THE EFFICACY OF INTENSIVE INDIVIDUAL PLAY THERAPY FOR CHRONICALLY ILL CHILDREN

Elizabeth Murphy Jones
University of North Texas

Garry Landreth
Center for Play Therapy

Abstract: This study examined the effectiveness of play therapy for children diagnosed with insulin-dependent diabetes mellitus (IDDM). Specifically, the intent of the study was to determine the effectiveness of an intensive play therapy intervention in (a) reducing symptoms of anxiety in children with IDDM, (b) reducing the overall behavior difficulties in children with IDDM, (c) increasing healthy adjustment in children with IDDM, (d) increasing diabetic's children's adherence to their diabetic regime, and (e) having an impact on these emotional and behavioral symptoms over time.

Analysis of covariance revealed that the children in the experimental group significantly improved their adaptation to their diabetes following intensive play therapy. The results indicate that intensive play therapy may be an effective intervention for children diagnosed with IDDM. Qualitative observations and progress noted in therapy reveal that young children with IDDM have the capability to address and resolve issues of anxiety, depression, and other emotional issues related to their diabetes in play therapy. Preventative approaches such as play therapy for children with IDDM are particularly important for this population, as current behavior patterns and treatment adherence are highly correlated with long-term medical and psychological health.

Although medical advances and technology have allowed children who might not have survived decades ago to live healthy,
productive lives, chronically ill children and their families are faced with a host of rigorous demands and stressors associated with managing their illness in the face of societal neglect. These children and families must endure financial strains, daily medical procedures, dependence on medical services and personnel, family tension, and uncertainty about the future (Patterson, 1988).

Although the number of children who die as a result of chronic illness has markedly decreased, the incidence of chronic illness in childhood remains stable (Cole & Reiss, 1993; Perrin, 1985). Approximately 10-15% of the childhood population suffers from chronic illnesses such as cystic fibrosis, spina bifida, sickle cell anemia, leukemia and other cancers, asthma, juvenile diabetes, or hemophilia (Perrin, 1985). Among these children, about 1-2% live with a severe chronic illness that requires significant health care. In other words, an estimated 7.5 million children in the United States live with chronic illness, approximately 1 million of which are severe disorders (Hobbs, Perrin, & Ireys, 1985). Unlike adult illness, each of these conditions that appear in children are relatively rare (Patterson, 1988, Kahana, Biegel, & Wykle, 1994). Therefore, families with chronically ill children may have difficulty locating adequate health care at diagnosis, and long-term management may be difficult to find in certain geographical areas.

The opportunities for these children to lead normal, healthy lives have improved; therefore, there is now a focus on improving the quality of their lives and preventing medical and psychological complications that often surface as a direct or indirect result of the child’s illness. Advances in the area of disease prevention have focused on several areas, including the prevention of the incidence of the illness, prevention of the onset of the illness, and minimization of the complications that occur as a result of the illness (Patterson, 1988). While medical research strives to prevent and cure chronic illness, the medical community at large is working to reduce the number of physical, social, and psychological consequences of childhood disease by efforts such as in home medical treatment, medical education, and social supports with the goal of helping the child and the family cope with the challenges facing them and allowing the child to lead as normal a life as possible.

Recent research efforts directed at understanding the psychology of childhood chronic illness have been fragmented.
Researchers have attempted to conceptualize children's adjustment to chronic illness by exploring aspects of general psychological health, acceptance of their disease, age-appropriate functioning, and knowledge of their illness (Drotar, 1993). However, it has been shown that children with chronic illness are at increased risk for behavior difficulties, adjustment difficulties, and symptoms of anxiety and depression (Stuber, 1996). Additionally, it has been challenging to assess chronically ill children, as their psychological issues differ significantly from their physically healthy peers. Researchers in more recent years have challenged the use of standard psychological measures as insufficient in characterizing the experience of the chronically ill children and their family (Harris, Canning, & Kelleher, 1996). It has therefore been recommended that future research be focused on the adjustment and coping of the child suffering from chronic illness. As argued by Drotar (1993), addressing "disease related coping tasks such as compliance with treatment regimens, management of anxiety, and adapting to peers, school or family remains an important goal for future chronic illness research" (p. 102).

Insulin-dependent diabetes mellitus (IDDM) is a chronic condition that is typically diagnosed in childhood. An estimated one in 700 children is diagnosed with IDDM, making it one of the most common chronic illnesses of childhood (Delamater & Eidson, 1998). Among childhood illnesses, diabetes is unusual because the child and the family must take the primary responsibility for managing the disorder. Due to the duration of IDDM, these children must learn to manage their disorder for a lifetime. In addition, the complications associated with poorly managed diabetes usually manifest themselves later in life, making it difficult for children to conceptualize the consequences of their behavior due to their cognitive developmental level. Given the gravity of IDDM and the daily demands of diabetes management, it is not surprising that children with diabetes are considered at risk for psychological and psychosocial difficulties.

