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Relationship between Self-Esteem and Social Support in Physically Disabled and Able-Bodied Adolescents

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RELATIONSHIP BETWEEN SELF-ESTEEM AND SOCIAL SUPPORT
IN PHYSICALLY DISABLED AND ABLE-BODIED ADOLESCENTS

by

Dianne B. Cherry

A Dissertation Submitted to the Faculty of the Graduate School
of Loyola University of Chicago in Partial Fulfillment
of the Requirements for the Degree of
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VITA

The author, Dianne Brown Cherry, is the daughter of Allyn S. Brown and the late Ellen K. Brown. She was born in Sayre, Pennsylvania on April 22, 1948. She is married to Daniel R. Cherry and is the mother of Matthew Allyn Cherry.

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She has a private practice in pediatric physical therapy providing home care to physically disabled children and adolescents.

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CHAPTER I

INTRODUCTION

Physically disabled adolescents face particular challenges in developing high self-esteem due to their reduced competency in physical activities and to the social stigma of disability. Self-esteem is an important and dominant component in an individual's motivational system, being the evaluative component of the self-concept.

[Self-esteem] implies self-acceptance, self-respect, feelings of self-worth. A person with high self-esteem is fundamentally satisfied with the type of person he is, yet he may acknowledge his faults while hoping to overcome them (Rosenberg, 1979, p. 31).

Self-esteem consists of learned evaluative attitudes toward the self, based on past favorable and unfavorable experiences of competency, and autonomous and efficacious action of the individual in the environment (Gecas & Schwalbe, 1983). Self-esteem as a personal judgment of worthiness is influenced by the reflected appraisals of significant others. The persons in one's social network and the perceived emotional support from them contribute to self-esteem.

A physical disability alters outward appearance as well as ability to do physical tasks. Presence of a disability

during self-esteem formation in childhood and adolescence may affect self-evaluations of one's own competence and worth. A disability creates stress and challenges coping ability. If such a challenge is successfully faced, the feeling of competence is strengthened and self-esteem is enhanced, but failure diminishes it. Visible physical disability is socially stigmatized, and thus is likely to affect the attitudes and behaviors of people with whom the disabled person comes into contact. Stigma likely alters their reflected appraisals and the quality of their relationship with the disabled person (Fine & Asch, 1988; Hastorf et al, 1979; Resnick, 1984a; Strax & Wolfson, 1984). Difficulties in developing high self-esteem when growing up disabled are easily explained by developmental and social psychological theories about self-esteem formation.

Adolescents with a physical disability are confronted with a dual challenge: they must deal with the developmental tasks that normally accompany the transition from dependent child to self-sufficient adult, as well as the daily reality of being disabled. Disability implies being different, and having difficulty with function. Disability may mean limitations in speed, agility, and mobility. For disabled adolescents, ability to develop both independence from parents and also normal peer relationships are usually affected (Wortman & Conway, 1989). Their social experiences may differ from those of their able-bodied peers by (1) their inability to

keep up physically with their peers, (2) being excluded from peer activities because of being unable or different, (3) exclusion from school activities secondary to frequent absences for health reasons, and (4) lack of opportunity for normal, informal interactions with peers in or outside of school (McAnarney, 1985).

The disabled adolescent is also a part of a social world which responds to the disability. Children convey general negative attitudes toward disabled including pity, rejection, teasing, staring at or humiliation of a disabled peer (McAndrew, 1979; Strax & Wolfson, 1984). These negative attitudes evolve in adulthood into social stigma, based on misconceptions and fear toward the disabled (Resnick, 1984a). Adolescence is a time of heightened self-consciousness, valuing conformity and not wanting to be different. The disabled adolescent is likely to receive the brunt of society's general response to disability as it is magnified by the typical adolescent rejection of others different from themselves. Physical limitations in normal teen activities combined with characteristic rejection by the peer group may result in psychological, social and even physical experiences for the physically disabled adolescent that are very different. The typical experience of the physically disabled adolescent may be deficient in the requirements for normal healthy adolescent development (Konopka, 1973; McAnarney, 1985), including self-esteem formation.

Self-esteem is a learned attitude toward the self. It may be high, believing the self is worthy and good, or low, believing the self is worthless and bad. According to Rosenberg (1979), self-esteem is formed from two sources: self-appraisals of one's competence, goodness, and worth; and reflected or perceived appraisals of one's significant others (Coopersmith, 1967; Rosenberg, 1979).

If one attempts to predict the self-esteem of physically disabled adolescents, the prediction would likely be that, as a less competent, stigmatized group, their self-esteem should be lower than that of the non-disabled adolescent (Coopersmith, 1969; Stager et al, 1983). Self-esteem formation for the disabled child is certainly at risk, for s/he experiences reduced competency at tasks other children find easy and natural to accomplish. In social encounters, disabled children experience pity, rejection, and humiliation by persons who may be significant to them (family or extended family, peers, teachers). To the extent that a disabled child's significant others convey rejection or devaluation, it is likely to be detrimental to that child's self-esteem.

A different and positive source of influence on the physically disabled adolescent's self-esteem is the experience of the disability as stress, and learning to cope effectively with that stress. Successful coping with stress is known to strengthen self-esteem. A child growing up with a physical disability may be challenged to develop his or her

adaptive resources over time, and may come to believe he or she is coping successfully with the disability, or even perhaps despite it. In the face of the challenges presented by the disability, other problems encountered by most people shrink in comparison. Some physically disabled adolescents may thus perceive themselves as coping quite competently. As perceived competency is a positive self-appraisal, self-esteem is supported.

Family relationships may be affected by the presence of a physically disabled member (Featherstone, 1980). Family members may help provide needed social support for one another, and may develop other supportive relationships when they are under stress. Physically disabled children and their families often encounter many specialists in the planning or implementation of health care and remediation services related to the disability. These contacts may result in relationships that are both intimate and long-lasting. Such relationships are a potential source of information and social support in stressful times, and may foster successful coping and high self-esteem through the caring attention of a respected significant other.

Statement of the Problem

A physical disability is a pervasive influence in the life of a child and his/her family. The child's self-esteem is likely to be affected through self-appraisals and reflec-

ted appraisals of significant others. Difficulties encountered in developing physical competence and forming peer relationships may impact self-esteem negatively. Disability is socially stigmatized, affecting self-perceptions and the perceptions and behaviors of others toward the disabled person. Influences can also be positive, depending on the experience of successful coping with the stress of the disability and the availability of a social support network.

This study seeks to determine if the self-esteem of physically disabled adolescents (PDA) differs from that of able-bodied adolescents (ABA), and to learn what attributes or activities correlate with high or low self-esteem. Specifically, the study will examine relationships between self-esteem and (1) social network size and characteristics, (2) perceived social support from family and from friends, and (3) these subject characteristics: gender, mental ability, and functional ability.

Research Questions

This study will address the following research questions:

- 1) Is there a relationship between self-esteem and social support in physically disabled and able-bodied adolescents?
- 2) Are there differences between the physically disabled and able-bodied adolescents in levels of self-

esteem and extent of social support?

3) What factors best predict self-esteem in able-bodied and physically disabled adolescents?

Significance of the Study

If this study finds a significant relationship between ability/disability, self-esteem, and social support, there may be potential benefits for understanding the developmental psychology of handicap, and adolescence in general, in several ways:

- 1) there may be greater understanding of self-esteem in the disabled and variables which are associated with it;
- 2) further evidence of the association between social relationships and self-esteem may be provided;
- 3) predictors of self-esteem for disabled and able-bodied adolescents may be found, which may be modifiable through intervention;
- 4) for non-modifiable attributes which correlate with low self-esteem, vulnerable sub-groups could be identified (sex, disability, mental ability) for specific attention and remediation;
- 5) type of intervention may be indicated according to the deficit pattern indicated (eg., social skill training, integration into appropriate social groups, family counseling).

Specifically, the findings may include a relationship between self-esteem and social support for adolescents, and an interaction between ability/disability and social support. Such interaction may identify similarities or differences between the ability/disability groups in their social networks and sources of social support. In turn, these differences may be associated with differences in self-esteem between the groups.

If there is a relationship among self-esteem, social support from family, social support from friends, social support network, and ability/disability, the previous contradictory research findings in self-esteem among the disabled would be more understandable. Physically disabled adolescents with high social support may develop high self-esteem, while those low in one also are low in the other. Directions for therapeutic intervention may also be indicated. Understanding individual differences and the unique difficulties experienced by different handicapped students enhances provision of effective intervention. Handicapped students may need unique educational or therapeutic experiences because the problems they face are often unique to them, not encountered by non-disabled students (Anderson & Klarke, 1982; Gliedman & Roth, 1980; Resnick, 1984a).

If there is a direct relationship between self-esteem and social support for both groups of adolescents, the importance of social support to emotional well-being will be

reinforced. Significant findings in the main effects of social support sources and networks on self-esteem would add to the growing body of knowledge about self-esteem and social support with practical information that can be applied by teachers, counselors and other helpers of adolescents, both disabled and able-bodied (Wallander & Hubert, 1987). Adolescents who have low self-esteem and perceive low social support from family or friends may benefit from counseling and/or help in social skill development (Hastorf et al, 1979).

Interaction between self-esteem and subject attributes of gender, mental ability, social support source, or ability/disability would help identify which groups are most vulnerable to forming low self-esteem and might benefit from intervention. Indeed, those in greatest need of social support may be the least likely to receive it (Wortman & Conway, 1985). The nature of the needed intervention (eg., counseling, social skills training, work with family) may also be indicated. Most clearly, significant findings of physically disabled adolescents with low self-esteem and low perceived social support could indicate need for a new emphasis of intervention by professionals working with this group. Physically disabled adolescents, usually less able to manage normal or awkward social interactions (Fichten & Bourdon, 1986; Wallander & Hubert, 1987) could receive direct instruction in social skills which could enhance their

social network size and their ability to develop friendships and obtain social support from them (Hastorf et al, 1979). They could also be guided toward finding and utilizing opportunities for social interaction and integration in which they could effectively participate with peers.

Method

This research proposed a descriptive and correlational study of self-esteem and social support in physically disabled and able-bodied adolescents. The sample will be large enough to permit statistical analysis by correlational methods. The measures will be objective and quantifiable self-report scales and questionnaires. Measurement of existing attributes will be sought; no experimental manipulation of variables will be attempted.

The research will study adolescents, ages 12-19 years with normal intelligence in two samples. One group of subjects will have a physical disability caused by cerebral palsy or spina bifida with myelomeningocele; subjects in the other group will be able-bodied.

Paper-and-pencil measures of self-esteem, social support, and mental ability, will be used. Other questions about demographics, significant others and activity participation will also be asked. Data reduction will permit correlational methods of analysis.

Summary

This chapter introduced the problem of high self-esteem development in children and adolescents with physical disability. High self-esteem is important in overall life happiness and satisfaction, and enhances coping with life stress. Adolescents growing up with a physical disability face a particular challenge in developing high self-esteem. They experience less competence in physical tasks as well as social stigma in dealing with general society. Thus they are vulnerable to low self-appraisal and negative reflected appraisals of others. Social support is known to be an important protective factor for psychosocial health and well-being, and is associated with supporting self-esteem. Physically disabled adolescents may be vulnerable to low social support as well. Social support may be amenable to intervention, which could enhance self-esteem. Thus it is important to determine if physical disability is associated with self-esteem and social support levels lower than their able-bodied peers. Potentially modifiable factors related to prediction of self-esteem may provide insight into ways to enhance low self-esteem for physically disabled and able-bodied adolescents.

Chapter II will present a review of the related literature in the three major topics of physical disability, social support, and self-esteem, discussed separately and in combination. Chapter III will describe the methodology of the

study, including hypotheses, design, instrumentation, subjects, and procedures for data collection and analysis. In Chapter IV the results of hypothesis testing will be presented, followed by comparisons of similarities and differences between the two groups, and particular findings regarding specific variables relevant to self-esteem. Chapter V will discuss and analyze the results and make recommendations regarding application of findings to education and therapy for adolescents who are physically disabled.

CHAPTER II

REVIEW OF THE LITERATURE

The previous chapter stated the problem which physically disabled adolescents may have forming high self-esteem, and proposed the research study.

This chapter will review theory and empirical findings of the major variables in this study. First, physical disability will be defined and societal response to it will be examined. Social support will be discussed next, beginning with definition and analysis of the construct and its theoretical bases. Social support in adolescence and in physical disability will be reviewed. Self-esteem theories, developmental factors, the influence of social support on self-esteem, self-esteem in the disabled population, and research in self-esteem and disability will be in the next section. In the last section the findings will be summarized in the following combinations: self-esteem and social support, self-esteem and disability, and self-esteem and social support in disabled children.

Physical Disability

Stedman's Medical Dictionary (1982) defined "disabil-

ity" as a medicolegal term signifying loss of function and earning power. Hislop (1976) described a physical disability as a structural impairment of the body which limits functional efficiency or abilities. Among the many forms of physical disability are cerebral palsy (CP) and spina bifida with myelomeningocele (SB), which are movement disorders affecting children. Each results from early damage to the central nervous system (Nelson, 1985; Schneider, 1985). They are incurable, affecting the individual in a relatively static way throughout his or her life.

Definitions

Schneider (1985) described spina bifida with myelomeningocele as a congenital disorder due to prenatally-occurring malformation of the spinal cord, resulting in paralysis and sensory loss below the level of the lesion, similar to spinal cord injury. If the lesion is in the low back, the legs have some weakness or paralysis depending on the level. If the lesion is low, the muscles of the feet are affected; the knees and hips are paralyzed when the lesion is somewhat higher. While the arms are usually spared from paralysis, there may be eye-hand coordination difficulties and hand dominance problems. Less frequently the lesion is in the thoracic region, causing paralysis of the trunk muscles as well. Incontinence due to impairment of bowel and bladder control is almost always a problem. Typically the child or

adult with spina bifida with myelomeningocele is fitted with orthoses (braces) which support the paralyzed joints, and provide stability and protection and may permit certain kinds of function (eg., standing or walking). When the lesion affects hip muscles, crutches may be needed for walking. Often adolescents with SB who have extensive paralysis choose to use a wheelchair for mobility because for them it is more energy efficient than walking. Spina bifida with myelomeningocele is frequently associated with hydrocephalus which, if not well controlled, can cause serious complications. Hydrocephalus causes pressure on the brain which can result in brain damage and intellectual deficit.

Nelson (1985) described cerebral palsy (CP) as a movement disorder due to injury or maldevelopment of the motor control parts of the immature (infant) brain which may have occurred prenatally, perinatally, or postnatally. If other parts of the brain are damaged as well, other deficits may also be apparent, such as auditory or visual problems, seizures, or intellectual deficit. CP can manifest in a range of disability, from minimal effects like a mild limp or difficulty using one hand, to severe spasticity, with inability to stand, requiring a wheelchair for mobility. If the motor dysfunction affects the mouth area, functional speech may be limited or impossible. Ability to complete self-care activities like dressing, bathing and feeding may also be impaired if hand and arm control are deficient.

Societal Response to Disability

That physically disabled persons are visibly different is obvious. The differences are apparent at least in the way they move, whether slowly or awkwardly, or by the presence of devices like orthoses, crutches, or wheelchairs.

A movement dysfunction results in being labelled as "different" by members of society. Resnick (1984a; 1986) described the social construction of disability as occurring when people observe physical events (like disability) and evaluate or assign meaning or value to them, resulting in consensus on a social and subjective reality. The social consensus about physical disability is a devalued social status and stigmatization. When compared on the basis of the strong American cultural values of beauty, youth, health, and productivity, the disabled who cannot keep pace are devalued. The resulting negative assessments are associated with lower expectations and restrictive experiences which Gliedman and Roth (1980) called the sociological destiny of disability. Resnick (1984a) stated that the social role frequently assigned to the disabled is the patient role, with its implicit role requirements of compliance, passivity, and reduced expectations for productivity. A disabled child in the patient role may never be given opportunity to prove himself in any domain. Embracing the patient role precludes efforts at normalization. Goldberg (1981) stressed that societal

reaction or social stigma associated with physical disability has a more profound impact on the well-being, adjustment, and happiness of the disabled individual than the objective physical severity of the condition itself.

Families are profoundly affected by a disability in their child (Cherry, 1989; Featherstone, 1980; Gordeuk, 1976). A grief response for the lost healthy child often occurs. Davis (1987) noted how parents describe a feeling of recurrent sorrow, being permanently changed by suffering and grief. Featherstone (1980) provided a moving account of family responses to disability and their feelings of guilt, self-doubt, and lowered self-esteem. Parents are likely to be aware of societal stigma of disability. Coleman (1984) investigated mothers' perceptions of their disabled children, noting that adults participate in a social reality including social conventions with various roles and corresponding statuses. He indicated that this knowledge influences these parents' opinions of their child's deviant role status. Featherstone noted that the parents' response to the disability may well influence the parents' reflected appraisals toward the disabled child.

The impact of the physical disability on the individual is of concern to parents, educators, and health care professionals. Shulman and Rubinroit (1987) described how the disability itself creates direct obstacles to separation from parents and gaining the adult roles of independence and

competency. These limitations are often compounded by society's attitudes which affect the disabled individual, family, and friends. The potential phenomenological and social influences of disability on self-esteem formation are profound and will be further explored in the section on self-esteem.

