THE EFFICACY OF INTENSIVE INDIVIDUAL PLAY THERAPY

FOR CHILDREN DIAGNOSED WITH INSULIN-DEPENDENT

DIABETES MELLITUS

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This study was design to determine the efficacy of intensive individual play therapy as a method of intervention for children diagnosed with insulin-dependent diabetes mellitus. The purpose of this study was designed to study the effectiveness of an intensive play therapy intervention in: a) reducing symptoms of childhood depression in children with IDDM; b) reducing symptoms of anxiety in children with IDDM; c) reducing the overall behavior difficulties in children with IDDM; d) increasing healthy adjustment in children with IDDM; e) increasing diabetic's children's adherence to their diabetic regime; and f) impacting these emotional and behavioral symptoms over time.

The 15 children in the experimental group received 12, daily play therapy sessions while attending a summer camp for children with diabetes. The control group, consisting of 15 children who attended the diabetic summer camp, received no play therapy. Children and parents in both groups completed pretest, post-test and three-month follow-up data, consisting of: the Children's Depression Inventory, the Revised Children's Manifest Anxiety Scale, the Filial Problems Checklist and the Diabetes Adaptation Scale.

Analysis of covariance revealed that the children in the experimental group significantly improved their adaptation to their diabetes following intensive play therapy as reflected by the Diabetes Adaptation Scale. No other hypothesis were retained,

although statistical trends noted increased improvement in the experimental group in the areas of behavior difficulties and adherence behavior. Possible explanations for these results include a lack of symptoms reported at the time of pretesting and the validity of these instruments for a chronically ill population.

The 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 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.

ACKNOWLEDGEMENTS

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CHAPTER I

INTRODUCTION

Children who suffer from chronic illnesses are often a neglected segment of our

society. 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. 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 (Perrin,

1985). Approximately 10 to 15 percent 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 one to two percent live with severe chronic illness, requiring significant health care

(Perrin, 1985). In other words, an estimated 7.5 million children in the United States live

with chronic illness, with approximately one million of these being severe disorders

(Hobbs, Perrin, & Ireys, 1985). Unlike adult illness, each of these conditions that appear

in children are relatively rare (Patterson, 1988). 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 (Patterson, 1988).

In recent years, the opportunities for these children to lead normal, healthy lives have improved; therefore, there is now 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 has 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 have recently 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 described 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).

Efforts to prevent complications of insulin-dependent diabetes mellitus (IDDM) have turned to a multi-disciplinary approach as management of this disease includes medical, social, psychological and educational factors. IDDM is a chronic condition that is typically diagnosed in childhood. It is estimated that 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.

It has been shown that compliance with medical treatment significantly impacts diabetic control in children with IDDM (Daviss et. al., 1995). 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 and this is considered to significantly decrease their risk for medical complications associated with IDDM (Johnson, 1989). It has also been reported that children with healthier coping skills tend to have higher levels of adherence to their medical treatment (Jacobson et. al., 1990). In addition, children with IDDM tend to form adherence behaviors shortly after diagnosis, and these habits tend to persist over time (Jacobson et al., 1990). 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.

Purpose of the Study

The purpose of this research 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 the symptoms of childhood depression in children with IDDM; (b) reducing symptoms of anxiety in children with IDDM; (c) reducing the overall behavior difficulties in children with IDDM; (d) increasing healthy adjustment in children with IDDM; (e) increasing diabetic children's adherence to their diabetic regime; and (f) impacting these emotional and behavioral symptoms over time.

Synthesis of Related Literature

The following is a review of literature related to (a) children diagnosed with insulin-dependent diabetes mellitus (IDDM); (b) psychological treatment for children with IDDM; (c) play therapy and (d) play therapy for children with chronic illness.

Children with Insulin-Dependent Diabetes Mellitus

Type I or insulin-dependent diabetes mellitus (IDDM) is a chronic disorder caused by a lack of insulin secretion from the pancreas. The onset of IDDM commonly occurs in childhood, therefore, the disorder frequently has been referred to as juvenile diabetes. Approximately one in 700 children are currently diagnosed with IDDM, and the incidence of the disease increases with age, peaking between 11 and 14 years of age (Arslanian, Becker, & Drash, 1994). In addition, recent studies have reported that the incidence of IDDM has increased among children under three years of age (Travis, Brouhard, & Schreiner, 1987).

The onset of IDDM is thought to arise in genetically susceptible individuals following the destruction of the insulin secreting beta cells of the pancreas (Delamater & Eidson, 1998; Godambe & Sharief, 1999). It is thought that some viral infections may trigger the autoimmune process of beta cell destruction, but the specific cause of the loss of beta cells is not yet known (Drash & Berlin, 1985; Ahern, 1997; "Guidelines for diabetes care," 1999). Although IDDM is classified as a genetic disorder, the disease is not inherited. Rather, it is thought that some individuals have the genetic predisposition to be susceptible to damage to pancreatic beta cells under certain environmental conditions (Drash & Berlin, 1985; Odawara & Yamashita, 1997; Papadopoulos, 1998).

As the factors that contribute to the onset of diabetes have not fully been identified, medical efforts have been focused on prevention of the complications associated with IDDM through medical management of blood glucose levels. Due to an absence of insulin from the pancreas, glucose molecules are unable to enter the cells for normal metabolism, and therefore, individuals with IDDM lack the ability to maintain stable blood glucose levels without medical intervention. Medical treatment is aimed at the maintenance of normal or near normal blood glucose levels, with prevention of hypoglycemia (excessively low blood sugar) or hyperglycemia (excessively high blood sugar)(Delamater & Eidson, 1998). Although it is impossible to replicate the highly sensitive insulin release mechanisms in a normal pancreas, the treatment objective for persons with IDDM is to emulate this process by regulating the factors that effect blood glucose levels including insulin levels, exercise, stress management, and diet (Drash & Berlin, 1985; "Guidelines for diabetes care," 1999). The medical regime for a child with

IDDM requires adherence to a variety of behaviors including daily insulin injections (from 2-4 per day), regular blood glucose monitoring (from 2-6 times per day), modification of diet and exercise, and timing all of these factors that effect blood glucose levels (Delamater & Eidson, 1998; "Guidelines for diabetes care," 1999).

Short term complications for children with IDDM include hypoglycemia and hyperglycemia. When a child's blood glucose level becomes too low, adrenalin is produced, causing symptoms including shakiness, weakness, dizziness or with extremely low levels, loss of consciousness may occur due to the brain's dependency on glucose for energy. In this case, the child is instructed to eat foods containing sugar to bring their blood glucose to a normal level. If a child's blood glucose level becomes excessively high, the child may experience weakness, excessive thirst, excessive urination and dehydration. In this case, the child is instructed to adjust their insulin, diet and exercise to lower their blood sugar level to a normal range. If hyperglycemia persists, the child may be hospitalized until their blood glucose levels return to a normal range. If a child's blood sugar remains at a significantly high level for an extended period of time, fat is burned instead of glucose, leading to an acidotic condition of the blood that may cause loss of consciousness and complications which can result in death. This extreme hyperglycemic condition is known as diabetic ketoacidosis (DKA) (Johnson, 1989; Ahern, 1997).

IDDM is associated with a number of long-term complications that typically occur 15-20 years after the onset of the disease (Johnson, 1989). Diabetes is the third major cause of death in the United States and the leading cause of blindness in adults (Drash & Berlin, 1985; "Guidelines for diabetes care," 1999). It accounts for one quarter of new

cases of end stage renal disease in the United States and 40-50% of all amputations in the United States (Johnson, 1989). Diabetes is associated with peripheral vascular disease in adults and atherosclerotic heart disease, as well as complications such as retinopathy, neuropathy, and nephropathy (Drash & Berlin, 1985; Johnson, 1989).

The child with IDDM is faced with the task of managing this complex disease with the awareness of the potential for both short term and long-term complications. Several studies have shown that good metabolic control is significantly associated with regime adherence in children and adolescents (Bownlee-Duffick et al. 1987; Kuttner et. al, 1990; Johnson et. al, 1992). However, predicting diabetic control from treatment adherence is complicated as it is also effected by the individuals' biological and behavioral factors (Odawara & Yamashita, 1997). In other studies (Glasgow, McCaul & Schafer, 1987; Johnson, Freund, Silverstein, Hanse & Malone, 1990) no significant correlation has been found between compliance and metabolic control. However, it is generally believed that the complications of diabetes may be delayed, lessened or prevented if blood glucose levels are maintained at normal levels (Johnson, 1989; "Guidelines for diabetes care," 1999). Therefore, medical personnel emphasize the importance of metabolic control and treatment adherence for patients with IDDM.

Adherence to medical treatment for children with IDDM is one of the most challenging problems facing the medical community. Compliance difficulties may include errors in blood testing and insulin dosage, insufficient glucose monitoring and insulin injection frequency or inadequate diet and exercise. Johnson et al. (1982) conducted a study of diabetic children and their adherence to medical treatment and found

that 40 percent of those children studied were making insulin injection errors and that 80

percent of those studied were making errors in glucose testing. In several studies, it has

been shown that non-compliance increases with age, as adolescents tend to have more

difficulties than younger children (Christensen, Terry, Wyatt, Pichert, & Lorenz, 1983;

Johnson, Silverstein, Rosenbloom, Carter and Cunningham, 1986). It is thought that as

children reach adolescence, the developmental need to "fit in" supersedes their desire to

follow their diabetic dietary requirements, exercise regime and testing schedule, as it

becomes important not to appear different from their peers (Johnson, 1989). Studies of

the various aspects of medical treatment have generally concluded that while the majority

of patients do take their insulin injections on a daily basis, children tend to have difficulty

adhering to frequent blood glucose testing, dietary restrictions and exercise programs

(Delamater & Eidson, 1998).

The demands of managing a child with IDDM impose significant stress on the

child and the family (Delamater &Eidson, 1998). Kovacs et. al. (1985) reported that 36

percent of newly diagnosed diabetic children had a classifiable psychiatric disorder, most

commonly adjustment disorder. However, 50 percent of these disorders had subsided

after three months and 93 percent of the children had recovered after nine months. In a

longitudinal study of diabetic youths, Kovacs, Mukerji, Drash, & Iyengar (1996) found

that 50 percent of the children followed for an average of 9 years met criteria for one or

more psychiatric disorders, commonly depression, anxiety disorders, and disruptive

behavior disorders. It has also been reported that adolescents with IDDM have a higher

incidence of psychiatric difficulties (predominately internalizing behaviors) than healthy

adolescents (Blanz, Rensch-Reimann, Fritz-Sigmund, & Schmidt, 1993). In contrast, other studies have reported mild to no behavioral or psychological differences between children with IDDM and healthy children (Jacobson et. al. 1986; Johnson 1995; Northam, Anderson, Adler, Werther, & Warne, 1996).

Although the results of studies of the psychological factors associated with IDDM are mixed, it is generally believed that healthy psychological adjustment is associated with treatment compliance and overall health (Delamater & Eidson, 1998). In their four-year follow up study of children and families with IDDM, Jacobson, et. al.(1990) found that psychological adjustment and coping mechanisms predicted the level of adherence to medical treatment. No other demographic or psychosocial factors were found to predict treatment adherence over the four years. In addition, Jacobson et al. (1990) reported that children who tended to have adherence difficulties shortly after diagnosis at a young age, continued to have adherence problems over time.

Several other investigators have studied the link between behavioral and psychological factors and adherence to medical treatment in children with IDDM. Anderson, Auslander, Jung, Miller & Santiago (1981) reported that children with IDDM who had poor metabolic control had increased anxiety and lower self-concepts than healthy children. It has also been reported that diabetic children have more peer relationship problems and depression (Simonds, 1977), greater levels of stress (Kager & Holden, 1992) and higher incidence of eating disorders in adolescent females (Wing, Norwalk, Koeske & Feingold, 1986). Kuttner, Delamater & Santiago (1990) reported a learned helplessness style of coping in adolescents was significantly associated with both

depression and poor metabolic control in IDDM. In a study of hospitalized children and adolescents diagnosed with diabetic ketoacidosis (DKA), it was reported that a significantly higher number of psychiatric disorders were found in the children diagnosed with DKA (88 percent) as compared with 28 percent in a control group of children with IDDM who had not been hospitalized during the past 12 months (Liss et. al.,1998). However, other studies have found no correlation between personality variables such as locus of control and self-concept (Gross, Delcher, Snitzer, Bianci, & Epstein, 1983), dependency (Hoare, 1984) and metabolic control, or they have found unexpected results such as a shorter attention-span and higher activity level as significantly related to behavioral compliance to medical treatment (Garrison, Biggs and Williams, 1990).

The family dynamics of children diagnosed with IDDM have been shown to influence metabolic control and treatment adherence as well. Anderson et. al. (1981) concluded that families with children in poor metabolic control tend to have increased incidence of conflict in the home, financial difficulties, and decreased cohesion and overall stability than families with children in good metabolic control. In addition, family support has been found to directly relate to adherence to medical treatment. Hanson, DeGuire, Schinkel, Henggeler, & Burghen (1992) found that adherence levels in adolescents were associated with both general family support and support of diabetes regime-specific behaviors. In other studies, compliance with medical treatment has been associated with healthy family communication skills (Bobrow, AvRuskin & Skiller, 1985) and successful conflict resolution (Miller-Johnson, et. al., 1994).

Psychological Treatment for Children with IDDM

Treatment for children with IDDM is primarily aimed at maximizing medical treatment through education, behavioral therapy, individual therapy and family therapy (Johnson, 1989). At diagnosis, the child with IDDM and the family receive diabetes education regarding the effects of insulin, dietary intake, exercise and stress on glucose levels in the bloodstream. In addition, some educational programs are aimed at teaching children to regulate their own insulin injection levels by feedback from blood glucose monitoring. In a study of the effectiveness of these programs, Epstein et al. (1981) educated parents and children regarding the adjustment of insulin dosages and provided instruction in dietary, exercise and stress management, resulting in a significant improvement in metabolic control in the families who received the education as compared to a control group. Similarly, Delamater et al. (1990) provided newly diagnosed children with IDDM with an educational program focused on utilizing blood glucose testing results to make behavioral changes to normalize blood sugar levels. The results of this study reflected significantly higher levels of metabolic control after one and two years follow up when compared to a control group.