Daviss et al. (1995) found that compliance with medical treatment significantly impacts diabetic control in children with IDDM. As diabetic children are better able to manage the daily demands of diabetes treatment including blood sugar testing, insulin injections, exercise, and dietary adherence, they tend to have improved metabolic
control, which can significantly decrease their risk for medical complications associated with IDDM (Johnson, 1989). Children with healthier coping skills have been shown to have higher levels of adherence to their medical treatment (Jacobson et al., 1990). In addition, Jacobson et al. found that children with IDDM tend to form adherence behaviors shortly after diagnosis, and these habits tend to persist over time. It is therefore important that interventions aimed to prevent compliance problems among children with IDDM be directed toward younger children, to prevent adherence difficulties during adolescence.

Play therapy is developmentally appropriate for young children as “children express themselves more fully and more directly through self-initiated spontaneous play than they do verbally because they are more comfortable with play” (Landreth, 1991, p. 10) than with verbal communication. Children in play therapy learn to cope with problems through fantasy, metaphor, and reality testing within an emotionally safe environment. Children diagnosed with IDDM must live with a condition that they did not have the freedom to choose. In play therapy, children are allowed to choose their activities and direction of play, allowing them to feel more in control of their lives. The child-centered approach is grounded in both “a basic philosophy of the innate human capacity of the child to strive toward growth and maturity and an attitude of deep and abiding belief in the child’s ability to be constructively self-directing” (Landreth, 1991, p. 60). In this process of self-discovery and growth, children learn that they are responsible, independent, creative, and capable individuals.

Play therapy seems to be an appropriate intervention for young diabetic children, as adherence to a medical regime requires self-responsibility and self-direction. In addition, children with chronic illnesses must live with daily medical procedures and an illness that may often make their life seem out of control. As a result, these children may have feelings of anger, resentment, anxiety, and depression as they struggle with managing their disease.

Intensive play therapy provides both psychological and practical benefits for children. A format that allows children to experience the dynamics present in play therapy on a daily basis allows for the opportunity for concentrated and expedient intrapersonal change. Similar to the concept of marathon therapy groups popular in the 1970s,
intensive therapy interventions are based on the premise that concentrated therapeutic experiences provide the opportunity for more immediate and long-lasting intrapersonal change.

Providing intensive play therapy as a part of the regime at a special camp experience for diabetic children is both a practical and creative option for diabetic children, as it allows them the opportunity to receive preventative counseling in a comfortable setting. Play therapy could enhance the camp experience and further promote responsible, self-directed behavior that would, in turn, impact their physical and psychological health.

The purpose of this study was to determine the effectiveness of play therapy for children diagnosed with insulin-dependent diabetes mellitus (IDDM). Specifically, this study was designed to study the effectiveness of an intensive play therapy intervention in (a) reducing symptoms of anxiety in children with IDDM, (b) reducing the overall behavior difficulties in children with IDDM, (c) increasing healthy adjustment in children with IDDM, (d) increasing diabetic children's adherence to their diabetic regime, and (e) having an impact on these emotional and behavioral symptoms over time.

METHOD

Participants

Participants were selected from children attending Camp Sweeney, a summer camp for children with diabetes located in Gainesville, Texas. Camp Sweeney is the largest camp founded for diabetic children in the United States, serving over 600 children each summer. Children attending Camp Sweeney are between the ages of 6 and 18, and there are three 3-week camp terms each summer. The children attending Camp Sweeney, all of whom are diagnosed with IDDM, are referred from various ethnic and socio-economic backgrounds. The United Way of Texas provides funding for families in financial need; therefore, no child diagnosed with IDDM is unable to attend camp.

Two weeks prior to the camping term, the families of all children between the ages of 7 and 11 were contacted by mail to inform them of the purpose of the study and the opportunity to participate in it.
Approximately 40 letters were mailed prior to each session (a total of 120). Eighty-two parents expressed interest in their children participating in play therapy. A meeting was arranged with each child and parent who volunteered for the study, and risks and benefits of participation in the research study were discussed. In the order in which they volunteered for the study, 30 children were selected for the study based on the following criteria: (a) the child was between the ages of 7 and 11; (b) the primary caretaker was able to speak, read, and write in English; (c) the parent or legal guardian consented for the child to participate in the research study; (d) the parent or legal guardian agreed to complete pretesting, posttesting, and follow-up data; and (e) the child and the parent or legal guardian agreed for the child to participate in 12 play therapy sessions conducted by a trained play therapist during the camp term.