Social Support

This section will define the construct of social support, summarize theoretical linkages of social support to psychological well-being, and review social support and friendship in adolescence.

Definition of the Social Support Construct

Social support has been defined broadly as "the range of significant interpersonal relationships that have an impact on an individual's functioning" (Cauce, Felner, & Primavera, 1982, p. 418). More specifically, Shumaker and Brownell (1984) defined it as "an exchange of resources between two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient" (p. 11). Whether defined broadly or more specifically, it is clear that social support involves a social relationship that impacts on the individual.

The importance of social integration into the community for individual well-being was identified by Durkheim almost a

century ago (1897/1951). In the 1950's supportive aspects of interpersonal relationships were frequently described in the sociological literature. Cassel (1974) and Caplan (1974) elaborated the importance of interpersonal relationships for promoting health, and protecting individuals from harmful environmental conditions and pathology. Social support is now clearly recognized as an important factor which functions for maintaining health and reducing stress (Cohen & Wills, 1985; Shumaker & Brownell, 1984; Wills, 1985).

Social Support Theory

Shumaker and Brownell (1984) noted conceptual ambiguity in the social support field, and proposed the components necessary for a social support theory to be developed. They distinguished "between the content of supportive exchanges and the purposes or functions of social support" (p. 12). Components of their developing social support theory are networks and the interpersonal relationship, the resource exchange process, the functions achieved, and effects on the recipient. House and Kahn (1985) observed that clarifying the distinctions between components refines the social support construct.

Social Network

Stokes (1983) identified social networks as people connected by a set of ties or relations of some sort. One's

social network can be described by the numbers and relationships of persons in the network. Social network includes informal relationships with family, extended family, friends, neighbors and co-workers with whom an individual experiences a sense of reciprocity when social support is provided or received. Formal sources of support in the network are professionals (clergy, health care professional) who Wills (1985) notes are often but not always paid for their services. Payment may cancel the presumption of reciprocity in the relationship. According to Schaefer, Coyne, and Lazarus (1981), social relationships are assumed to provide benefits to the recipient. Cauce, Felner, and Primavera (1982) noted that it is helpful to differentiate between sources of support in the network (informal through family, friends, neighbors; and formal through clergy and health care providers) because they may be perceived differently.

Resources Exchanged

Shumaker and Brownell (1984), Wills (1985) and others (Brown, Brady, Lent, Wolfert, and Hall, 1987; Cobb, 1976; House, 1981; Russell and Cutrona, 1984; Weiss, 1974) have developed resource exchange typologies of similar groups of support content or needs. Listed below is a summary of the common elements identified:

1. emotional needs, attachment, caring, trust, empathy
2. social integration or network support for the feel-

ing of belongingness in a group

3. esteem needs, reassurance of worth, communication that one is liked, valued, and needed by others
4. instrumental, material or utilitarian needs, such as provision of money, goods, or services
5. informational, feedback or guidance needs as may be needed for problem-solving and coping
6. expressive needs as encouragement to share feelings

Functions of Social Support

Shumaker and Brownell (1984) stated that the primary function of social support is to enhance the recipient's well-being, including both physical and mental health. Cohen and Wills (1985) recommended that this general task can be reduced to a set of specific functions, falling into two broad categories: 1) main effects of social support, which is equivalent to the health-sustaining function described by Shumaker and Brownell (1984), and 2) buffering effects, also called stress-reducing function. The generalized or main effects occur because social networks provide persons with social companionship, status as a person capable and deserving of social support, a set of stable socially rewarded roles, gratification of affiliative needs, self-identity maintenance and enhancement, and self-esteem enhancement. Buffering or stress-reducing effects occur through bolstering resources available to the stressed individual, and through

modeling appropriate coping responses (Cobb, 1976; Hobfoll & Walfisch, 1984; Lieberman, 1982; Wills, 1985). Wills (1985) identified esteem support, informational and instrumental support, companionship and motivational support as important mechanisms through which social support operates to enhance coping.

Effects on Recipient

The effect of social support on the experience of the recipient is influenced by various internal, external, and interactive factors. Network characteristics including size, density, and relationship of network members to support recipient are external factors. The fit between a person's needs and the resources provided (person-environment fit) (Caplan, 1974; Shumaker & Brownell, 1984) and congruence between provider's and recipient's perceptions of the exchange are interactive factors. Internal factors indicating dispositional characteristics may differentiate individuals' willingness and ability to develop and use social support. Quality of social skills (Cohen, Sherrod, & Clark, 1986; Cauce et al, 1986), personal characteristics of physical attractiveness (Langlois & Stephan, 1977), race and socioeconomic status (SES) (Gad & Johnson, 1980), expectation of social support (Cutrona, 1986), locus of control, help-seeking beliefs, and satisfaction with support (Cutrona, 1986) are intrinsic factors. Satisfaction with support correlates

with social support mobilization (Eckenrode, 1983) and is relatively stable over time. Through these personal characteristics people influence the social support they receive (Sarason & Sarason, 1986).

Perceived social support refers to the subjective experience of networks' impact on the individual. It assesses the person's evaluation of the supportive quality of a relationship (Schaefer, Coyne, & Lazarus, 1981) and indicates "the extent to which an individual is accepted, loved, and involved in relationships in which communication is open" (Sarason et al, 1987, p. 813). Procidano and Heller (1983) defined perceived social support as "the extent to which an individual believes that his or her needs for support, information, and feedback are fulfilled" (p. 2). Perceived social support and support provided by networks may be related but are not identical. Perceived support is more likely to be influenced by internal or within-person factors (Eckenrode, 1983).

In the next section, the literature regarding social support and adolescents will be reviewed.

Social Support and Friendship in Adolescence

Clearly social support has a critical role in adult development for mental and physical well-being. While there has been little systematic inquiry about children's needs, Reid and associates (1989) believe that social support is an

important component of normal development. Children and adolescents experience social vulnerability and physical reliance on others. Their sense of self is very much influenced by the contexts in which they find themselves and the persons in those contexts. The seminal work of Erikson (1963) has identified identity formation as a key issue in adolescence. Identity formation is influenced by physical and physiological changes and by socialization pressures and processes, which social support can influence.

Burke and Weir (1978) studied similarities and differences between adolescent males and females, finding that both groups prefer relying on mother over father for social support, but prefer peers over parents. They also found that adolescent females more easily disclose feelings and negative experiences and are more satisfied with the support they receive.

Cauce and colleagues (1982) studied structural aspects of adolescents' social support (that is, their social networks) and correlates among inner city adolescents, finding peer social support to be the most important source. In that study, adolescents with high peer social support had lower academic achievement and higher self-concept, most likely because peers help make an inner-city adolescent feel good about him/herself, but the pressure to conform resulted in poor attitudes about school. Cauce (1986) also studied early adolescents' social networks and social competence. The

increasing amount of mobility available to young adolescents occurs simultaneously with their shift from passive to active agent in the social environment. "The ability to choose and enjoy an appropriate peer social network as a source of emotional support, information, orientation, and guidance is an especially important aspect of social competence at this age" (p. 608).

Friendships among early adolescents were studied longitudinally by Bukowski and associates (1987), who found that their friendships normally develop because of commonality, the potential for help and support, and desire for intimacy. Tedesco and Gaier (1988) found that, for boys, physical strength and athletic prowess are important, while for girls physical appearances are more valued. Grunebaum and Solomon (1987) described the developmental significance of peers and play, noting how children must learn how to make friends and get along with each other on their own; adults cannot make a friendship happen. Savin-Williams and Berndt (1990) also discussed adolescent friendships and peer relations. They described how an adolescent actively creates his or her own peer social environment through seeking, developing, and maintaining friendships. This behavior represents a shift out and away from dependence on the family. The shift from family to friend support can be adaptive and appropriate for future needs because family resources for providing social support may be limited due to fixed number of people in the

family, the social skills of members, communication patterns, and the quality of relationship between members. Savin-Williams and Berndt believe that a friendship may develop between peers because each finds something of value in the relationship; if it ceases to be valuable to one or both, the individuals drift apart to seek new and better relationships. One quality of a relationship may be the support it provides. When support is satisfactory, the relationship is reciprocal and it thrives.

Sullivan (1953) emphasized the contributions of close friendship to adolescent development in the ways that friends support each other's self-esteem, provide emotional support and advice, as well as contribute to the developing sense of identity. Grunebaum and Solomon (1987) concluded that peer relationships afford the developing child and adolescent a means to learn social skills and form a social identity. In friends they find a shared intimacy in which they learn to support and validate their friend's sense of personal worth, and to receive the same in turn. Gresham (1982) studied children's social skills, finding friendship-making skills are active social initiative interactions, while behaviors associated with being accepted are more passive receiving behaviors.

The importance of peers in adolescence, as a collective reference group for social comparisons (Festinger, 1954) and as a place to seek friendship, has been clearly substantiated

(Epstein, 1989). Bukowski, Newcomb and Hoza (1987) found that early adolescents valued help and support as the most important aspect of friendship. This finding is consistent with Coleman's (1983) proposition that, beginning in early adolescence, children increasingly find emotional support from their friends more than from their family.

Social support is clearly valuable to adolescents' healthy psychosocial development, providing esteem support and influencing their identity formation and their ability to separate from family. In the next section the importance of social support for persons with illness and disability will be discussed.

Social Support in Illness and Disability

Wortman and Conway (1985) stated that physical illness and disability are often accompanied by a host of fears and problems, including pain, disfigurement, energy depletion, dependency on others, and self-concept changes. To cope with these difficulties, the disabled person may have relatively greater needs for social support of all forms. Ironically, the authors predict that persons with illness or disability may also have greater than average difficulty obtaining needed support. Certain disabilities evoke physical aversion and repulsion. Dealing with a disabled person can be stressful for potential supporters, provoking feelings of awkwardness and frustration. Persons close to the disabled one may

feel anger and resentment for their own disrupted lives when there is failure to improve or "get well." Research by Wortman and associates (Coates, Wortman, & Abbey, 1979) suggests that ability to cope successfully with illness or disability may be a determinant of social support. Coping successfully is perceived as more attractive. Thus effective copers are less likely to be avoided by others while those who are struggling and in greatest need of social support are least likely to receive it.

For the disabled individuals who can develop and maintain satisfactory support, the results are positive. Schulz and Decker (1985) found that long-term spinal cord injured subjects who had high levels of social support reported high levels of well-being similar to that reported by normal subjects.

Mest (1988) interviewed a group of mentally retarded adults (who are usually quite socially stigmatized) living in a group home. She found that they had developed a support system among their peers which included an in-group identity. They had learned to ignore most negative or hostile comments by outsiders, and looked to each other for support and comfort.

Morgan, Patrick and Charlton (1984) studied network characteristics of adults with physical disabilities. They found evidence of greater social isolation when the level of disability was greater, however, there was a wide range of

support types available for the physically disabled group. Higher levels of disability did not affect the availability of a confiding relationship. They concluded that social policy should seek to provide broad-based psychosocial support services for disabled persons.

Patrick, Morgan and Charlton (1986) further studied the psychosocial support available to the population described above. They found that persons with higher levels of support and social contact experienced less deterioration in functioning than those with low levels of support, especially when an adverse life event was experienced (the buffer effect). They predict that awareness of social contacts for the physically disabled may be important for identifying persons at risk for deterioration in function, and for planning an intervention strategy.

Kutner (1987) studied persons with chronic physically disabling conditions to determine characteristics of available social ties and perceived family support in relation to perceived health status. Kin networks were the first source of potential support, and an important finding was that the size of family networks was inversely related to socioeconomic status (SES). However, all subjects reported high perceived support from family.

Brown (1988) reported a study of adults with congenital physical disabilities, most having cerebral palsy. In the group of 26 respondents, 88% of the sample reported over-

protective and/or controlling parents. These subjects reported that their families discouraged their efforts at independence and developing peer relationships outside the family.

Wesolowski (1987) compared the size and composition of social networks of disabled adults attending a rehabilitation clinic to a population of working adults attending evening classes at college. He found that the disabled group had significantly smaller networks, with one fourth as many contacts as the working-student group. The social networks of the disabled consisted primarily of family. The networks of the working-student group was a mixture of family and friends, and tended to grow by adding friends. Network size therefore tended to increase with age among the able-bodied through the addition of friends, but decrease with age in the disabled, primarily through attrition from loss of family members without replacement by adding friends.

Thus it is clear that social support operates in much the same way for disabled persons as for able-bodied, providing main and buffering effects for dealing with stress and providing a community with a sense of belonging. However, disabled people may have greater need for social support especially from persons outside the family, due to their medical and/or functional problems, but at the same time have difficulty obtaining adequate support. Self-esteem will be addressed in the next section, considering both theoretical bases and relevant research.

Self-Esteem

In this section, the self-esteem construct will be defined, the effects of high or low self-esteem will be considered, the theories of self-esteem formation will be reviewed, and the findings summarized.

Definition of the Self-esteem Construct

Self-esteem is evaluation of the self by the self, the inner core of how we feel about ourselves. Coopersmith (1967) defined it as

the evaluation which the individual makes and customarily maintains with regard to himself; it expresses an attitude of approval or disapproval, and indicates the extent to which the individual believes himself to be capable, significant, successful, and worthy. In short, self-esteem is a personal judgment of worthiness that is expressed in the attitudes the individual holds toward himself. It is a subjective experience which the individual conveys to others by verbal reports and other overt expressive behavior (pp.4-5).

Self-esteem is learned, developing within the individual gradually as the self-concept forms. Self-esteem reflects our cognitive appraisal of both our competence and adequacy in areas important to us and to society, and the support and regard we receive from our significant others (Varni et al, 1989). Appraisals may be favorable or unfavorable. The social environment influences the possibilities for an individual's efficacious action and shapes the contexts of one's action, thus influencing evaluative

criteria. Self-appraisal of one's own ideas and interpretations of one's own behavior is compared to the idealized image of oneself (Jacobson et al, 1984). Franks and Marolla (1976) differentiated between "inner esteem" and "outer esteem". Inner esteem is that sense of self derived from experience as an active agent striving in the face of obstacles, while outer esteem is reflected appraisals bestowed by others whose approval or acceptance is important to the individual (Gecas, Calonico, & Thomas, 1974; Gecas & Schwalbe, 1983; Rosenberg, 1979).

Human beings derive a sense of self not only from the reflected appraisals of significant others, but also from the consequences or products of behaviors that are attributed to the self as an agent in the environment (Gecas & Schwalbe, 1983, p. 79).

The dimensions of the self which form the self-concept and are evaluated in the formation of self-esteem are the physical, cognitive, social, emotional, sexual, and moral (Juhasz, 1988). Each self-dimension is perceived and evaluated by the individual in the judgment of his or her own worthiness. The individual, family, community, and culture may differentially value certain competencies and contexts of action, and the individual chooses those which she or he considers salient to the sense of self-worth, thus actively participating in the self-esteem formation process.

The experience of success influences one's judgments of worthiness. Several different types of experiences may be

employed to define success, each with its own criteria for evaluation of attainment. Coopersmith (1967) identified four types of experience to be sources of self-esteem: competence, significance, power, and virtue. The relative weight given to each area varies with the internalized values of the individual and with the psychological defenses operating to protect the central sense of self-esteem from damaging assault of a sense of failure (Coopersmith, 1967; Juhasz, 1988).

Effects of High or Low Self-Esteem

A positive opinion of oneself is high self-esteem, which is associated with good mental health and resilience at managing stresses of daily living (Coopersmith, 1967). Valuing one's own opinion of oneself, and knowing that one is valued to significant others enables one to shrug off negative experiences and evaluations of others. One can defend oneself against devaluation. The confidence that one is competent encourages one to take risks, which may develop greater competence. If one risks and the venture is unsuccessful, high self-esteem allows one not to internalize a sense of failure. Feather (1988) describes "the rosy glow of self-esteem" permitting external attribution of negative outcomes and internal attribution of positive ones. High self-esteem provides a defense in giving the individual confidence in his or her own judgment and abilities, a sense



of capability in dealing with adversity. He or she can approach situations with the expectation of success and not feel threatened at the outset, nor destroyed by failure.

Negative self-appraisal is low self-esteem. Coopersmith (1967) found low self-esteem is associated with limited psychological defense abilities, fearfulness, and expectations of failure. When one is critical of oneself, one is quite ready to believe the criticisms of others, real or imagined. By dwelling on personal incompetencies and inadequacies, a person low in self-esteem sabotages his or her own morale and chances for success. Such a person does not trust her/himself, is not willing to expose the self by taking risks or standing out in a crowd. Withdrawal into social isolation often occurs, further removing her/him from potential friendly relationships. Thus it can be seen that the evaluation one has of oneself vitally affects and directs the way one responds to the self, to the outside world, and to the opportunities one may experience.

Theories of Self-Esteem

Two essential constructs for understanding the development of self-esteem are competence and significant others (Coopersmith, 1967; Rosenberg, 1979). Their links to self-esteem are the appraisal of self-worth, with self-appraisal and the reflected appraisals of significant others, and the social support offered by those others. Children evaluate

themselves continually, and within a family and social context they perceive the evaluations of others. They form and reform their thoughts on their self-esteem both generally and specifically relative to certain contexts and areas of behavior. Those aspects of experience which children perceive as important and salient to self-esteem may be identified by analysis of relevant theories. Four kinds of theories--self, developmental, social-ecological, and stress/coping--will be reviewed for recognizing influences on development of high or low self-esteem.