Behavioral therapy interventions have also been found to be effective in improving adherence to medical treatment and blood glucose control in diabetic children. Lowe and Lutzker (1979) utilized written instructions and a reward system to manage a young girl's dietary intake. Following the behavioral intervention, the child reported following the dietary guidelines 72 percent of the time. Epstein et. al. (1981) taught parents to use a point system to reward diabetic children for conducting urine glucose

tests and for getting results within normal limits with success. In addition, some behavioral interventions have focused on coping skills to improve emotional responses to stressful situations that may influence compliance. Gross (1982) instructed pre-adolescent boys in self-management techniques to better handle parental "nagging" and teasing from peers, resulting in significant improvement in the frequency of urine glucose testing. Kaplan, Chadwick, and Schimmel (1985) taught social skills training to adolescents to help them identify social situations that interfered with their diabetes regimen and role-played the situation to improve coping skills. Results of this study showed that the adolescents who received the social skills training were in better metabolic control four months following treatment than those in the control group.

Family interventions have also been designed to improve both medical compliance to treatment and metabolic control in diabetic children. Minuchin, Rosman, and Baker (1978) recommend family systems therapy for families with poorly controlled diabetic children. Minuchin et al. (1978) emphasized the importance that the child's illness plays in the dynamics of the family, especially its role in family conflict, and recommended addressing these issues in therapy. Satin, LaGreca, Zigo and Skylar (1989) conducted a multifamily group intervention targeted toward improving families' communication and problem-solving skills in issues pertaining to diabetes management. These groups included role play of specific situations and education in "self care" for families with children with IDDM. Results of this study indicated that children whose families received the multifamily group therapy showed significant improvement in blood

glucose levels at the six-week follow up; however no significant differences were found at a six month follow up.

Moran, Fonagy, Kurtz, Bolton, and Brook (1991) studied the effectiveness of individual psychotherapy with diabetic children. This study of 11 diabetic children in poor metabolic control investigated the results of individual psychoanalytic psychotherapy three to four times per week during a period of hospitalization for an average of 15 weeks. The therapy included discussion of topics such as family conflict, anxiety issues and underlying psychological conflicts effecting their diabetes treatment. Following the psychoanalytic treatment, significant improvement was shown in the participants' metabolic control, and this improvement was maintained at one-year follow up.

Play Therapy

Play is a child's natural medium for self-expression, according to Axline (1969). In play, children are given the opportunity to "play out" feelings and problems so that they become more manageable (Axline, 1969). Landreth (1991) stated that "play represents the attempt of children to organize their experiences and may be one of the few times in children's lives when they feel more in control of their lives and thus more secure"(p. 9). Piaget (1962) recognized the importance of the symbolic nature of play for children, as it is an assimilation of concrete and abstract thought. In addition, Piaget emphasized that play is integral to development as it provides the child with opportunities for mastery, experimentation and self-expression. Axline (1969) described the importance

of play in a child's development by describing play therapy as "an opportunity that is offered to the child to experience growth under the most favorable conditions" (p. 16).

In play, children can express unpleasant thoughts and feelings in a non-threatening environment, and they can learn to solve problems independently. Play provides the child with the opportunity to control and manipulate his or her experience (D'Antonio, 1984). According to Erikson (1963), as children are able to express fantasies, fears, and conflicts through play, they are better able to cope with them, compensate for deficits and frustrations and, therefore, move toward more emotionally mature behavior.

The rationale for utilizing play in psychotherapy with children is that children communicate through play rather than by verbal means of communication. According to Landreth (1991), play is to the child what verbalization is to the adult. In play, children are able to communicate their thoughts and feelings as they act out difficulties and solve problems. In play therapy, children are given the opportunity to communicate their joy, sadness, anxiety and fear to a caring and accepting adult. It is in this way that the therapist is allowed to experience and participate in the emotional life of the child (Landreth, 1991).

Play therapy has been shown to be an effective treatment for children with a variety of emotional and situational difficulties. Axline (1948; 1964) documented her success in utilizing child-centered play therapy with two severely withdrawn children. In one case, a five year old boy was seen in play therapy for his inability to interact with others and he had been diagnosed as mildly mentally retarded. Axline (1948) conducted 10 weekly child-centered play therapy sessions within which the boy was able to express

his anxieties and learn new ways of coping in the permissive and accepting environment of the playroom. Following play therapy, he was able to attend school regularly and was reassessed with an IQ in the normal range. In a second case, Axline (1964) conducted child-centered play therapy sessions with an extremely withdrawn and selectively mute 5-year-old boy. Prior to beginning play therapy, this child was thought to be both mentally retarded and severely emotionally disturbed, as he was mute and unable to interact socially and behaved violently at times. Within the child-centered relationship, however, this child experienced a sense of safety and freedom, allowing him to express himself freely. Following play therapy, the boy was able to function well in school and his mother reported that the family environment had improved (Axline, 1964).

Child-centered play therapy has been shown to be effective in other cases of children with emotional difficulties. Colbert (1971) found success working with a 9-year-old girl who was exhibiting angry, defiant and destructive behaviors. Following 20 child-centered play therapy sessions, this child was able to manage her negative feelings and was able to live at home successfully. Similarly, Gorman (1972) conducted child-centered play therapy sessions with a 10-year-old boy who was exhibiting dissociative behavior. It was concluded that the freedom of the child-centered environment along with the structure provided by the playroom allowed this child to express himself and manage his anxiety effectively.

Gaulden (1975) found that non-directive play group counseling was more effective than developmental group counseling in a study conducted to facilitate positive change in second-grade students with behavioral difficulties. In this study, the

investigator hypothesized that the developmental group approach would be more effective than the non-directive play group or a control group; however, Gaulden found that the non-directive approach provided the freedom for the children to express themselves naturally through play. In another study, Oualline (1975) noted improvement in behavioral symptoms of deaf children in child-centered play therapy as compared to a control group. In this study, Oualline conducted child-centered play sessions to provide deaf children with an appropriate means of non-verbal communication and expression. Following the study, it was concluded that this was an effective intervention as these children were able to communicate through the language of play.

Ude-Pestel (1977) reported success in play therapy working with a 6-year-old girl who was exhibiting aggressive and self-injuring behavior. In this well-documented case study of psychoanalytic play therapy, Ude-Pestel facilitated the child's use of art as an expression of her angry and aggressive emotions. In therapy, this child was able to work through her emotional difficulties and she began functioning well outside her play sessions. This case illustrated the healing nature of play and the emotional need of a child to express herself in developmentally appropriate ways.

Short term play therapy has been shown to be both effective and practical in a variety of settings. Levy (1939) reported success utilizing release play therapy for a young child who began stammering after he was attacked by another child. After three structured play therapy sessions, the child's mother reported that the stammering had ceased, along with the child's other anxious behaviors. Similarly, Levy (1939) provided ten play therapy sessions for a 2-year-old girl who suffered from severe temper tantrums related to

toilet training. During the ten sessions of release play therapy, Levy reported that the child

was able to release her anxieties related to toilet training, and her mother reported that her

child's soiling behavior ended.

Short term play therapy has also been shown to improve academic skills in

school-age children who are experiencing learning difficulties. Bills (1950) found that

children who received child-centered play therapy significantly improved their reading

skills reflecting his belief that poor reading resulted from an inconsistent attitude on the

part of the child along with the child's view of himself or herself as a poor reader.

Short term play therapy has been found to significantly impact families who

experience difficulties in their interactions with their children. Straughan (1964) provided

a short term play therapy intervention using a behavioral approach to address a pattern of

dysfunctional interaction between a mother and her 8-year-old daughter. During the play

therapy sessions, two play therapists worked with the mother and the daughter, modeling

and teaching play therapy skills to the mother during play therapy sessions. Following the

five play therapy sessions, the daughter's behavioral problems had significantly

improved, and the mother reported feeling relaxed and happy with her daughter's

improvement.

Short term play therapy has been shown to be an effective treatment for specific

emotional disorders in children. Machler (1965) utilized metaphor and storytelling during

play therapy sessions for a child experiencing school phobia. He reported that after five

play therapy sessions, the child expressed excitement about returning to school, and she

assured the therapist that her fears would not return. Irwin (1971) reported success in

providing brief, child-centered play therapy for an adolescent girl diagnosed with schizophrenia. In this case, the child was referred for her inability to attend school, encopresis, enuresis, and her inability to communicate with others. Six child-centered play therapy sessions were provided to allow the child to experience a sense of freedom and safety in order to express herself fully. Following these sessions, the child was able to make eye contact with others, leave bed voluntarily, control her urine and feces, make facial expressions, take showers voluntarily, and answer when spoken to. It was concluded that this was a highly successful intervention for a severely impaired child.

Short term play therapy has also been utilized effectively in the schools. Gould (1980) found that group play therapy was also effective in improving the self-concept of children in elementary schools. Students identified as having poor self-images were included in 12 weekly group play therapy sessions. Following therapy, these children were found to have an increase in their self-concepts resulting from the play therapy experience. This study concluded that short term play therapy is an effective means by which children may be able to learn and practice new social skills in a controlled environment of emotional safety. Gumaer (1984) conducted twelve weekly developmental play group sessions with a group of emotionally disturbed children in an elementary class of disturbed children. The groups focused on three primary concepts of nonverbal communication that were considered essential to developmental play: touching, spacing, and using facial language. Following the completion of the 12th session, the children demonstrated an improved self-concept, resulting in more appropriate behaviors in the classroom, as reported by the classroom teachers.

Crow (1990) found that children who were identified as poor readers benefited from short term child-centered play therapy. She conducted 30-minute weekly child-centered play therapy sessions for 10 consecutive weeks in the child's elementary school. Following the course of therapy, these children demonstrated an improvement in their internal locus of control and demonstrated significant improvement in self-concept.

Barlow, Landreth, & Strother (1985) reported success in providing short term child-centered play therapy for a child who expressed her anxiety by pulling her hair out. During the play therapy sessions, this child was allowed the freedom to organize her experiences, express her feelings and explore relationships. After eight weekly play therapy sessions, the child's hair had begun to grow back and therapy was terminated.

Short term play therapy has been shown to be an effective intervention for children who are victims of sexual abuse. Perez (1987) studied the effect of group play therapy and individual play therapy for victims of sexual abuse. The children included in this study received either group or individual play therapy for 12 weekly sessions. Perez found that children who received play therapy developed a more positive self-concept and self-mastery when compared to children in a control group, who received no therapeutic services. It was concluded that play therapy allowed these children the opportunity to reorganize the negative events of sexual abuse, gain self-control over these events, begin developing a positive self-concept, and exercise control over their environment, providing them with a sense of mastery. In another case, Patricia Klem (1992) used a structured play therapy approach to facilitate disclosure of sexual abuse. James, a developmentally delayed six year-old boy, was able to express his feelings and re-enact incidences of

sexual abuse within the safety of the play therapy environment during four play therapy sessions. Klem noted that James was able to communicate about the abuse because he could easily manipulate the doll figures to express himself with no fear of being hurt, and he was able to gain a sense of control over his environment.

Allan and Berry (1987) reported success in utilizing sand play during 10 sessions with a child who experienced behavioral difficulties following a significant change in his family structure. At the conclusion of 10 sessions, the boy's teachers reported significant improvement in his behavior and social skills. It was determined that the sand play provided the opportunity for this child to explore his feelings about his family and to access his own healing power through play.

Intensive play therapy has also been shown to be effective in certain settings. Although this approach is not well documented in the literature, significant findings have emerged in recent studies. Hoffman and Rogers (1991) utilized an intensive play therapy model in working with children who were displaced from their homes following an earthquake. Therapy groups were comprised of children between the ages of 2 and 12, and these groups met on a daily basis over 4 days for 4-6 hours per day. Structured play activities were initiated to encourage the children to express their feelings following the earthquake using art supplies, spontaneous dialogue and toys. Hoffman and Rogers found that children responded positively to this approach, specifically increasing their sense of control, mastery over the crisis and understanding of the traumatic episode.

Similarly, Kot (1995) conducted intensive play therapy for child witnesses of domestic violence residing in a shelter by providing 12 child-centered play therapy

sessions within a 2 week period. Following these sessions, the children demonstrated significant improvement in their self-concepts, reduction in their externalizing behavior problems, reduction in their total behavior problems, and improvement in the play behaviors of physical proximity and play themes as compared to a control group. This study concluded that intensive, child-centered play therapy is an effective intervention for children who witness parental violence. Following Kot's (1995) model, Tyndall-Lind (1999) provided child-centered intensive sibling group therapy for children living in a shelter for victims of domestic violence. Results of this study indicated that intensive sibling group therapy was an effective intervention for child witnesses of domestic violence as it significantly impacted their self-concept, behavior problems, depression and anxiety. Sibling group play therapy was found to be as effective as intensive individual play therapy as studied by Kot (1995).

Play Therapy for Children with Chronic Illness

In order to understand the rationale for providing play therapy for children with chronic illness, it is important to explore the development of play in the hospital setting. In recent years, hospitals have become increasingly aware of the psychosocial, educational, and recreational needs of their pediatric patients (McCue, Wagner, Hansen, & Rigler, 1978; Isaacs & McElroy, 1980; Eiser, 1990; Palmer, 1996; Carter, 1998). Hospitalization requires children to relinquish their freedom, sense of control and privacy, while demanding that they undergo frightening and occasionally painful experiences (Eiser, 1998). Acute physical illness can create severe stress for children due to their limited knowledge of the hospital environment, their cognitive development, and their

separation from family and school settings (Cooper & Blitz, 1985; Carter, 1998). The stress of a severe illness can result in feelings of depression and anxiety within the child, which may manifest in behaviors such as withdrawal, regression, decreased cooperation, aggression, disruptive behavior, and sleep disturbances (Cooper & Blitz, 1985). As a result, these behaviors impact the ability of the medical staff to adequately care for these children, and it makes the hospital stay a significantly negative experience for both the child and the family (Austin, 1990).

The development of play programs for children with chronic illness began in the hospital setting. Adams (1976) developed a hospital play therapy program designed to facilitate the expression of stressful, confusing and frustrating feelings that accompany hospitalization, enhance the child's sense of mastery, foster adaptive behavior, and increase the child's cooperation with medical treatment. This hospital based program provided children an opportunity to play with medical equipment and materials such as syringes (needles were removed), intravenous tubing, stethoscopes, surgical masks, and blood pressure equipment in an environment of safety and acceptance. The goals of the program included: 1) preventing social isolation by creating a group format for the play sessions; 2) providing the child with an educational experience to enhance their knowledge of medical equipment and treatment; 3) obtain a better understanding of the child and their perceptions of their hospitalization; and 4) to provide the child with an opportunity to experience mastery and competence, increased self-control, increased trust in the medical environment, and achieve resolution to anxieties and fears regarding their illness and hospitalization. Adams (1976) found that children benefited from therapeutic

play activities, as they were able to express their anxiety in a language that was developmentally appropriate: the language of play. In addition, she emphasized that "the experience provided by this program is essential to the emotional adjustment of young patients with serious illness" (p.424).

