocated friendships—this difference is in the methodology. All previous research used an approach that asked children whether or not they would be friends with a hypothetical obese peer, while Strauss and Pollack asked whether or not they are friends with an actual peer within a social network. This approach gives a much more accurate picture of reciprocated friendships as it takes real peers and friendships into account.

Whether the relationship between obesity and having reciprocated friendships varies dependent on demographic variables such as sex and race remains unknown. It is known however that females in general are particularly affected by obesity in regards to how others view them socially, but it is unknown if there is a difference in the way females view themselves socially (Sallade, 1973; Strauss & Pollack, 2003). Further, obese African American girls specifically have been found to be more satisfied with their body and have a more positive sense of self (Latner & Stunkard, 2003; Strauss & Pollack), which has been suggested to be associated with the greater level of acceptance for obesity in the African American culture (Latner & Stunkard). It has been hypothesized therefore, that African American girls may not experience the same level of social stigmatization as Caucasian females, and are at lower risk for obesity’s negative social and psychological effects (Kimm & Obarzanek, 2002; Strauss & Pollack).

**Obesity and Depressive Symptoms**

Initially, obesity appears to be related to the presence of depressive symptoms. For example, there has been evidence that obese children who present for treatment have significantly more behavioral and psychological problems, such as depressive symptoms, than
the general pediatric population (Braet, Mervielde & Vandereycken, 1997; Epstein, Myers & Anderson, 1996; Mustillo, Worthman, Erkanli, Keeler, Angold, & Costello, 2003; Stunkard, Faith & Allison, 2003) and that they are more depressed than non-overweight controls (Erermis, Cetin, Tamar, Bukusoglu, Adkeniz & Goksen, 2004; Tweddle Banis, Varni, Wallander, Korsch, Jay, Adler, Garcia-Temple & Negrete, 1988). However, the premise that obesity is solely accountable for the presence of psychopathology in obese children has not been supported in the literature (Epstein et al., 1996; Zeller, Saelens, Roehrig, Kirk & Daniels, 2004). In the study by Zeller and colleagues, mothers described their children as being at-risk for internalizing symptoms, but the children did not report a higher level of psychological difficulties than a normative population. In addition, a study of children referred for a family-based behavioral weight management program found that the majority of the obese children did not show indications of significant psychological problems. However, of the troubles reported, social problems and depressive symptoms were of the most common (Epstein, Klein & Wisniewski, 1994). Therefore, there does appear to be some agreement in the literature that there are psychological consequences of pediatric obesity, especially depression, but it is unclear exactly how depression is related to obesity. Erermis and colleagues noted that there is a need for further research to be conducted in order to examine whether the depressive symptoms are a risk factor for or a result of obesity. Stunkard and colleagues have reviewed possible mediating factors relating depression and obesity, with one being the negative social interaction of teasing. The authors cite a study that found teasing to mediate the relationship between obesity and depression, which lends credit to the supposition that it is possible that other socially-related variables, such as having a reciprocated friendship, may also have some mediating qualities. It is strongly recommended in this article that the relationship between obesity and depression be further investigated.
Social Self-Efficacy

Social self-efficacy includes the knowledge of socially appropriate behaviors, confidence to engage in those behaviors, and the belief that those whom the person will interact with are going to be supportive of his or her attempts (Coleman, 2003). Social self-efficacy is considered a powerful determinant of behavior and behavioral change due to the influence of a person's expectancy that he or she is able to engage in a behavior (Fan & Mak, 1998). Bandura and colleagues (1999) included in the definition of children's social self-efficacy the "perceived capabilities to develop and maintain social relationships, work collegially with others, and manage socially conflictual situations" (p. 259). In general, the concept's key feature is that the person believes he or she is able to successfully engage in a desired behavior, resulting in the likelihood that the person will attempt the behavior.

As mentioned previously, friendship is a crucial element of children's adjustment and well being and when low social self-efficacy is present in a child he or she is at-risk for a lack of friendships. Social self-efficacy is an important construct in the discussion of friendship and psychopathology because the level social self-efficacy that a child experiences is related to making and keeping friendships, which in turn is inversely related to levels of depressive symptoms (Hermann & Betz, 2004; Strauss, Smith, Frame & Forehand, 1985). In this case, the presence of a friendship seems to be a key moderator for the occurrence of depressive symptoms. According to Bandura and colleagues (1999), the area of social interaction and social support is often highly valued by human beings and is an area in which we strive to achieve success. A sense of inefficacy in an area of one's life that is so highly valued produces devaluation of the self and depression.

A second way that social self-efficacy is related to depressive symptoms is through the positive interactions that result from social relationships. Often, positive social relationships
provide psychological support and allow for better stress management. Without these relationships there is a greater likelihood of children engaging in alienating behaviors, which decreases the chances for potential positive interactions (Bandura et al., 1999). Therefore, if a child does not believe that he or she can approach others and does not initiate social interactions, he or she will not have the chance to experience the benefits of positive social interactions. It appears that social self-efficacy is an especially important variable with concern to friendship and the development of psychopathology such as depressive symptoms. How this construct relates specifically to obese children and their interactions with their peers has yet to be investigated.

_Obesity and Social Self-Efficacy_

There are several external variables that play into the level of a person's social self-efficacy, one of which is of particular relevance to the obese population. That variable is the person’s physical appearance, which is further influenced by the pressure our culture places on obtaining the 'thin ideal' and the amount of personal responsibility associated with a person’s body size (Musher-Eizenman et al., 2003). In fact, “the more individuals...deviate from our culture’s body ideals, the more likely they are to be perceived (by self and peers) as personal failures, and the lower their physical and social attractiveness” (Klaczynski et al., p. 308, 2004). Therefore, one could assume that obese youth are lacking in social attractiveness and this "failure" may be internalized. This could result in the children taking less initiative to make and keep friends and placing them at greater risk for depressive symptoms.

As obese youth have fewer friendships (Strauss & Pollack, 2003), they are potentially at a disadvantage for having opportunities to learn socially appropriate behaviors and build confidence in engaging in those behaviors through reinforcement from friends. Also, in relation to the pressure to be thin, obese children are more likely to be the victims of peer teasing linked.
to their weight. Young-Hyman, Schlundt, Herman-Wenderoth and Bozylinski (2003) found body size and peer teasing in social situations to be related, and that there was a decrease in social acceptance of obese children and an increase in the amount of attention their peers focused on their weight. This further lends support to the hypothesis that obese children are at a disadvantage for development of social self-efficacy and are, therefore, at an increased risk for the development of depressive symptoms. However, there is no current research in the literature pertaining to obesity and social self-efficacy. Subsequently, the lack of research in the area of pediatric obesity and psychosocial sequelae results in difficulty establishing effective interventions.