Self-theories

Self-theories emphasize the sources of and influences on feelings about the self (Juhasz, 1988). Adler (1927) formed theories based on the child's sense of inferiority, self-despising, and powerlessness. Bandura's (1982) self-efficacy theory stresses the positive self-feelings gained from mastery of tasks and threats in the environment. Gecas and Schwalbe (1983) strongly argue that self-esteem is self-efficacy-based. The theories of Rogers (1951) and Maslow (1970) emphasize the child's need for unconditional positive regard by the significant others in the child's life, especially family and friends. Each of these theories underscores the importance of significant others providing positive reflected appraisals which affirm the child's developing sense of self. Each also anticipates a potentially devastat-

ing effect of poor quality support on the developing self.

Taken together, the self theories emphasize the importance of good self-feelings; they indicate some of the processes which an individual might use to acquire them, and point to the importance of social influences which impact on self-feelings.

Developmental theories

Developmental theories attempt to explain growth and behavior change as a function of time. While self-esteem is not usually a focus of such theories, the changing characteristics and abilities of the child may influence the process of self-esteem formation differently at different ages.

Rosenberg (1979) found that children emphasize the physical and active aspects of the self, while early adolescents refer to the self's psychological aspects, and consider social personality characteristics increasingly important during adolescence. Damon and Hart (1982) proposed a developmental model of self-understanding as a necessary first step in assessment and study of children's self-esteem. They found that younger children's self-concepts are physical, and older children see themselves as active agents. Early adolescents stress the social psychology characteristics and physical with active attributes pertinent to social interactions. In older adolescents, the shift is toward a psychological self with inner awareness, and the self-concept now

incorporates personal philosophy and belief systems. Thus, as self-concept forms and changes, self-esteem, as the affective component of the self-concept, also evolves. The bases upon which it is formed are dynamic, changing with the child's development from a physical to a psychological self.

The cognitive and moral judgment abilities of children also change from childhood into adolescence, and these evolving cognitive abilities influence their self-esteem evaluations. Piaget (1963) and Kohlberg (1967) present parallel theories about the limited moral and cognitive abilities of young children, characterized by magical thinking and moral rigidity. The perception-dominated magical thinking of preschoolers undergoes qualitative changes in the transformation to concrete logical thinking of the school-ager. Thinking again changes to become the abstract and hypothetical cognitive abilities of the adolescent. Kohlberg's description of the development of moral judgment parallels Piaget's stages. Children's decisions of goodness and badness are based in early years on a sense of moral realism (blind obedience to authority or the status quo), which shift to moral relativism (able to consider intent) during elementary school. Some young people are able to advance to moral autonomy during adolescence. These changing cognitive abilities will influence the judgments a child makes about himself or herself, and the resulting sense of self-worth. At various ages different components are likely to be considered as the

bases of self-esteem (Jacobson et al, 1984).

Ego development theories also pertain to self-esteem formation (Loevinger, 1976). Jacobson and colleagues (1984) found that ego development level (pre-conformist, conformist, and post-conformist) exerts a strong shaping effect on the self-esteem of healthy and ill adolescents.

One aspect of ego development ... is movement from dependence on external sources for evaluating situations to a greater reliance on internalized standards and beliefs. The preconformist tends to look to a capricious outside world.... [while] at the postconformist level the individual comes to respect and utilize his or her own inner sense to evaluate and confirm.... The post-conformist's ability to form internal judgments of the self may engender an even more resilient sense of personal esteem (Jacobson et al, 1984, p. 502).

Erikson's (1963) psychosocial theory identifies stages of childhood during which particular issues are dealt with and resolved, and awareness about the self is gained. The younger child's struggles with physical autonomy and competence gradually shift to the adolescent's concern for identity and a place in the world. The bases of self-esteem judgments may evolve with the changing nature and concerns of the developing child.

The child's developing self-esteem is influenced by the maturational process of changing physical and cognitive abilities and by his or her changing psychosocial needs. Self-esteem is an estimation of self-worth, which requires self-understanding, and cognitive and moral judgment. The

bases upon which children make evaluative judgments change over time with their growing ability to understand; thus, their evaluations of themselves may also change (Damon & Hart, 1982; Dickstein, 1977).

Social-ecological Theories

In this section, ecological, social comparisons, labeling, and social support theories will be discussed. A child's age-related changes occur within and will reflect the influence of the environment. The values, attitudes and beliefs of the child and the family are influenced by the people and contexts around the family. Bronfenbrenner's (1977) ecological theory identified hierarchical, reciprocally interchanging, and interconnected systems of influence between the child and the environment. The most intimate system level is the microsystem, which consists of the people and places in the child's immediate environment (eg., home and school). The child's daily reality is most influenced by these microsystems, within which the child may find ways to get his or her needs met, fulfilling the essential elements of belongingness, love and acceptance. Here also are the significant others whose reflected appraisals constitute a large portion of the evaluations on which self-esteem is based. The family is the major influence for the young child, with the peer influence gradually increasing to become quite important during adolescence. Peer values and attitudes, acceptance,

and appraisals compete with the family influence.

Social comparison theory (Festinger, 1954) identifies the use of other persons who are reference groups as a basis for forming estimates of self-worth during the self-evaluation process.

Self-concept is a social phenomenon, arising and developing in a social context. It is likely developmental in nature, operating from somewhat different mechanisms at different points in time. During the preadolescent period self-concept appears to be primarily a function of reflected self-appraisals (or social comparisons) of others significant to the child. In the absence of objective standards of comparison, children seem to use their primary reference group (often classmates) for evaluative purposes (Coleman, 1983, pp. 43-44).

Labeling theory is a type of social theory concerned with people who are labelled as socially deviant. Stager and colleagues (1983) applied two theoretical principles of reflected appraisals and social comparisons and predict that the self-esteem of persons acquiring a socially deviant label is likely to be low. Physical disability is visible, stigmatized, and usually labelled. Thus, labeling theory is particularly relevant for this population.

Social support for the child and family is an important variable affecting perceived stress as well as self-esteem (Unger & Powell, 1980). Boyce (1985) stated that mutual interactive social support emerges from a child's earliest experiences in the context of family. That support provides a sense of permanence and continuity for the child. Family and friends provide positive experiences which support good

self-esteem. In addition, their continued presence and maintained relationship infers valuing and acceptance. Absence of social support for the child and family can have a devastating and far-reaching impact on self-esteem. In the child's view it implies unworthiness. Lack of social support also reduces the number of accurate reflected appraisals for self-esteem formation.

Taken together, the social-ecological theories underscore the vital link between self-esteem and social influences.

Stress and Coping Theories

Pearlin and Schooler (1978), Pearlin and others (1981), and Moos and Billings (1982) discussed the relationship between stress, coping, and self-esteem. They indicated that the perception of stress tends to threaten self-esteem, forcing the individual to embark on activities to lessen the impact of the stress. Coping is behavior which people do to protect themselves from being psychologically harmed by problems or stresses. Self-esteem is an important psychological resource for coping but is in turn influenced by evaluation of effectiveness of the coping behaviors. Being able to cope effectively with stress is a positive influence on self-esteem, associated with a sense of mastery and lessened perception of stress. However, it is "the abiding problems to which people see no end, those that seem to become fix-

tures of their existence, that are intrinsically uncongenial with positive self-esteem" (Pearlin et al, 1981, p. 345). The experience of chronic stress may be evidence that one is inadequate in coping with problems. In such instances, self-esteem may be threatened.

One means of coping is cognitive reappraisal of a stressor or threatening situation (Moos and Billings, 1982). In modifying one's understanding of the meaning of a stressor, it may be perceived as less threatening to the self. A form of cognitive reappraisal that enhances coping is adjusting one's values so one's hopes are realistic and possible within the present reality.

A child's early exposure to stressors may influence his or her self-esteem. Zeltzer and associates (1980) referred to the psychologic inoculation effect of gradual exposure to stressors and learning to cope effectively which may help the child or adolescent to be less affected by serious stresses in later life. Holahan and Moos (1987) observed that children may be more resilient than adults in terms of past adversity, for they tend to bounce back well; however, children are also less protected by past (no longer present) environmental supports. Both of these tendencies are consistent with the "here and now" nature of a child's view of life.

Self-Esteem Summary

The contributions of four major categories of theories,

(self, developmental, social-ecological, and stress/coping) to understanding the process of self-esteem formation process have been summarized. There are potentially both positive and negative influences on self-esteem. Many experiences of adolescents with physical disability could be quite unfavorable to self-esteem, such as perceiving reduced competence and autonomy, negative social comparisons with able-bodied peers, and social rejection and isolation. Favorable influences might be enhancement of coping through early learning to cope with stress, development of healthy supportive family relationships as a response to dealing with crises together, and perceived support from frequent contact with professionals who can help redefine values, interpret what has happened, and convey acceptance.

The next section will summarize the relationship between self-esteem and social support.

Self-Esteem and Social Support

Social support influences self-esteem (Cobb, 1976; Cohen & Wills, 1985). Social support conveys to the recipient that he or she is important to the other person, which directly and positively influences self-esteem. Varni and associates (1989) state that children base their sense of self-esteem mostly on their social interactions with their parents, teachers, and peers, and their comparative competence and adequacy in areas that are generally important to

children, such as school, athletics, and physical appearance.

Coopersmith (1967) stressed the importance of social support from family in the child's developing sense of self and his or her evaluations of the self. The family supports and guides the child, giving both direct appraisal information affecting self-esteem judgments, and indirect implicit influences by their caring and continued presence.

In a similar way, as the child grows older and his or her social world broadens in school and play, friendships develop, which further bolster or protect self-esteem. Savin-Williams and Berndt (1989) described how shared activities are critical for forming and maintaining friendships during childhood, but in adolescence the emphasis shifts to friends' willingness to help and support each other, which has been confirmed in a study by Bukowski and colleagues (1987). Maintaining friendships requires social skills including ability to initiate social interactions, disclose personal information and display affection and support (Gresham, 1982). Research by Tedesco and Gaier (1988) and by Bukowski and colleagues (1987) has found that friendships tend to form between children who are similar (age, interests, gender), which transform in adolescence to a greater concern for the individual's deeper qualities such as character and values.

Grunebaum and Solomon (1987) discussed the importance of adolescents' friends as sources of social support that influence self-esteem formation. Friends are more novel and

interesting than family and they provide new interpersonal bonds, opportunity for reconsideration and revision of the self-concept, and new sources of reflected appraisals. During adolescence especially, the peer group of friends becomes extremely important while the family influence is somewhat discounted. The intensity and value of friendships and the peer group directly affects the adolescent's self-esteem judgments: "Self-esteem and peer relationships are such interconnected phenomena that the self-evaluation may be viewed, in large measure, as the inner experience of the esteem in which one is held by one's peers" (Grunebaum and Solomon, 1987, p. 475).

Self-Esteem and Disability

This section will review theory and research findings about the self-esteem of disabled children, to identify factors shared with non-disabled children and factors unique to disability.

Theory

Kashani (1986) and Schlieper (1985) indicated that development of high self-esteem may be at risk for children whose health, growth, or development does not proceed as is normally expected due to physical disability. The vulnerability in self-esteem formation stems from their physical differentness, the psychological and social consequences of

being different, and the meaning of the child's problem to the family. Kashani presents a number of aspects of the handicap which affect the individual and his or her relationships with others. He notes that their differentness makes them vulnerable to rejection by others, provoking feelings of not belonging. The child may assume he is handicapped because he/she is bad or evil, which may lead to guilt feelings. Kashani points out society's intellectual tolerance of handicaps, with repugnance and abhorrence beneath the surface. The child thus experiences self-rejection based on society's norms. Parents react to the disability with self-blame, feelings of inadequacy and embarrassment. The child feels s/he fails the parents' expectations of her/him.

During adolescence, according to Blos (1967), a normal developmental task is to diminish family dependencies, which is usually enhanced through greater involvement with peers (Strax & Wolfson, 1985). Shulman and Rubinroit (1987) point out that adolescents with locomotor difficulties cannot easily separate physically from dependence on their families. Dependence may also interfere with the psychosocial task of consolidating the sense of individuality of the self as separate from the parents. Disabled adolescents face special difficulty in forming their self-concept. The authors point out that the task of coping with and incorporating the various perceptions of the self, including the disability, constitutes a higher level of the developmental task of

consolidation of individuality. Reiss (1985) proposed four different conceptual attitudes regarding integration of the handicap into the self-concept: (1) integrators: the disability is realistically integrated into the self-concept; (2) separators: disability is perceived as separate and outside the self; (3) disowners: the disability is not part of the self but the individual is less successful in distancing the disability from the self; and (4) overwhelmed: constant awareness of the disability which is perceived as bad and a contaminant of their existence.

Many authors discuss the effect of disability on significant others, and the changed attitudes toward the disabled child. Resnick (1984b) has found overprotectiveness a common pattern in parents of adolescents with cerebral palsy. Some parents have feelings of disappointment that this child is not the perfect dreamed-of child (Gordeuk, 1976). Other parents may be exhausted or resentful that the disabled adolescent is still so dependent on the family (McAnarney, 1985; Resnick, 1984b; Shulman & Rubinroit, 1987). Brown (1988) studied adults with congenital physical disabilities who reported problems in family (of origin) openness and ability to discuss the disability. Some of these adults also reported that they experienced abuse, hostility, denial, and avoidance by parents unable to cope with raising a disabled child. Kashani (1986) and MacKeith (1973) indicated that family members may be embarrassed in public about the visib-

ly-evident disability, often resulting in the family's withdrawal and social isolation.

Physical disability qualifies for deviant social labeling, as described by Stager and associates (1983). Toward disabled persons society may convey negative reflected appraisals, discrimination and social stigma; they also may be seen as having deviant social behavior. Any of these mechanisms may result in lowered self-esteem. While theory predicts that the outcome of the deviant label is lowered self-esteem in labelled individuals (Crocker & Major, 1989; Stager et al, 1983), Rosenberg (1979) identified four conditions which must be met before self-esteem is lowered in socially devalued groups: (1) awareness of society's negative views toward the group (eg., disabled), (2) agreement with the negative views, (3) personal relevance of these views to the self, and (4) significance of larger society's views to oneself. If an individual is not aware of society's negative views of the group, or disagrees with the standards of society and maintains a positive evaluation of the group, self-esteem is not lowered.

Crocker and Major (1989) provided another perspective on threats of stigma to self-esteem. They reviewed a considerable body of research regarding self-esteem in stigmatized populations, finding usually no diminution. They proposed three mechanisms by which membership in a stigmatized group can have self-protective properties: (1) attribu-

tion for negative feedback to prejudice against the group rather than the self's inadequacies, (2) selective social comparisons to members of the stigmatized group, and (3) selective adjustment of values, to devalue personal dimensions on which the group fares poorly, and to place emphasis on dimensions in which the group excels. This specifically illustrates the concept of salience of values in self-esteem formation (Juhasz, 1988). The process of values modification has been observed in adults acquiring a physical disability, in studies by Schulz and Decker (1985) and Taylor (1983). They found the tendency to change totally the personal value structure: the subjects come to de-emphasize physical attractiveness or accomplishments, and change their perspective about what is really important in life.

The physically disabled child is vulnerable to judging the self as bad because he or she may believe the disability is punishment for past real or imagined misdeeds (Kashani, 1986). A disabled child may also experience social rejection by others and infer their judgment of his or her badness. Brewster's (1982) research with hospitalized children found that they often perceive threatening or painful medical procedures as punishment.

A physical disability affects the quality of struggles for self-realization for it may restrict physical autonomy and skill competence, negatively affecting perceptions of the value of the self (Resnick, 1984b; 1986). The identity

crisis in adolescence, combined with greater intellectual capacity for abstract thinking and abstract judgment, creates an opportunity for revising the concept. Shulman and Rubinstein (1987) indicated that the attainment of higher level of thinking, a hallmark of adolescence, is very helpful in dealing with the dilemma of consolidation of individuality in the presence of a handicap. The new self-concept can be based on re-evaluation of personal strengths and characteristics, not limited to physical inadequacies or social stigma.

The family of a physically disabled child may accept and cherish the child out of parental love, responsibility or guilt, and provide the requisite support and nurturance (Gordeuk, 1976; Mattsson, 1972; Minde et al, 1972). Strangers who become peers have less responsibility and motivation to accept a person who is different (Richardson, 1971). They may or may not convey an attitude of belongingness and acceptance. Their reflected appraisals may or may not be positive. Finding a way to belong at school is a challenge to the developing self-esteem of any child, especially that of the child who is different (McAnarney, 1985; Abramson, 1979).