Following successful implementation of hospital play programs such as the one described by Adams (1976), hospitals began to implement play programs for children aimed at informing children about impeding medical procedures and providing children with a means of expression to adjust to anxiety-producing situations. These play programs are termed "medical play and preparation" and they provide structured play experiences for children during hospitalization (Bolig, Yolton, & Nissen, 1991). These play experiences were found to be successful as children's ability to anticipate stressful events, gain a sense of mastery and express negative thoughts and feelings increased their ability to cope with difficult situations (Koocher & O'Malley, 1981). Through play, chronically ill children are able to communicate their fears, misconceptions, misunderstandings about medical procedures and frustrations regarding their illness in a developmentally appropriate manner (May, 1999). As stated by Billington (1972) "play is a natural function of any child, whether well or sick. It does not stop when he enters the hospital" (p. 90); therefore utilizing play to facilitate psychological adjustment in hospitalized children is a natural extension of this developmentally appropriate activity.

For children with chronic illness, the feelings of freedom and acceptance are particularly significant. Children who receive long-term medical care experience a loss of control, privacy, and freedom of choice. In fact, in young children, it has been shown that

repeated or lengthy periods of hospitalizations are related to developmental delays, anxiety, and failure to develop a sense of mastery or control of self (Bolig, Fernie, & Klein, 1986). This failure "to develop, maintain, or regain a feeling of control only increases susceptibility to other physical and psychological disorders" (Bolig et. al., 1986, p. 101). In health care, medical procedures are externally directed and are not controlled by the child, therefore fostering an external locus of control. These experiences profoundly influence the child's sense of control, often leading to feelings of helplessness, anger and anxiety. Play therapy allows ill children an opportunity to control events, ideas, relationships and outcomes as they are able to integrate and express feelings in permissive and accepting environment. Furthermore, children who develop an internal locus of control are more likely to comply with medical prevention and treatment because they believe in their own capacity to control events and consequences in their lives (Bolig et al., 1986). Therefore, "an internal response pattern is increasingly viewed as critical to recovery" from illness (Bolig et. al., 1986, p. 103).

Play therapy has been shown to be an effective treatment for hospitalized children undergoing medical procedures and in facilitating adjustment in chronically ill children. Barton (1962) utilized toys that represented a hospital setting in a child-centered approach to treating a child who was hospitalized for heart surgery. Prior to play therapy, this child exhibited behavioral problems such as aggressive hostility toward hospital staff, and she demonstrated a high level of distrust of the hospital environment. After three play therapy sessions, including a structured re-enactment of the surgical procedure, this child demonstrated a significant decrease in anxiety. After discharge from the hospital, the

child requested a visit to the hospital to see her hospital friends. It was determined that this brief intervention was effective in allowing the child to release her anxiety and to develop a sense of mastery and self-control in the hospital environment.

Studies involving a larger number of children have also shown the efficacy of play therapy in reducing anxiety in children hospitalized for medical procedures. Cassell (1965) conducted two structured medical play sessions with 20 children undergoing cardiac catheterization. In these sessions, she acted out the medical procedure with the use of puppets. When compared with the control group, these children showed less emotional disturbance during the cardiac catheterization, and they expressed greater willingness to return to the hospital for further treatment.

Bentley (1975) provided play therapy for a young boy suffering from severe, persistent asthma and eczema. In therapy, the child was able to express himself through the play materials, engaging in play with aggressive and nurturing themes. Bentley reported that following therapy, the child's parents reported no serious asthma attacks. This case study illustrates the significance of the relationship between a child's emotional and physiological health.

Zilliacus and Enberg (1980) studied the effectiveness of a hospital play program implemented in a hospital waiting room for children admitted to the hospital, children receiving outpatient services and siblings of hospital patients. Interviews with 100 parents whose children participated in the play program indicated that 80 percent of those parents felt that the play therapy program was effective in decreasing the children's tension. In

addition, 88 percent of these parents reported that they benefited from watching the play therapy as well.

Short term play therapy has also been shown to be an effective means of reducing fears in children who are suffering from a medical condition. Acord (1980) conducted six play sessions with a boy who was hospitalized as a result of injuries following an automobile accident. These sessions consisted of projective play, where the child was able to project his fear of injections onto dolls in play, and it was found that this significantly decreased his level of anxiety of intrusive medical procedures. In another study, Clatworthy (1981) provided daily play therapy sessions for 59 children who were hospitalized for two to four days. The results of this study indicated that the children who received short term play therapy sessions exhibited a significantly lower level of anxiety when compared to the control group.

It has been shown that chronically ill children address their fears and frustrations with their medical care through play. Ellerton, Caty and Richie (1985) found that nine out of ten hospitalized patients with chronic illnesses played out intrusive medical procedures during non-directive play therapy sessions, particularly injections of medicine. These results indicate children's need to express their anxieties and fears regarding medical procedures and treatment and the benefit of play therapy in the hospital setting. Similarly, Garot (1986) and Daniel, Rae, Sanner, Upchurch and Worchel (1989) found that play therapy significantly decreased children's anxiety and fearfulness in the hospital environment. These studies provided children with play materials to facilitate self-

expression and demonstrated the effectiveness of this treatment for children in medical treatment.

Filial therapy for parents of chronically ill children has been shown to be an effective intervention for this population as well. Glazer-Waldman, Zimmerman, Landreth & Norton (1992) reported positive changes in chronically ill children who received filial therapy. Following a ten-week model of filial therapy training, the parents of the children reported a positive change in the behavior of their children and in their relationship with their children. Following a similar model, Tew (1997) provided filial therapy training to parents of chronically ill children in a hospital setting. Following filial therapy, these parents reported a significant decrease in parental stress, a significant increase in their attitude of acceptance toward their children and a significant decrease in problematic behaviors in their chronically ill children. This study provides evidence that filial therapy provides benefits to parents, children and the parent-child relationship.

Summary

Insulin-dependent diabetes mellitus is a disease of childhood that requires the child and the family to manage a host of factors influencing their physical health on a daily basis. Poor diabetes management has been linked to increased anxiety, low self-concept, depression, lack of family support, poor coping skills and overall poor psychological adjustment. Treatment for these issues have included behavioral therapy, interventions aimed at specific problem solving and the development of coping skills, family therapy and diabetes education. Play therapy has been shown to be an effective therapeutic intervention for children with chronic illnesses, improving their emotional

adjustment and physical health. Short term and intensive play therapy have proven to be practical and viable options for children in specific settings as well. Providing intensive play therapy for children with diabetes will allow them the opportunity to express their emotions within an environment of safety and acceptance, while providing them with the skills needed for successful management of their disease for a lifetime.

CHAPTER II

METHODS AND PROCEDURES

Definitions of Terms

Adherence is the extent to which a person's behavior (in terms of taking

medications, following diets, or making recommended changes in lifestyle) coincides

with medical advice. For children with insulin-dependent diabetes mellitus, adherence or

compliance with medical treatment includes following a complex regime of diet,

exercise, self-monitoring of blood glucose levels and insulin adjustment and

administration to maintain blood glucose levels within a normal range. For the purposes

of this study, adherence was operationally defined by the adherence measure of the

Diabetes Adjustment Scale.

Anxiety describes symptoms of stress, worry, or nervousness in response to a real

or imagined fear or threat. For the purposes of this study, anxiety was operationally

defined by the scores on the Revised Children's Manifest Anxiety Scale.

Child is defined in this study as a child between the ages of seven and 11 years

who is diagnosed with insulin-dependent diabetes mellitus who attended a summer camp

for children with diabetes.

Depression describes a range of symptoms including disturbed or negative mood,

anhedonia, negative self-evaluation and interpersonal difficulties that characterize

depression in childhood. For the purposes of this study, depression was operationally defined by the total score on the Children's Depression Inventory (CDI).

Diabetes adaptation describes the degree of the child's psychological adaptation to their diabetes, including emotional difficulty with and attitude toward diabetes. For the purposes of this study, diabetes adaptation was operationally defined by the total score on the Diabetes Adaptation Scale (DAS).

Insulin-dependent diabetes mellitus (IDDM) or Type I diabetes is a chronic disorder reflecting an absolute lack of insulin secretion from the pancreas. The onset of IDDM is commonly diagnosed in childhood, and it is thought to occur in genetically susceptible individuals after an auto-immune destruction of the insulin secreting beta cells in the pancreas.

Intensive individual play therapy involves collapsing the time between play therapy sessions in order to provide maximum benefit to transient children. In contrast to traditional once-a-week play therapy, each child participated in 12 play therapy sessions within a three-week time frame.

Play therapy is defined as:

a dynamic interpersonal relationship between a child and a therapist trained in play therapy procedures who provides selected play materials and facilitates the development of a safe environment and a safe relationship for the child to fully express and explore self (feelings, thoughts, experiences, and behaviors) through the child's natural medium of communication, play (Landreth, 1991, p. 14).

Hypotheses

To carry out the purpose of this study, the following hypotheses were formulated:

1) Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Child Depression Inventory (CDI) posttest than will subjects in the control group.

2) Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Total Anxiety scale of the Revised Children's Manifest Anxiety Scale (RCMAS) posttest than will subjects in the control group.

2a) Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Physiological Anxiety subscale of the RCMAS posttest than will subjects in the control group.

2b) Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Worry/Oversensitivity subscale of the RCMAS posttest than will subjects in the control group.

2c) Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Social Concerns/Concentration subscale of the RCMAS posttest than will subjects in the control group.

3) Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Filial Problems Checklist posttest than will subjects in the control group.

4) Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Diabetes Adaptation Scale (DAS-Child Form) posttest than will subjects in the control group.

5) Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Diabetes Adaptation Scale (DAS-Parent Form) posttest than will subjects in the control group.

6)   Subjects in the intensive play therapy treatment group will attain a significantly lower mean score on the adherence measure of the DAS-Parent Form posttest than will subjects in the control group.

7) Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Child Depression Inventory (CDI) 3-month follow-up posttest than will subjects in the control group.

8) Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Total Anxiety scale of the Revised Children's Manifest Anxiety Scale (RCMAS) 3-month follow-up posttest than will subjects in the control group.

8a) Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Physiological Anxiety subscale of the RCMAS 3-month follow-up posttest than will subjects in the control group.

8b) Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Worry/Oversensitivity subscale of the RCMAS 3-month follow-up posttest than will subjects in the control group.

8c) Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Social Concerns/Concentration subscale of the RCMAS 3-month follow-up posttest than will subjects in the control group.

9) Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Filial Problems Checklist 3-month follow-up posttest than will subjects in the control group.

10) Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Diabetes Adaptation Scale (DAS-Child Form) 3-month follow-up posttest than will subjects in the control group.

11) Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Diabetes Adaptation Scale (DAS-Parent Form) 3-month follow-up posttest than will subjects in the control group.

12) Subjects in the intensive play therapy treatment group will attain a significantly lower mean score on the adherence measure of the DAS-Parent Form 3-month follow-up posttest.

<div align="center">Limitations</div>

This study had the following limitations:

1. Subject selection was limited to volunteers from Camp Sweeney for diabetic children, and did not produce a racially equivalent sample.

2. This study must rely on volunteer sampling. Due to the nature of the population and the purpose of the study, random selection was not possible.

3. Subjects in the intensive play therapy group may have attended a different camp session than the children in the control group.

4. Some subjects in the intensive play therapy group may have received play therapy on 12 consecutive days, while others in the experimental group may have had one to two days between play therapy sessions due to the child's camping schedule.

5. Due to the compliance of the family regarding follow-up data, there were several weeks between completion times of the follow-up data.

6. The parent population included in this study may not represent a typical parent of a diabetic child, as these parents were particularly attentive to their child's needs by bringing their children to a summer camp for children with diabetes.

Instrumentation

Children's Depression Inventory

The Children's Depression Inventory (CDI) was developed by Kovacs in 1977 in response to a need for a self-rated depressive symptom inventory for children. The CDI is a 27-item scale suitable for children between the ages of seven to 17. The CDI quantifies a range of depressive symptoms including disturbed mood, hedonic capacity, vegetative functions, self-evaluation, and interpersonal behaviors. Each CDI item includes three choices, scored 0,1, or 2, with higher scores indicating increasing severity. For each item, a score of zero indicates absence of the symptom, a score of one indicates a mild symptom, and a score of two indicates a definite symptom. The child completes the instrument by rating the degree to which each statement describes him or her for the past two weeks. The CDI total score can range from zero to 54, and raw scores are converted

to T-scores. T-scores of 65 or greater are considered to be clinically significant (Kovacs, 1992).

Internal consistency has been reported in various samples including psychiatric referrals and national and international student populations. The reliability coefficients in these studies range from .71 to .89, indicating good internal consistency of the instrument. Test-retest reliability has also been investigated by studies with time intervals ranging from one week to six months. Overall, the CDI appears to have an acceptable level of stability, with coefficients ranging from .38 to .87 (Kovacs, 1992).

Revised Children's Manifest Anxiety Scale

The Revised Children's Manifest Anxiety Scale (RCMAS), subtitled "What I Think and Feel," is a 37-item scale designed to measure the level and nature of anxiety symptoms in children and adolescents between the ages of six and 19 years. The instrument is comprised of a series of statements to which the child responds by circling a "Yes" or "No" answer. A response of "Yes" indicates that the statement describes the child's feelings or actions, and a response of "No" indicates that the statement is not true for them. A total score is calculated from the number of "Yes" responses circled by the child. High scores indicate a high level of anxiety in the child.

There are four subscales included in the RCMAS. These subscales are entitled, (a) Physiological Anxiety; (b) Worry/Oversensitivity, (c) Social Concerns/ Concentration, and (d) Lie. The Physiological Anxiety subscale is a measure of the child's expression of physical manifestations of anxiety such as frequent stomachaches or sweaty palms. The Worry/Oversensitivity subscale are items that describe feelings of being worried, afraid,

nervous or oversensitive to environmental pressures. The Social Concerns/ Concentration subscale includes statements about the child's concern about others' opinions of themselves and difficulty with concentration. The Lie subscale is based on a series of statements within the instrument that indicate an inaccurate self-report.