The purpose of the present study was to further the knowledge base in psychological and social factors relating to pediatric obesity. This was done by examining reciprocated friendships, social self-efficacy, and depressive symptoms in obese and non-overweight youth ages 8 to 16. The Three Best Friends measure was used to assess reciprocated friendships within an obese participant’s classroom, the Children’s Depression Inventory (Kovacs, 1992) was used to assess depressive symptoms, and the Children’s Self-Efficacy for Peer Interaction (Wheeler & Ladd, 1982) was used to assess social self-efficacy. Gender and race were also explored in relation to these variables. Based on previous literature, it was hypothesized that obese participants would have significantly fewer reciprocated friendships (Klaczymski et al., 2004; Musher-Eizenman et al., 2003; Latner & Stunkard, 2003; Musher-Eizenman et al., 2004; Strauss & Pollack, 2003), lower levels of social self-efficacy (Musher-Eizenman et al., 2003; Young-Hyman et al., 2003), and higher levels of depressive symptoms (Epstein et al., 1996; Erermis et al., 2004; Stunkard, Faith & Allison, 2003). It was also hypothesized that the presence of a reciprocated friendship would significantly change the relationships between obesity and social self-efficacy, and obesity and depressive symptoms.
Method

Participants

The data for this study were drawn from an existing data set in which the participants were children and adolescents recruited from Cincinnati Children’s Hospital Medical Center’s (CCHMC) HealthWorks!™ program. This is a family-based, behavioral weight management treatment program that requires the patient be (1) physician-referred, (2) have a Body Mass Index (BMI) greater than the 95th percentile for age and gender, and (3) have no exogenous cause of obesity (i.e. genetic syndromes, metabolic disorders). Inclusion criteria for the present study included that the participant (1) be between 8-16 years of age, (2) not be receiving full time special education and (3) live within 50 miles of the medical center. The earliest data was collected was in November, which gave the children at least two months in school to make friends.

The participants (n=149) included 78 obese and 71 non-overweight children and adolescents. Of the target group (n=78), 41% were male, 59% were female, 51% were Caucasian and 49% were African American. There was a 95.5% participation rate for the target group; the average BMI was 35.57 (z=2.43). Control participants (n=71) were recruited on a case-by-case basis for each target obese child. Class rosters identified classmates who were not overweight, a BMI less than the 85th percentile (average BMI= 18.64, z=-0.02), and who were of the same race and gender. These classmates were then prioritized with respect to date of birth. The family of the child identified as a potential control, by having the closest birth date to the target child, was invited to participate in Phase II of the larger study, which involved home data collection. If a family declined to participate the next child with the closest birth date was contacted, and so on; there was a 70% participation rate for first choice controls and the remainder of controls were second or third choice. The age matching for controls worked as the
mean age for the target group was 12.56 years and the mean age for the control group was 12.68. This procedure for obtaining controls provided a comparison child with similar social and demographic profiles. Of the control group, 46% were male, 54% were female, 56% were Caucasian and 44% are African American. Trained research staff determined the overweight status of potential controls during the school data collection (Phase I). Using GPOWER for power calculations (Faul & Erdfelder, 1996), the sample of 149 obese and non-overweight control participants yielded ample power (.86) to detect medium effect sizes for t-tests (d = .5) and for interactions in all 2 X 2 ANOVAs (f = .25).

Measures

**Sociometric Measure**

Friendships were identified using the “Three Best Friends” nomination method. With this method, each child is told to write down the names of his or her three best friends in the class from a class roster. Nominations are tallied and analyzed for reciprocal nominations to assess the presence of friendships within the classroom. The targeted obese children was then identified as either having friends (meaning one to three reciprocal nominations within the class), or having no friends (meaning no reciprocal nominations). This method of assessment has been shown as a more precise method of identifying friendships than other sociometric methods (Bierman, 2004).

**Self-Efficacy Measure**

To assess the children’s social self-efficacy the Children’s Self-Efficacy for Peer Interaction Scale (CSPI) was used (Wheeler & Ladd, 1982). This measure is designed to appraise children’s sense of self-efficacy for verbally persuasive skills in social situations. The measure uses a 4-point Likert scale ranging from *very hard* to *very easy*, with lower scores indicating a lack of social self-efficacy for peer interaction and higher scores indicating greater
confidence in this area (Kim & Ciccetti, 2003). It has been shown to have an internal consistency of .73-.85 (Wheeler & Ladd).

**Depression Measure**

To measure the level of depressive symptoms present, the Children’s Depression Inventory (CDI) was employed. The CDI is a self-report inventory developed to measure depressive symptomatology in children and adolescents. This tool is the most commonly used in assessing childhood depressive symptoms and has been extensively researched with extensive data supporting its reliability and validity (Kovacs, 1992; Romano & Nelson, 1988). Romano and Nelson found that children as young as eight years-old can give valid accounts of their depressive symptoms with the CDI. A review in the Mental Measurements Yearbook 11 indicates that the CDI has an internal consistency of .86 with a pediatric-medical outpatient group, and a test-retest reliability of .84 with school children (Kavan, 1992). For the present analyses, the total raw score was utilized, with higher scores reflecting more depressive symptoms. A total raw score ≥ 20, which is considered a conservative estimate, indicates depressive symptoms in the clinical range (Kovacs).

**Procedure**

**Data Collection**

This study is drawn from a larger project investigating the psychosocial correlates of pediatric obesity within the child and/or family or peer environments that are potential barriers to weight management. It was approved by the Institutional Review Board at Xavier University (see appendix). Data collection was a two-phase process. Phase I involved the collection of sociometric measures in school classrooms for both groups. Phase II involved family visits to collect data on emotional well being and family functioning from the identified obese child and his/her parents and from the non-overweight comparison family identified in Phase I.
In the first phase, the school data collection, children from the HealthWorks!™ program who met the previously stated inclusion criteria were approached during their initial visits to the program. Those who agreed to participate were then asked permission to contact the child’s school principal and teacher. Principals were sent a packet of information describing the study and follow-up calls were made to address concerns and attain agreement to participate. A visit with the child’s teacher was conducted to explain the study and to obtain cooperation and informed consent. Teachers were then asked to distribute consent forms to the class, without any mention of obesity or CCHMC. Those children who returned a signed consent form were asked, during a visit to the school by investigators, to fill out the Three Best Friends nominations and several additional measures, which were part of the larger study. The average participation rate in a classroom was 87%. In the second phase of data collection investigators went to the home of each participant, both the obese participants and non-overweight controls, and had the child/adolescent fill out the depression measure, self-efficacy measure and additional measures not used in this study. Families were reimbursed for their contribution of time.