Two microsystems with which most children have minimal contact are the special education and health care systems of hospitals, physicians, special teachers, therapists, and other specialists. Cherry (1989) pointed out that these systems are relatively benign or unknown to most children, but they might be a persistent influence in the life of a

physically disabled child. The hospital setting may be a fearful place for a disabled child and family because of the seriousness of the child's problems, the physical and emotional pain felt, and the physician's inability to make the child whole (Cherry, 1989; Chodoff et al, 1964). In both school and hospital environments the child experiences frequent, intense, and often highly charged interpersonal relationships with many adults. For the most part, the professionals in these settings are well educated and supposedly aware of the child's and family's needs. Often their major role is to provide support and assistance, and many do it well. Some professionals may become significant others to a child, offering reflected appraisals of acceptance and respect for the child's worth. Yet experiences are not always favorable. MacKeith (1973) reported that medical professionals may feel revulsion at the abnormal; doctors may reveal feelings of inadequacy by brusque dismissal of the child and parents. Support offered brusquely can feel like an insult. Prejudice and insensitive behavior can occur. Thus, both positive and negative influences on a disabled child's self-esteem may occur within the special education and health care microsystems.

Coleman (1983) studied learning disabled children in different classroom settings, fully mainstreamed to completely separate with comparable peers. He found, as predicted by Festinger (1953) that children use peers as reference groups

for social comparisons, and tend to select a group toward which comparisons can be favorable, if possible. In the absence of a comparable disabled social reference group, the comparisons a physically disabled child makes of himself or herself with other children may always be unfavorable to his or her self-esteem. Also, Stager and colleagues (1983) pointed out that the reflected appraisals of a nondisabled peer group may be negative or ambiguous. Coleman (1983) recommended that a disabled child should have available a peer group of similar values and experiences. A similar peer group can provide a more accurate frame of reference for a disabled child's self-evaluations and a source of reflected appraisals by others who are less threatened or confused by the disability.

Another perspective on influences on self-esteem is the development of coping mechanisms. Effective coping utilizes personal resources and competencies to gain mastery of a problem situation (Newman & Newman, 1981). If the problem cannot be eliminated, appraisal-focused coping may buffer the stressful impact by modifying the meaning attached to the problem (Moos & Billings, 1982). Pearlin and colleagues proposed that successful encounters coping with problems may enhance the self; thus, learning to cope effectively with the disability may enhance self-esteem. Jacobson and associates (1984) present a more outcome-oriented relationship between self-esteem and coping: "Self-esteem may be an important

measure of success or failure in the coping process" (p. 492).

A physically disabled child encounters early experience with many stressors and opportunities to learn to cope. Mattsson (1972) described chronically ill children's coping by accepting their limitations and assuming responsibility for their own care. Also, Adams and Weaver (1986) proposed that the social connections established through support groups and contact with health care professionals may enhance the coping resources available for the child and family.

In sum, theoretical predictors are mixed regarding the effect of a physical disability on the developing child's self-esteem. Possible negative influences are increased dependence and reduced physical autonomy, unhealthy family responses, perceiving the disability as punishment and the self as bad, and social rejection by peers. Possible positive influences are finding a comparable social comparison group and learning to cope effectively with the stress of a disability. Several factors are mixed in their potential effects: stigma labeling can be perceived as negative but can also have a self-protective property, contact with educators and health-care specialists can be supportive or rejecting, and a family may be fully accepting and loving, or embarrassed and rejecting, or ambivalent. Specific studies of self-esteem in disabled children or adolescents are discussed in the next section.

Research Findings

Several studies have specifically compared the self-esteem of disabled children and nondisabled children, and examined associated factors. Magill & Hurlbut (1986) found no differences in levels of self-esteem in adolescents with cerebral palsy compared to normal controls matched for age, sex, school, and intelligence, but a sex by disability interaction was found, with disabled girls scoring significantly lower in the areas of physical and social self-esteem.

Kellerman et al (1980) and Zeltzer et al (1980) found no differences in self-esteem between two groups of adolescents, one chronically ill and the other normally healthy but currently ill. However, girls in both groups scored lower than boys.

Martinek and Karper (1982) found the self-concepts of a group of elementary-age handicapped children to be significantly lower than those of a nonhandicapped group in the same school.

Adams and Weaver (1986) found higher self-esteem and lower reported stress in adolescents with chronic disease compared to a normal population who were attending a pediatric out-patient clinic. These authors propose the chronically ill adolescents' ready access to multiple support services may bolster their self-esteem and lower stress.

Varni and colleagues (1989) studied self-esteem in a

group of child amputees. They found that perceived social support, self-perceptions and low levels of perceived stress contributed significantly to self-esteem in child amputees while age, sex, SES, and degree of limb loss were not significant. Absence of a comparison group precludes conclusions or comparison of self-esteem with nondisabled.

Coleman (1983) compared the self-concepts of learning disabled children in four different learning groups and with a group of matched normal learners to determine the influence of regular or special education class group placement. Children scoring lowest were those in regular classes who had been nominated by teachers as having sufficient academic difficulties to warrant special education placement. The special education group part-time mainstreamed and part-time in resource room had scores comparable to normals; the special education group completely segregated from normals had lower scores than normals and their part-time peers, but higher than the group needing but not receiving special education services.

Kistner and colleagues (1987) found that learning disabled (LD) children in elementary and middle school compared to a matched group of normally-achieving children in similar schools did not hold more negative global self-concepts. The LD group was, however, realistically lower on physical and cognitive competence subscales.

Brown (1988) studied self-esteem and psychosexual

development of 26 adults with congenital physical disabilities, 21 of whom had cerebral palsy and 2 had spina bifida. She found global self-esteem on the Tennessee Self-Concept Scale was comparable to the normative population, though there was no control group. She also found significantly lower scores in 3 sub-scale areas: mean self-identity, family self, and physical self.

McAndrew (1979) studied a group of adolescents with spina bifida. Using a sentence completion task to evaluate self-esteem, he found that self-esteem was low in two-thirds of the group, though there was no control group for comparison. No relationship was found between severity of disability and low self-esteem.

Hayden and colleagues (1979) found lower self-esteem in a group of adolescents with spina bifida with myelomeningocele, compared to able-bodied controls, as well as less participation in team sports and smaller friend social networks. The disabled adolescents perceive being different as a negative attribute, while the able-bodied perceive differentness positively.

Resnick (1986) investigated everyday life activities that correlated with self-image in 60 adolescents with cerebral palsy. In his group, positive self-image was associated with opportunities to participate, to interact with others, to develop interests outside the self, and to have responsibilities.

Offer, Ostrow, and Howard (1984) studied self-image in three groups of physically ill adolescents: those with asthma, cancer, and cystic fibrosis. Subjects with asthma and cancer were psychologically healthy and had normal or superior self-images; subjects with cystic fibrosis had markedly disturbed self-images. The authors propose that the social stigma of an obvious physical disorder may increase psychological impairment.

Pless (1984) reviewed a number of studies of chronically ill children, stating that "on the whole those with chronic physical disorders have an increased risk of experiencing a significant psychological or social problem during childhood when compared with their healthy peers" (p. 36). He observed that visibility of impairment may facilitate adjustment because those with minimal or invisible disorders face the conflict of marginality. He also notes a positive relationship between knowledge of one's disability and psychosocial adjustment.

Stager and colleagues (1983) found no significant differences between adolescent retarded and control subjects in global self-esteem. Using Rosenberg's (1979) paradigm of socially deviant labelling affecting self-esteem, they found a significant main effect for the personal relevance of the label. Noting that individuals who are committed to deviant identities have high self-esteem (Hammersmith & Weinberg, 1973), Stager and associates (1983) conclude that such indiv-

iduals reject the negative evaluations of their group held by a larger society and instead view it in a positive manner.

Jacobson and associates (1984) found a positive relationship between self-esteem and ego development level among chronically ill and healthy adolescents.

In sum, research on the self-concepts of handicapped or chronically ill children and adolescents compared to normal reveals: (1) a weak overall effect of disability on level of self-concept, (2) specific self-esteem more likely affected than global, (3) gender effects, with girls being lower in both able and disabled populations, and (4) potential ameliorating effects of social support on self-concept and coping.

Self-Esteem and Social Support in Disabled Children

A study of self-esteem of adolescents with cerebral palsy or spina bifida and the social support of family and friends, using a comparison group, has not yet been reported. However, there is considerable evidence to support the importance of social support for self-esteem in the disabled, both in theory and in empirical studies.

The physically disabled child who becomes an adolescent may have had considerable social support throughout his or her life, primarily from the immediate family, who constitute his or her social network. This support is important for the child to feel worthy and cared about. Resnick (1984b) found

that the disabled teen's experience of support from family differs in quality from the experiences of his or her able-bodied peers. The physically disabled adolescent has more intensive contact with parents because of the increased dependency needs and probably medical needs as well (Abramson et al, 1979).

Disabled adolescents striving for independence may be limited by their parents as well as their disability. Resnick (1986) found that families are often overprotective, while others (Brown, 1988; McAnarney, 1985; McAndrew, 1979; Orr et al, 1984) have found that parents themselves may encourage dependency out of their own fears or neediness, or fail to expect the disabled adolescent to become a fully independent adult.

In the study Resnick (1986) reported, the parents are the disabled adolescent's primary social contact and support because mobility problems limit other relationships. Physically disabled adolescents often rely on their families for assistance, and may have less interaction outside of school with peers because the disability precludes their participation in many teen activities. Wallander and Hubert (1987) found the social relations of physically disabled adolescents with family may be characterized as immature, dependent and overprotected. Strain and Odom (1984) reported physically disabled adolescents have poorly developed peer social skills, few friendships, and experience peer rejection.

Wesolowski (1987) found that disabled adults, compared to able-bodied, have smaller social networks with fewer friends. Similarly, Brown (1988), Anderson and Klarke (1984), and Hayden and associates (1979) reported social isolation and smaller social networks of adolescents with cerebral palsy or spina bifida.

Opportunity to gain gradual independence from parental supervision, which normally begins in the elementary years and is achieved in adolescence, may be reduced or completely impossible for disabled adolescents (Wallander & Hubert, 1987; Warren, 1984). Deficits in self-care and mobility may limit the time and geographic distance away from the family the physically disabled adolescent can accomplish. Orr and colleagues (1984) found that some chronically ill adolescents were less likely than controls to have obtained their driver's licenses. This situation is compounded by a motor disability. A disabled child or adolescent may be unable to participate in group activities of youth without some accommodation to the disability, thus limiting social involvement (Strax & Wolfson, 1984).

The family is the child's first source of social support, for disabled as well as nondisabled children. The family is the first source of reflected appraisals from significant others (Rosenberg, 1979). The family's attitude toward the child sets the stage for later attitudes developed about the self, because "people's intimates may insulate them

against self-discrepant feedback" (Swann & Predmore, 1985, p. 1609). Yet families with disabled children are affected by additional stress (Cherry, 1989), anger, guilt, depression, and sorrow (Featherstone, 1980; Murphy, 1982). Important reflected appraisals may be conveyed to the child by significant others who have mixed feelings at best. The family may not be able to give unconditional positive regard (Rogers, 1951). Brown (1988) found a group of disabled adults report their parents were not accepting, understanding, or able to discuss their disability. Murphy (1982) noted fathers were especially affected by their chronically ill or disabled child, reporting depression, lowered self-esteem, and a reduced sense of competence. Mattsson (1972) indicated parents of disabled children tend to change their attitudes toward the sick child, becoming either more indulgent or more rejecting. To the extent that reflected appraisals from significant others impact self-esteem, the attitudes of those disabled adolescents' significant others may be critically important. Because the peer networks of disabled adolescents are smaller, and the family network is closer, the appraisals of these family members are likely to be more intense, not balanced or diluted by peer appraisals. Because of the disability the family appraisals may be more ambivalent.

Friendships are for many youth a primary source of social support. However, very young handicapped children experience difficulty in forming friendships (Field et al,

1984). Physically disabled adolescents often find it very difficult to make friends (Resnick, 1986) because they are perceived as less competent, strong, and physically attractive (Wallander & Hubert, 1987).

Review of the literature has shown that disabled adolescents typically experience a different quality social support, more intense from family and more difficult to achieve from peers. Family social support is important for self-esteem, but its quality may be skewed by overprotectiveness or other change in the emotional climate at home, which may affect self-esteem. Friend social support is important to enable the adolescent to socialize outside the home, to gain direct esteem support from friends, and gradually to learn coping skills.

Summary

The literature review focused on three separate bodies of work related to: (1) physical disability, (2) social support, and (3) self-esteem. Theoretical bases and relevant research findings in each area were presented. The relationships between the areas were discussed.

Literature on physical disabilities identified cerebral palsy and spina bifida with myelomeningocele as disorders causing physical locomotor disability in young children. Both disorders manifest in infancy, and may present in a range of severity from very mild deficit to extreme disabil-

ity. Both disabilities have considerable psychosocial impact on the child and family. The developing child's sense of self is affected, and the family experiences a grief response and recurrent sorrow. Society conveys an overall negative attitude toward disability including stigmatizing and socially devaluing the disabled person.

Literature on social support documented the benefits of interpersonal relationships for psychological well-being. Social support is an exchange of resources to meet the needs of members within a social network. Specifically, emotional, affiliative, and esteem support are kinds of social support relevant to self-esteem of disabled persons. Perceived social support is the subjective experience of networks' impact on the individual. Utilization of social support differs between individuals. Generally women use and provide social support more easily and frequently than men. Social support is helpful throughout the life span, with the content of support changing as needs change over the years. Adolescents find that their friends are a primary source of emotional support who also contribute to their developing sense of identity.

Several sources noted the importance of social support for disabled persons. Significant benefits in overall well-being accrue to those achieving satisfactory support. While disabled persons may have somewhat greater needs for support, they may also have greater than average difficulty obtaining

needed support. Social stigma and reduced social network size, especially fewer friends, contribute to the difficulty in obtaining support.

Literature on self-esteem provided definition, insight into development of self-esteem, and the differentiation between inner and outer esteem. Self-appraisal and reflected appraisals of significant others are the primary sources of evaluations for self-esteem judgments. Four kinds of theories relevant to self-esteem were reviewed: (1) self, (2) developmental, (3) social-ecological, and (4) stress/coping. Each theory contributes to understanding various influences on development of high or low self-esteem. Self-theories underscore the importance of positive reflected appraisals from significant others in developing good self-feelings. Developmental theories note how the bases of self-esteem judgments may evolve with the changing nature and needs of the child developing through various stages. Social-ecological theories identify contexts in which the child functions which serve as a source of significant others as well as social comparisons for self-appraisals. Within the context of sociological theories, labeling theory applies the principles of reflected appraisals and social comparisons, and predicts that low self-esteem is a likely outcome of being labelled as socially deviant. Stress and coping theories note that the perception of stress threatens self-esteem, while effective coping behaviors strengthen it.

There is considerable evidence that social support influences self-esteem through two different mechanisms: direct esteem support and enhancing coping skills. Social support from family is important in childhood, but in adolescence friendships take on increasing significance.

The physically disabled child or adolescent is vulnerable to developing low self-esteem for several reasons. Competence, especially physical competence, is a major component of self-esteem evaluations and physical disability impairs physical competence. Physically disabled persons experience difficulty in mobility, communication, self-care, and physical recreation activities. Secondly, reflected appraisals from significant others may be negative or ambiguous because of the social stigma and devalued social status associated with disability. Two other processes may act positively to counteract some of the above negative influences: (1) effective coping with the disability, and (2) the self-protective properties of stigma.

Studies on self-esteem in the disabled population present mixed results. When the self-esteem of disabled subjects is compared to that of control groups, often no main effect for disability is found. In other studies self-esteem is slightly lower in the disabled group. In several studies girls had lower self-esteem than boys and specific aspects of self-esteem were affected more than were global dimensions. Based on this review of literature, it can be said that,

while physical disability threatens healthy self-esteem development, it should not be assumed that low self-esteem is a necessary outcome of physical disability. Factors which may affect self-esteem for physically disabled adolescents include, among other things, access to formal support services, family attitudes, educational placement, contact with disabled peers, size of social networks, social support available from family and friends, and opportunities to participate in normal everyday life activities of youth.

In Chapter III, the methodology of this study will be presented, including hypotheses, design, subject description, instrumentation, procedures, and demographic characteristics of subjects.

CHAPTER III

METHODS

The previous chapters introduced the research questions of this study, and reviewed the relevant literature in physical disability, social support, and self-esteem. This chapter presents the hypotheses of the study, then describes the study design, the instruments used, the methods employed in selecting and recruiting the sample, the demographic characteristics of participating subjects, and the procedures followed to collect and analyze the data.

Hypotheses

This research assessed the self-esteem and social support of adolescents who were able-bodied or physically disabled due to cerebral palsy or spina bifida with myelomeningocele. The purpose was to determine if and how self-esteem varied with social support, and to analyze what factors contributed to self-esteem in physically disabled adolescents. In the hypotheses, the dependent variable was self-esteem, and the independent variables were ability/disability, social support from family, social support from friends, social network size, and gender.

There was one overall null hypothesis:

H₀: There are no relationships among self-esteem, social support from family, social support from friends, social network and ability/disability in physically disabled (PDA) and able-bodied adolescents (ABA).

The following sub-hypotheses were also tested:

H₁: There is no relationship between ability/disability and self-esteem.

H₂: There is no relationship between social support from family and self-esteem.

H₃: There is no relationship between social support from friends and self-esteem.

H₄: There is no relationship between social network and self-esteem.

H₅: There is no relationship between gender and self-esteem.

H₆: There is no interaction between ability/disability, social support from family and self-esteem.