Numerous test studies have been conducted to determine reliability coefficients for the RCMAS. For the Total Anxiety score, the Kudor-Richardson (20) formula established the internal consistency reliability of .83. Alpha coefficients for the subscales of the RCMAS range from .59 to .81 for the age groups identified for this study.

Filial Problems Checklist

The Filial Problems Checklist (FPC) is a self-report instrument to be completed by parents. This 108-item scale was developed by Horner in 1974 and has been used in the past for research related to play therapy and filial therapy. Parents are instructed to identify any statements that are true for their child. Each item is a statement that describes a specific behavior, and the parent is then asked to rate the item with a 1,2, or 3. A one indicates that the statement is true for the child, but not considered a problem by the parent. A response of two means that the statement is true for the child, and it is considered a mild problem for the parent. A three indicates that the behavior is true for the child and the parent feels that it is a severe problem. Normative statistics regarding the reliability and validity of this instrument are not available. The FPC will be administered to parents to assess the parents' perceptions of their child's behavior.

Diabetes Adaptation Scale

Challen, Davies, Williams, Haslum and Baum (1988) developed the Diabetes

Adaptation Scale (DAS) to assess the psychological adaptation of children and

adolescents to their diabetes (Appendix E). The scale is a 20-item self-report form

comprised of statements pertaining to the child's emotional response to and attitude

toward their diabetes. The child is asked to read each statement and rate them with a

check mark indicating whether the statement is "almost always", "often", "sometimes",

"seldom", or "almost never" true for them. A higher score indicates less healthy

adaptation to diabetes. This scale was piloted with two groups of diabetic children

ranging from ages nine to 18 years. Alpha coefficients for the internal consistency of the

measure were .78 and .82 in these studies, and the test-retest correlations were .74 and

.88, indicating a high level of internal consistency and test-retest reliability. In addition,

results were highly correlated with other psychological measures of psychosocial

functioning including measures of anxiety, depression and self-esteem.

Daviss et al. (1995) adapted the DAS by adding a parent report form to the

instrument (Appendix D). The DAS-Parent Form is designed to assess family support of

diabetes and the family's adaptation to the child's disorder. In addition, Daviss et. al.

(1995) extended the DAS-Child Form to include additional statements addressing the

child's adherence to their medical regimen and concerns about their future health. In their

study, Daviss et. al. identified four items on the DAS that were highly correlated with

diabetes adherence behavior, and Daviss recommended using these items to assess

compliance in children with IDDM. For the purposes of this study, the adherence measure

was defined by these items, although it is not a formal subscale of the DAS. In addition, Daviss found the DAS an easy instrument to administer and interpret, found high levels of test-retest reliability and recommended its use for children as young as seven years of age (Personal Communication with W. Burleson Daviss, March, 1999). In this study, both the DAS-Child Form and the DAS-Parent Form were administered. The DAS was be adapted slightly to include language that is characteristic of American children, as the scale was developed in England and includes some culturally unfamiliar language.

<div align="center">Selection of Subjects</div>

Subjects were selected from children attending Camp Sweeney, a summer camp for children with diabetes located in Gainesville, TX. Camp Sweeney is funded by the Southwestern Diabetic Foundation, a non-profit agency that provides resources for diabetic children and their families. 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 are referred from varying ethnic and socio-economic backgrounds and all are diagnosed with IDDM. All children diagnosed with IDDM are welcome to attend camp, as there is no financial requirement to participate. The United Way of Texas provides funding for families in financial need, therefore no child diagnosed with IDDM is unable to attend camp.

Children between the ages of 7 and 11 years had the opportunity to volunteer for the study, with full consent of their parent or legal guardian. The families of all children between the ages of 7 and 11 were contacted by mail two weeks before the camping term

began to inform them of the purpose of the study. Approximately 40 letters were mailed prior to each session (total of 120) informing parents of the opportunity to volunteer for the study. This letter explained that play therapy sessions would be conducted at camp, and that the volunteers for the study would be required to complete paperwork three times for the completion of the study. In addition, this letter informed parents that all volunteers would be randomly assigned to the experimental and control groups. On the first day of the camp term, the investigator sat at a table as part of the camp enrollment procedure to meet any parents who were interested in volunteering for the study. Eighty-two parents expressed interest in their children participating in play therapy. Many of these parents sought out the investigator to discuss various concerns about their children's emotional adjustment to their diabetes, including peer relationships and self-esteem issues. The investigator met with each child and parent who volunteered for the study and discussed the risks and benefits of participation in the research study. 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 the English language; (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; (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. Due to the restrictions of the camping schedule, a limited number of children were allowed to volunteer for the research study, as a limited number of play therapy sessions could be conducted per day. Other children

were not selected for the study based on their own refusal to participate. Therefore, approximately 45 children were not able to be included in the study, although their parents wished to volunteer for the research. The investigator met with these families individually and made appropriate referrals as needed.

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 three-week camping session. Children in the control group did not receive play therapy after the completion of the experimental study due to the fact that they were no longer at the diabetic summer camp. 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. As the control group received the benefits of participation in the diabetic summer camp experience, this group might also be considered a comparison group.

The experimental group was comprised of 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 % were of Indian 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 data, as four families were not compliant in completing this data (three participants from the control group and one participant in the experimental group).

Collection of Data

Parents received a letter prior to the camp session describing the purpose and design of the study. Upon their arrival at camp, parents and children were informed of the procedures and any risks involved in the study, and they had the option of volunteering for the study. At that time, they had the opportunity to read and sign the informed consent, and they were able to ask any questions of the researcher (Appendix B). In addition, the investigator explained the procedures of the study to the child, including a brief introduction to play therapy, and the child was asked to sign a consent form as well (Appendix C). This was considered particularly important as the parents would not be accompanying their child to the play sessions and the child must be able to enter the play therapy session willingly. In addition, this was a preventative intervention, therefore it was not necessary to require children to participate based on their behavioral difficulties. After they gave full consent for their child's participation in the study, 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). As 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, it was determined that all follow-up data would be mailed to the child's home.

Prior to the first play therapy session, the child 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 Children's Depression Inventory (CDI), 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 data during their rest hour on the second day of the camping session.

After the completion of 12 child-centered play therapy sessions, posttest data was collected. The children in the experimental and control group completed the CDI, the RCMAS, and the DAS-Child Form during their final week at camp. The parents or legal guardians of children in both the experimental and control groups received the posttest instruments by mail two weeks after their child returned from camp. The parents or legal guardians were asked to complete the FPC and the DAS-Parent Form at that time.

Three months following the end of the camp term, the children and the parents in both experimental and control groups were mailed follow-up data to be completed. The children were asked to complete the CDI, the RCMAS 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.

<div align="center">Treatment</div>

The children in the experimental group received a total of 12 child-centered play therapy sessions during the 3-week camp term. These play therapy sessions lasted 30 minutes and they were provided within the 3 weeks of the camp term, as the children's camping schedule allowed. A schedule was determined on the first day of the camp term, in order to schedule each child's play session at the same time every day. However, if a child requested to delay their session until later in the day due to their interest in a camp activity, their 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 experience 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 camp grounds. The playrooms consisted of play materials as

recommended by Landreth (1991), and they also included play materials related to the medical issues faced by diabetic children including a fully equipped doctor's kit, syringes, and blood glucose monitoring equipment.

Three graduate students in counseling conducted the play therapy sessions. All students had taken an introductory course in play therapy, an advanced course in play therapy and a practicum in play therapy. Two 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 held a Master's degree in counseling, and she was employed as a school counselor proving play therapy in the schools. In addition, the counselors 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 (i.e. confidentiality) were discussed.

<div align="center">Analysis of Data</div>

Following the collection of the pretest, posttest and follow up data, the instruments were coded to maintain confidentiality. The data was 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

was used 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.

Significant differences between the means were tested at the .05 level. On the basis of the

ANCOVA, the hypotheses were either retained or rejected.

CHAPTER III

RESULTS AND DISCUSSION

This chapter presents the results of the analysis of data for each hypothesis tested

in this study. Also included is a discussion of the results, implications and

recommendations for future research.

Results

The results of this study are presented in the order the hypotheses were tested.

Analyses of covariance were performed on all hypotheses and a level of significance of

.05 was established as a criterion for either retaining or rejecting the hypotheses.

Hypothesis 1

Subjects in the intensive play therapy treatment group will attain a

significantly lower mean total score on the Child Depression Inventory (CDI) posttest

than will subjects in the control group.

Table 1 presents the pre and posttest means and standard deviations for the

experimental and control groups. Table 2 presents the analysis of covariance data

showing the level of significance of the difference between the experimental and control

groups' posttest mean score.

Table 1

Mean scores of the experimental and control groups for the Child Depression Inventory (CDI)

| | Experimental Group n = 15 | | Control Group n = 15 | |
	Pretest	Posttest	Pretest	Posttest
Mean	8.067	6.385	8.733	6.933
SD	6.442	6.076	7.116	6.745
Total Cases = 30				

Note. A decrease in the mean score indicates a decrease in depressive symptoms.

Table 2

Analysis of covariance data of the experimental and control groups for the mean scores on the Child Depression Inventory (CDI)

Source of Variation	Sum of Squares	df	Mean Square	F Ratio	Significance of F
Main effects	1.584	1	1.584	.122	.730
Covariates	755.214	1	755.214	.000	.000
Error	324.796	25	12.992		
Total cases = 28					

Table 2 shows the F ratio for the main effects was not significant at the $< .05$ level indicating that there was not a significant difference between the experimental and the

control group's depressive symptoms as measured by the CDI. On the basis of this data,

hypothesis 1 was rejected.

Hypothesis 2

Subjects in the intensive play therapy treatment group will attain a significantly

lower mean total score on the Total Anxiety scale of the Revised Children's Manifest

Anxiety Scale (RCMAS) posttest than will subjects in the control group.

Table 3 presents the pre and posttest means and standard deviations for the

experimental and control groups. Table 4 presents the analysis of covariance data,

showing the level of significance of the difference between the experimental and control

groups' posttest mean scores.

Table 3

Mean scores of the experimental and control groups for the Total Anxiety subscale of the
Revised Children's Manifest Anxiety Scale (RCMAS)

	Experimental Group n = 14		Control Group n = 15	
	Pretest	Posttest	Pretest	Posttest
Mean	45.214	40.267	47.333	38.643
SD	12.533	12.198	11.037	14.409
Total Cases =	29			

Note. A decrease in the mean score indicates a decrease in total anxiety symptoms.

Table 4

Analysis of covariance data of the experimental and control groups for the mean scores for the Total Anxiety subscale of the Revised Children's Manifest Anxiety Scale (RCMAS)

Source of Variation	Sum of Squares	d*f*	Mean Square	F Ratio	Significance of F
Main effects	48.937	1	48.937	.523	.476
Covariates	2434.444	1	2434.444	26.012	.000
Error	2339.698	25	93.588		
Total cases =	28				

Table 4 shows the F ratio for the main effects was not significant at the $< .05$ level indicating that there was not a significant difference between the experimental and control group's total anxiety as measured by the RCMAS. On the basis of this data, hypothesis 2 was rejected.

Hypothesis 2a

Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Physiological Anxiety subscale of the RCMAS posttest than will subjects in the control group.

Table 5 presents the pre and posttest means and standard deviations for the experimental and control groups. Table 6 presents the analysis of covariance data,

showing the level of significance of the difference between the experimental and control

groups' posttest mean scores.

Table 5

Mean scores of the experimental and control groups for the Physiological Anxiety
subscale of the Revised Children's Manifest Anxiety Scale (RCMAS)

| | Experimental Group n = 14 | | Control Group n = 15 | |
	Pretest	Posttest	Pretest	Posttest
Mean	8.143	7.000	8.067	6.643
SD	3.159	3.109	2.865	3.365
Total Cases =	29			

Note. A decrease in the mean score indicates a decrease in anxiety symptoms.

Table 6

Analysis of covariance data of the experimental and control groups for the Physiological
Anxiety subscale of the Revised Children's Manifest Anxiety Scale (RCMAS)

Source of Variation	Sum of Squares	df	Mean Square	F Ratio	Significance Of F
Main effects	3.003	1	3.003	.567	.459
Covariates	141.318	1	141.318	26.665	.000
Error	121.896	23	5.300		
Total cases =	26				

Table 6 shows the <u>F</u> ratio for the main effects was not significant at the < .05 level indicating that there was not a significant difference between the experimental and control group's physiological anxiety as measured by the RCMAS. On the basis of this data, hypothesis 2a was rejected.

<u>Hypothesis 2b</u>

Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Worry/Oversensitivity subscale of the RCMAS posttest than will subjects in the control group.

Table 7 presents the pre and posttest means and standard deviations for the experimental and control groups. Table 8 presents the analysis of covariance data, showing the level of significance of the difference between the experimental and control groups' posttest mean scores.

Table 7

<u>Mean scores of the experimental and control groups for the Worry/Oversensitivity subscale of the Revised Children's Manifest Anxiety Scale (RCMAS)</u>

	Experimental Group n = 14		Control Group n = 15	
	Pretest	Posttest	Pretest	Posttest
Mean	8.429	7.500	9.333	6.714
<u>SD</u>	3.413	3.568	3.063	3.173
Total Cases =	29			

<u>Note.</u> A decrease in the mean score indicates a decrease in anxiety symptoms.

Table 8

Analysis of covariance data of the experimental and control groups for the
Worry/Oversensitivity subscale of the Revised Children's Manifest Anxiety Scale
(RCMAS)

Source of Variation	Sum of Squares	d*f*	Mean Square	F Ratio	Significance of F
Main effects	14.300	1	14.300	1.751	.198
Covariates	100.128	1	100.128	12.263	.002
Error	195.959	24	8.165		
Total cases =	27				

Table 8 shows the F ratio for the main effects was not significant at the < .05 level

indicating that there was not a significant difference between the experimental and

control group's worry and oversensitivity anxiety as measured by the RCMAS. On the

basis of this data, hypothesis 2b was rejected.

Hypothesis 2c

Subjects in the intensive play therapy treatment group will attain a significantly

lower mean total score on the Social Concerns/Concentration subscale of the RCMAS

posttest than will subjects in the control group.

Table 9 presents the pre and posttest means and standard deviations for the

experimental and control groups. Table 10 presents the analysis of covariance data,

showing the level of significance of the difference between the experimental and control

groups' posttest mean scores.