Data Analysis

Tests of mean group differences (t tests) were performed to compare obese participants and non-overweight controls on the number of reciprocated friendships, level of social self-efficacy, and level of depressive symptoms. Analyses of variance (ANOVAs) were performed to measure whether the presence of a reciprocated friendship, which was dichotomized for these analyses, significantly changed the relationship between obesity and social self-efficacy or obesity and depressive symptoms. Exploratory ANOVAs were also conducted to determine if sex or ethnicity significantly changed the same relationships.
Results

Data were drawn from an existing database from a larger study at CCHMC with 160 total participants. There were 11 participants excluded from the original data set for the present study due to multiracial ethnicity as the exploratory analyses were only comparing African American and Caucasian participants. There are 7 more participants in the obese group due to a lack of identifiable non-overweight controls of the same gender with informed consent in 12 classrooms during the initial data collection for the larger study. Demographics of the participants are listed in Table 1.

Tests of Mean Group Differences

Friendships. No significant differences were found between obese and non-overweight participants for the standardized mean reciprocated friendships score as measured by the Three Best Friends method. The obese participants had a mean of 1.19 (SD = 1.03) reciprocated friendships in the classroom and non-overweight participants had a mean of 1.41 (SD = 0.95) reciprocated friendships. (Table 2)

Psychological Measures. No significant differences were found between obese and non-overweight youth for their level of social self-efficacy as measured by the CSPI. Obese participants obtained a mean total score of 69.42 (SD = 11.10), while non-overweight participants obtained a mean of 69.84 (SD = 10.81) (Table 2). There were also no significant differences between the two groups in depressive symptomatology as measured by the total raw score on the CDI. The mean total score for the obese group was 8.80 (SD = 8.14), while the mean total score for the non-overweight group was 7.69 (SD = 7.60) (Table 2). There were 7 percent of obese participants that met or exceeded the clinical cutoff score (total score > 19) on the Children’s Depression Inventory, while there were 4 percent of non-overweight participants.
Analyses of Variance

Social Self-Efficacy. For this analysis, the reciprocated friendships variable was dichotomized into 1) the absence of any reciprocated nominations or 2) the presence of at least one reciprocated friendship nomination. To evaluate the effects of friendship on the relationship between obesity status and social self-efficacy, a group (obese vs. non-overweight) X reciprocated friendship (presence vs. absence) analysis of variance (ANOVA) was conducted on the total score of social self-efficacy (CSPI). There was no significant interaction between obesity status and social self-efficacy as a function of the presence or absence of a reciprocated friendship. (Tables 3 and 4) However, a significant main effect was detected for reciprocated friendship and social self-efficacy, $F(1, 145) = 4.96, p = .028$.

Depressive Symptoms. The reciprocated friendships variable was again used as a dichotomous variable (presence/absence) for this analysis. A group (obese vs. non-overweight) X reciprocated friendship (presence vs. absence) ANOVA was conducted on the total score of depressive symptoms (CDI). There was no significant interaction between obesity status and level of depressive symptoms as a function of the presence or absence of a reciprocated friendship. (Tables 5 and 6)

Exploratory Analyses

Social Self-Efficacy and Depressive Symptoms. Race and gender were not significant moderating variables for social self-efficacy. A group (obese vs. non-overweight) X race (African American vs. Caucasian) and a group (obese vs. non-overweight) X gender (male vs. female) ANOVAs were conducted utilizing an alpha level of .025 to control for Type I error.
Race and gender were not significant moderating variables for depressive symptoms. (Tables 9 and 10)

**Discussion**

This study examined the differences between obese and non-overweight children and adolescents, 8 to 16 years old, on reciprocated classroom friendships, social self-efficacy, and the levels of youth reported depressive symptoms. This study also examined reciprocated friendship as an influential variable affecting the relationships between obesity status, social self-efficacy, and depressive symptoms. Obese children in particular have been found to having poorer psychosocial functioning (Erermis et al., 2004; Stunkard et al., 2003; Tweddle Banis et al., 1988), especially regarding number of friendships and their position on the outside of social networks (Strauss & Pollack, 2003), but the reason for this is still in question. Therefore, this study further examined possible variables that would help explain the poor psychosocial functioning, such as low social self-efficacy and fewer reciprocated friendships. In addition, we know from previous research (Hoza, Bukowski & Beery, 2000; Parker & Asher, 1993) that friendships are a protective factor against psychological distress in children, such as depression, and that obesity and depressive symptoms are related in adolescents (Richardson, Garrison, Drangsholt, Mancl & LaResche, 2006) and children (Wallace, Sheslow & Hassink, 1993). The present study specifically examined reciprocated friendships as a protective factor against depressive symptoms within a pediatric obese population. Despite the past research, the current study found that obese youth are more similar to their non-overweight peers regarding reciprocated friendships, social self-efficacy, and depressive symptoms and that the presence of a reciprocated friendship did not change the relationship between obesity and social self-efficacy or depressive symptoms.
Based upon past research stating obese children have fewer friendships in general (i.e. fewer peer nominations; Strauss & Pollack, 2003), it was hypothesized that obese children would, in turn, likely have fewer reciprocated friendships in the classroom setting. The present study did not support the hypothesis. This indicates that obese children are not friendless and, similar to non-overweight youth, have developmentally important dyadic friendships. After further examination of the data it appeared that there were a disproportionate number of obese participants ($N = 25$), compared to the non-overweight participants ($N = 13$), who had no reciprocated friendship. A chi square analysis was subsequently conducted to test whether these numbers were statistically different. While this analysis was not significant, $\chi^2 (1, N = 38) = 3.79, p = .052$, it is arguable that this may be due to the small sample size. Future research is suggested with a larger sample.

Additional findings on the same data set have recently been presented at the North American Association for the Study of Obesity 2005 conference regarding the social functioning of these participants (Zeller, Reiter-Purtill & Ramey, 2005). It was found that the obese participants had significantly fewer friendship nominations than non-overweight controls, had poor peer acceptance, and were considered less attractive and less athletically competent by their peers. Using the Revised Class Play to measure behavioral reputation in the classroom, Zeller and colleagues found that the obese participants were rated as lower in leadership, higher in aggressiveness, and higher in socially isolative behaviors. Therefore, an important difference that should be noted is that the obese children do receive fewer best friend nominations but have just as many of their own nominations reciprocated as their non-overweight peers—they may have fewer friends in general, but they know who their friends are. This distinction is central to the understanding of the present findings in comparison to past findings in the developmental literature. Despite previous findings of a significant inverse relationship between body size and
social acceptance (Strauss et al., 1985), and that obese youth are less socially competent (Tweddle-Banis et al., 1988; Zeller et al., 2005), reciprocated friendships in the classroom remain present and intact for this population of obese youth. This further supports the notion of peer acceptance and reciprocated friendships as two distinctly separate concepts that affect children and adolescents in different ways (Bagwell et al., 1998; Hoza et al., 2000; Parker & Asher, 1993). This is an important concept because it suggests that psychosocial interventions should not target developing more friendships, per se, but rather at social behaviors and social competence, as recommended by Zeller and colleagues (2005).