Children were randomly assigned to the experimental or control group on the first day of the camping term. Children in the experimental group began child-centered play therapy on the second day of the camp session, and they participated in 12 sessions during the 3-week camping session. Because they were no longer at the diabetic summer camp, children in the control group did not receive play therapy after the completion of the experimental study. Any children in the control group who exhibited behaviors of concern or whose parents voiced concern about emotional difficulties were referred to an appropriate mental health professional in their community. All children in the control group participated fully in the diabetic camp experience.

The experimental group comprised 9 boys and 6 girls, ages 7 to 11, with a mean age of 9.2 years. In the experimental group, 13.3% were 7 years old, 13.3% were 8 years old, 26.6% were 9-years-old, 26.6% were 10-years-old, and 20% were 11-years-old. The control group was comprised of 8 boys and 7 girls, ages 7 to 11, with a mean age of 9.6. In the control group, 6.7% were 7 years old, 13.3% were 8 years old, 20% were 9 years old, 33.3% were 10 years old, and 26.6% were 11 years old.

The population of the experimental group was 86.6% Caucasian, 6.7% African-American, and 6.7% of Indian (country of India) descent. The population of the control group was 86.6% Caucasian and 13.3% Hispanic. Of the 15 children who participated in the experimental group, 14 received 12 play therapy sessions, and one child left camp before the
study was completed. This child received 10 play therapy sessions and completed posttest data after returning home. Of the 30 children who participated in the study, 26 completed the 3-month follow-up questionnaires; three participants from the control group and one participant in the experimental group did not complete the questionnaire.

Collection of Data

Parents were asked to complete pretest data including a demographic information sheet, the Filial Problems Checklist (FPC), and the Diabetes Adaptation Scale-Parent Form (DAS-Parent Form). Because the follow-up data included self-report instruments for the child as well, parents were asked to provide their consent for the investigator to mail these questionnaires to the child’s school counselor or teacher to administer. In the vast majority of cases, however, the parents did not consent for school personnel to administer these questionnaires, stating that they did not want their child to feel “different” in any way, as they already had difficulty with their child feeling excluded due to their diabetes. In all cases, therefore, all follow-up questionnaires were mailed to the child’s home.

Prior to the first play therapy session, the children received an additional explanation of play therapy and the research study, and they had the opportunity to ask any questions of the play therapist. Each child was administered the Revised Children’s Manifest Anxiety Scale (RCMAS), and the Diabetes Adaptation Scale-Child Form (DAS-Child Form). All of the children had the instructions and questions read aloud to them as necessary. The children in the control group also completed pretesting questionnaires during their rest hour on the second day of the camping session.

After the completion of 12 child-centered play therapy sessions, posttest data were collected. The children in the experimental group completed the RCMAS and the DAS-Child Form. The children in the control group were also tested at this time using these instruments. The parents or legal guardians of children in both the experimental and control groups received the FPC and DAS-Parent Form posttest instruments by mail to be completed 2 weeks after their child returned from camp.
Three months following the end of the camp term, the children and the parents in the experimental and control groups were mailed the RCMA and the DAS-Child Form. Written instructions were provided for the parents to read to the child before they completed the self-report instruments. The parents or legal guardians were asked to complete the FPC and the DAS-Parent Form.

**PLAY THERAPY**

The children in the experimental group received a total of twelve 30-minute child-centered play therapy sessions during the 3-week camp term, as the children's camping schedule allowed. If a child requested to delay his or her session until later in the day due to interest in a camp activity, the request was honored. Therefore, there were slight variations in the play therapy schedule to allow for the therapeutic benefits of the camp activities and peer involvement. As part of the camp, the children received therapeutic interventions provided by the camp, including small group discussions, medical education, and recreation. The children in the control group did not receive play therapy, but participated in the therapeutic camping experiences provided by the diabetes camp.

The principles of child-centered play therapy were followed in the play therapy sessions, as outlined by Landreth (1991). The playroom was located in a small room in the hospital building on the campgrounds. In addition to the play materials recommended by Landreth (1991), the playrooms had play materials related to the medical issues faced by diabetic children, including a fully equipped doctor’s kit, syringes, and blood glucose monitoring equipment. The playrooms had materials related to the medical issues faced by diabetic children, including a fully equipped play doctor’s kit, syringes, and blood glucose monitoring equipment.