Table 9

Mean scores of the experimental and control groups for the Social
Concerns/Concentration subscale of the Revised Children's Manifest Anxiety Scale
(RCMAS)

| | Experimental Group n = 14 | | Control Group n = 15 | |
	Pretest	Posttest	Pretest	Posttest
Mean	8.357	7.786	9.067	7.462
SD	3.954	3.043	2.890	2.989
Total Cases =	29			

Note. A decrease in the mean score indicates a decrease in anxiety symptoms.

Table 10

Analysis of covariance data of the experimental and control groups for the Social
Concerns/Concentration subscale of the Revised Children's Manifest Anxiety Scale
(RCMAS)

Source of Variation	Sum of Squares	df	Mean Square	F Ratio	Significance of F
Main effects	1.742	1	1.742	.270	.608
Covariates	74.161	1	74.161	11.514	.002
Error	148.147	23	6.441		
Total cases =	26				

Table 10 shows the F ratio for the main effects was not significant at the < .05

level indicating that there was not a significant difference between the experimental and

control group's social anxiety and concentration as measured by the RCMAS. On the

basis of this data, hypothesis 2c was rejected.

Hypothesis 3

Subjects in the intensive play therapy treatment group will attain a significantly

lower mean total score on the Filial Problems Checklist posttest than will subjects in the

control group.

Table 11 presents the pre and posttest means and standard deviations for the

experimental and control groups. Table 12 presents the analysis of covariance data,

showing the level of significance of the difference between the experimental and control

groups' posttest mean scores.

Table 11

Mean scores of the experimental and control groups for the Filial Problems Checklist
(FPC)

| | Experimental Group n = 15 | | Control Group n = 15 | |
	Pretest	Posttest	Pretest	Posttest
Mean	33.4000	29.1429	24.7333	15.9167
SD	20.8457	22.0205	23.4078	10.9748
Total Cases =	30			

Note. A decrease in the mean score indicates a decrease in behavior symptoms.

Table 12

Analysis of covariance data of the experimental and control groups for the Filial
Problems Checklist (FPC)

Source of Variation	Sum of Squares	df	Mean Square	F Ratio	Significance of F
Main effects	116.255	1	116.255	.886	.356
Covariates	4611.906	1	4611.906	35.162	.000
Error	3016.725	23	131.162		
Total cases =	26				

Table 12 shows the $\underline{F}$ ratio for the main effects was not significant at the $< .05$ level indicating that there was not a significant difference between the experimental and control group's behavior problems as measured by the Filial Problems Checklist. On the basis of this data, hypothesis 3 was rejected.

Hypothesis 4

Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Diabetes Adaptation Scale (DAS-Child Form) posttest than will subjects in the control group.

Table 13 presents the pre and posttest means and standard deviations for the experimental and control groups. Table 14 presents the analysis of covariance data, showing the level of significance of the difference between the experimental and control groups' posttest mean scores.

Table 13

Mean scores of the experimental and control groups for the Diabetes Adaptation Scale
(DAS- Child Form)

| | Experimental Group n = 15 | | Control Group n = 15 | |
	Pretest	Posttest	Pretest	Posttest
Mean	74.3571	79.0667	79.9333	77.9333
SD	16.4158	19.9981	18.8584	19.7356
Total Cases =	30			

Note. A decrease in the mean score indicates an increase in adaptive responses.

Table 14

Analysis of covariance data of the experimental and control groups for the Diabetes
Adaptation Scale (DAS- Child Form)

Source of Variation	Sum of Squares	df	Mean Square	F Ratio	Significance of F
Main effects	206.308	1	206.308	1.034	.318
Covariates	5840.330	1	5840.330	29.284	.000
Error	5185.461	26	199.441		
Total cases =	29				

Table 14 shows the F ratio for the main effects was not significant at the < .05

level indicating that there was not a significant difference between the experimental and

control group's diabetes adaptation as measured by the DAS- Child Form. On the basis of this data, hypothesis 4 was rejected.

Hypothesis 5

Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Diabetes Adaptation Scale (DAS-Parent Form) posttest than will subjects in the control group.

Table 15 presents the pre and posttest means and standard deviations for the experimental and control groups. Table 16 presents the analysis of covariance data, showing the level of significance of the difference between the experimental and control groups' posttest mean scores.

Table 15

Mean scores of the experimental and control groups for the Diabetes Adaptation Scale (DAS- Parent Form)

	Experimental Group n = 13		Control Group n = 15	
	Pretest	Posttest	Pretest	Posttest
Mean	38.933	36.769	43.000	43.467
SD	9.996	5.341	7.512	4.502
Total Cases =	28			

Note. A decrease in the mean score indicates an increase in adaptive responses.

Table 16

Analysis of covariance data of the experimental and control groups for the Diabetes
Adaptation Scale (DAS- Parent Form)

Source of Variation	Sum of Squares	df	Mean Square	F Ratio	Significance of F
Main effects	107.787	1	107.787	6.875	.015*
Covariates	234.116	1	234.116	14.934	.001
Error	391.925	25	15.677		
Total cases =	28				

* $p < .05$

Table 16 shows the F ratio for the main effects was significant at the $< .05$ level
indicating that there was a significant difference between the experimental and control
group's diabetes adaptation as measured by the DAS- Parent Form. On the basis of this
data, hypothesis 5 was retained.

Hypothesis 6

Subjects in the intensive play therapy treatment group will attain a
significantly lower mean score on the adherence measure of the DAS-Parent Form
posttest than will subjects in the control group

Table 17 presents the pre and posttest means and standard deviations for the
experimental and control groups. Table 18 presents the analysis of covariance data,

showing the level of significance of the difference between the experimental and control

groups' posttest mean scores.

Table 17

Mean scores of the experimental and control groups for the adherence measure of the
Diabetes Adaptation Scale (DAS- Parent Form)

| | Experimental Group n = 14 | | Control Group n = 15 | |
	Pretest	Posttest	Pretest	Posttest
Mean	9.533	9.286	9.600	9.533
SD	3.998	3.832	2.640	2.356
Total Cases =	29			

Note. A decrease in the mean score indicates an increase in adherence behavior.

Table 18

Analysis of covariance data of the experimental and control groups for the adherence
measure of the Diabetes Adaptation Scale (DAS- Parent Form)

Source of Variation	Sum of Squares	df	Mean Square	F Ratio	Significance of F
Main effects	.565	1	.565	.156	.697
Covariates	174.148	1	174.148	47.943	.000
Error	94.443	26	3.632		
Total cases =	29				

Table 18 shows the F ratio for the main effects was not significant at the < .05 level indicating that there was not a significant difference between the experimental and control group's diabetes adherence behavior as measured by the DAS- Parent Form. On the basis of this data, hypothesis 6 was rejected.

Hypothesis 7

Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Child Depression Inventory (CDI) 3-month follow-up posttest than will subjects in the control group.

Table 19 presents the pretest and follow-up means and standard deviations for the experimental and control groups. Table 20 presents the analysis of covariance data, showing the level of significance of the difference between the experimental and control groups' follow-up mean scores.

Table 19

Mean scores of the experimental and control groups for the Child Depression Inventory (CDI)

| | Experimental Group n = 12 | | Control Group n = 11 | |
	Pretest	Follow-up	Pretest	Follow-up
Mean	8.067	4.833	8.733	3.273
SD	6.443	5.078	7.116	6.745
Total Cases =	23			

Note. A decrease in the mean score indicates a decrease in depressive symptoms.

Table 20

Analysis of covariance data of the experimental and control groups for the Child
Depression Inventory (CDI)

Source of Variation	Sum of Squares	df	Mean Square	F Ratio	Significance of F
Main effects	15.474	1	15.474	.795	.383
Covariates	96.551	1	96.551	4.960	.038
Error	389.297	20	19.465		
Total cases =	23				

Table 20 shows the $\underline{F}$ ratio for the main effects was not significant at the < .05 level indicating that there was not a significant difference between the experimental and control group's depressive symptoms as measured by the CDI. On the basis of this data, hypothesis 7 was rejected.

Hypothesis 8

Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Physiological Anxiety subscale of the RCMAS 3-month follow-up posttest than will subjects in the control group.

Table 21 presents the pretest and follow-up means and standard deviations for the experimental and control groups. Table 22 presents the analysis of covariance data, showing the level of significance of the difference between the experimental and control groups' follow-up mean scores.

Table 21

Mean scores of the experimental and control groups for the Total Anxiety score of the
Revised Children's Manifest Anxiety Scale (RCMAS)

| | Experimental Group n = 14 | | Control Group n = 12 | |
	Pretest	Follow-up	Pretest	Follow-up
Mean	45.214	44.929	47.333	39.917
SD	12.553	14.866	11.037	10.553
Total Cases =	26			

Note. A decrease in the mean score indicates a decrease in total anxiety symptoms.

Table 22

Analysis of covariance data of the experimental and control groups for the Total Anxiety
score of the Revised Children's Manifest Anxiety Scale (RCMAS)

Source of Variation	Sum of Squares	df	Mean Square	F Ratio	Significance of F
Main effects	306.110	1	306.110	1.978	.174
Covariates	689.926	1	689.926	4.459	.046
Error	3403.914	22	154.723		
Total cases =	25				

Table 22 shows the F ratio for the main effects was not significant at the $< .05$

level indicating that there was not a significant difference between the experimental and

control group's total anxiety as measured by the RCMAS. On the basis of this data,

hypothesis 8 was rejected.

Hypothesis 8a

Subjects in the intensive play therapy treatment group will attain a significantly

lower mean total score on the Physiological Anxiety subscale of the RCMAS 3-month

follow-up posttest than will subjects in the control group.

Table 23 presents the pretest and follow-up means and standard deviations for the

experimental and control groups. Table 24 presents the analysis of covariance data,

showing the level of significance of the difference between the experimental and control

groups' follow-up mean scores.

Table 23

Mean scores of the experimental and control groups for the Physiological Anxiety
subscale of the Revised Children's Manifest Anxiety Scale (RCMAS)

| | Experimental Group n = 13 | | Control Group n = 12 | |
	Pretest	Follow-up	Pretest	Follow-up
Mean	8.143	7.000	8.067	6.250
SD	3.159	3.109	2.865	2.094
Total Cases =	25			

Note. A decrease in the mean score indicates a decrease in anxiety symptoms.

Table 24

Analysis of covariance data of the experimental and control groups for the Physiological Anxiety subscale of the Revised Children's Manifest Anxiety Scale (RCMAS)

Source of Variation	Sum of Squares	df	Mean Square	F Ratio	Significance of F
Main effects	7.145	1	7.145	1.419	.247
Covariates	28.193	1	28.193	5.600	.028
Error	105.724	21	5.034		
Total cases =	24				

Table 24 shows the $\underline{F}$ ratio for the main effects was not significant at the $< .05$ level indicating that there was not a significant difference between the experimental and control group's physiological anxiety as measured by the RCMAS. On the basis of this data, hypothesis 8a was rejected.

Hypothesis 8b

Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Worry/Oversensitivity subscale of the RCMAS 3-month follow-up posttest than will subjects in the control group.

Table 25 presents the pretest and follow-up means and standard deviations for the experimental and control groups. Table 26 presents the analysis of covariance data, showing the level of significance of the difference between the experimental and control groups' follow-up mean scores.

Table 25

Mean scores of the experimental and control groups for the Worry/Oversensitivity
subscale of the Revised Children's Manifest Anxiety Scale (RCMAS)

	Experimental Group n = 13		Control Group n = 12	
	Pretest	Follow-up	Pretest	Follow-up
Mean	8.429	7.769	9.333	6.714
SD	3.413	2.803	3.063	3.554
Total Cases =	25			

Note. A decrease in the mean score indicates a decrease in anxiety symptoms.

Table 26

Analysis of covariance data of the experimental and control groups for the
Worry/Oversensitivity subscale of the Revised Children's Manifest Anxiety Scale
(RCMAS)

Source of Variation	Sum of Squares	df	Mean Square	F Ratio	Significance of F
Main effects	.166	1	.166	.017	.896
Covariates	22.609	1	22.609	2.382	.138
Error	199.308	21	9.491		
Total cases =	24				

Table 26 shows the F ratio for the main effects was not significant at the < .05

level indicating that there was not a significant difference between the experimental and

control group's worry and oversensitivity anxiety as measured by the RCMAS. On the

basis of this data, hypothesis 8b was rejected.

Hypothesis 8c

Subjects in the intensive play therapy treatment group will attain a significantly

lower mean total score on the Social Concerns/Concentration subscale of the RCMAS 3-

month follow-up posttest than will subjects in the control group.

Table 27 presents the pretest and follow-up means and standard deviations for the

experimental and control groups. Table 28 presents the analysis of covariance data,

showing the level of significance of the difference between the experimental and control

groups' follow-up mean scores.

Table 27

Mean scores of the experimental and control groups for the Social
Concerns/Concentration subscale of the Revised Children's Manifest Anxiety Scale
(RCMAS)

| | Experimental Group n = 13 | | Control Group n = 12 | |
	Pretest	Follow-up	Pretest	Follow-up
Mean	8.357	7.769	9.067	6.583
SD	3.954	3.655	2.890	2.906
Total Cases =	25			

Note. A decrease in the mean score indicates a decrease in anxiety symptoms.

Table 28

Analysis of covariance data of the experimental and control groups for the Social
Concerns/Concentration subscale of the Revised Children's Manifest Anxiety Scale
(RCMAS)

Source of Variation	Sum of Squares	d*f*	Mean Square	F Ratio	Significance of F
Main effects	18.266	1	18.266	1.895	.183
Covariates	42.444	1	42.444	4.402	.048
Error	202.472	21	9.642		
Total cases =	24				

Table 28 shows the F ratio for the main effects was not significant at the < .05

level indicating that there was not a significant difference between the experimental and

control group's social anxiety and concentration as measured by the RCMAS. On the

basis of this data, hypothesis 8c was rejected.

Hypothesis 9

Subjects in the intensive play therapy treatment group will attain a significantly

lower mean total score on the Filial Problems Checklist 3-month follow-up posttest than

will subjects in the control group.

Table 29 presents the pretest and follow-up means and standard deviations for the

experimental and control groups. Table 30 presents the analysis of covariance data,

showing the level of significance of the difference between the experimental and control

groups' follow-up mean scores.

Table 29

Mean scores of the experimental and control groups for the Filial Problems Checklist
(FPC)

| | Experimental Group n = 13 | | Control Group n = 11 | |
	Pretest	Follow-up	Pretest	Follow-up
Mean	33.4000	20.9231	24.7333	20.5455
SD	20.8457	20.0726	23.4078	21.5005
Total Cases =	24			

Note. A decrease in the mean score indicates a decrease in behavior symptoms.