Although there is little research on social self-efficacy, and no research on the social self-efficacy of obese youth, it was hypothesized that obese participants would report lower social self-efficacy given the literature that has linked social self-efficacy and physical appearance to friendships. Social self-efficacy has been shown to be related to friendship in various ways. It has been reported that social self-efficacy predicts friendship satisfaction and it mediates the relationship between parental conflict at home and a child’s ability to have a successful friendship (Guthrie et al., 2002). It has also been found to significantly correlate with social acceptance (Connolly, 1989). Physical appearance is also important to social self-efficacy as obese children and adolescents may internalize the sociocultural pressure to be thin (Klaczyński et al., 2004) and the stigmatization of obesity (Carr & Friedman, 2005; Crocker, Cornwell & Major, 1993; DeJong, 1980; Kaplan, 1979). Furthermore, stigmatization can affect a person’s beliefs that he or she is able to successfully interact socially with peers and make and maintain friendships (Musher-Eizenman et al., 2003; Musher-Eizenman et al., 2004). In fact, even preschool children possess “anti-fat” attitudes (Cramer & Steinwert, 1998), including contributing obesity to a person’s own lack of self-control (Musher-Eizenman et al., 2004), and
adolescents have been found to rate overweight peers less positively unless that peer can give a medical explanation for his or her weight (DeJong, 1980).

Social self-efficacy is also related to depression (Bandura et al., 1999; Herman & Betz, 2004) as it has been found to be a protective factor against internalizing symptoms in maltreated children (Kim & Cicchetti, 2003) and it uniquely contributes to mental health (Connolly, 1989). This is important because obese youth have been found to have higher levels of depression and other psychopathology (Britz et al., 2000; Tweddle-Banis et al., 1988) and are often teased and bullied by peers (Janssen et al., 2004), which would lead one to believe that obese youth are particularly at risk for poor social self-efficacy. Despite the relationships between social self-efficacy, friendship, physical appearance, and depressive symptoms, this study did not find a significant difference between obese and non-overweight participants on levels of social self-efficacy. This is an important finding because we know that the same sample has poor peer acceptance and a negative peer environment (Zeller et al., 2005), yet their social self-efficacy remains intact and does not differ from controls.

There are several possible reasons for the nonsignificant finding. If the presence of obesity is so great that it is becoming "normalized" within our society, the stigmatization may actually be decreasing and, thus, the obese youth are not internalizing negative views about themselves. Past literature has noted a social stereotype and stigma to obesity (Hill & Silver, 1995; Kaplan, 1979) and more current studies have also shown body-type stigmatization and the subsequent negative psychosocial sequelae, but they are measuring hypothetical peers (Latner & Stunkard, 2003), drawings of body types (Musher-Eizenman et al., 2003; Young-Hyman et al., 2003), thin idealization, attitudes and stereotypes toward obesity (Klacznyski et al., 2004), and stigmatization in adults (Carr & Friedman, 2005). It may be that children are not actually applying these negative attitudes and beliefs to real their life peers (Lawson, 1980).
this notion of obesity as being normalized is supported by the fact that there were no identifiable non-overweight participating controls of the same gender in 12 classrooms. One could assume that in these classrooms in particular, overweight and obesity are the norm. If children are beginning to see obesity as more "normal", the stigmatization may not be as salient and obese children may become more accepted by peers and initiate more friendships. On the other hand, the peer environment of these children and adolescents as a whole is undoubtedly negative and they are viewed as less attractive (Zeller et al., 2005), which would lead one to also assume that some negative stigma is present as well. However, it should be noted that this study differs from the previous studies in that stigmatization, attitudes, and stereotypes about obesity were not measured and, therefore, no definitive conclusions can be made regarding the effect these variables may have had on this sample.

This study also found that there were no significant differences between obese and non-overweight youth regarding their number of depressive symptoms. These findings are consistent with previous controlled studies (Epstein et al., 1996; Zeller et al., 2004), which have compared obese youth to instrument norms. However, these data are in contrast to a number of studies that have documented significant levels of depressive symptoms in obese children and adolescents (Epstein et al., 1994; Erermis et al., 2004; Stunkard, Faith & Allison, 2003; Wallace et al., 1993).

In addition, this study did not support the hypothesis that the presence of a reciprocated friendship significantly changes the relationship between obesity and social self-efficacy, or obesity and depressive symptoms. Despite the well-noted importance of reciprocated friendships on emotional well being in the developmental literature (Hoza et al., 2000; Parker & Asher, 1993; Schwartz et al., 2000), there was no significant interaction with obesity within this sample. One possible reason for this finding could be the fact that there were no significant differences between the obese and non-overweight children and adolescents on levels of social self-efficacy.
and depressive symptoms. In fact, both the obese and non-overweight groups had fewer participants who met or exceeded the clinical cut-off score on the Children’s Depression Inventory than the expected base rate in the general population (Kovacs, 1992). Another explanation could be that the participants had other sources of psychosocial support outside of the classroom (i.e., family members) that helped alleviate the negative effects of the absent dyadic friendship (Branje, van Lieshout, van Aken & Haselager, 2004; Malecki & Demaray, 2003; McElwain & Volling, 2005). The fact that there was a significant main effect for social self-efficacy and friendship, and that there was no relationship with reciprocated friendships and depressive symptoms, supports past findings of the protective properties of self-efficacy (Hermann & Betz, 2004), regardless of a person’s weight status.

The findings regarding the absence of a relationship between reciprocated friendships and depressive symptoms are in contrast to the broader developmental literature, which suggests increased depressive symptoms in youth who lack reciprocated friendships (Erdley et al., 2001) and in adults who had no reciprocated friendships as a child (Bagwell et al., 1998). While we know that these obese children and adolescents have poor social functioning (Zeller et al., 2005), this study indicates that there is more involved than weight status, social self-efficacy, or reciprocated friendships. The findings are in agreement with past research showing the importance of reciprocated friendships as a protective factor (Hoza et al., 2000; Parker & Asher, 1993; Schwartz, Dodge, Pettit & Bates, 2000) because while these children and adolescents are not doing well socially, they are not experiencing depressive symptoms or poor social self-efficacy, as was expected.