H₇: There is no interaction between ability/disability, social support from friends and self-esteem.

H₈: There is no interaction between ability/disability, social network, and self-esteem.

H₉: There is no interaction between ability/disability, social support from family, and social support from friends.

H₁₀: There is no interaction between ability/disability,

gender, and self-esteem.

In addition to variables measured for formal hypothesis testing, other data were gathered to identify factors which could predict self-esteem. These data regarded subject characteristics, their choice of important people, the reflected appraisals of those significant others, and the frequency of participating in selected activities.

Design

The design of this study was descriptive and correlational, with two groups for comparison. Self-esteem, social support, and physical disability were important variables under consideration and were measured but not experimentally manipulated. Other attribute variables including age, sex, mental ability, and socioeconomic status (SES) were also measured but not manipulated.

For the purpose of analysis, self-esteem was selected as the dependent variable because it is influenced by social support and several other variables. Since self-esteem could also be a factor which predicts social support (Dooley, 1985), there existed the possibility of a bidirectional effect. Thus, path analysis would be impossible as a design or analysis method.

Instrumentation

This study used self-report measures for all research variables. Self-esteem and social support literature was reviewed in order to locate the most appropriate measures for the purposes and population intended.

For the purposes of hypothesis testing, ability/disability group, gender, and several measures of social support were tested for main effects and interactions regarding their correlation with and ability to predict self-esteem. In addition to data gathered for hypothesis testing, other relevant variables regarding subject characteristics were gathered for between-group comparisons and for prediction of self-esteem. First, the instrumentation regarding self-esteem and social support will be discussed because these were the research variables used in hypothesis testing. Then the instrumentation measuring subject characteristics will be discussed.

Self-Esteem Measures

Because self-esteem is the evaluative component of the self-concept and reflects the process of self-worth, self-esteem is measured by statements or observations of self-worth, personal competence, and achievement ideals of people (Gilberts, 1983). The most frequently used instruments for assessing overall self-esteem are self-report questionnaires, checklists, and behavioral rating scales (Chiu, 1988; Wylie,

1989).

Self-report instruments quantify the individual's verbalizations of feelings toward themselves but ignore aspects of the self-concept that they are unwilling or unable to reveal (Chiu, 1988). Self-report measures may be experimenter-determined (closed-ended format) or self-determined (open-ended format). The open-ended format is relevant to self-esteem measures because it "gives the respondents the best possible chance to express their self-concepts in their own ways" (Wylie, 1989, p. 5) and permits the individual to determine the attributes and abilities on which his or her self-esteem is based (Juhasz, 1985). However, Wylie warned that the open-ended format presents particular threats to construct validity, and reliability and validity information on currently available open-ended instruments are inadequate at present.

Behavioral rating scales, reflecting an inferred self-concept which is observable through behavior, represent a different measurement approach which some prefer over self-report measures. Rating scales were not selected for this study, however, because the investigator accepted the validity of self-report measures, in the belief that if you want to know something about a person, the best and most direct way to find out is to ask him (or her).

The population being tested was 12-19 year old adolescents in a school setting, completing the scales independent-

ly as paper-and-pencil tests, not in an interview. A wide variety of self-report closed-format instruments was available for consideration. Both Chiu (1988) and Wylie (1974; 1979; 1989) have reviewed available measures and made recommendations based on their strengths and weaknesses. Among the self-esteem scales seriously considered were the Coopersmith Self-esteem Inventory, the Tennessee Self-concept Scale, the Perceived Competence Scale for Children, the Rosenberg Self-esteem Scale, and the Piers-Harris Children's Self-concept Scale. In the selection process the investigator was willing to administer two different self-esteem scales in order to increase reliability, but time would be a factor. Harter's (1979) Perceived Competence Scale for Children was not selected because it has a number of items which emphasize physical competence; this is likely to be a weak point for physically disabled adolescents and possibly not salient to their self-esteem. The Tennessee Self-Concept Scale for Children was not selected because reviewers (Chiu, 1988; Wylie, 1974) noted that the scoring method is cumbersome and there is no documentation about the scale's internal consistency. Wylie stated that one cannot justify using this scale over available others. Regarding the Coopersmith Self-esteem Inventory, Chiu found it well-researched and documented, but Wylie noted serious methodological shortcomings (1974; 1989).

The Piers-Harris Self-concept Scale for Children (CSCS)

(Appendix A) and the Rosenberg Self-esteem Scale (RSE) (Appendix B) were selected for this study. Both scales were reviewed by Wylie (1989) as showing promise for research use, and by Chiu (1988) as acceptable measures of self-esteem.

Rosenberg Self-Esteem Scale

The RSE is a brief scale of self-esteem. It consists of 10 declarative statements about the self, to which the respondent agrees or disagrees, on a four-point Likert-type scale. The result is an interval score, with a maximum of 40 points. According to Chiu (1988) the RSE is thorough in measuring self-esteem, and highly recommended for those wishing to use a brief scale in self-esteem research. Rosenberg (1979) developed the RSE to measure global self-esteem, which to him meant having self-respect and considering oneself a person of worth. Wylie (1989) noted that Rosenberg did not intend to make assumptions about which specific content areas should be tapped or evaluated for its importance in contributing to an individual's self-esteem. Therefore, she stated, Rosenberg took "the 'direct approach' to item writing, assuming that each individual, in developing his or her global self-esteem, has consciously and/or unconsciously taken into account and weighted a unique set of attributes of varying personal importance" (p. 25). Some effort has been directed at discovering whether the RSE contains several factors; however, there is general agreement

that it represents a unidimensional scale. RSE reliability studies reviewed by Wylie (1989) report alpha coefficients in the range of .72 to .87. Test-retest coefficients were .85 for a two-week interval and .63 for a 7 month interval.

Piers-Harris Children's Self-Concept Scale (CSCS)

The Piers-Harris CSCS is a lengthier test, consisting of 80 first-person declarative statements, to which respondent answers "yes" or "no". The total score intends to represent overall self-esteem. The scale was originally developed as a unidimensional measure of the evaluative components of children's self-concepts, but was later factor analyzed into six subscales: Behavior, Intellectual and School Status, Physical Appearance and Attributes, Anxiety, Popularity, and Happiness and Satisfaction. The original standardization sample consisted of 1,183 Pennsylvania school children in grades 4-12. Since then the scale has been repeatedly used on large samples across a wide variety of subjects. A number of reliability studies are reported in the manual (Piers, 1984), with internal consistency coefficient values ranging from .88 to .93. Test-retest reliabilities, with retest intervals from 2 weeks to one year, yielded r values from .42 to .96 (median $r=.75$). Though the test has the six subscales, Piers cautions about their use separately, and Wylie (1989) summarizes evidence suggesting the Piers-Harris CSCS may be more unidimensional than multidimensional. Wylie also

suggests that relatively high correlations of the Piers-Harris CSCS with other non-self-concept variables (eg., anxiety, depression, extraversion, locus of control) casts doubt on its discriminant validity. It should be noted, however, that the construct of self-esteem is of interest in research precisely because often it is intimately related to other personality and emotional variables.

Social Support Measures

The abundance of social support research proliferating in the last decade has generated a wide variety of approaches to measurement of social support. Tardy (1985) reviewed social support measurement and organized a paradigm of five conceptual issues constituting the primary elements of social support. These elements are 1) direction (support given or received), 2) disposition (available or enacted), 3) description/evaluation of satisfaction with support, 4) content (emotional, instrumental, informational, or appraisal), and 5) network (family, friends, neighbors, professionals, and others).

House and Kahn (1985) reviewed measures and concepts of social support, and also observed the multidimensionality of support. They made several recommendations for studying social support: 1) at least two dimensions should be measured, 2) measurement of support should be guided by a theoretical conception regarding the nature of support and how

support relates to the other variables in the study, 3) the number of persons or relationships being considered should be limited to five to ten, 4) emotional support should be given priority over other forms of support, and 5) respondents should be permitted to nominate a few people close to them within various sources of support.

Perceived social support, as the cognitive appraisal of being reliably connected to others (Barrera, 1986) should be differentiated from support offered or received. Schaefer, Coyne, and Lazarus (1981) found that perceived social support has a stronger relationship to morale and symptomatology than does network support. Bruhn and Phillips (1984) reviewed social support measurement and also emphasized the importance of measuring perceived social support. They noted that an individual who does not perceive social support to be available cannot use it. Sarason and others (1987) state that "the measures of perceived available support, regardless of the way the instruments attempt to break down the construct, generally assess the extent to which an individual is accepted, loved, and involved in relationships in which communication is open" (p. 813).

Based on the above recommendations, for this study two measures capturing different aspects of social support for adolescents were sought. Perceived social support, especially emotional support was one aspect. The second aspect to be measured was social network size, because it is through

networks that support, information, and feedback are provided. It was necessary to locate measures which could be completed by a somewhat younger adolescent age group (junior high and high school) rather than the college-age populations on which social support measures are usually validated. It was also necessary to locate measures which could be completed as paper-and-pencil tests rather than through interview format. The two measures selected were Perceived Social Support from Family and Friends Scale (Procidano and Heller, 1983) (Appendix C), and Important People for Me (Appendix D), an adaptation of the Juhasz (1989) format which incorporated recommendations by Cauce (1986).

Perceived Social Support from Family and Friends Scale

Procidano and Heller (1983) developed Perceived Social Support from Family and Friends Scale, (PSSFA/FR) which consists of two separate interval scales

designed to measure the extent to which an individual perceives that his/her needs for support, information and feedback are fulfilled by friends (PSSFR) and family (PSSFA). The distinction between friend support and family support is considered important (p.2).

The PSSFA/FR Scale is unique and valuable because it is the only social support measure found which makes this differentiation between the two major groups providing social support to adolescents. Theoretically the distinction could be quite important for the population of physically disabled adoles-

cents under consideration. Parallel structure of questions between the two support sources permits comparisons. The test is composed of twenty statements in each category, family and friend, with a simple "yes," "no," or "don't know" response format. Psychometric properties are excellent, with internal consistency (alpha coefficient) of .88 to .90, and test-retest reliability of .90. It was developed and tested on college age students, and no information was available regarding modification for or use on a younger population. For this study, the investigator provided parenthetical explanation of terminology for several of the questions in each set (family and friends), to make the statements understandable for the adolescent age group. Prior to initiation of the study, the PSSFA/FR with parenthetical explanations of terminology was pilot tested on a group of early adolescents to assure their ability to understand it.

Tardy (1985) evaluated Perceived Social Support from Family and Friends and recommended that this scale be interpreted primarily as a measure of support receipt because most of the items refer to emotional support, and receipt items overwhelmingly outnumber provision items. House and Kahn (1985) stated the PSSFA/FR measures only a global concept of support, but differentiates between family and friends.

Social Network

The second aspect of the social support construct to be

measured was social network size. Network size is easily quantified. Adolescents can without difficulty list names and relationships of persons providing them support, creating a ratio measure. House and Kahn (1985), Juhasz, (1989) and Cauce (1986) made recommendations regarding open-response format, nomination of persons within source category, and limiting the number of persons who could be nominated.

In this study, a questionnaire titled Important People for Me requested that respondents list the initials and relationship of important persons to them in response to the questions "Who are the most important people in your life? Who can you really count on when you need them?" Responses were asked in categories of "family", "best friend", "friend", and "makes you feel bad about yourself." (The latter category was suggested by Wortman and Conway [1985] to ascertain negative influence of social interactions, which is a likely experience for a socially stigmatized individual.) A maximum number of persons per question was indicated, and the option of listing "no one" was provided for each question. The statistic generated from this is a ratio scale of the number of persons listed per category.

Measures of Subject Characteristics

In addition to the research variables of self-esteem and social support, other relevant data regarding subject characteristics were gathered. These included their personal

data, socioeconomic status, mental ability, relationships with significant others, and, for physically disabled subjects, functional level. This information permitted between-group comparisons and the prediction self-esteem through multiple regression. The instruments used to gather this information are described below.

Personal Data

The form called About You (Appendix E) asked subjects questions about personal data, family composition, frequency of participation in activities, and relationships with significant others. Personal data included birthdate, age, grade, and sex. Family composition included adults in the home, relationship to subject, and numbers of brothers and sisters, from which total number of children in the family was calculated.

Frequency with which subjects participated in certain typical adolescent activities was included on the About You form. Eighteen typical adolescent activities were listed, which subjects rated on a Likert-type scale from 1 (never) to 5 (daily).

Socioeconomic Status

Socioeconomic status was determined by parent report on the informed consent form (Appendix F). They indicated the level of education completed by each parent, and their cur-

rent occupations. Education was coded from 1 (not finish high school) to 6 (graduate degree completed) (Figure 1).

FIGURE 1

**LEVEL OF EDUCATION COMPLETED BY EACH PARENT
WITH CORRESPONDING VALUE ASSIGNED**

a. not finish high school	1
b. completed high school	2
c. some college	3
d. completed bachelor's degree	4
e. some graduate work	5
f. completed a graduate degree	6

Occupation was coded by a modified Index of Social Position (Hollingshead & Redlich, 1958) using a scale from 1 (unskilled labor) to 5 (major professional, executive) (Figure 2).

FIGURE 2

**INDEX OF SOCIAL POSITION, MODIFIED FROM
HOLLINGSHEAD & REDLICH, (1958)**

unskilled labor, unemployed	1
clerical and sales	2
technical, semi-professional	3
lesser professional, manager	4
major professional, executive	5

Mental Ability

The variable of mental ability was not considered to be a primary variable under consideration in this study. Since mental ability may be impaired in those with cerebral palsy and spina bifida with myelomeningocele, it was necessary to obtain some measure of mental ability to avoid confounding the findings with an extraneous variable of mental deficiency. While most students undoubtedly would have some mental ability score in their records, there was little likelihood that their scores could be compared. School records would probably be based on different tests, and would have been administered under varied conditions, and at different times. The general mental ability of both groups of subjects was therefore measured by one test to discern if it correlated with other variables or if it contributed further to the prediction of self-esteem.

In this study, one test was selected to measure mental ability, and the same test was administered to all subjects. The Otis-Lennon Mental Ability Test (Appendix G) was selected as a brief test that could be administered to groups. It has several versions, two of which are appropriate for use in junior high and high school. It consists of 80 multiple-choice questions and is completed in 40 minutes. It results in an interval-scaled score. It is not in common use at present because individually-administered rather than group-administered mental ability tests are generally preferred. However, Milholland (1978) stated that this test should perform well the functions it is intended to serve, and Grotelueschen (1969) indicated that it is an outstanding test of its kind, as a direct measure of scholastic success. The test emphasizes the verbal-educational as opposed to the practical-mechanical aspect of mental abilities. Both reviewers indicated that the standardization sample was exceptionally well selected. The reliability measures are quite acceptable, including alternate-forms and split-half procedures. Test-retest reliability was compared over a period of one year, with coefficients ranging from .80 to .94. Milholland stated that validity measures were also carefully carried out, with wide-ranging and abundantly documented validity research.

Significant Others' Relationships and Reflected Appraisals

In the demographic information sheet, About You (Appendix E) the subjects were asked to identify the three most important people to them. Subjects indicated the initials of each person and their relationship to the subject (i.e., father, sister, friend). Next the subject indicated how that person makes them feel about themselves. These feelings were scored on a Likert-type scale of 1 (bad) to 5 (great). These feelings were that person's reflected appraisals toward the subject. This format has been used successfully by Juhasz (1989) to determine the significant others of early adolescents. The open-ended format of social relationships and importance is a useful corollary and comparison to the Important People for Me format which provided defined categories of family and friends to be completed. These questions yield categorical and interval scale data.

Functional Level

Functional level of the physically disabled adolescent group was determined by self-ratings on a questionnaire entitled Function (Appendix H). The questions concerned their ability to accomplish certain functional tasks: means of locomotion at school and home, function in communication, in feeding, and in the bathroom. Responses were multiple choice closed-format, sequenced from most independent to most dependent in each category. For example, walking at school

was given the best (lowest) score for walking independently without orthosis or hand support of cane or walker, and worst (highest) score for needing assistance of another person. Similarly, for subjects using wheelchairs as their primary means of locomotion, independent manual propulsion was scored best, and independent use of battery-powered chair was moderate, and needing a person to push the chair was worst. Functional ability in communication, in feeding, and in the bathroom were similarly ranked.

Then an estimate of overall disability was obtained through use of a weighted formula summing the five categories (locomotion at school, locomotion at home, communication, feeding, and bathroom). For subjects walking at home and school the scores in each category were summed. For subjects who used a wheelchair at home or school, the score for wheelchair use was doubled, then added to the other scores (because requiring a wheelchair for primary mode of locomotion at either or both sites is more disabled than walking). Subjects with the lowest scores were the least disabled while those with the highest scores were the most disabled. The summed score represented a disability index, the reciprocal of which indicated functional independence level.

In the next section, the subjects participating in the study will be discussed. Inclusion criteria, recruitment and selection procedures will be described, followed by subjects' demographic characteristics.

Subjects

The study was designed to measure self-esteem and social support in physically disabled adolescents (PDA) and able-bodied adolescents (ABA). At least forty subjects in each group, able-bodied and physically disabled, drawn from schools in northern Illinois were sought.