Table 30

Analysis of covariance data of the experimental and control groups for the Filial
Problems Checklist (FPC)

Source of Variation	Sum of Squares	df	Mean Square	F Ratio	Significance of F
Main effects	370.365	1	370.365	1.456	.241
Covariates	4115.587	1	4115.587	16.179	.001
Error	5342.064	21	254.384		
Total cases =	24				

Table 30 shows the F ratio for the main effects was not significant at the < .05

level indicating that there was not a significant difference between the experimental and

control group's behavior problems as measured by the Filial Problems Checklist. On the

basis of this data, hypothesis 9 was rejected.

Hypothesis 10

Subjects in the intensive play therapy treatment group will attain a significantly

lower mean total score on the Diabetes Adaptation Scale (DAS-Child Form) 3-month

follow-up posttest than will subjects in the control group.

Table 31 presents the pretest and follow-up means and standard deviations for the

experimental and control groups. Table 32 presents the analysis of covariance data,

showing the level of significance of the difference between the experimental and control

groups' follow-up mean scores.

Table 31

Mean scores of the experimental and control groups for Diabetes Adaptation Scale (DAS-Child Form)

| | Experimental Group n = 12 | | Control Group n = 11 | |
	Pretest	Follow-up	Pretest	Follow-up
Mean	74.3571	73.6667	79.9333	71.0000
SD	16.4158	19.9981	18.8584	10.7331
Total Cases =	23			

Note. A decrease in the mean score indicates an increase in adaptive responses.

Table 32

Analysis of covariance data of the experimental and control groups for the Diabetes
Adaptation Scale (DAS- Child Form)

Source of Variation	Sum of Squares	D*f*	Mean Square	F Ratio	Significance of F
Main effects	118.843	1	118.843	1.012	.327
Covariates	1366.581	1	1366.581	11.638	.003
Error	2231.056	19	117.424		
Total cases =	22				

Table 32 shows the $\underline{F}$ ratio for the main effects was not significant at the $< .05$ level indicating that there was not a significant difference between the experimental and control group's diabetes adjustment as measured by the DAS- Child Form. On the basis of this data, hypothesis 10 was rejected.

Hypothesis 11

Subjects in the intensive play therapy treatment group will attain a significantly lower mean total score on the Diabetes Adaptation Scale (DAS-Parent Form) 3-month follow-up posttest than will subjects in the control group.

Table 33 presents the pretest and follow-up means and standard deviations for the experimental and control groups. Table 34 presents the analysis of covariance data, showing the level of significance of the difference between the experimental and control groups' follow-up mean scores.

Table 33

Mean scores of the experimental and control groups for Diabetes Adaptation Scale (DAS-Parent Form)

| | Experimental Group n = 14 | | Control Group n = 12 | |
	Pretest	Follow-up	Pretest	Follow-up
Mean	39.933	39.000	43.000	44.000
SD	9.996	7.636	7.512	9.936
Total Cases =	26			

Note. A decrease in the mean score indicates an increase in adaptive responses.

Table 34

Analysis of covariance data of the experimental and control groups for the Diabetes Adaptation Scale (DAS- Parent Form)

Source of Variation	Sum of Squares	df	Mean Square	F Ratio	Significance of F
Main effects	82.993	1	82.993	1.234	.278
Covariates	297.457	1	297.457	4.424	.047
Error	1546.543	23	67.241		
Total cases =	26				

Table 34 shows the F ratio for the main effects was not significant at the < .05

level indicating that there was not a significant difference between the experimental and

control group's diabetes adjustment as measured by the DAS- Parent Form. On the basis

of this data, hypothesis 11 was rejected.

Hypothesis 12

Subjects in the intensive play therapy treatment group will attain a significantly

lower mean score on the adherence measure of the DAS-Parent Form 3-month follow-up

posttest than will subjects in the control group.

Table 35 presents the pretest and follow-up means and standard deviations for the

experimental and control groups. Table 36 presents the analysis of covariance data,

showing the level of significance of the difference between the experimental and control

groups' follow-up mean scores.

Table 35

Mean scores of the experimental and control groups for the adherence measure of the
Diabetes Adaptation Scale (DAS- Parent Form)

| | Experimental Group n = 14 | | Control Group n = 12 | |
	Pretest	Follow-up	Pretest	Follow-up
Mean	9.533	8.500	9.600	8.833
SD	3.998	3.832	2.640	2.368
Total Cases =	26			

Note. A decrease in the mean score indicates an increase in adherence behavior.

Table 36

Analysis of covariance data of the experimental and control groups for the adherence
measure of the Diabetes Adaptation Scale (DAS- Parent Form)

Source of Variation	Sum of Squares	df	Mean Square	F Ratio	Significance of F
Main effects	3.782E-05	1	3.782E-05	.000	.997
Covariates	84.011	1	84.011	27.941	.000
Error	69.155	23	3.007		
Total cases =	26				

Table 36 shows the F ratio for the main effects was not significant at the < .05

level indicating that there was not a significant difference between the experimental and

control group's diabetes adherence behavior as measured by the DAS- Parent Form. On

the basis of this data, hypothesis 12 was rejected.

Discussion

The results from this study along with therapeutic observations provide

information regarding the effectiveness of play therapy for children diagnosed with

IDDM. Although not statistically significant, statistical trends indicate greater

improvement of symptoms in a variety of areas in the experimental group as compared to

the control group. In this study, 1 hypothesis was retained, and 17 were rejected. The

meaning of these results is discussed below.

Depression

Participants in the experimental group showed improvement in depressive symptoms according to Child Depression Inventory (CDI) at post-testing and at the 3-month follow-up. However, such changes cannot be inferred to have been as a result of intensive play therapy since the control group experienced a similar reduction in symptoms, therefore there was no significant difference in the mean scores of these groups. In addition, the control group showed a wider margin of decrease than the experimental group at the 3-month follow-up. Possible explanations for these results are threefold. First, it is important to note that this intervention was a preventative one, and that the parents and children who participated in the study did not seek play therapy for depressive symptoms, therefore, these children may not have been exhibiting significant depressive symptoms prior to the therapeutic intervention. The mean pretest score for both the experimental and control groups was not in the significant range, indicating a low level of depression in this sample population. Therefore, it would not be expected that a significant change in these symptoms would be likely to occur.

Second, it has been suggested by Harris, Canning, and Kelleher (1996) that psychological instruments designed for children without medical disorders are not suited to measure emotional and behavioral problems in chronically ill children. These authors suggest that psychological instrumentation typically utilized with children lacks validity with among the chronically ill population, as it is highly likely to underidentify medically ill children with psychological and psychiatric problems (Harris et al., 1996). One possible reason for this limitation is that children with chronic illness live with issues that

may be considered "normal" for a chronically ill population, but not for the general population, therefore they may not identify these as significant issues for them on psychological tests. An example of a question on the CDI that may meet this criteria pertained to a child's eating habits. The CDI asked that the child choose which statement "describes you best," and the choices were "1) Most days I do not feel like eating; 2) Many days I do not feel like eating; or 3) I eat pretty well." When completing this question, several children asked the examiner, "How do I answer this, I <u>have</u> to eat everyday." Although it could be argued that they may not feel like eating on a particular day, these diabetic children did not see a choice on this question that described their particular circumstance. Overall, the children included in this study reported low levels of depressive symptoms, indicating that they may not be experiencing the symptoms of depression as was expected.

Third, the play therapists observed that through the process of play therapy, the children in the experimental group seemed to become more aware of their feelings about themselves and their diabetes. 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." It is therefore possible, that the children in the experimental group were more aware of their feelings of sadness or depression at the time of post-testing than when they completed the pretest instruments. A parent of a child who participated in the experimental group had a similar observation. After the follow-up instruments were mailed, the parented contacted the investigator my 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- 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…"

In the play sessions, there were numerous accounts of children addressing their feelings of sadness, inadequacy and depression. One child illustrated her sense of feeling powerless 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: "Humm. So which one is most like you? The bee or the elephant?"

      Child: "Oh, definitely the elephant. I can't do anything." (looking down)

It is evident through this interaction that this child had feelings of inadequacy and powerlessness in her world. As suggested by numerous authors (Adams, 1976; Koocher & O'Malley, 1981;Cooper & Blitz, 1985; Bolig et al., 1986), 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

All play therapists involved in the research study provided qualitative information regarding improvement of depressive 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 non-verbal 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." In other cases, the play therapists reported 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!"

Anxiety

Results from this study revealed that there was not a significant decrease in anxiety symptoms between the experimental and control group at post-testing or at the 3-month follow-up. In addition to a total anxiety score, scores on the RCMAS 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. In many of these areas, the control group showed greater improvement in anxiety symptoms than the children in the experimental group. It should be noted that the pretest, post-test and follow-up means of both the experimental and control groups of the RCMAS 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. In addition, these low scores reflect an absence of anxiety symptoms in this sample of children, indicating that these young diabetic children may not, in fact, experience high levels of anxiety.

Along with the ANCOVA, paired t-tests were performed on the RCMAS scores of the combined scores of the experimental and control groups, yielding significant

results. On the RCMAS 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 (Kovacs et. al., 1985; Kager & Holden, 1992; Blanz et. al., 1993; Kovacs et.al., 1996). In addition, the play therapists involved with this study were particularly impacted 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- 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 offer further insight into the presence of anxiety symptoms for children with IDDM. In one case, a 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 aches and pains and asked the play therapist to "help him- he seems very anxious about something." In play therapy, the play therapist reported that this child had very few verbalizations, but he was very 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!" He 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 from the case of this child that he 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 case, he seemed to be validated in his feelings while at the same time, he addressed these themes successfully in play.

Play therapy provided the opportunity for one child to address her anxious feelings following a dangerous insulin reaction. This child experienced a severe insulin reaction during the night, where 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 post-test 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. Post-test results indicated that parents in the control group reported fewer greater

behavioral improvement than parents of children in the experimental group. 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. Behaviors that appeared to be 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 than normal adolescents. Of these psychiatric disorders, they were predominately internalizing behavior disorders (Blanz et al., 1993). These results 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.

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 feel 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 that they were encouraged by their child's

increased confidence following camp writing, "I think he will really start off the school

year more self-assured and confident."

Diabetes Adaptation and Adherence Behavior

The experimental group showed a significant increase ($p < .05$) in diabetes

adaptation as indicated by the post-test 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, therefore, the long-term impact of this

intervention was not sustained, according to this instrument. The experimental and

control groups both showed minimal change on the Diabetes Adaptation Scale- Child

Form at posttest, implying that neither play therapy or the camp experience significantly

impacted the child's attitude about their diabetes. In addition, the children in the control

group reported a greater increase in adaptive attitudes and behaviors at post-test than the

children in the experimental group. 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 utilized for children with IDDM and the variability among research results regarding the factors impacting adherence.

The significant results of the DAS-Parent Form suggest that play therapy is an effective intervention in increasing a child's adaptation to their diabetes. Implications for this are far reaching, as a child who is better adapted to their illness, may be better able to cope with it. If a child and their family adapts successfully to the difficulties presented in managing diabetes, they are likely to be more compliant with treatment, therefore, they 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 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 address 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 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 personnel and adults at school to "fit in" and "behave like a normal kid." Although this may be helpful, this attitude 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 feelings of 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 hypotheses set forth in this research were based on the premise 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.

Secondly, 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' 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, therefore 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. The hypotheses presented in this research were based on the belief that the play therapy environment would allow the child to experience this growth, thereby narrowing 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, therefore, they will be better able to cope with the demands of the disease. 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.

<div align="center">Recommendations</div>

1. Intensive play therapy for children with IDDM may be a promising approach to addressing the emotional concerns of diabetic children. It is clear from the observations made in this study that children with diabetes experience a variety of emotions and adjustment difficulties regarding their diabetes, their sense of self, and relationship with others. In addition, they are capable of addressing these issues in play therapy. Conducting the play therapy sessions at a summer camp was successful in that parents were interested in their children participating in play therapy, and the children were comfortable with the inclusion of play therapy in the camp setting.

2. Further research should be conducted exploring the qualitative aspects of play therapy for children with chronic illness. Their play behaviors tend to express

different themes than play therapy with well children, and this area has not been explored. Research of this nature would contribute to an overall understanding of the emotional issues present for children with chronic illness.

3. Further research should focus on the emotional and behavioral symptoms present in young children with IDDM. Previous research studies have focused primarily on an adolescent population, as adherence difficulties tend to present for treatment at that time. A preventative approach might investigate emotional factors impacting young children to prevent more serious behavioral disorders in adolescence.

4. Play therapy should be included as a part of a multidisciplinary approach to managing young children with IDDM. As play therapy is flexible in nature, this intervention may take place in the hospital setting, in an office environment or as part of an in-home service. It may be helpful for diabetic children to attend play therapy as an ongoing intervention during visits to the doctor, nutritionists or hospital over a longer period of time.

5. Further investigation should be conducted regarding the validity and reliability of psychological assessment tools for a chronically ill population. In future research, it may be helpful to utilize alternative forms of measurement, such as observations of play therapy by videotape.

6. Further research should be conducted utilizing other forms of play therapy for diabetic children. Providing weekly play therapy sessions over a longer period of time might yield more positive changes. In addition, filial therapy may provide a

useful alternative for parents of children with diabetes, particularly those who do not live in areas where play therapy is accessible. Filial therapy might be provided in an intensive format as well, such as in the hospital setting.

<div align="center">Concluding Remarks</div>

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, depression and other emotional issues related to their diabetes in play therapy. Providing play therapy in an intensive format in the summer camp setting was both practical and effective, 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.

APPENDIX A

PLAY THERAPY INFORMATION FOR PARENTS

PLAY THERAPY- RESEARCH INFORMATION FOR PARENTS

You and your child are invited to participate in a study to determine the effectiveness of play therapy with diabetic children. Participation is completely voluntary. If you choose to participate, you will be asked to complete two questionnaires when your child arrives at camp, after they return home from camp, and three months after camp. Your child will be asked to participate in 12, 30-minute play sessions with an experienced play therapist with a Master's degree in counseling, and to complete three questionnaires about themselves and their diabetes before camp begins, after they return home from camp and three months after camp.