Finally, the exploratory analyses found no support for race or sex as significantly influential variables with regard to pediatric obesity, social self-efficacy, and depressive symptoms. The finding regarding sex was somewhat surprising given some past research has
shown that females were found to be particularly affected by obesity and how others view them (Strauss & Pollack, 2003), which would lead one to suspect that the females would in turn be more sensitive to how they view themselves socially. This is also true for Caucasians and it has subsequently been hypothesized that obese African American girls do not experience the same level of stigmatization as other ethnic groups (Latner & Stunkard, 2003; Strauss & Pollack). However, the exploratory analyses did not find any differences between males and females or African Americans and Caucasians.

One alternate explanation for the overarching non-significant results is that because it was not feasible to assess a child's entire social system (i.e. neighborhood friends from another school or friends in another classroom), it is possible that some of the participants identified as having no reciprocated friendships actually have one or more outside of our ability to identify them. For example, DuBois and Hirsch (1990) reported that African American youth tend to have a more extensive friendship network in the neighborhood rather than at school and Dolcini and colleagues (Dolcini, Harper, Watson, Catania & Ellen, 2005) found that only 19 percent of their sample of African American urban youth had friendship networks comprised solely of in-school friendships.

Despite this, the Three Best Friends method used to assess reciprocated friendships is a strength of the study as it is a standard sociometric tool that has been recommended by childhood friendship investigators, Asher and colleagues (Asher, Parker, & Walker, 1996), and is utilized by many others in this line of research (Bagwell et al., 1998; George & Hartmann, 1996; Hoza et al., 2000; Schwartz et al., 2000). Furthermore, as there were no significant effects found for ethnicity in the exploratory analyses, the previously mentioned outside-school friendship networks for African American youth does not appear to be a convincing argument for this particular sample.
Additional strengths of the study include the methodology. The presence of a non-overweight control group that was matched for age, ethnicity, and sex of the obese participants within the same classroom is important. This gives the study the advantage of having a direct comparison for the targeted group, which provides strength to the methodology. Utilizing the classroom setting also has the advantage of obtaining controls that provide a comparison child with similar social and demographic profiles (Gerhardt, Vannatta, McKellop, Taylor, Passo, Reiter-Purtill, Zeller & Noll, 2003; Noll, Garstein, Vannatta, Correll, Bukowski & Davies, 1999; Trzepacz, Vannatta, Gerhardt, Ramey & Noll, 2004). This is supported by findings with the same sample that indicated there were no significant differences between the obese youth and non-overweight controls on demographic characteristics, including family socioeconomic status, family composition, family size, and parent age and education (Zeller, Reiter-Purtill, Modi, Gutzwiller, Vannatta & Davies, manuscript under review).

Another strength of the current study is the use of the Children's Depression Inventory, which allows for more accurate comparisons to other studies that included this widely used research tool (Bandura et al., 1999; Erermis et al., 2004; Martin et al., 2003; Nangle et al., 2003; Wallace et al., 1993) and it has been found to be a valid tool in the assessment of children’s depressive symptoms (Romano & Nelson, 1988). The average participation rate of 87 percent is also a strong point of the study as it is well above the recommended minimum participation rate of 70 percent for sociometric studies (Crick & Ladd, 1989). There was less of a chance that a potential reciprocated friend was among those who were absent or did not have a signed informed consent. Finally, the moderate effect sizes ($d=.5$ and $f=.25$) for this study suggests that there was adequate power in the analyses to detect statistical differences and interactions (Cohen, 1992).
Limitations include the use of self-report measures, which allow for a child to respond as he or she chooses and are highly susceptible to responding in a more socially acceptable manner. Another possible limitation is that the measurement of friendship dyads was at one moment in time and it has reported in past research that there is a temporal quality to friendships, as they tend to change across time (Erdley et al., 1998; Parker & Seal, 1996). It is possible that had the same participants been assessed again at a later time, there may have been different friendship nominations and reciprocations. However, as this is a variable that is inherent in friendships, it is reasonable to assume that obese children and adolescents are no more affected by it than any other group of children and adolescents and, therefore, it is not a concern for this study.

This study improves upon previous research by assessing children's friendships within an actual peer group rather than using measures of hypothetical friendships with children of different weight groups. Thus, this may be a more accurate picture of actual reciprocated friendships. The importance of these findings is emphasized by the notion that society and professionals may be overestimating the extent of psychopathology in the pediatric obese population. The lack of significant differences between the obese and non-overweight children and adolescents is interpreted as an important indication of the relative psychosocial well-being of obese children and adolescents, which is in agreement with the few studies that have questioned the stated poor psychosocial functioning of obese youth (Epstein et al., 1994; Epstein et al., 1996; Zeller et al., 2004). This is especially important because we know that these same children and adolescents have such poor social environments and are not liked by their peers (Zeller et al., 2005), yet there is still at least one reciprocated friendship in the life of these children and adolescents that may be acting as a protective factor for the psychosocial well being of these obese youth. While obesity is an ever-increasing problem for the physical health of our
children, it may not be as critical of a problem regarding mental health or the establishment of important reciprocated friendships.

In addition, while this study supports that reciprocated friendships are important for a child's development and psychological well being, it does not support the identification of reciprocated friendships as a significant interacting factor with obesity and psychological well being. Thus, valuable time and resources available for this population should not be targeted at interventions designed to develop a child's sense of social self-efficacy for creating friendships, as these participants were no different from the controls. Moreover, interventions should not be targeted at developing reciprocated friendships rather than overall peer acceptance, as was previously suggested by Nangle and colleagues (2003), because these participants are not lacking in dyadic friendships, they are lacking in peer acceptance. As suggested by Zeller and colleagues (2005), it would be more beneficial for interventions for obese children and adolescents to target positive social behaviors, such as integrating into the peer network and decreasing aggressive behaviors, to improve their peer acceptance. What this study also indicates is that interventions should utilize the one or more reciprocated friendships that these children have as support for the obese child or adolescent becoming more central to the peer network. Using the existing friendship in a positive way and building on that existing friendship in clinical interventions will be the most beneficial for this population. For example, these reciprocated friendships can be used as a tool with which an obese child or adolescent learns to decrease his or her social marginalization, to positively interact with other peers, and to develop leadership skills. Parents should also be instructed to encourage the further development of the existing reciprocated friendship, as this is a relationship that is building their child's social self-efficacy and potentially protecting him or her from psychopathology.
Unfortunately, this study does not answer the elusive questions of why some studies have found higher levels of mood disorders and other psychopathology in obese children and adolescents, or what may be modifying that relationship, and why they have such poor peer acceptance and social environments. It is clear that additional research is needed to answer these questions, with the understanding that it is not obesity alone or the absence of a reciprocated friendship that explains the occurrence of psychosocial difficulties in an obese population, and that the obese child’s beliefs in his or herself to competently interact in social situations has not been compromised by his or her weight status.
References