Three play therapists conducted the play therapy sessions. They had taken an introductory course, an advanced course, and a practicum in play therapy. Two of the play therapists were doctoral students specializing in play therapy. One of these doctoral students had extensive experience working with children in a hospital setting. The third play therapist, employed as a school counselor providing play therapy in the schools, held a master’s degree in counseling. In addition,
the play therapists received special education and training pertaining to the issues of diabetes, chronically ill children, and medical play. They were required to read a book describing the basic medical issues related to IDDM and the daily medical regime required for children with IDDM. The investigator led a group discussion regarding the specific issues related to children with IDDM and the stressors facing these children and their families, as well as an orientation to the camp setting. Specific issues related to providing play therapy in the camp setting, such as confidentiality and scheduling, were discussed.

**ANALYSIS OF DATA**

Following the collection of the pretest, posttest, and follow-up questionnaires, the questionnaires were coded to maintain confidentiality. The questionnaires were hand scored, checked twice for errors, and the investigator keyed in the data using SPSS for Windows.

An analysis of covariance (ANCOVA) was computed to test the significance of the difference between the experimental group and the control group on the posttest means and follow-up means for each hypothesis. In each computation, the specific posttest identified in each hypothesis was used as the dependent variable and the pretest as the covariant. ANCOVA was used to adjust the group means in the posttest on the basis of pretest, thus statistically equating the control and experimental groups. Differences between the means were tested at the .05 level.

**RESULTS**

Pretest, posttest, and 3-month follow-up means and standard deviations for each instrument are shown in Table 1. The analysis of covariance data for the mean scores for each instrument are shown in Table 2. A discussion of these results will follow.

The results from this study along with therapeutic observations provide valuable information regarding the emotional and behavioral symptoms of children with IDDM as well as the effectiveness of play therapy for these children. Statistical trends indicate greater improvement of symptoms in a variety of areas in the experimental
group compared to the control group. The meaning of these results is discussed below.

**Anxiety**

Results from this study revealed that there was not a significant decrease in anxiety symptoms between the experimental and control group at posttesting or at the 3-month follow-up. In addition to a total anxiety score, scores on the RCMA are divided into three subscales including Physiological Anxiety, Worry/Oversensitivity, and Social Concerns/Concentration. Although the experimental group showed improvement in all these areas, scores from the control group reflected improvement as well. It should be noted that the pretest, posttest, and follow-up means of both the experimental and control groups of the RCMA were within the normal range, indicating low levels of reported anxiety in both groups. Although this might be expected for a preventative research study, it may have impacted the lack of significance in these results.

Along with the ANCOVA, paired t tests were performed on the RCMA scores of the combined scores of the experimental and control groups, yielding significant results. On the RCMA Total Anxiety score and the Worry/Oversensitivity subscale score, both groups showed a significant decrease in anxiety at the .05 level. These results point to the effectiveness of the camp experience to significantly decrease levels of anxiety in children with IDDM.

Numerous studies have identified the prevalence of anxiety among children diagnosed with IDDM (Blanz et al., 1993; Kager & Holden, 1992; Kovacs et al., 1985, 1996). In addition, the play therapists involved with this study were particularly moved by the high levels of stress and anxiety present in the play behaviors of the children in the experimental group. As one play therapist expressed, “These children are so high strung that it seemed difficult for them to relax and just play.” Another play therapist stated, “Being with these children has changed me forever. They cope with so much everyday--injections, insulin reactions, blood tests--it is so hard for them to just be normal kids.”

Observations made in play therapy further explain the presence of anxiety symptoms for children with IDDM. One child in the
experimental group appeared at the camp hospital each morning complaining of stomach aches. The medical staff could find no medical cause for these pains and asked the play therapist to “help him.” He seems very anxious about something. In play therapy, the therapist reported that this child verbalized very little and was intent in his play activities. In the first five play therapy sessions, he constructed an elaborate battle scene in the sandbox. Initially, he used play soldiers, but he began incorporating figures of nurses and doctors in his battles. During his play, he narrated occasionally, including the play therapist saying, “Here are the bad guys (nurses and doctors). They won’t go away, they just keep coming back!” The child played out this theme repeatedly for five sessions. In the fifth session, the following conversation occurred:

Child: “Does your stomach ever have anxious, um, I mean, anxiousness?”
Therapist: “Hmm. Sounds like someone said something to you about anxiousness.”
Child: “Yeah. What does that mean?”
Therapist: “In here, it can mean whatever you would like it to.” *(Child looked confused.)* “What does it mean to you?”
Child: “That you are excited to do something?”
Therapist: “Ah. I think it can mean that. It can also mean that you feel worried or nervous sometimes.”
Child: “Oh! I feel that.”
Therapist: “Hmm.”
Child: “Let’s play house!”