Inclusion Criteria

Inclusion criteria for participating in this study were the following: subjects must be between 12 and 19 years of age, and currently in school in grades 7 through 12. Both males and females were accepted.

Physically disabled subjects were sought who had a diagnosis of cerebral palsy or spina bifida with myelomeningocele, as identified by the school or referring treatment center, and confirmed by self-report. Their disability severity was measured but not controlled, ranging from very mild to severe. Their mental ability was to be within normal range or better as identified by school or teacher report; reading level should be at 5th grade level or better. Able-bodied subjects attending regular education classes (not in special education) were sought at the same or similar schools as the PDA.

Recruitment

Physically disabled adolescents (PDA) were recruited primarily through the public schools and treatment centers for the physically disabled (Appendix I). At treatment centers, a staff member asked each family's consent to give their name to the investigator. The treatment center gave the investigator a list of names and telephone numbers of potential subjects and their schools. The family of each was contacted by telephone to introduce the research and answer questions. Consent forms were sent to the adolescent and his/her parents by mail (Appendix F). When signed consents were received, the school was then contacted to enlist their cooperation with the administration of the questionnaires at school. When the school and a faculty member had agreed to participate, questionnaire packets were sent directly to the school for each participating subject.

If a school was the source of recruitment for PDA subjects, the approval of the principal and the board or superintendent were obtained first, and cooperation from faculty was gained. The school identified the names of potential subjects, who were then contacted. At some schools the initial contact was carried out by school personnel, and at others by the investigator. When consent forms were signed and returned, questionnaire packets were sent to the school for each participating subject. The number of participants per school ranged from one to eight.

Physically disabled adolescents were recruited first, drawn from a diverse geographic area in northern Illinois including cities (Chicago, Joliet, and Rockford), suburbs, and rural northcentral. This represented a broad spectrum of socioeconomic, racial and ethnic groups. To obtain the able-bodied sample, comparable subjects were sought from the same or similar schools. At each school where a physically disabled adolescent was participating, administrators were asked to identify an able-bodied subject of the same gender, age, and approximate mental ability. This procedure helped minimize demographic and attribute differences between groups. However, at three high schools there were several PDA subjects but no ABA subjects available or willing to participate. Therefore, another school in each district was contacted to locate similar ABA subjects. At two high schools with only ABA subjects, one teacher at each school agreed to administer the questionnaire to one of their classes. Both participating classes were comprised of juniors and seniors and were predominantly female. It was these two classes of ABA students which accounted for the greater number of ABA subjects, more female ABA subjects, and the slightly older age and higher grade level of the ABA group.

Demographic Characteristics of Subjects

The sample consisted of a total of 98 subjects from 23 junior high and high schools in northern Illinois. Of the 98

subjects, 38 were physically disabled adolescents (PDA) and 60 were able-bodied adolescents (ABA). Table 1 presents the breakdown of these two groups by age and sex. Twenty-eight (28) of the PDA were diagnosed with cerebral palsy and the remaining 10 subjects were diagnosed as having spina bifida (Table 2). The ABA group was larger than the PDA, and had more females than males (among ABA, 42 to 18 respectively). PDA group had equal numbers of males and females (19 of each). The ABA group was less than one year older than the PDA (mean of 16.7 years to 15.9 years respectively, $p = .05$) (Table 3). The groups were demographically comparable in the measures indicating socioeconomic status (parental occupation and parental educational achievement, see Tables 3 and 4). There were no differences on the measures of family composition (presence of one or both parents in the home, total number of brothers, sisters, and children in the home). In the PDA group, 31 or 81.6% of subjects lived with both natural parents in the home, and five or 13.2% lived with one parent. In the ABA group, 47 or 78.3% lived with both parents, and 11 or 18.3% lived with one parent. Differences in mental ability scores will be discussed in Chapter IV.

TABLE 1

DISTRIBUTION OF SUBJECTS BY AGE, SEX, AND GROUP

Age in years		13	14	15	16	17	18	19	Tot
Males	PDA	4	...	4	2	3	6	...	19
	ABA	3	...	2	1	7	4	1	18
Females	PDA	3	4	1	3	4	2	2	19
	ABA	3	1	...	4	25	8	1	42
Total		13	5	7	10	39	20	4	98

Note: mean age for total = 16.36 ± 1.72
 mean age for males = 16.16 ± 1.89
 mean age for females = 16.48 ± 1.62

TABLE 2

PHYSICALLY DISABLED ADOLESCENTS' DIAGNOSIS GROUP

Diagnosis	n	%
Cerebral Palsy	28	73.7
Spina Bifida with Myelomeningocele	10	26.3
Total	38	100.0

TABLE 3
SUMMARY OF SUBJECT CHARACTERISTICS

Characteristic	PDA (n=38)		ABA (n=60)		Total (N=98)	
	mean	S.D.	mean	S.D.	mean	S.D.
<u>Age in years</u>	15.87 ±	1.9	16.67 ±	1.5 *	16.36 ±	1.7
<u>Socioeconomic Status</u>						
Mother schooling completed	3.22 ±	1.1	2.82 ±	1.2	2.99 ±	1.2
Mother's work	2.5 ±	0.1	2.5 ±	0.7	2.5 ±	1.0
Father's work	3.16 ±	1.5	3.10 ±	1.4	3.10 ±	1.4
<u>Mental ability</u> Otis-Lennon Deviation IQ)	92.57 ±	12.2	100.42 ±	12.2 **	97.23 ±	12.8
* p <.05						
** p <.01						

TABLE 4
DISTRIBUTION OF SUBJECTS ON MOTHER'S LEVEL OF SCHOOLING COMPLETED
BY GROUP

Scale	PDA		ABA		Total	
	n	(%)	n	(%)	n	(%)
1 Did not finish high school	2	(5.8)	6	(12.2)	8	(8.1)
2 Finished high school	5	(14.7)	16	(32.2)	21	(21.4)
3 Some college	18	(52.9)	13	(26.5)	31	(31.6)
4 Finished bachelor's degree	7	(20.5)	12	(24.4)	19	(19.4)
5 Some graduate school	2	(5.8)	2	(4.8)	4	(4.1)
6 Finished graduate degree	0		0		0	
Not reported	4	(10.5)	11	(18.3)	15	(15.3)
Total	38	(38.8)	60	(61.2)	98	(100.0)

Procedures

This section will describe the procedures used for data collection and statistical analysis.

Data Collection

A signed parental permission form was required for participation in the study. Each subject also was asked to consent or decline to participate.

At school during or immediately following school hours, subjects completed the following questionnaires: Piers-Harris Children's Self-Concept Scale, Rosenberg Self-Esteem Scale, Perceived Social Support from Family and from Friends, Important People for Me, About You, Otis-Lennon Test of Mental Ability, and physically disabled subjects completed Function. At two schools, questionnaires were completed in sociology class during two class periods. School personnel were available to supervise and answer procedural questions. Subjects who were capable of answering independently were provided with a questionnaire packet with written instructions (Appendix J). They were then able to work at their own pace except for completing the Otis-Lennon, which was timed by the adult supervisor at 40 minutes. Subjects were advised that the total completion time should be 70 to 90 minutes, usually completed in 2 sessions. All subjects were assured that the information on the questionnaires was confidential, that

names would not be used, and their responses would not be shared with their families or their schools.

Physically disabled adolescents who were unable because of their disability to read the questionnaires or write their answers were permitted to select a trusted adult at school to assist them. In schools where there were several physically disabled adolescents requiring assistance the investigator supervised and assisted students as a group. Time limits on the Otis-Lennon were suspended if the disabled adolescent needed assistance. Some disabled adolescents who required considerable assistance took longer than 90 minutes, over several sessions, while others were able to complete all in one day.

Confidentiality was maintained by assigning a code number to each subject. The code number was written on each questionnaire. Each student was provided a set of business-size envelopes in which to place the forms immediately after their completion. He or she sealed the envelope before handing it in, assuring privacy of the contents. When all forms for an individual student were completed, the coordinator collected the envelopes and mailed them to the investigator. No information on individual results was shared with teachers, school, families, or subjects. Data collection began in January of 1990 and was completed in March of 1990.

Statistical Analysis

The research design for this study was correlational and descriptive. Specifically, this research analyzed the relationship between self-esteem and a number of other variables, particularly disability/no disability, social support perception, size of social network, sources of social support, mental ability, and sex. The data presented in this study were processed using the Statistical Package for the Social Sciences (SPSS) computer program (SPSS^X User's Guide, 1986).

One overall null hypothesis and ten sub-hypotheses were proposed and tested statistically. The overall hypothesis was tested with multiple regression analysis, with self-esteem as the criterion and the other variables as predictors. Sub-hypotheses one through five were tested with Pearson or Spearman correlation coefficients. Sub-hypotheses six through ten were tested with multiple regression analyses, with dichotomous variables (disability group, sex) as dummy variables, and creating and testing interaction terms.

Following hypothesis testing, further analysis of the data was carried out. Group characteristics were described and t-tests done to compare similarities and differences between the physically disabled and the able-bodied adolescent groups. Finally, prediction of self-esteem separately for each group was done by a series of multiple regression analyses in the following sequence. First potential predic-

tors were grouped into naturally-occurring clusters of demographics, social support, activity participation and function categories. These clusters were entered into separate regression equations with self-esteem as predictor. The most significant variables were then collected from those regressions and entered into one final equation for each group of adolescents.

This approach to analyzing the data permitted a broad understanding of the factors associated with self-esteem for these groups of adolescents. The similarities between the two groups were identified, as well as the unique characteristics of each in comparison to the other.

Summary

This chapter has stated the hypotheses, and described the design of the study, the instruments used, the sample selection and the demographic characteristics of participating subjects, and the data collection and statistical analysis procedures.

In order to test the research hypotheses, the following instruments were used: (1) Piers-Harris Self-Concept Scale for Children, (2) Rosenberg Self-Esteem Scale, both of which measured self-esteem, (3) Perceived Social Support from Family and Friends, which measured perceived social support, (4) Important People for Me, which measured social networks in categories of family, best friend, friend, and negative

feelings, and (5) About You, which provided information about age and gender.

Additional information was also sought which was unrelated to the hypotheses but of interest in controlling variance, comparing groups, and finding factors associated with self-esteem. On the About You form, data regarding the factors of family composition, frequency of participation in certain activities, and reflected appraisals from significant others were gathered. The factor of mental ability was measured by the Otis-Lennon Mental Ability Test. The factor of socioeconomic status was measured on the informed consent form, where parents completed information about their education level and occupation. Physically disabled subjects' ability to carry out functional tasks was a factor measured on a form called Function.

The subjects included 98 adolescents from 12-19 years of age attending junior high or high school in northern Illinois (city, suburb, and rural). There were 38 physically disabled adolescent subjects, 19 male and 19 female. There were 60 able-bodied subjects, 18 male and 42 female. Data collection involved completion of a set of questionnaires requiring about 70-90 minutes of time, over one or two sessions. The testing period began in January, 1990 and was completed in March, 1990.

The design of the study was descriptive and correlational. Statistical procedures consisted primarily of cor-

relations and multiple regression analyses using self-esteem level as the criterion and other variables (eg., social support, network, activity participation) as predictors. Comparisons of differences between the able-bodied and physically disabled groups were analyzed by means of t-tests.

In Chapter IV the results of the study will be presented. First, the results of hypothesis testing will be explained, followed by description and comparison of subject characteristics, and ending with the factors which predicted self-esteem levels for each group.

CHAPTER IV

RESULTS

In the preceding chapters the proposed study of self-esteem and social support was described, comparing able-bodied adolescents to those with physical disability due to cerebral palsy or spina bifida with myelomeningocele. Theoretical bases and empirical findings were also presented. Then the methodology of this study was described, including hypotheses to be tested, design, instrumentation, subjects, and data collection and statistical analysis procedures.

The research hypotheses of this study proposed to test the correlation of social support variables with self-esteem. Other variables were also measured, including functional level of disabled subjects, and, for all subjects, reflected appraisals of significant others and mental ability. Originally these data were gathered primarily for the purpose of subject characteristics description. However, further analysis found that several of these variables yielded statistically significant relationships with self-esteem, with important implications for the population of adolescents with physical disabilities. Thus, the findings regarding subject characteristic variables will be described at length follow-

ing the discussion of hypothesis testing. This chapter, therefore, will present (1) the results of hypothesis testing, (2) discussion of functional abilities of the physically disabled adolescent group (PDA), (3) comparison of PDA and ABA groups on relevant subject characteristic variables, (4) comparison of ABA and PDA groups on factors predicting self-esteem, and (5) summary of findings.

Hypothesis Testing

Each hypothesis proposed a statistical relationship between one or more predictor variables of ability/disability group, gender, or a social support variable, and the criterion variable of self-esteem. The two self-esteem measures, the Rosenberg Self-Esteem Scale score (RSE) and the Total score of the Piers-Harris Children's Self-Concept Scale (PHT), correlated highly with each other (.721), yet they correlated with the predictor variables at notably different levels. The Rosenberg Self-Esteem Scale scores (RSE) (Table 5) had very few significant correlations with the potential predictor variables. Thus, it yielded very little valuable predictive information about the population. However, the PHT score correlated significantly with a number of predictor variables. Consistently, every predictor variable of interest correlated at a higher level with the PHT than the RSE. This statistical outcome resulted in selection of the Piers-Harris Total score only as the criterion variable measuring

**COMBINED GROUPS PHT AND RSE CORRELATIONS WITH SOCIAL
SUPPORT, FREQUENCY OF ACTIVITIES AND ATTRIBUTES**

Variable	PHT r (p)	RSE r (p)	Variable	PHT r (p)	RSE r (p)
PSSFA	.5151 (.000)	.3069 (.002)	PSSFR	.5546 (.000)	.2861 (.002)
OLDIQ	.3150 (.002)	.2987 (.004)	FCHURCH	.1477 (.153)	.1743 (.091)
NTWKFAM	.4048 (.000)	.2161 (.033)	FFRIEND	.1903 (.062)	.0536 (.602)
NTWKBFR	.1296 (.206)	.0947 (.356)	FVISIT	.1636 (.111)	.0726 (.482)
NTWKFR	.3144 (.002)	.1772 (.083)	FMALLFRI	.0070 (.946)	.0606 (.555)
NTWKBAD	-.0567 (.581)	-.0808 (.431)	FMALLFAM	.2495 (.014)	.2810 (.006)
NTWKADLT	-.1780 (.081)	-.1418 (.166)	FHANGOUT	.2458 (.015)	.1254 (.221)
NTWKSUM	.3301 (.001)	.1800 (.079)	FTV	-.0380 (.710)	-.0320 (.755)
FLESSONS	.1816 (.075)	.1743 (.088)	FCOMPUT	.0729 (.476)	.1799 (.076)
FSCOUTS	-.2288 (.024)	-.1027 (.317)	FTEAM	.4436 (.000)	.3519 (.000)
FCLUB	.1995 (.051)	.1908 (.063)	FPHONE	.3064 (.002)	.2102 (.038)
FRX	.0464 (.654)	.0881 (.393)	FCHORES	.2018 (.046)	.1345 (.187)
FATHLETE	.5179 (.000)	.3787 (.000)	FWORKOUT	.4142 (.000)	.3800 (.000)
FHOBBY	.0958 (.351)	.1015 (.323)	FREAD	.2080 (.041)	.1893 (.063)
MSCHL	.1069 (.327)	.0318 (.771)	FWRK	.0612 (.594)	-.0370 (.748)

self-esteem. Thus, in all further statistical analyses of self-esteem (in hypothesis testing as well as later analyses), the Piers-Harris Total score alone represented the self-esteem variable.

The results of hypothesis testing will be presented in the next section. The study was designed to test one overall and a number of sub-hypotheses which were anticipated from the literature review. These will be analyzed in order.

Overall Null Hypothesis

There are no relationships among self-esteem, social support from family, social support from friends, social network and ability/disability in physically disabled (PDA) and able-bodied adolescents (ABA).

This hypothesis was tested by multiple regression analysis using forced entry of predictor variables. Total score on the Piers-Harris Children's Self-concept Scale (PHT) measuring self-esteem was the criterion variable. Predictor variables were Perceived Social Support from Family (PSSFA) score; social network-sum (NTWKSUM) of family, best friends, friends, and adults; and group (PDA or ABA group as a dummy variable). A strong relationship was found between the social support and network variables and self-esteem, ($R^2 = .456$, $F(4,90) = 18.84$, F significance = .000) accounting for 45.6% of the variance in the criterion variable (PHT) (Table 6).

TABLE 6
OVERALL NULL HYPOTHESIS MULTIPLE REGRESSION
TO PREDICT SELF-ESTEEM

Step Variable	R ²	F (DF)	F sig	Final step	
				Beta	Signif t
1 Group	.00765	(1,93)= 0.717	.3993	.016	.846
2 PSSFA	.27361	(2,92)=17.327	.0000	.394	.000
3 PSSFR	.45235	(3,91)=25.005	.0000	.477	.000
4 NTWKSUM	.45568	(4,90)=18.836	.0000	-.071	.460

Forced entry equation: group + PSSFA + PSSFR + NTWKSUM --> PHT

Therefore, the overall null hypothesis of no relationship was rejected. That is, a statistically significant relationship between self-esteem and social support, social network and ability/disability does exist.