Table 1

*Demographics for all participants by weight status*

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Obese</th>
<th>Non-Overweight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Body Mass Index</td>
<td>78</td>
<td>35.57 (6.59)</td>
</tr>
<tr>
<td>Age</td>
<td>78</td>
<td>12.56 (1.92)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>46</td>
<td>59</td>
</tr>
<tr>
<td>Male</td>
<td>32</td>
<td>41</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>40</td>
<td>51</td>
</tr>
<tr>
<td>African</td>
<td>38</td>
<td>49</td>
</tr>
<tr>
<td>American</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2

*Comparisons of means for the Three Best Friends, the Child Self-Efficacy for Peer Interactions total score, and the Children’s Depression Inventory total score*

<table>
<thead>
<tr>
<th></th>
<th>Obese (N = 78)</th>
<th>Non-Obese (N = 71)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td></td>
</tr>
<tr>
<td>Reciprocated Friendships</td>
<td>1.19 (1.03)</td>
<td>1.41 (0.95)</td>
<td>0.45</td>
</tr>
<tr>
<td>Social Self-Efficacy</td>
<td>69.42 (11.10)</td>
<td>69.84 (10.81)</td>
<td>0.83</td>
</tr>
<tr>
<td>Depressive Symptoms</td>
<td>8.80 (8.14)</td>
<td>7.69 (7.60)</td>
<td>0.39</td>
</tr>
</tbody>
</table>

Note: The standard deviation appears in parentheses after the mean

No significant differences at the $p < .05$ level.
Table 3

**Means for the CSPI total score based on group and the presence or absence of reciprocated friendships**

<table>
<thead>
<tr>
<th>Group</th>
<th>Friendships</th>
<th>N</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obese</td>
<td>Reciprocated</td>
<td>53</td>
<td>71.64 (9.48)</td>
</tr>
<tr>
<td></td>
<td>No Reciprocated</td>
<td>25</td>
<td>64.72 (12.89)</td>
</tr>
<tr>
<td>Non-Obese</td>
<td>Reciprocated</td>
<td>58</td>
<td>70.29 (10.55)</td>
</tr>
<tr>
<td></td>
<td>No Reciprocated</td>
<td>13</td>
<td>67.85 (12.14)</td>
</tr>
</tbody>
</table>

Note: The standard deviation appears in parentheses after the mean
Table 4

*Analysis of variance for social self-efficacy (CSPI)*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity status (O)</td>
<td>1</td>
<td>0.18</td>
<td>0.67</td>
</tr>
<tr>
<td>Reciprocated Friendship (F)</td>
<td>1</td>
<td>5.0*</td>
<td>0.03</td>
</tr>
<tr>
<td>O X F</td>
<td>1</td>
<td>1.13</td>
<td>0.29</td>
</tr>
<tr>
<td>Error</td>
<td>145</td>
<td>(115.7)</td>
<td></td>
</tr>
</tbody>
</table>

Note. Value enclosed in parentheses represents mean square errors.

*p < .05*
Table 5

Means for the CDI total score based on group and the presence or absence of reciprocated friendships

<table>
<thead>
<tr>
<th>Group</th>
<th>Friendships</th>
<th>N</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obese</td>
<td>Reciprocated</td>
<td>53</td>
<td>7.86 (7.24)</td>
</tr>
<tr>
<td></td>
<td>No Reciprocated</td>
<td>25</td>
<td>10.76 (9.64)</td>
</tr>
<tr>
<td>Non-Obese</td>
<td>Reciprocated</td>
<td>58</td>
<td>7.51 (7.72)</td>
</tr>
<tr>
<td></td>
<td>No Reciprocated</td>
<td>13</td>
<td>8.46 (7.25)</td>
</tr>
</tbody>
</table>

Note: The standard deviation appears in parentheses after the mean.
Table 6

*Analysis of variance for depressive symptoms (CDI)*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity status (O)</td>
<td>1</td>
<td>0.74</td>
<td>0.39</td>
</tr>
<tr>
<td>Reciprocated Friendship (F)</td>
<td>1</td>
<td>1.56</td>
<td>0.21</td>
</tr>
<tr>
<td>O X F</td>
<td>1</td>
<td>0.40</td>
<td>0.53</td>
</tr>
<tr>
<td>Error</td>
<td>145</td>
<td>(61.99)</td>
<td></td>
</tr>
</tbody>
</table>

Note. Value enclosed in parentheses represents mean square errors.

No significant differences at the \( p < .05 \) level.
Table 7

*Exploratory Analysis of Variance Race and Social Self-Efficacy*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity status (O)</td>
<td>1</td>
<td>0.09</td>
<td>0.77</td>
</tr>
<tr>
<td>Race (R)</td>
<td>1</td>
<td>1.39</td>
<td>0.24</td>
</tr>
<tr>
<td>O X R</td>
<td>1</td>
<td>0.006</td>
<td>0.94</td>
</tr>
<tr>
<td>Error</td>
<td>145</td>
<td>(120.61)</td>
<td></td>
</tr>
</tbody>
</table>

Note. Value enclosed in parentheses represents mean square errors.

No significant differences at the $p < .05$ level.
Table 8

*Exploratory Analysis of Variance for Sex and Social Self-Efficacy*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity status (O)</td>
<td>1</td>
<td>0.09</td>
<td>0.76</td>
</tr>
<tr>
<td>Sex (S)</td>
<td>1</td>
<td>0.47</td>
<td>0.49</td>
</tr>
<tr>
<td>O X S</td>
<td>1</td>
<td>0.77</td>
<td>0.38</td>
</tr>
<tr>
<td>Error</td>
<td>145</td>
<td>(120.77)</td>
<td></td>
</tr>
</tbody>
</table>

Note. Value enclosed in parentheses represents mean square errors.

No significant differences at the $p < .05$ level.
Table 9

*Exploratory Analysis of Variance for Race and Depressive Symptoms*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity status (O)</td>
<td>1</td>
<td>0.50</td>
<td>0.48</td>
</tr>
<tr>
<td>Race (R)</td>
<td>1</td>
<td>1.21</td>
<td>0.27</td>
</tr>
<tr>
<td>O X S</td>
<td>1</td>
<td>1.40</td>
<td>0.24</td>
</tr>
<tr>
<td>Error</td>
<td>145</td>
<td>(61.98)</td>
<td></td>
</tr>
</tbody>
</table>

Note. Value enclosed in parentheses represents mean square errors.