In the days following this session, the play therapist observed that this child no longer appeared at the hospital to be examined by the medical staff. In addition, a medical student approached the play therapist and stated, “He certainly seems better. We don’t see him anymore.” It can be inferred that this child was experiencing anxiety related to his medical treatment and confusion regarding information provided by medical personnel. In the relationship with the child, the play therapist felt it was important to provide the child with information regarding the definition of the word “anxious,” as he had clearly heard
this from the medical staff. In this instance, he seemed to be validated in his feelings while at the same time addressing these themes successfully in play.

Play therapy provided the opportunity for another child to address her anxiety following a severe insulin reaction during the night, during which she became unconscious and had a convulsive seizure. Her blood sugar was brought quickly to normal levels; however, she was required to spend the remainder of the night in the hospital. The following day, she returned to her play therapy sessions. In this session, she did not speak to the play therapist, but she began drawing pictures using red, black, and purple colors wildly, drawing large, abstract figures of a girl’s face. These drawings were in sharp contrast to her drawings in previous sessions, which were predominately controlled and detailed. She drew intently for 20 minutes. The play therapist wrote, “She never looked up or paused for a moment. She seemed focused and driven.” Finally, the child looked up and said, “I had to stay in the hospital last night.” The therapist reflected, “That could be scary for you.” The child’s eyes filled with tears as she nodded and continued drawing.

**Behavior Problems**

Results on the Filial Problems Checklist (FPC) showed improvement in both the experimental and control groups on the posttest scores and increased improvement in the experimental group on the follow-up scores as compared to the control group. However, the difference between the mean scores on these measures was not significant at the .05 level. Follow-up results on this instrument were encouraging, however, indicating a statistical trend toward significance. A larger sample size may have increased the power of these results.

Further investigation of the parents’ responses on the FPC yielded several general observations. Common to many of these children included internalizing behaviors such as “sulks, pouts,” “difficulty falling asleep or sleeping,” “cries easily,” “headaches for no physical reason,” and “stomach cramps, aches.” These observations are consistent with the results found by Blantz et al. (1993), who reported that adolescents diagnosed with IDDM had a higher incidence of psychiatric disorders, predominately internalizing behavior disorders, than normal
adolescents. The results of the Blanz et al. (1993) study communicate the importance of addressing behavioral symptoms in children diagnosed with IDDM as soon as possible, as they may progress into more serious psychiatric difficulties such as anxiety disorders or mood disorders.

In the play sessions, there were numerous accounts of children addressing their sadness, sense of inadequacy, and depression, providing evidence of a tendency toward internalizing behaviors. One play therapist commented, "I was surprised at how willing they were to discuss their diabetes. They seemed to like talking about their feelings about it, rather than the status of their blood sugar. I don't think they had ever done this before." One child illustrated her sense of powerlessness with a vivid story she recited in therapy. The following exchange occurred between the child and the play therapist:

Child:  
(Drawing picture). “My grandmother told me this story of a bee and an elephant. They both got stuck in the mud.”

Therapist: “Hmm.”

Child: “They sat there and the bee said, 'I can fly out of this mud' and the elephant said 'I'll never be able to get out of here.' And the thing is, a bee is really too light to be able to fly out of mud, and elephants can easily get out because they are so strong.”

Therapist: “Really! So what happened?”

Child: “Well, the elephant just stays stuck and the bee flies right out!”

Therapist: “Hmm. So which one is most like you? The bee or the elephant?”

Child: “Oh, definitely the elephant. I can’t do anything.” (Looks down.)

This interaction illustrates this child's feelings of inadequacy and powerlessness in her world. As suggested by numerous authors (Adams, 1976; Bolig et al., 1986; Cooper & Blitz, 1985; Koocher & O'Malley, 1981, Tew, 1997), children with chronic illness are required to give up a sense of control and mastery in their lives and their bodies due to their medical condition. As one child expressed in play therapy,
"There are so many things wrong with me, I just don't know where to start." This "damaged goods" mentality impacts these children's emotional development, their relationships with peers, and their overall sense of control over their lives. As they seek areas to take control and manage their lives, many children choose maladaptive behavior patterns, such as refusing to adhere to their medical treatment or other acting out behaviors.