Hypothesis 1

There is no relationship between ability/disability and self-esteem.

This hypothesis was tested by a Spearman correlation, with ability/disability as PDA/ABA group and Piers-Harris Total (PHT) indicating self-esteem. No significant correlation was found between these variables. Correlation was $r = -.1021$ ($p = .158$) (Table 7). Null hypothesis one was not rejected.

Hypothesis 2

There is no relationship between social support from family and self-esteem.

This hypothesis was tested by Pearson correlations between (1) Perceived Social Support from Family (PSSFA) score and total score from Piers-Harris Children's Self-concept Scale (PHT), and (2) between social network-family (NTWKFAM) and PHT. Significant correlation was found between these variables. Perceived Social Support from Family scores correlated with self-esteem at $r = .5151$ ($p = .000$) (Table 7), while social network-family correlation with self-esteem

TABLE 7

HYPOTHESES ONE THROUGH FIVE: CORRELATIONS

H ₀	Variables	r	p
1	Group and PHT	-.1021	.158
2	PSSFA and PHT	.5151	.000
	NTWKFAM and PHT	.4048	.000
3	PSSFR and PHT	.5546	.000
4	NTWKBFR and PHT	.1296	.206
	NTWKFR and PHT	.3144	.002
	NTWKBAD and PHT	-.0567	.581
	NTWKADLT and PHT	-.1780	.080
5	SEX and PHT	-.0140	.446

was $r = .4048$ ($p = .000$). Therefore, null hypothesis two was rejected. That is, a statistically significant relationship between self-esteem and family social support does exist.

Hypothesis 3

There is no relationship between social support from friends and self-esteem.

This hypothesis was tested by a Pearson correlation between Perceived Social Support from Friends (PSSFR) score and Piers-Harris Total score (PHT). The correlation between social support from friends and self-esteem was the strongest of any of the relationships found: $r = .5546$ ($p = .000$) (Table 7). Therefore, null hypothesis three was rejected. A statistically significant relationship exists between self-esteem and social support from friends.

Hypothesis 4

There is no relationship between social network and self-esteem.

This was tested by separate Pearson correlations between Piers-Harris Total (PHT) and social network measures of best friend (NTWKBFR), friend (NTWKFR), makes me feel bad (NTWKBAD), and adults (NTWKADLT). Significant correlations were found between one social network variable and self-esteem: social network of friends $r = .3144$ ($p = .002$) (Table 7). Social network-adults showed a non-significant negative

correlation trend, $r = -.1780$ ($p = .08$), indicating that the greater number of adults as friends in one's social network tended to be associated with lower self-esteem. Social network of best friends and social network-makes me feel bad were both non-significant. However, the relationship between social network of friends and self-esteem was sufficient to support the relationship. Therefore, null hypothesis four was rejected. A statistically significant relationship does exist between self-esteem and social network of friends.

Hypothesis 5

There is no relationship between gender and self-esteem.

This hypothesis was tested by Spearman correlation between gender and Piers-Harris Total. No significant relationship was found between gender and self-esteem: $r = -.0140$ ($p = .446$) (Table 7). Null hypothesis five was not rejected.

Hypothesis 6

There is no interaction between ability/disability, social support from family, and self-esteem.

This hypothesis was tested by the creation of an interaction term and entering it by forced entry into a multiple regression equation to predict self-esteem. The interaction term was the product of Perceived Social Support from Family (PSSFA) score and PDA/ABA group as a dummy variable. The

interaction term was entered first, then chronologically occurring factors were entered in order, with disability group as a dummy variable in the second step, social network-family (NTWKFAM) in the third, and Perceived Social Support from Family (PSSFA) score in the last. This procedure found a significant main effect of social support from family (Table 8), but the interaction term was insignificant. Null hypothesis six was not rejected.

TABLE 8
**HYPOTHESIS 6: MULTIPLE REGRESSION WITH INTERACTION
 TO PREDICT SELF-ESTEEM**

Step	Variable	R ²	F (DF)	F sig	Final step Beta	Signif t
1	(PSSFA x NTWKFAM) (group x PSSFA) (group x NTWKFAM)	.284	(3,92)=12.160	.0000	-.325 .154 -.369	.3505 .5267 .1025
2	group	.284	(4,91)= 9.045	.0000	.142	.5471
3	NTWKFAM	.291	(5,90)= 7.388	.0000	.568	.0313
4	PSSFA	.334	(6,89)= 7.443	.0000	.524	.0184

Forced entry equation: group + PSSFA + NTWKFAM + (group x PSSFA) +
 (group x NTWKFAM) + (NTWKFAM x PSSFA) --> PHT

Hypothesis 7

There is no interaction between ability/disability, social support from friends, and self-esteem.

This hypothesis was tested by using multiple regression with forced entry of an interaction term, followed by the main effects terms to predict self-esteem (Piers-Harris Total). The interaction term was the product of Perceived Social Support from Friends (PSSFR) score and a dummy variable of PDA/ABA group. It was entered first, then group as dummy separately, then the cluster of the three measures of social support from friends: social network-best friends (NTWKBFR), social network-friends (NTWKFR), and Perceived Social Support from Friends (PSSFR) score at step 3. The interaction term between disability and social support from friends was not significant, though the main effects of social support from friends were highly significant (Table 9). Null hypothesis seven was not rejected.

TABLE 9

HYPOTHESIS 7: MULTIPLE REGRESSION WITH INTERACTION
TO PREDICT SELF-ESTEEM

Step	Variable	R ²	F (DF)	F sig	Final step	
					Beta	Signif t
1	(PSSFR x Group)	.01061	(1,94) = 1.01	.3180	.398	.1316
2	Group (dummy)	.20641	(2,93) = 12.09	.0000	-.355	.1845
3	NTWKBFR	.33717	(5,90) = 9.16	.0000	-.018	.8549
	NTWKFR				.131	.0010
	PSSFR				.404	.0000

Forced entry equation:

$$\text{group} + (\text{NTWKBFR} + \text{NTWKFR} + \text{PSSFR}) + (\text{PSSFR} \times \text{group}) \rightarrow \text{PHT}$$

Hypothesis 8

There is no interaction between ability/disability, social network, and self-esteem.

This hypothesis was tested with multiple regression analysis to predict self-esteem using forced entry of the interaction term and main effects terms. The interaction term consisted of the sum of the social networks (NTWKSUM) of all sources of potentially positive social support (social network-family, best friend, friend, and adult) multiplied by PDA/ABA group as a dummy variable. This interaction term was entered in step 1. Step 2 was group dummy separately, and step 3 was NTWKSUM separately. A small but significant interaction was found between disability group and social network-sum (NTWKSUM). In the final equation, social network summed accounted for 15% of the variance in self-esteem ($R^2 = .149$, $F(3,92) = 5.370$, F significance = .0019) and the t -value of the interaction term was significant ($p < .05$) (Table 10). Null hypothesis eight was rejected. There is a small but statistically significant interaction between disability and total size of social network.

TABLE 10
**HYPOTHESIS 8: MULTIPLE REGRESSION WITH INTERACTION
 TO PREDICT SELF-ESTEEM**

Step	Variable	R ²	F (DF)	F sig	Final step	
					Beta	Signif t
1	(group x NTWKSUM)	.002	(1,94)=0.175	.6770	-.498	.0422
2	group	.013	(2,93)=0.625	.5378	.428	.0811
3	NTWKSUM	.149	(3,92)=5.370	.0019	.507	.0002

Forced entry equation: group + NTWKSUM + (group x NTWKSUM) --> PHT

Hypothesis 9

There is no interaction between ability/disability, social support from family, and social support from friends.

This hypothesis was tested with multiple regression analysis to predict self-esteem using forced entry of the interaction term and main effects terms. The interaction term was created by the product of two social support scores on Perceived Social Support from Family and Perceived Social Support from Friends (PSSFA and PSSFR). This term was entered in step 1, followed by group as a dummy variable in step 2, and simultaneous entry of the two social support measures in step 3. Significant main effects were found for PSSFR, but no significant interaction effect was found between family and friend social support in predicting self-esteem (Table 11). Null hypothesis nine was not rejected.

TABLE 11
 HYPOTHESIS 9: MULTIPLE REGRESSION WITH INTERACTION
 TO PREDICT SELF-ESTEEM

Step	Variable	R ²	F (DF)	F sig	Final step	
					Beta	Signif t
1	(PSSFR x PSSFA)	.379	(1,94)=57.39	.0000	-.0051	.9869
2	group (dummy)	.381	(2,93)=28.67	.0000	.005	.9513
3	PSSFR PSSFA	.430	(4,91)=17.13	.0000	.434 .373	.0085 .1294

Forced entry equation: group + PSSFR + PSSFA + (PSSFR x PSSFA)-->PHT

Hypothesis 10

There is no interaction between ability/disability, gender, and self-esteem.

This hypothesis was tested with multiple regression analysis to predict self-esteem using forced entry of the interaction term and main effects terms. The interaction term was created by the product of two dummy variables of ability/disability group and gender (Male/Female). The interaction term was entered in step one, gender in step two, and group in step three. None of the interaction or main variables in this equation achieved any significance in predicting self-esteem (Table 12). Null hypothesis ten was not rejected.

Summary of Hypothesis Testing

The overall null hypothesis and sub-hypotheses numbers two, three, four, and eight were rejected because the data indicated statistically significant relationships between the variables. There was insufficient support to reject the remaining sub-hypotheses.

All of the main effects null hypotheses regarding social support were rejected, meaning that social support was a statistically significant correlate and predictor of self-esteem. However, main effects of disability and gender on self-esteem were not found to be significant. There were no significant interactions except for the relatively weak but

TABLE 12

HYPOTHESIS 10: MULTIPLE REGRESSION WITH INTERACTION
TO PREDICT SELF-ESTEEM

Step	Variable	R ²	F (DF)	F sig	Final step	
					Beta	Signif t
1	(group X gender)	.00023	(1,96)=.02255	.8809	.212	.2195
2	gender	.00116	(2,95)=.05516	.9464	-.105	.4487
3	group	.02631	(3,94)=.85654	.4718	-.211	.1226

Forced entry equation: group + gender + (group x gender) --> PHT

significant effect of disabled adolescents with social network-sum (of family, best friend, friend, and adult). This means that disabled adolescents with smaller social networks were more likely to develop low self-esteem.

In the next two sections, subject characteristics which this study found to be significantly related to self-esteem, or theoretically important, will be described in detail. In the first section, the functional abilities of the physically disabled subjects in mobility, communication, feeding, and bathroom will be presented. In the second section, characteristics of two adolescent groups will be compared.

Functional Abilities of the PDA Group

Only the physically disabled adolescent group completed the Function form. The assumption was made that all participating subjects designated by schools as able-bodied were functionally independent in the tasks included on the questionnaire (mobility, communication, feeding, and bathroom). The abilities of the PDA group in each functional task will be discussed below. Their need for human assistance and their educational placement will also be presented.

Mobility at School

The function scores of the physically disabled adolescent subjects indicated that most were disabled in mobility at school. About half (18 of 38) of the PDA subjects repor-

ted walking functionally at school while a similar number (19 of 38) reported using a wheelchair (Table 13). Of the 18 walking at school, seven needed no equipment to be independent, five needed orthoses, five needed some form of hand support (cane, crutch, walker), two needed both orthoses and hand support, and one needed a person to assist (Table 14).

Of the 19 reporting using a wheelchair at school, seven could propel him/herself manually; nine used a battery-powered chair, seven with hand control and two with head control; and three required assistance of another person to push the chair (Table 15).

TABLE 13

PHYSICALLY DISABLED ADOLESCENTS' FUNCTION AT SCHOOL

Type of Mobility	n	%
Usually walk at school	18	47.4
Usually use wheelchair at school	19	50.0
Missing	1	2.6
Total	38	100.0

TABLE 14

PHYSICALLY DISABLED ADOLESCENTS' WALKING AT SCHOOL

Type of Mobility	n	%
Walk independently	7	18.4
Walk with orthoses	5	13.2
Walk with hand support (crutches, walker)	5	13.2
Walk with orthoses and hand support	2	5.3
Walk with assistance	1	2.6
Not walk at school	17	44.7
Missing	1	2.6
Total	38	100.0

TABLE 15

PHYSICALLY DISABLED ADOLESCENTS' WHEELCHAIR USE AT SCHOOL

Type of Mobility	n	%
Propel self	7	18.4
Propel self:battery power and hand control	7	18.4
Propel self:battery power and head control	2	5.3
Assisted by person	3	7.9
Not use wheelchair at school	16	42.1
Other	2	5.3
Missing	1	2.6
Total	38	100.0

Mobility at Home

At home, 26 subjects reported walking, 11 used wheelchairs, and one used other means of mobility. Of the 26 who walk, 13 were independent, four used orthoses, five used hand support, two used both, two needed assistance. In addition, one walked for exercise only (not for function) (Table 16).

Eleven subjects used a wheelchair at home: five were independent in propulsion, three with hand controls on battery power, and three needed to be pushed by another person (Table 17).

Communication

Regarding ability to communicate, 25 of the 38 subjects reported being able to speak clearly and understandably, four reported slow speech, two reported being difficult to understand, and one reported slow speech that was difficult to understand; four used an alternate form of communication (eg., voice synthesizer or communication board), and one communicated by a gestural system (not sign language) (Table 18).

TABLE 16

PHYSICALLY DISABLED ADOLESCENTS' WALKING AT HOME

Type of Mobility	n	%
Walk independently	13	34.2
Walk with orthoses	4	10.5
Walk with hand support (crutches, walker)	5	13.2
Walk with orthoses and hand support	2	5.3
Walk with assistance	2	5.3
Walk for exercise only	1	2.6
Do not walk at home	9	23.7
Missing	2	5.3
Total	38	100.0

TABLE 17

PHYSICALLY DISABLED ADOLESCENTS' WHEELCHAIR USE AT HOME

Type of Mobility	n	%
Propel self	5	13.2
Propel self:battery power and hand control	3	7.9
Assisted by person	3	7.9
Not use wheelchair at home	23	60.5
Other	3	7.9
Missing	1	2.6
Total	38	100.0

TABLE 18

PHYSICALLY DISABLED ADOLESCENTS' COMMUNICATION SKILLS

Type of communication	n	%
Speaks easily and understandably	25	67.6
Speaks slowly but understandably	4	10.5
Speech is difficult to understand	2	5.3
Speech is slow and difficult to understand	1	2.6
Use an alternate communication system	4	10.4
Use a gestural communication system	1	2.6
Missing	1	2.6
Total	38	100.0

Feeding

Regarding ability to feed themselves, 17 reported being fully independent, 14 were independent except requiring help cutting meat, three could do some feeding tasks but required considerable assistance, and four were completely dependent (Table 19).

Bathroom

In the bathroom, 22 were fully independent, five needed minimal assistance for clothing, four needed moderate assistance for clothing and/or transfers, and seven were completely dependent for both (Table 20).

Independence or Need for Human Assistance

Seventeen of the physically disabled subjects did not need human assistance in any of the functional task categories listed, while 21 required some help (Table 21). In reviewing the categories separately, four subjects needed help to walk or push their wheelchair at school, five needed help to walk or push their wheelchair at home. One subject was able to communicate with a gestural system, which made him dependent in communicating only with persons who understand his system. More than half of the group needed help in feeding, mostly for cutting meat, and 16 needed help with clothing or transfers in the bathroom (Table 22). Complete

TABLE 19

PHYSICALLY DISABLED ADOLESCENTS' FUNCTION IN FEEDING

Indepedence/assistance required	n	%
Cut food and feed self independently	17	44.7
Feed self independently, need help cutting	14	36.9
Some food can do independently, need help with some food	2	5.3
Unable to feed self at all	4	10.5
Missing	1	2.6
Total	38	100.0

TABLE 20

PHYSICALLY DISABLED ADOLESCENTS' FUNCTION IN BATHROOM

Independence/Assistance needed	n	%
Completely independent	21	55.3
Need minimal assistance for clothing	5	13.2
Need moderate assistance for transfer or	4	10.5
Need maximal assistance for transfer and	7	18.4
Missing	1	2.6
Total	38	100.0

TABLE 21

**PHYSICALLY DISABLED ADOLESCENTS' INDEPENDENCE*
OR DEPENDENCE IN FUNCTIONAL TASKS**

Independence ability	n	%
Independent	17	44.7
Dependent	21	55.3

*Independence was defined as not requiring human assistance in any of the function listed (mobility, communication, feeding, or bathroom).

Dependence was defined as requiring human assistance in one or more of the functions listed.

TABLE 22

**PHYSICALLY DISABLED ADOLESCENTS' NEED FOR
HUMAN ASSISTANCE IN FUNCTIONAL ACTIVITIES**

Activity	n=38
<u>Mobility at school*</u>	
Walking	
Human assistance not needed	19
Human assistance needed to walk	1
Wheelchair propulsion	
Human assistance not needed	16
Human assistance needed to propel chair	3
<u>Mobility at home</u>	
Walking	
Human assistance not needed	24
Human assistance needed to walk	2
Wheelchair propulsion	
Human assistance not needed	8
Human assistance needed to propel chair	3
<u>Communication</u>	
Communication with known language system	36
Gestural system only	1
<u>Feeding</u>	
Human assistance not needed	17
Human assistance needed for cutting food or other self-feeding task	20
<u>Bathroom</u>	
Human assistance not needed	21
Human assistance needed for clothing and/or transfers	16
* Total n for mobility equals greater than the group n because one subject reported both walking and using wheelchair.	

dependence in the bathroom (7 subjects) indicated that almost one fifth (18%) of the sample were severely handicapped.