Play therapy is a therapeutic approach used for working with young children that utilizes selected play materials to help children express their concerns, wants, and wishes. In play therapy, toys are like words for children. Your child may have experienced some form of play therapy while in the hospital when they were diagnosed with diabetes to help them learn about diabetes, taking insulin injections and testing their blood glucose. The purpose of this study is to determine the effectiveness of play therapy in helping young children adjust to their diabetes, increase their self-esteem, decrease any fears they have about diabetes and most importantly, increase their compliance with their diabetic routine. I believe that children who have high self-esteem, fewer fears and lower stress will adhere to their diabetic routine of blood testing, insulin injections, diet and exercise better, and therefore, lead healthier lives. In addition, I hope that this approach will prevent any compliance difficulties in the future.

The information you provide when you answer the questionnaire will be kept confidential. Your name and your child's name will not be disclosed in any publication or discussion of this material. Information obtained from the questionnaires and interviews will be recorded by a code number. Only the investigator, Elizabeth Jones, will have a list of the participants' names. At the end of the study, the list of participants' names will be destroyed. The only exceptions of confidentiality are a) the child discloses abuse, neglect, or exploitation; b) the child is a danger to himself/herself or to someone else; c) a court orders disclosure of information; or d) the parent or legal guardian requests release of information.

Participants who volunteer for the study will be randomly placed either in the group receiving play sessions or the group not receiving play sessions. All children will participate in the camping activities at Camp Sweeney. If your child is not selected to receive play sessions, they will still receive all other therapeutic camp activities and will benefit from the therapeutic camping environment provided by Camp Sweeney.

There is no personal risk or discomfort directly involved with this study. You and/or and your child may choose to withdraw at any time without penalty or prejudice. Your decision whether or not to participate will in no way affect your child's camp experience. At the conclusion of the study, a summary of group results will be made available to all interested parents.

If you agree to participate, please fill out and sign this consent form. For further information, please contact Elizabeth Jones, researcher at (817) 927-7752 or Dr. Garry Landreth, University of North Texas, Faculty Supervisor, at (940) 565-2916.

APPENDIX B

PARENT CONSENT FORM

PLAY THERAPY
Informed Consent

You are making a decision whether or not to participate in this study. You should not sign until you understand all the information presented on this form and until all your questions about the research have been answered to your satisfaction. You understand that participation is voluntary and you and/or your child may choose to withdraw at any time during the study.

You also understand that you will be completing some questionnaires, your child will be receiving special playtimes during camp, and that you will be contacted by the researcher after camp for any additional information. You also understand that the researcher will send questionnaires to your child's school counselor or teacher for them to administer to your child. Your signature indicates that you meet all the requirements for participation as explained by Elizabeth Jones and have decided to participate, having read the information on this form.

_____
Signature of Parent or Legal Guardian   Date

_____
Name of Child   Age

_____
Signature of Witness   Date

_____
Signature of Investigator   Date

This project has been reviewed and approved by the University of North Texas Institutional Review Board for the protection of human subjects (940) 565-3940.

APPENDIX C

CHILD CONSENT FORM

CHILD'S CONSENT FORM

My name is:_____.

I give my permission (it is O.K. with me) to:

    1) Go to play therapy and have special playtimes,
    2) To answer some questions about me and about my diabetes.

I know that people will not say what I said and did during the special playtimes. The only time someone will say what I said and did is if an older person is hurting me really bad or if my parent says it is O.K.

When I write my name or make my mark on this paper, it means all this is O.K. with me.

_____
Child's Name or Mark   Date

_____
Signature of Witness   Date

_____
Signature of Investigator   Date

APPENDIX D

DIABETES ADAPTATION SCALE- PARENT FORM

Diabetes Adaptation Scale- Parent Form*

Here are some things other parents of diabetic children have said. We would like to know how often these statements have been true in your family **over the last two months**. Please indicate if each statement is "Almost Always", "Often", "Sometimes", "Seldom", or "Almost Never" true for your family. All your answers will be kept confidential and these questionnaires will be destroyed at the conclusion of this research study.

Thank you so much for your participation.

	Almost Always	Often	Some-times	Seldom	Almost Never
1. Even with the diabetes, the family treats our child the same as any "normal" kid.	[ ]	[ ]	[ ]	[ ]	[ ]
2. My child's diabetes has caused problems for the whole family.	[ ]	[ ]	[ ]	[ ]	[ ]
3. The family follows the same diabetic diet that my child is told to follow.	[ ]	[ ]	[ ]	[ ]	[ ]
4. My child tends to spend more time with friends than with the family.	[ ]	[ ]	[ ]	[ ]	[ ]
5. Our family is close knit.	[ ]	[ ]	[ ]	[ ]	[ ]
6. My child is watched closely to make sure he/she is managing the diabetes properly.	[ ]	[ ]	[ ]	[ ]	[ ]
7. The members of our family communicate well with each other.	[ ]	[ ]	[ ]	[ ]	[ ]
8. My child with the diabetes gets what he/she wants.	[ ]	[ ]	[ ]	[ ]	[ ]
9. My spouse and I have a good, supportive relationship (if you are a single parent, leave this one blank.)	[ ]	[ ]	[ ]	[ ]	[ ]

	Almost Always	Often	Some-times	Seldom	Almost Never
10. My spouse and I stay active socially outside the family (if single, just answer for yourself.)	[ ]	[ ]	[ ]	[ ]	[ ]
11. When my child's diabetes acts up, it is not anyone's fault.	[ ]	[ ]	[ ]	[ ]	[ ]
12. I do a good job as a parent.	[ ]	[ ]	[ ]	[ ]	[ ]
13. There are conflicts in our family.	[ ]	[ ]	[ ]	[ ]	[ ]
14. My child can control the diabetes well if he/she tries.	[ ]	[ ]	[ ]	[ ]	[ ]
15. I feel overwhelmed with my child's diabetes.	[ ]	[ ]	[ ]	[ ]	[ ]
16. I feel my child's diabetes is well controlled.	[ ]	[ ]	[ ]	[ ]	[ ]
17. My child does blood sugars and takes his/her own shots without me nagging.	[ ]	[ ]	[ ]	[ ]	[ ]
18. My child eats things not on his/her diet.	[ ]	[ ]	[ ]	[ ]	[ ]
19. My child remembers to take shots without being reminded.	[ ]	[ ]	[ ]	[ ]	[ ]
20. My child usually checks his/her blood sugar ____ times a day.	0-1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]

Thank you again for your participation in this research.

*Developed by Challen et.al., 1988; Daviss et.al., 1995; adapted by E.Jones for the purpose of this study.

APPENDIX E

DIABETES ADAPTATION SCALE- CHILD FORM

Diabetes Adaptation Scale- Child Form*

Here are some things that other kids with diabetes have said about having diabetes. We would like to know more about how you feel about diabetes. Could you tell us if each sentence:

-Almost always describes what you think or do
-Often describes what you think or do
-Sometimes describes what you think or do
-Seldom describes what you think or do, or
-Almost never describes what you think or do.

Just mark an X in the box of the answer that describes you the best. There are no right or wrong answers. Thank you so much for your help.

	Almost Always	Often	Some-times	Seldom	Almost Never
1. I can go a on any trip or vacation with my diabetes.	[ ]	[ ]	[ ]	[ ]	[ ]
2. My diabetes bothers me when I am out enjoying myself.	[ ]	[ ]	[ ]	[ ]	[ ]
3. Diabetes takes up too much time in my day.	[ ]	[ ]	[ ]	[ ]	[ ]
4. I really don't bother with my diet, I just eat what I want.	[ ]	[ ]	[ ]	[ ]	[ ]
5. I get fed up when everyone else is eating a lot of sweets.	[ ]	[ ]	[ ]	[ ]	[ ]
6. I know what to do to correct by blood sugar levels if my tests are too high.	[ ]	[ ]	[ ]	[ ]	[ ]
7. Taking my shots annoys me.	[ ]	[ ]	[ ]	[ ]	[ ]
8. It is important to keep my blood sugars normal.	[ ]	[ ]	[ ]	[ ]	[ ]
9. I can't be bothered with blood tests, so I just blow off doing them.	[ ]	[ ]	[ ]	[ ]	[ ]

	Almost Always	Often	Some- times	Seldom	Almost Never
10. I would rather forget about diabetes than learn about it.	[ ]	[ ]	[ ]	[ ]	[ ]
11. It's important to know new things about diabetes.	[ ]	[ ]	[ ]	[ ]	[ ]
12. I get mad about having diabetes	[ ]	[ ]	[ ]	[ ]	[ ]
13. I just take having diabetes as part of my normal life.	[ ]	[ ]	[ ]	[ ]	[ ]
14. It's makes me sad to think that I'll always have diabetes.	[ ]	[ ]	[ ]	[ ]	[ ]
15. There are good things about having diabetes.	[ ]	[ ]	[ ]	[ ]	[ ]
16. Diabetes tends to rule my life.	[ ]	[ ]	[ ]	[ ]	[ ]
17. It upsets me to tell other people about my diabetes.	[ ]	[ ]	[ ]	[ ]	[ ]
18. I must be on my guard about my diabetes all the time.	[ ]	[ ]	[ ]	[ ]	[ ]
19. I talk about my diabetes at school.	[ ]	[ ]	[ ]	[ ]	[ ]
20. Dealing with my diabetes is helping me to learn to do more things by myself.	[ ]	[ ]	[ ]	[ ]	[ ]
21. I worry about having problems with my diabetes when I am older.	[ ]	[ ]	[ ]	[ ]	[ ]
22. I can do things to prevent future problems with my diabetes.	[ ]	[ ]	[ ]	[ ]	[ ]
23. I can control by blood sugars if I try.	[ ]	[ ]	[ ]	[ ]	[ ]

	Almost Always	Often	Some-times	Seldom	Almost Never
24. I believe that diabetes will affect my plans to have a family someday.	[ ]	[ ]	[ ]	[ ]	[ ]
25. I think diabetes will not make a difference in what job I choose to have.	[ ]	[ ]	[ ]	[ ]	[ ]
26. Diabetes had made a difference with my friends.	[ ]	[ ]	[ ]	[ ]	[ ]
27. My family treats me differently because I have diabetes.	[ ]	[ ]	[ ]	[ ]	[ ]
28. My family follows the same diet that I am supposed to follow.	[ ]	[ ]	[ ]	[ ]	[ ]
29. My doctor bosses me around about the diabetes.	[ ]	[ ]	[ ]	[ ]	[ ]
30. I can tell my doctor of any problems I'm having with my diabetes.	[ ]	[ ]	[ ]	[ ]	[ ]
31. I can give my shots and test my blood sugars by myself without my parents reminding me.	[ ]	[ ]	[ ]	[ ]	[ ]
32. My diabetes has caused some problems in my family.	[ ]	[ ]	[ ]	[ ]	[ ]
33. I spend more time with my family than with my friends.	[ ]	[ ]	[ ]	[ ]	[ ]
34. I am a leader more than a follower.	[ ]	[ ]	[ ]	[ ]	[ ]
35. I usually check my blood sugar ____ times a day.	0-1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]

Thank you so much for helping us learn more about kids with diabetes!
*Developed by Challen et.al., 1988; Daviss et.al., 1995; adapted by E.Jones for the purpose of this study.

REFERENCES

Acord, L.T. (1980). One five-year-old boy's use of play. <u>Maternal Child Nursing</u> <u>Journal 9</u>:29-35.

Adams, M.A. (1976). A hospital play program: Helping children with serious illness. <u>American Journal of Orthopsychiatry, 46</u>, 416-424.

Ahern, J.A. (1997). Insulin dependent diabetes mellitus in children. <u>Lippincotts</u> <u>Primary Care Practice, 1</u>(5): 555-558.

Allan, J. & Berry, P.(1987). Sand play. <u>Elementary School Guidance &</u> <u>Counseling 21</u>(4):301-307.

Anderson, B.J., Auslander, W.F., Jung, K.C., Miller, J.P., & Santiago, J.V., (1981). Family characteristics of diabetic adolescents: Relationship to metabolic control. <u>Diabetes Care, 4,</u> 586-594.

Arslanian, S., Becker, D. & Drash, A. (1994). Diabetes mellitus in the child and adolescent. In D. Wilkens (Ed.), <u>The diagnosis and treatment of endocrine disorders in</u> <u>childhood and adolescence (4th Ed.)</u> (pp. 969-971). Springfield, MA: Charles C. Thomas.

Axline, V.M. (1948). Some observations on play therapy. <u>Journal of Consulting</u> <u>Psychology, 12</u>: 209-216.

Axline, V.M. (1964). <u>Dibs in search of self</u>. New York: Ballantine Books.

Axline, V.M. (1969). <u>Play therapy</u>. New York: Ballantine Books.

Barlow, K., Landreth, G., & Strother, J. (1985). Child-centered play therapy: Nancy from baldness to curls. <u>The School Counselor, 34</u>(1): 347-356

Barton, P.H. (1962). Play as a tool of nursing. Nursing Outlook 10: 162-164.

Bentley, J. (1975). Psychotherapeutic treatment of a boy with eczema and asthma. The Journal of Asthma Research, 12, 207-214.

Blanz, B., Rensch-Riemann, B., Fritz-Sigmund, D., & Schmidt, M. (1993). IDDM is a risk factor for adolescent psychiatric disorders. Diabetes Care, 16, 1579-1587.

Billington, G. (1972). Play program reduces children's anxiety, speeds recoveries. Modern Hospital, 118(4), 90-92.

Bills, R.E. (1950). Nondirective play therapy with retarded readers. Journal of Consulting Psychology 14:140-149.

Bobrow, E.S., AvRuskin, R.W., & Siller, J. (1985). Mother-daughter interaction and adherence to diabetes regimes. Diabetes Care, 8, 146-151.

Bolig, R., Fernie, D. & Klein, E. (1986). Unstructured play in hospital settings: An internal locus of control rationale. Children's Health Care, 15(2), 101-107.

Bolig, R., Yolton, K, & Nissen, H. (1985). Medical play and preparation: Questions and issues. Children's Health Care, 20(4), 225-229.

Brownlee-Duffeck, M., Peterson, L., Simonds, J.F., Goldstein, D., Kilo, C. & Hoette, S., (1987). The role of health beliefs in the regimen adherence and metabolic control of adolescents and adults with diabetes mellitus. Journal of Consulting and Clinical Psychology, 55, 139-144.

Cassell, S. (1965). Effect of brief puppet therapy upon the emotional responses of children undergoing cardiac catheterization. Journal of Consulting Psychology 29(1):1-8.