No significant differences at the $p < .05$ level.
Table 10

*Exploratory Analysis of Variance for Sex and Depressive Symptoms*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity status (O)</td>
<td>1</td>
<td>0.68</td>
<td>0.41</td>
</tr>
<tr>
<td>Sex (S)</td>
<td>1</td>
<td>2.10</td>
<td>0.15</td>
</tr>
<tr>
<td>O X S</td>
<td>1</td>
<td>0.17</td>
<td>0.68</td>
</tr>
<tr>
<td>Error</td>
<td>145</td>
<td>(62.08)</td>
<td></td>
</tr>
</tbody>
</table>

Note. Value enclosed in parentheses represents mean square errors.

No significant differences at the $p < .05$ level.
Appendix A

CINCINNATI CHILDREN'S HOSPITAL MEDICAL CENTER
CONSENT TO PARTICIPATE IN A RESEARCH STUDY

STUDY TITLE: Exploring barriers to treatment in pediatric medical conditions

SPONSOR NAME: National Institutes of Health

SPONSOR STUDY NUMBER: 1K23DK60031-01

CCHMC IRB # 02-10-28X

IRB APPROVAL DATE: 11/05/02

INVESTIGATOR INFORMATION

PRINCIPAL INVESTIGATOR NAME: Meg Zeller, Ph.D.

24 hr EMERGENCY PHONE CONTACT: CCHMC Division of Psychology On-call service (513) 636-3497

Subject Name:_________________________ Date of Birth: ____/____/____

Throughout this document, references to “You” may stand for either the research study subject or for the parents or legal guardians of the research study subject if the subject is under 18 years of age or otherwise unable to legally give informed consent to participate in the research study. The signature(s) at the end will clarify whether the research study subject is signing this consent form on their own behalf or via a legal guardian or legal personal representative.

INTRODUCTION:
You have been asked to participate in a research study. Before agreeing to participate in this study, it is important that you read and understand the following explanation. It describes, in words that can be understood by a lay person, the purpose, procedures, benefits, risks and discomforts of the study and the precautions that will be taken. It also describes the alternatives available and the right to withdraw from the study at any time. No guarantee or assurance can be made as to the results of the study. Also, participation in the research study is completely voluntary. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may withdraw from the study at any time without penalty.

WHY IS THIS RESEARCH BEING DONE?
The purpose of this study is to better understand how chronic medical conditions impact children and families. In particular, the study is concerned with identifying how school-aged children with chronic medical conditions are getting along at school and at home.

WHY HAVE YOU BEEN ASKED TO TAKE PART IN THIS RESEARCH STUDY?
You are being asked to participate in this study because the study works with two groups of families: 1) a group of families in which a child has been referred for treatment for their chronic medical condition at Children's Hospital Medical Center, and 2) a group of families from the same neighborhood with a similar aged child who does not have a chronic medical condition, or
a "control group". This will allow the comparison of responses from these two groups of families to better understand what differences may exist between families with and without a child with a chronic medical condition.

**WHO SHOULD NOT BE IN THE RESEARCH STUDY?**
Children below the age of 8 and older than age 17 should not participate in this study.

**HOW LONG WILL YOU BE IN THE RESEARCH STUDY?**
We understand that our participation will require approximately 3 hours for adults and 2 hours for our child. This consent, unless you choose to withdraw it, shall remain in effect until the end of the research study.

**WHO IS CONDUCTING THE RESEARCH STUDY?**
This study is sponsored by the National Institutes of Health. The study is directed by Dr. Meg Zeller, the researcher at Cincinnati Children’s Hospital Medical Center.

**HOW MANY PEOPLE WILL TAKE PART IN THE RESEARCH STUDY?**
Approximately 60 families will take part in this study at Cincinnati Children’s Hospital Medical Center.

**WHAT IS INVOLVED IN THE RESEARCH STUDY?**
If we agree to participate in this study we understand that we will be asked to complete 10 questionnaires and be weighed and our height measured. We understand that our child will complete 8 questionnaires, a story-telling task, and be weighed and measured. We also understand that if our child/adolescent represents the participant group with a chronic medical condition, existing medical information in the patient’s medical chart will also be used.

**WHAT ARE THE RISKS AND DISCOMFORTS OF THE RESEARCH STUDY?**
There are minimal risks to child or adult participants in this study. All questionnaires and interviews used in this study are standardized and have been used in research without any reported negative effects. A potential risk may be loss of confidentiality. Please see the section of this consent form entitled How Will Information About You Be Kept Private And Confidential to learn steps that will be taken to reduce the risk of loss of confidentiality. Finally, there may be unknown or unforeseen risks associated with study participation.

**ARE THERE DIRECT BENEFITS TO TAKING PART IN THE RESEARCH STUDY?**
If you agree to take part in this research study, there is not a direct medical benefit for you. The information learned from this research study may benefit other patients with chronic medical conditions in the future. Through your participation, researchers hope to influence the manner in which health professionals work with families to provide more optimal care.

**WHAT OTHER CHOICES FOR CARE ARE THERE?**
We may choose not to participate in the study and this will not affect my child’s care at Cincinnati Children’s Hospital Medical Center.

**HOW WILL INFORMATION ABOUT YOU BE KEPT PRIVATE AND CONFIDENTIAL?**
Every effort will be made to maintain the confidentiality of your medical and research information ("Protected Health Information" or "PHI"), consisting of you and your child’s responses to questionnaires, you and your child’s height and weight measurements, and, if our child is a
participant of the chronic medical condition group, medical information related to his/her medical
treatment at the Cincinnati Children’s Hospital Medical Center.

Protected Health Information is defined as health information, whether verbal or recorded in any
form (such as on a piece of paper or entered in a computer), that identifies you as an individual
or offers a reasonable basis to believe that the information could be used to identify you.

By signing this consent form you are giving permission for representatives of the Cincinnati
Children’s Hospital Medical Center ("CCHMC"), the Investigator and CCHMC employees
involved with the research study including the Institutional Review Board and the Office for
Research Compliance, and any sponsoring company or their appointed agent to be allowed to
inspect sections of your medical and research records related to this study.

The information from the research study may be published; however, you will not be identified in
such publication. The publication will not contain information about you that would enable
someone to determine your identity as a research participant without your authorization.

Cincinnati Children’s Hospital Medical Center and/or the Investigator will take the following
precautionary measures to protect your privacy and confidentiality of your research and/or
medical records. All questionnaires and the results of the study will be treated in strict
confidence. Participants will remain anonymous as all information is coded to a number, not to
you or your child or family’s name. The information will be kept in locked cabinets in the Principal
Investigators’ offices at Children’s Hospital Medical Center. The names associated with the
identifying numbers will be kept in a locked cabinet separate from the questionnaires.

A copy of this consent form will be included in your medical record. You will be registered in the
Children’s Hospital Medical Center’s computer system as a research subject which may be
beneficial for future clinical care.

USE AND DISCLOSURE OF YOUR PROTECTED HEALTH INFORMATION
The Protected Health Information described in the section above will be used/disclosed for the
purpose of research by CCHMC to the other persons or entities identified above.