Another predominant theme present in the children's behavior and the reports by their parents on the FPC pertained to peer relationships. When the parents met the investigator for the first time, they had the opportunity to express any concerns they had for their child. Numerous parents voiced their concern about their child "fitting in" at school and their fear that their child was excluded among their peers due to their diabetes. They reported that they believe negative peer relationships cause their children to become angry more often, irritable, and unsure of themselves. As one parent stated, "It makes me hurt inside when I see him carrying his big bag of (diabetes) supplies to school. He is so brave, but I know that he feels so bad because I see the other children look at him." A parent from the experimental group reported found encouragement from their child's increased confidence following, writing, "I think he will really start off the school year more self-assured and confident." Another parent of a child who participated in the experimental group had a similar observation. After the follow-up instruments were mailed, the parent contacted the investigator by phone and stated the following:

[Child's name] has had the worst day today. They made gingerbread cookies at school to celebrate the Christmas holidays, and of course, he could not eat the cookies with everyone else. He was so upset and he wouldn't even talk to me. Later in the afternoon, he brought your questionnaires in to me and he had completed them. I know they are going to look so negative that I just wanted to let you know. But he seemed to feel better afterwards. I think they helped him get some of those sad feelings out. You know he has so much trouble talking about things. . . .

All play therapists involved in the study provided qualitative information regarding improvement of behavioral symptoms in play
therapy. In one case, a child’s parent reported that he was extremely withdrawn at home, and his camp counselors stated that he was frequently excluded by his peers, primarily due to his nightly bedwetting. In the first play therapy session, this child did not establish eye contact with the play therapist, and he pulled his shirt over his head and appeared to “hide” inside his shirt. In response to the play therapist’s reflection that he might not wish to be in the playroom, he responded, “I’d rather be jumping off a cliff than to be anywhere.” Through his relationship with the play therapist, the child became increasingly interactive, although he remained primarily nonverbal during most play sessions. Outside the play sessions, this child was observed playing with other children and enjoying camp activities. During the final week of the camp session, his counselors reported that he was no longer wetting the bed at night. In his final play session he commented, “I like this place more than anyplace in the whole world.” The play therapists reported other children gaining confidence in their own abilities and becoming more self-reliant. As one child expressed, “I used to not think I could do things like that, and now I can!”

Diabetes Adaptation and Adherence Behavior

The experimental group showed a significant increase ($p < .05$) in diabetes adaptation as indicated by the posttest scores on the Diabetes Adaptation Scale-Parent Form (DAS-Parent Form). Follow-up results noted minimal change in diabetes adaptation in both the experimental and control groups, suggesting that the long-term impact of this intervention was not sustained. The experimental and control groups both showed minimal change on the Diabetes Adaptation Scale-Child Form at posttest, suggesting that neither play therapy or the camp experience significantly impacted the child’s attitude about their diabetes. At follow-up, the experimental group reflected a minimal decrease in DAS-Child Form scores, while the control group scores decreased by a wider margin. On both the posttest and follow-up measures of the adherence scale of the DAS-Parent Form, the experimental group showed greater improvement than the control group, although this increase was not significant at the .05 level. Results on the adherence measure are promising, however, and a larger sample size may have provided increased statistical power. This is particularly
important considering the lack of assessment tools used for children with IDDM and the variability among research results regarding the factors impacting adherence. The significant results of the posttest DAS-Parent Form Total Score suggest the possible effectiveness of play therapy as an effective intervention in increasing children's adaptation to their diabetes. The implication is that children who are better adapted to their illness may be better able to cope with it. If children and their family adapt successfully to the difficulties presented in managing diabetes, they are likely to be more compliant with treatment and should experience increased overall health. It is important to note that the DAS-Parent Form, completed by the parent, reflects attitudes and emotional adjustment for the child, parent, and family. This instrument includes items pertaining to the family, such as "My child's diabetes causes problems for the whole family," items pertaining to the parent, such as "I feel overwhelmed with my child's diabetes," as well as to the child, such as "My child does blood sugars and takes his/her own shots without me nagging." Therefore, this instrument is a measure of the overall adjustment and adaptation of the child, parent, and family to the child's diabetes. This is particularly important as research shows that family dynamics significantly impact treatment adherence and metabolic control in diabetic children (Anderson et al., 1981; Bobrow et al., 1985; Hanson et al., 1992; Miller-Johnson, 1994).

The lack of significance in the DAS-Child Form scores may be explained by the possibility of increased awareness by the children in the experimental group of their emotional difficulties and their attitude toward their diabetes. In play therapy, the play therapists observed that the children had a strong desire to discuss their feelings about their diabetes in play and in verbal exchanges with the therapist. This fact may be contributed to by the setting, as the children were attending a summer camp for children with diabetes, and they may have felt free to address issues pertaining to their diabetes. In addition, this desire to verbalize their feelings implies that children with diabetes have a strong need to express and explore their feelings about their diabetes. Often, children with chronic illness are encouraged by parents, medical, and adults at school to "fit in" and "behave like a normal kid." Such an attitude, though helpful in ways, ignores diabetic children's need to
express their feelings regarding their diabetes and aspects related to it. In play therapy, these issues were readily addressed and accepted.