Christenson, N.K., Terry, R.D., Wyatt, S., Pichert, J.W., & Lorenz, R.A., (1983). Quantitative assessment of dietary adherence in patients with insulin-dependent diabetes mellitus. Diabetes Care, 6, 245-250.

Clatworthy, S. (1981). Therapeutic play: Effects on hospitalized children. Journal of Association for Care of Children's Health 9(4):108-113.

Colbert, L. (1971). Debra finds herself. Nursing Outlook, 19 (1): 50-53.

Cooper, S.E. & Blitz, J.T. (1985). A therapeutic play group for hospitalized children with cancer. Journal of Psychosocial Oncology, 3, 23-37.

Crow, J. (1990). Play therapy with low achievers in reading. Doctoral dissertation, University of North Texas, 1989. Dissertation Abstracts International 50(09):B2789.

Daniel, C.A., Rae, W.A., Sanner, J.H., Upchurch, J. & Worchel, F.F. (1989). The psychosocial impact of play on hospitalized children. Journal of Pediatric Psychology, 14, 617-627.

D'Antonio, I.J. (1984). Therapeutic use of play in hospitals. Nursing Clinics of North America, 19 351-359.

Daviss, W.B., Coon, H., Whitehead, P., Ryan, K., Burkley, M. & McMahon, W.(1995). Predicting diabetic control form competence, adherence, adjustment, and psychopathology. Journal of the American Academy of Child and Adolescent Psychiatry, 34, 1629-1636.

Delamater, A.M., Bubb, J., Davis, S., Smith, J., Schmidt, L., White, N., & Santiago, J. (1990). Randomized prospective study of self management training with newly diagnosed diabetic children. Diabetes Care, 13, 492-498.

Delamater, A.M. & Eidson, M. (1998). Endocrine disorders. In R.T. Ammerman & J.V. Campo (Eds.) Handbook of pediatric psychology and psychiatry (pp. 244-265). Needham Heights, MA: Allyn & Bacon.

Drash, A.L. & Berlin, N. (1985). Juvenile diabetes. In N. Hobbs & J.M. Perrin (Eds.), Issues in the care of children with chronic illness (pp.155-182). San Francisco: Jossey-Bass.

Drotar, D. (1993). Psychological perspectives in chronic childhood illness. In M.C. Roberts, G.P. Koocher, D.K. Routh & D.J. Willis (Eds.) Readings in pediatric psychology (pp.95-113). New York: Plenum Press.

Ellerton, M.L., Caty, S., & Richie, J.A. (1985). Helping young children master intrusive procedures through play. Children's Health Care, 13, 167-173.

Epstein, L., Beck, S., Figueroa, J., Farkas, G., Kazdin, A., Daneman, D., & Becker, D. (1981). The effects of targeting improvements in urine glucose on metabolic control in children with IDDM. Journal of Applied Behavior Analysis, 14, 365-375.

Erikson, E.H. (1963). Childhood and society. New York: Norton.

European Diabetes Policy Group. (1998). Guidelines for diabetes care: A desktop guide to type I (insulin-dependent) diabetes mellitus. Diabetes Nutrition Metabolism, 12(5): 345-378.

Garot, P.A., (1986). Therapeutic play: Work of both child and nurse. Journal of Pediatric Nursing, 1, 111-115.

Garrison, W.T., Biggs, D., & Williams, K. (1990). Temperament characteristics and clinical outcomes in young children with diabetes mellitus. Journal of Child Psychology and Psychiatry, 31, 1079-1088.

Gaulden, G.L. (1975). Developmental-play group counseling with early primary grade students exhibiting behavioral problems. (Doctoral dissertation. North Texas State University, 1975). Dissertation Abstracts International, 36 (05), A2628.

Glasgow, R. E., McCaul, K.D., & Schafer, L.C. (1986). Barriers to regimen adherence among persons with insulin-dependent diabetes. Journal of Behavioral Medicine, 9, 65-77.

Glazer-Waldman, H.R., Zimmerman, J.E., Landreth, G.L., & Norton, D. (1992). Filial therapy: An intervention for parents of children with chronic illness. International Journal of Play Therapy, 1, 31-42.

Godambe, S.V. & Sharief, N. (1999). Type I diabetes, also known as insulin-dependent diabetes mellitus or juvenile diabetes is one of the disorders with a complex genetic basis. Early Human Development, 54(3): 295-296.

Gorman, J.N. (1972). Dissociation and play therapy: A case study. JPN and Mental Health Services, 10(2): 21-23.

Gould, M.F. (1980). The effect of short-term intervention play therapy on the self-concept of selected elementary pupils. Doctoral dissertation, Florida Institute of Technology, 1980. Dissertation Abstracts International 41(03):B1090

Gross, A.M. (1982). Self management training and medication compliance in children with diabetes. Child and Family Behavior Therapy, 4, 47-55.

Gross, A.M., Delcher, H.K., Snitzer, J., Bianchi, B., & Epstein, S. (1983). Personality variables and metabolic control in children with diabetes. The Journal of Genetic Psychology, 146, 19-26.

Gumaer, J. (1984). Developmental play in small group counseling with disturbed children. The School Counselor 31(5):445-453.

Hanson, C.L., De Guire, M., Schinkel, S., Henggeler, S.W., & Burghen, G.A. (1992). Comparing social learning and family systems correlates. Journal of Pediatric Psychology, 17, 555-572.

Harris, E.S., Canning, R.D. & Kelleher, K.J. (1996). A comparison of measures of adjustment, symptoms, and impairment among children with chronic medical conditions. Journal of the American Academy of Child and Adolescent Psychiatry, 35, 1025-1032.

Hoare, P. (1984). Does illness foster dependency? A study of epileptic and diabetic children. Developmental Medicine and Child Neurology, 26, 20-24.

Hobbs, N. Perrin, J.M. & Ireys, H.T. (1985). Chronically ill children and their families. San Francisco: Jossey-Bass.

Hoffman, J. & Rogers, P. (1991). A crisis play group in shelter following the santa cruz earthquake. In N.B.Webb (Ed.) Play therapy for children in crisis: A casebook for practitioners (pp. 379-395). New York: Guilford Press.

Jacobson, A.M., Hauser, S.T., Lavori, P., Wolfsdorf, J.I., Herskowitz, R.D., Miley, J.E., Bliss, R., Gelfand, E., Wertlieb, D. & Stein, J. (1990). Adherence among children and adolescents with insulin-dependent diabetes mellitus over a four year

longitudinal follow-up, I. The influence of patient coping and adjustment. Journal of Pediatric Psychology, 15, 511-526.

Jacobson, .A.M., Hauser, S.T., Wertlieb, D., Woldsdorf, J., Orleans, J. & Viegra, M. (1986). Psychological adjustment of children with recently diagnosed diabetes mellitus. Diabetes Care, 9, 323-329.

Johnson, S.B. (1989). Juvenile diabetes. In T.H. Ollendick & M. Herson (Eds.) Handbook of child psychopathology (2nd Ed.) (pp. 359-376). New York: Plenum Press.

Johnson, S.B.(1995). Diabetes mellitus in childhood. In M. Roberts (Ed.) Handbook of pediatric psychology (2nd Ed.) (pp. 263-285). New York: Guilford Press.

Johnson, S.B., Freund, A., Silverstein, J., Hanson, C.A., & Malone, J. (1990). Adherence-health status relationships in childhood diabetes. Health Psychology, 9, 606-631.

Johnson, S.B., Kelly, M., Henretta, J.C., Cunningham, W., Tomer, A. & Silverstein, J. (1992). A longitudinal analysis of adherence and health status in childhood diabetes. Journal of Pediatric Psychology, 17, 537-553.

Johnson, S.B., Pollak, T., Silverstein, J.H., Rosenbloom, A., Spillar, R., McCallum, M., & Harkavy, J. (1982). Cognitive and behavioral knowledge about insulin-dependent diabetes among children and parents. Pediatrics, 69, 708-713.

Johnson, S.B., Silverstein, J., Rosenbloom, A., Carter, R., & Cunningham, W., (1986). Assessing daily management in childhood diabetes. Health Psychology, 5, 545-564.

Kager, V. & Holden, W. (1992). Preliminary investigation of the direct and moderating effects of family and individual variables on the adjustment of children and adolescents with diabetes. Journal of Pediatric Psychology, 17, 491-502.

Kaplan, R., Chadwick, M. & Schimmel, L. (1985). Social learning intervention to promote metabolic control in type I diabetes mellitus: Pilot experimental results. Diabetes Care, 8, 152-155.

Klem, P.R. (1992). The use of the dollhouse as an effective disclosure technique. International Journal of Play Therapy, 1, 69-73.

Koocher, G.P. & O'Malley, J.E. (1981). The damocles syndrome: Psychosocial consequences of surviving childhood cancer. New York: McGraw-Hill.

Kot, S.(1995). Intensive play therapy with child witnesses of domestic violence. Unpublished dissertation, University of North Texas, Denton.

Kovacs, M., Feinberg, T.L., Paulauskas, S., Finkelstein, R., Pollock, M., & Crouse-Novak, M. (1985). Initial coping responses and psychosocial characteristics of children with insulin-dependent diabetes mellitus. Journal of Pediatrics, 106, 827-834.

Kovacs, M., Finkelstein, R., Feinberg, T.L., Crouse-Novak, M., Paulausdas, S., & Pollack, M. (1985). Initial psychologic responses of parents to the diagnosis of insulin-dependent diabetes mellitus in their children. Diabetes Care, 8, 568-575.

Kovacs, M., Mukerji, P., Iyengar, S. (1996). Psychiatric disorder and metabolic control among youths with IDDM. Diabetes Care, 18, 318-323.

Kuttner, M.J., Delamater, A.M., & Santiago, J.V. (1990). Learned helplessness in diabetic youths. Journal of Pediatric Psychology, 15, 581-594.

Landreth, G.L. (1991). Play therapy: The art of the relationship. Muncie, IN: Accelerated Development.

Levy, D. (1939). Release therapy in young children. Child Study 16(1):141-143.

Liss, D.S., Waller, D.A., Kennard, B.D., McIntire, D., Capra, P., & Stephens, J. (1998). Psychiatric illness and family support in children and adolescents with diabetic ketoacidosis: a controlled study. Journal of the American Academy of Child and Adolescent Psychiatry, 37, 536-544.

Lowe, K. & Lutzker, J. (1979). Increasing compliance to a medical regimen with a juvenile diabetic. Behavior Therapy, 10, 57-64.

Machler, T. J. (1965). Pinocchio in the treatment of school phobia. Bulletin of the Menniger Clinic, 29(4):212-219.

McCue, K., Wagner, M., Hansen, H. & Rigler, D. (1978). Survey of a developing health care profession: Hospital "play" programs. Association for Care of Children in Hospitals, 7, 15-22.

Miller-Johnson, S., Emery, R., Marvin, R., Clarke, W., Lovinger, R., & Martin, M. (1994). Parent-child relationships and the management of insulin-dependent diabetes mellitus. Journal of Consulting and Clinical Psychology, 62, 603-610.

Minuchin, S., Rosman, B. & Baker, L. (1978). Psychosomatic Families. Cambridge, MA: Harvard University Press.

Moran, G., Fonagy, P., Kurtz, A., Bolton, A., & Brook, C. (1991). A controlled study of the psychoanalytic treatment of brittle diabetes. Journal of the American Academy of Child and Adolescent Psychiatry, 30, 926-935.

Northam, E., Anderson, P., Adler, R., Werther, G., & Warne, G. (1996). Psychosocial and family functioning in children with insulin-dependent diabetes at diagnosis and one year later. Journal of Pediatric Psychology, 21, 699-717.

Odawara, M. & Yamashita, K. (1997). Genetic vs. environmental factors in insulin-dependent diabetes mellitus. Lancet, 349(9056): 956-957.

Oualline, V.J. (1975). Behavioral outcomes of short-term non-directive play therapy with preschool deaf children. Unpublished doctoral dissertation, North Texas State University, Denton, TX.

Papadopoulos, G.K. (1998). Genetics of type I diabetes. Immunology Today, 19(6): 288-289.

Patterson, J. (1988). Chronic illness in children and the impact on families. In C. Chilman, E. Nunnally, & F. Cox (Eds.), Chronic illness and disability (pp.69-107). Newbury Park, CA: Sage Publications.

Perez, C. (1987). A comparison of group play therapy and individual play therapy for sexually abuse children. Doctoral dissertation, University of Northern Colorado. Dissertation Abstracts International, 48 (12A).

Perrin, J.M. (1985). Introduction. In N. Hobbs & J.M. Perrin (Eds.), Issues in the care of children with chronic illness (pp.1-10). San Francisco: Jossey-Bass.

Piaget, J. (1962). Play, dreams, and imitation in childhood. New York: Rutledge.

Rogers, C.R. (1961). On becoming a person. Boston: Houghton Mifflin.

Satin, W., LaGreca, A., Zigo, M., & Skylar, J. (1989). Diabetes in adolescence: Effects of multifamily group intervention and parent simulation of diabetes. Journal of Pediatric Psychology, 14, 259-275.

Simonds, S. (1977). Psychiatric status of diabetic youth matched with a control group. Diabetes, 26,921-925.

Straughn, J. (1964). Treatment with child and mother in the playroom. Behavior Research and Therapy 2:37-41.

Stuber, M.L. (1996). Psychiatric sequelae in seriously ill children and their families. The Psychiatric Clinics of North America, 19, 481-493.

Tew, K.L. (1997). The efficacy of filial therapy with families with chronically ill children. Unpublished doctoral dissertation, University of North Texas, Denton, TX.

Travis, L.B., Brouhard, B. H., & Schreiner, B.J. (Eds.)(1987). The child less than three years old. In Diabetes mellitus in children and adolescents (pp. 187-192). Philadelphia: W.B. Sauders Company.

Tyndall-Lind, A. (1999). A comparative analysis of intensive individual play therapy and intensive sibling group play therapy with child witnesses of domestic violence. Unpublished doctoral dissertation, University of North Texas, Denton, TX.

Ude-Pestel, A. (1977). Betty: History and art of a child in therapy. Palo Alto, CA: Science and Behavior Books.

Wing, R.R., Norwalk, M.P., Marcus, M.D., Koeske, R., & Feingold, D. (1986). Subclinical eating disorders in children and adolescents with type I diabetes. Diabetes Care, 9, 162-167.

Zilliacus, K., & Enberg, S. (1980). Play therapy in the pediatric out-patient department. Paediatrician, 9, 224-230.