“Use” of an individual's health information is defined as the sharing, examination or analysis
(break down) of the information that is collected and maintained for the length of the research
study.

“Disclosure” of an individual’s health information is defined as the release, transfer, providing
access to, or to reveal in any other manner, the information outside the persons or entity holding
the information as described in the section “How Will Information About You Be Kept Private
And Confidential” in this consent form.

Once your Protected Health Information is disclosed, the information may be subject to re-
disclosure and may no longer be protected by the federal privacy regulations.

AVAILABILITY OF INFORMATION?
If we have questions or would like more information about the study we may contact Dr. Meg
Zeller (513-636-2712).
WHAT ARE YOUR COSTS TO BE IN THIS STUDY?
There are no costs associated with participating in this study with the exception of the time allotted to complete the study (i.e., 2-3 hours).

WILL YOU BE PAID TO PARTICIPATE IN THIS RESEARCH STUDY?
Your family will receive $100 dollars cash as compensation for your participation in the research study. You will receive this money at the end of data collection.

WHAT ARE YOUR RIGHTS AS A PARTICIPANT?
Your participation in this study is completely voluntary. You may choose either to take part or not to take part in this research study. Your decision whether or not to participate will not result in any penalty or loss of benefits to you and the standard medical care for your condition will remain available to you.

If you decide to take part in the research study, you are free to withdraw your consent and discontinue participation in this research study at any time. Leaving the study will not result in any penalty or loss of benefits to you. You may revoke (choose to withdraw) this consent at any time after you have signed it by providing Dr. Meg Zeller (Cincinnati Children's Hospital Medical Center, Mail Location D-3015) with a written statement that you wish to withdraw this consent. Your withdrawal of this consent will be effective immediately and your Protected Health Information can no longer be used/disclosed for research purposes by CCHMC and the other persons or entities that are identified in the "Use or Disclosure of Your Protected Health Information" section of this consent, except to the extent that CCHMC and/or the other persons or entities identified above have already taken action in reliance upon your consent.

The investigators will tell you about significant new findings developed during the course of the research and new information that may affect your health, welfare, or willingness to stay in this study.

If you or any family member is an employee of Cincinnati Children's Hospital Medical Center, an employee's refusal to participate or withdrawal from the study will not jeopardize any of the employee's opportunities, rights or benefits.

If you have questions about the study, you will have a chance to talk to one of the study staff or your regular doctor. Do not sign this form unless you have had the chance to ask questions and have received satisfactory answers.

Nothing in this consent form waives any legal rights you may have nor does it release the investigator, the sponsor, the institution, or its agents from liability for negligence.

For further information about your rights, please see CCHMC Notice of Privacy Practices.

ABILITY TO CONDITION TREATMENT ON PARTICIPATION IN THIS STUDY
You have a right to refuse to sign this consent to use/disclose your Protected Health Information for research purposes.

If you refuse to sign this consent, your rights concerning treatment, payment for services, enrollment in a health plan or eligibility for benefits will not be affected.
WHO DO YOU CALL IF YOU HAVE QUESTIONS OR PROBLEMS?
For questions about this research study or to report a research-related injury, you can contact the researcher Dr. Meg Zeller at (513)636-2712. Division of Psychology, Cincinnati Children’s Hospital Medical Center. Researchers are available to answer any questions you may have about the research at any time.

If you have general questions about your rights as a research participant in this research study, you can call the Cincinnati Children’s Hospital Medical Center Institutional Review Board at 513-636-8039.

WITNESSING AND SIGNATURES
I have read the information given above. The investigator or his/her designee have personally discussed with me the research study and have answered my questions. I am aware that, like in any research, the investigators cannot always predict what may happen or possibly go wrong. I have been given sufficient time to consider if I (or my child) should participate in this study. I hereby consent for myself (or my child) to take part in this study as a research study subject.

Check box if verbal assent is obtained from the child who is the research subject □

Subject's signature indicating consent (1) or assent (2)  
Date: ______________

Parent/Legal Guardian(3) (Signature)  
Date: ______________

Parent/Legal Guardian(3) (Signature)  
Date: ______________

I have witnessed the voluntary signing of this document by the research subject, or the legally authorized representative of the research subject.

Witness(4) as to the voluntary nature of the Signatures noted above (Signature)  
Date: ______________

Investigator(5) or specific individual who has been designated to obtain consent (Signature)  
Date: ______________

Investigator(6) (Signature)

This research study and consent form have been reviewed and approved by the Cincinnati Children’s Hospital Medical Center Institutional Review Board (telephone number 513-636-8039).
RESEARCH PARTICIPATION INFORMED CONSENT FORM

We have freely consented to allow our child to take part in a study about friendships being conducted by researchers at the University of Cincinnati and the Ohio State University.

The study has been explained to us and we understand the explanation that has been given and what the participation of our son/daughter will involve. We understand that our child will be asked to fill out questionnaires in the classroom taking approximately 30-45 minutes.

We understand that our son/daughter is free to discontinue participation in the study at any time without penalty; we also are aware that his/her involvement or lack of involvement in the study will not penalize our child.

We understand that the results of the study will be treated in strict confidence and that our child will remain anonymous. Also we understand that general results of the research will appear in professional journals and will be presented at professional meetings.

We understand that our child's participation in the study does not guarantee any beneficial results to us or to the members of our family, however, many children who participate find the experience positive. They enjoy being a part of a science project and feel good about themselves because they are helping others. We understand that there are no foreseeable risks or discomforts that children may experience from taking part in this research.

If you have any questions or concerns, please call Dr. Zeller at (513) 636-2712.

Signed:

_______________________________  ________________________________
Parent or legal guardian        Child's name (please print)

_______________________________
Date

_______________________________
Address

PLEASE RETURN THIS FORM TO YOUR SON/DAUGHTER'S SCHOOL. YOUR CHILD CANNOT PARTICIPATE IN THE WORK WITHOUT IT. THANK YOU.
THREE BEST FRIENDS

My three best friends in this class are:

Best Friend

Second Best Friend

Third Best Friend

Note: The CDI and CSPI are not included due to copyright.
February 14, 2006

Stephanie V. Ridel, M.A.
1361 Meadowlark Lane
Amelia, OH 45102

Dear Ms. Ridel,

The IRB has received and reviewed your protocol #0378-1, *Friendship as a Modifying Factor of Depressive Symptoms and Social Self-Efficacy in Obese and Non-obese Children*. Your research on this previously obtained anonymized data set is approved as exempt research.

We wish you success!

Sincerely,

Robert C. Baumiller, S.J.
Chair and Administrator

RCB:nm

cc: Dr. Janet R. Schultz, ML 6511