The play behaviors observed in one child illustrated his strong need to express his feelings regarding his diabetes. In play, he constructed a battle in the sandbox between a group of soldiers and “the enemy.” In this scene, “the enemy” became various food items found in the play kitchen of the playroom. The boy arranged plastic slices of pizza, ice cream scoops, and french fries to “attack” the soldiers. He constructed this scene repeatedly for four play therapy sessions. In a subsequent play session, this child forcefully fed the play animals the food, shoving slices of pizza and vegetables down the hollow mouth of the alligators and sharks saying, “You have to eat, you have to eat!”

In the playroom, children were observed addressing issues of autonomy and self-reliance regarding their diabetes. One 7-year-old child entered the playroom and immediately began playing with the medical kit, examining the insulin syringe carefully and meticulously. For the duration of the session, he “gave shots” to the animals, the play therapist, and the dollhouse figures, and he become elated each time he competed the injection. The follow day, this child was recognized at dinner for giving his injections independently for the first time. Clearly, he had been able to address his anxiety and apprehension about giving his insulin injections in play, and he was able to transfer this behavior to the world outside the playroom. By engaging in play behaviors that were related to this child’s real-life experiences, he was able to experience himself in new ways, promoting new beliefs about his own potentials and abilities. Very quickly, this child was able to apply these new learnings to his environment, allowing him to become more self-reliant in his world.

The experimental group showed a greater increase in the posttest and follow-up mean scores on the adherence scale of the DAS-Parent Form than the control group, although this increase was not significant at the .05 level. A larger sample size might have increased the statistical power of these results. The adherence scale on this instrument included items on the DAS-Parent Form pertaining to the child’s adherence to their prescribed diet, exercise, and medical regime of blood tests and insulin injections, as well as the dynamics between the parent and child regarding the child’s diabetic treatment. These results imply
that play therapy may have been helpful in promoting the child's compliance behaviors in their medical treatment, as well as improving their attitude toward daily treatment.

The association between play therapy and diabetes treatment adherence may be seen in a variety of ways. In child-centered play therapy, the child is encouraged toward greater self-reliance, self-direction, creativity, and trust in their own inner resources. It is also generally believed that children are able to generalize these learnings from play therapy into the world outside the playroom. The premise of this study was that the children who received play therapy would be able to learn in play therapy that they are capable, creative, self-directed individuals who can be trusted and relied upon. This new belief system would, in turn, impact their attitude and behavior toward their diabetes and medical regime. Observation and some statistical trends indicate that play therapy may have been an effective intervention to improve adherence in this way.

Second, the theoretical concepts underlying child-centered play therapy are central to understanding the association between play therapy and adherence behavior in diabetic children. Child-centered play therapy is rooted in the constructs of Carl Rogers's client-centered theory. According to Rogers (1961), maladjustment stems from an incongruence between the individual's "real" self and their concept of self, the latter of which is formed through interaction with the environment. As the individual comes to be more accepting of their true, or real self, this gap between the self and experience narrows, and the individual grows toward greater self-direction, self-acceptance, independence, and other psychologically healthy behaviors. This can only occur within an environment where the individual perceives the acceptance, empathy, and sincerity of another individual. As such, this type of personal change occurs within a relationship with others.

In terms of the play therapy conducted in this study, children in the experimental group were in a relationship with a play therapist who created an environment of trust, empathy, and unconditional acceptance to promote the natural process of growth within the child. Play therapy environment that allows the child to narrow the gap between their self-concept ("I am ill. There must be something wrong with me") and their "real" self ("I am trustworthy, creative, and capable. I am also a
diabetic”). In this way, the child may be increasingly self-accepting. This sense of acceptance may extend to their diabetes, as they may become more accepting of their disease and better able to cope with its demands. Observations and some statistical trends presented in this study point to the possibility that play therapy may impact children with diabetes in this way, by increasing their psychological adaptation to the disease and adherence to treatment.

**CONCLUDING REMARKS**

Results of this study indicate that intensive play therapy may be an effective intervention for children diagnosed with IDDM. Qualitative observations and progress noted in play therapy reveal that young children with IDDM have the capability to address and resolve issues of anxiety and other emotional issues related to their diabetes in play therapy. Providing play therapy in an intensive format in the summer camp setting was helpful to the children, as therapeutic changes seemed to occur more rapidly and the therapeutic relationship formed quickly and easily. In addition, parents were eager for their children to receive play therapy, indicating the lack of preventative therapeutic services available to them and their awareness of a need for such services. Preventative approaches such as play therapy for children with IDDM are particularly important for this population as current behavior patterns and treatment adherence are highly correlated with long-term medical and psychological complications. By including play therapy as a part of a multidisciplinary approach to diabetes treatment for young children, there is the potential to address these issues before they present difficulties for children and their families.
REFERENCES


Table 1
Pretest, Posttest, and 3-Month Follow Up Means and Standard Deviations for the Dependent Variables by Each Condition

<table>
<thead>
<tr>
<th>Measure</th>
<th>Pretest</th>
<th></th>
<th></th>
<th>Posttest</th>
<th></th>
<th></th>
<th>Follow-Up</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>RCMAS total score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>45.214</td>
<td>12.533</td>
<td>40.267</td>
<td>12.198</td>
<td>44.929</td>
<td>14.866</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>47.333</td>
<td>11.037</td>
<td>38.643</td>
<td>14.409</td>
<td>39.917</td>
<td>10.553</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCMAS: PA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>8.143</td>
<td>3.159</td>
<td>7.000</td>
<td>3.109</td>
<td>7.000</td>
<td>3.109</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>8.067</td>
<td>2.865</td>
<td>6.643</td>
<td>3.365</td>
<td>6.250</td>
<td>2.094</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCMAS: WO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>8.429</td>
<td>3.413</td>
<td>7.500</td>
<td>3.568</td>
<td>7.769</td>
<td>2.803</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCMAS: SC/C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>8.357</td>
<td>3.954</td>
<td>7.786</td>
<td>3.043</td>
<td>7.769</td>
<td>3.655</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>9.067</td>
<td>2.890</td>
<td>7.462</td>
<td>2.989</td>
<td>6.583</td>
<td>2.906</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>33.4000</td>
<td>20.8457</td>
<td>29.1429</td>
<td>22.0205</td>
<td>20.9231</td>
<td>20.0726</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>24.1429</td>
<td>23.4078</td>
<td>15.9167</td>
<td>10.9748</td>
<td>20.5455</td>
<td>21.5005</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAS- Child</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>74.3571</td>
<td>16.4158</td>
<td>79.0667</td>
<td>19.9981</td>
<td>73.6667</td>
<td>19.9981</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>79.9333</td>
<td>18.8584</td>
<td>77.9333</td>
<td>19.7356</td>
<td>71.0000</td>
<td>10.7331</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAS- Parent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>38.933</td>
<td>9.996</td>
<td>36.769</td>
<td>5.341</td>
<td>39.000</td>
<td>7.636</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>43.000</td>
<td>7.512</td>
<td>43.467</td>
<td>4.502</td>
<td>44.000</td>
<td>9.936</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAS- Adherence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>9.600</td>
<td>2.640</td>
<td>9.533</td>
<td>2.356</td>
<td>8.833</td>
<td>2.368</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2
Analysis of Covariance Data of the Experimental and Control Groups for the Mean Scores

<table>
<thead>
<tr>
<th>Measure</th>
<th>Posttest</th>
<th></th>
<th>3-Month Follow-Up</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Df</td>
<td>F Ratio</td>
<td>p</td>
</tr>
<tr>
<td>RCMAS Total Score</td>
<td></td>
<td>1.25</td>
<td>.523</td>
<td>.476</td>
</tr>
<tr>
<td>RCMAS Psychological Anxiety</td>
<td></td>
<td>1.23</td>
<td>.567</td>
<td>.459</td>
</tr>
<tr>
<td>RCMAS Worry/Oversensitivity</td>
<td></td>
<td>1.24</td>
<td>1.751</td>
<td>.198</td>
</tr>
<tr>
<td>RCMAS Social Concerns/Concentration</td>
<td></td>
<td>1.23</td>
<td>.270</td>
<td>.608</td>
</tr>
<tr>
<td>FPC</td>
<td></td>
<td>1.23</td>
<td>.886</td>
<td>.356</td>
</tr>
<tr>
<td>DAS-Child</td>
<td></td>
<td>1.26</td>
<td>1.034</td>
<td>.318</td>
</tr>
<tr>
<td>DAS-Parent</td>
<td></td>
<td>1.25</td>
<td>6.875</td>
<td>.015</td>
</tr>
<tr>
<td>DAS-Adherence</td>
<td></td>
<td>1.26</td>
<td>.156</td>
<td>.697</td>
</tr>
</tbody>
</table>

Note. E = experimental group; C = control group; RCMAS = Revised Children's Manifest Anxiety Scale; PA = Physiological Anxiety subscale of the RCMAS; WO = Worry/ Oversensitivity subscale of the RCMAS; SC/C = Social Concerns/Concentration subscale of the RCMAS; FPC = Filial Problems Checklist; DAS = Diabetes Adaptation Scale (Child or Parent form)