Educational Placement

Educational placements of the physically disabled subjects were distributed across the special education spectrum from completely separate to fully mainstreamed. Only five subjects attended classes which were completely separate from able-bodied classmates, while 11 subjects attended classes which were mostly separate but a few classes were mainstreamed. Thirteen subjects were completely mainstreamed with able-bodied classmates, and the remaining eight had a few classes separately but mostly attended mainstreamed classes (Table 23). Educational placement was not found to correlate significantly with any of the major variables of the study.

TABLE 23

PHYSICALLY DISABLED ADOLESCENTS' EDUCATIONAL PLACEMENT

Type of class	n	%
Completely mainstreamed with non-disabled	13	34.2
Mostly mainstreamed but some classes separate	8	21.1
Mostly separate but some classes mainstreamed	11	28.9
Completely separate	5	13.2
Missing	1	2.6
Total	38	100.0

Summary of PDA Functional Abilities

The disabilities of many subjects in the physically disabled adolescent group were of a severity which required some equipment (orthosis, wheelchair, or hand support) to permit function. However, using the equipment, most were relatively independent, as evidenced by their feeding and bathroom independence, and ability to either walk or propel their own wheelchair. One fifth of the subjects had serious limitations in functional independence, indicated by complete dependence in the bathroom.

PDA and ABA Group Comparisons

In this section, the physically disabled and able-bodied adolescent groups were compared in (1) self-esteem levels, (2) activity participation frequency, (3) measures of social support, (4) relationships with significant others, and (5) mental abilities.

Self-Esteem Levels

Self-esteem test results are presented in Table 24. Self-esteem mean scores on the Rosenberg Self-Esteem Scale (RSE) were identical (PDA 30.1 ± 4.9 ; ABA 30.1 ± 5.1 ; $t = 0.01$, $p = .989$). In the Piers-Harris Children's Self-Concept Scale Total (PHT) measuring self-esteem, the PDA mean was slightly but not significantly lower than the ABA mean (54.8 ± 12.1 and 57.4 ± 12.2 respectively; $t = 0.82$, $p = .412$).

TABLE 24

SELF-ESTEEM BY GROUP

	PDA (n=38)		ABA (n=60)	
<u>Piers-Harris Total</u>	54.8 ±	12.1	57.4 ±	12.2
Piers-Harris subscale 1 Behavior	13.5 ±	2.2	13.1 ±	2.8
Piers-Harris subscale 2 Intellectual and school status	12.5 ±	3.0	13.0 ±	3.5
Piers-Harris subscale 3 Physical appearance	8.8 ±	3.0	9.2 ±	2.9
Piers-Harris subscale 4 Anxiety	7.7 ±	3.5	8.8 ±	3.4
Piers-Harris subscale 5 Popularity	7.5 ±	3.0	8.3 ±	4.3
Piers-Harris subscale 6 Happiness	7.4 ±	2.5	7.9 ±	2.2
<u>Rosenberg Self-esteem Scale</u>	30.1 ±	4.9	30.1 ±	5.1

Note: There are no significant differences between groups on any of these measures.

T-tests and correlation measures found no significant differences between ABA and PDA groups on the Piers-Harris Total, any of the Piers-Harris Subscales, or on the RSE Scale.

Activity Participation Frequency

Subjects were asked to indicate the frequency with which they participated in eighteen adolescent-type activities which were listed on the About Me form. These results were analyzed by t-tests and are presented in Table 25. There were no significant differences between the groups in five activities: (1) attending scout meetings, (2) working on a hobby, (3) doing optional reading, (4) attending religious services, and (5) going to a mall or store with family. Of the thirteen activities in which there were between-group differences, the ABA group participated in ten activities more frequently. In three activities: (1) visiting a doctor or therapist, (2) watching television, and (3) working on a computer, the PDA group participated more frequently. Many of the activities in which PDA participated less frequently represent simple, social, typical adolescent activities such as having a friend visit after school, participating in a club or team activity, or talking on the phone with a friend. PDA more frequently participated in solitary activities.

Activity Frequency	PDA		ABA		Sig
	mean	S.D.	mean	S.D.	
Music, art, acting, martial arts lessons	2.24	± 1.7	3.00	± 1.7	0.035*
Attend scout meeting	1.32	± .8	1.13	± .6	0.217
Attend club meeting	1.94	± 1.2	2.97	± 1.5	0.001*
Visit doctor or therapist	3.41	± 1.4	2.25	± 0.9	0.000#
Attend athletic event at school	2.32	± 1.3	3.68	± 1.4	0.000*
Work on hobby at home	3.05	± 1.7	3.18	± 1.3	0.691
Read a book NOT assigned for school	2.59	± 1.4	2.88	± 1.3	0.321
Attend church/temple	2.89	± 1.4	2.98	± 1.3	0.754
Friend visit after school	2.32	± 1.3	3.93	± 1.2	0.000*
Visit a friend's home after school	1.94	± 1.0	3.98	± 1.1	0.000*
Go to a mall or store with a family member	3.31	± 0.9	3.30	± 1.2	0.980
Go to a mall or store with a friend	2.21	± 1.2	3.78	± 0.9	0.000*
Hang out with friends	3.30	± 1.4	4.48	± 0.8	0.000*
Watch television	4.63	± 1.5	4.25	± 1.0	0.043#
Work on computer	3.58	± 1.5	2.88	± 0.2	0.020#
Participate in team sport	2.43	± 1.7	3.63	± 1.6	0.001*
Talk on the phone with a friend	3.79	± 1.6	4.52	± 0.9	0.011*
Do chores at home	3.39	± 1.4	4.07	± 1.2	0.013*
Work out (exercise to dev- elop or maintain your body)	3.08	± 1.4	3.90	± 1.3	0.009*

Scale:

- 1 never or very rarely (no more than once a year)
- 2 very infrequently (a few times a year)
- 3 occasionally (about once a month)
- 4 fairly often (about weekly)
- 5 frequently (daily)

* These activities were participated in more frequently by able-bodied adolescents.

These activities were participated in more frequently by physically disabled adolescents.

Measures of Social Support

Social support results are presented in Table 26. The PDA and ABA groups identified comparable levels of perceived support from families (PSSFA), a similar number of family members upon whom they can rely (NTWKFAM), as well as a similar number of persons who make them feel badly about themselves (NTWKBAD). Several between-group differences were found in other social support measures, consistently favoring the ABA group. PDA social support levels were significantly lower than the ABA by t-test comparisons in all three measures of social support from peers: Perceived Social Support from Friends (PSSFR) (PDA 13.0 ± 4.8 ; ABA 14.9 ± 4.7 ; $t = 1.93$; $p = .05$), Social Network-Best Friends (NTWKBFR) (3.6 ± 2.0 and 4.4 ± 1.6 ; $t = 2.25$; $p < .05$), and Social Network-Friends (NTWKFR) (3.5 ± 2.6 and 4.7 ± 2.8 ; $t = 2.18$; $p < .05$).

Of 38 PDA, seven (18.4%) chose to identify a total of 19 persons who are non-family adults, particularly teachers and therapists, as important people for them. These names and their relationships were mixed into the family or friend lists. In contrast, of 60 ABA subjects, only three (5%) identify a total of four adults as an adult friend. The disparity of frequency of these identifications between groups was striking. Equally as striking was the fact that those subjects who identified paid professionals as best friends or friends failed to name peers as friends in the

TABLE 26

SOCIAL SUPPORT BY GROUP

Social Support Measure		PDA	ABA	
Perceived social support from family (range 0-20)	12.4 ±	5.6	12.9 ±	6.2
Perceived social support from friends (range 0-20)	13.0 ±	4.8	14.9 ±	4.7 *
Social network: Family (range 0-8)	4.1 ±	2.2	4.6 ±	4.7
Social network: Best friends (range 0-6)	3.6 ±	2.1	4.4 ±	1.6 **
Social network: Friends (range 0-8)	3.5 ±	2.6	4.7 ±	2.8 **
Social network: Makes me feel bad (range 0-4)	.66 ±	0.9	.95 ±	1.3
Social network: Adults	0.50 ±	1.3	0.06 ±	0.3 *

* p = .05

** p < .05

limited number of spaces provided on the form. To represent the social support provided by these non-family and non-peer friends it was necessary to create a separate category for Social Network-Adults (NTWKADLT). PDA mean number of adults named was $.50 \pm 1.3$, while ABA named an average of $.06 \pm .31$ adults ($t = 2.00$). This difference was significant at the $p = .05$ level. The naming of adults in a physically disabled subject's social network showed a non-significant trend toward a negative correlation with self-esteem ($r = -.2557$, $p = .06$) (Table 27).

Relationships and Reflected Appraisals of Significant Others

The three most important people according to their relationship were listed by the adolescent, who indicated how that person made them feel about themselves (reflected appraisals). Analysis compared the groups, breaking the data into person number one, two, or three, and into relationship category. Results indicating the relationships of these important people are presented in Tables 28, 29, and 30 for the most important person number one, two, and three respectively. The mean scores representing reflected appraisals (on a scale of 1=awful to 5=great) are presented in Table 31.

Chi-square tests of the categories of relationships revealed no significant differences between the PDA and ABA groups in the selection of their significant others (Tables 28-30). T-test comparisons of how those significant others

TABLE 27

**SELF-ESTEEM (PHT) CORRELATIONS WITH SOCIAL SUPPORT
MEASURES BY GROUP**

Social Support Measure	PDA PHT r (p)	ABA PHT r (p)
Perceived Social Support- Friends	.7264 (.000)	.4358 (.000)
Perceived Social Support- Family	.5102 (.001)	.5157 (.000)
Social Network-Family	.2624 (.056)	.4881 (.000)
Social Network-Best Friends	-.0302 (.429)	.2193 (.048)
Social Network-Friends	.1721 (.151)	.3739 (.002)
Social Network-Adults	-.2557 (.061)	-.0435 (.307)
Social Network- Makes Me Feel Bad	-.0787 (.319)	-.0672 (.307)
Social Network-Sum	.1092 (.257)	.4696 (.000)
Important Person 1- Feelings	.5434 (.000)	.2382 (.033)
Important Person 2- Feelings	.6559 (.000)	-.0024 (.493)
Important Person 3- Feelings	.0791 (.321)	.2105 (.060)

TABLE 28

RELATIONSHIP OF IMPORTANT OTHERS AND FREQUENCY IDENTIFIED
BY GROUP, FIRST PERSON LISTED

Relationship	PDA		ABA		Total	
	n	(%)	n	(%)	n	(%)
Mother	23	(60.5)	34	(57.6)	57	(58.8)
Father	6	(15.7)	11	(18.6)	17	(17.5)
Sister	....		2	(3.3)	2	(2.1)
Brother	2	(5.3)	1	(1.6)	3	(3.1)
Grandparent	1	(2.6)	....		1	(1.0)
Other relative	5	(13.1)	11	(18.6)	16	(16.8)
Friend	....		....		....
Other adult	1	(2.6)	....		1	(1.0)
Total	38	(39.2)	59	(60.8)	97	(100.0)

Chi-square (6 df) = 5.91, p=.4337

TABLE 29

RELATIONSHIP OF IMPORTANT OTHERS AND FREQUENCY IDENTIFIED
BY GROUP, SECOND PERSON LISTED

Relationship	PDA		ABA		Total	
	n	(%)	n	(%)	n	(%)
Mother	7	(18.4)	16	(27.5)	23	(24.0)
Father	17	(44.7)	18	(31.0)	35	(36.5)
Sister	1	(2.6)	3	(5.2)	4	(4.2)
Brother	2	(5.3)	6	(10.3)	8	(8.3)
Grandparent	4	(10.5)	5	(8.6)	9	(9.4)
Other relative	1	(2.6)	2	(3.4)	3	(3.1)
Friend	4	(10.5)	8	(13.8)	12	(12.5)
Other adult	2	(5.3)	....		2	(2.1)
Total	38	(39.6)	58	(60.4)	96	(100.0)

Chi-square (7 df) = 6.44, p=.4893

TABLE 30

RELATIONSHIP OF IMPORTANT OTHERS AND FREQUENCY IDENTIFIED
BY GROUP, THIRD PERSON LISTED

Relationship	PDA		ABA		Total	
	n	(%)	n	(%)	n	(%)
Mother	1	(2.6)	4	(7.2)	5	(5.4)
Father	3	(7.9)	6	(10.9)	9	(9.8)
Sister	5	(13.1)	6	(10.9)	11	(12.0)
Brother	5	(13.1)	6	(10.9)	11	(12.0)
Grandparent	7	(18.4)	9	(16.3)	16	(17.4)
Other Relative	4	(10.5)	5	(9.0)	9	(9.8)
Friend	6	(15.7)	17	(30.9)	23	(26.0)
Other adult	6	(15.7)	2	(3.6)	8	(8.7)
Total	37	(40.2)	55	(59.8)	92	(100.0)

Chi-square (7 df) = 7.364, p=.392

TABLE 31

**FEELINGS ABOUT HOW IMPORTANT PERSONS TO ME
MAKE ME FEEL ABOUT MYSELF, BY GROUP**

Significant Person Number	PDA		ABA		t-value (p)
	mean	S.D.	mean	S.D.	
One	4.52 ±	.89	4.51 ±	.60	0.06 (.952)
Two	4.39 ±	.89	4.42 ±	.70	0.17 (.865)
Three	4.43 ±	.96	4.30 ±	.78	0.68 (.498)

Scale: 1 awful
 2 bad
 3 not good, not bad
 4 pretty good
 5 great

made them feel also revealed no significant differences between PDA and ABA groups (Table 31).

Mental Ability

The mental abilities of the physically disabled and able-bodied adolescent groups were measured by the Otis-Lennon Test of Mental Ability (Otis-Lennon, 1967). The raw scores were converted to Deviation Intelligence Quotient (OLDIQ) scores by referring to the tabled norms for raw score and age. Scores earned by both groups were within normal limits (85-115), but there was an 8 point difference in mean scores, with the PDA group scoring lower. The scores for the two groups were significantly different (PDA 92.6 ± 12.2 ; ABA 100.4 ± 12.2 ; $p < .01$). (Table 3)

In the next section, the results of multiple regression analyses predicting levels of self-esteem separately for the two groups will be presented.

Predictors of Self-Esteem

Variables able to predict self-esteem (PHT) scores separately for each group were identified using multiple regression procedures. Several stepwise regression equations were carried out first, using naturally-clustering variables (eg., demographics, social support). These revealed a set of significant predictors which were then collected and forced into one final regression equation. Only the most powerful

predictors with the lowest intercorrelation between themselves remained. These significant predictor variables were cross-checked for their high correlation with self-esteem, and their low correlations with each other. The significant predictors identified by this procedure are presented here for each group separately and then factors common to both groups.

Physically Disabled Adolescent Group

For this group, several demographic variables correlated significantly with self-esteem (Table 32): age, total number of brothers and number of older brothers, and total number of children in the family. However, none of these was a significant predictor in the final regression equation.

Functional level was significant at the first stage of regression equations, but tended to be overwhelmed by other predictors if the final regression procedure was stepwise. Since functional level is important both in theory and practice, it was forced into the regression equation in the first step, followed by the other predictors in the developmental order of their occurrence.

Thus, four variables were significant predictors of self-esteem, together accounting for 77.3% of the variance in self-esteem levels (Table 33). Functional level was entered

TABLE 32

**CORRELATIONS OF SELF-ESTEEM (PHT) WITH
DEMOGRAPHIC VARIABLES, BY GROUP**

Variable	PDA Group r (p)	ABA Group r (p)
Age	.2881 .040	.0092 .472
Sex	-.1631 .164	.0985 .227
Parents (marital status)	-.1824 .137	.0067 .480
Other adults in home	-.0510 .381	-.2111 .053
Total number brothers	.3759 .010	.0261 .422
Number older brothers	.4333 .003	-.0437 .370
Total number sisters	.2329 .080	.1349 .152
Number older sisters	.1987 .116	.0996 .224
Total number children	.3958 .007	.1213 .178
Mother schooling completed	.2446 .075	.0356 .403
Mother work	-.0881 .310	-.0159 .458
Father schooling completed	.2108 .112	.1884 .100
Father work	-.0335 .428	.1383 .180

TABLE 33

MULTIPLE REGRESSION PREDICTORS OF SELF-ESTEEM BY GROUP

Step	Variable	R ²	F (DF)	F sig	Final step Beta	Signif t
PHYSICALLY DISABLED ADOLESCENTS						
1	FXLEVEL	.11314	(1,29)= 3.700	.0643	.166	.110
2	IMPPER2F	.45673	(2,28)=11.770	.0002	.347	.007
3	PSSFR	.67043	(3,27)=18.309	.0000	.428	.001
4	FTEAM	.77348	(4,26)=22.195	.0000	.344	.021
ABLE-BODIED ADOLESCENTS						
1	FATHLETE	.33282	(1,56)=27.940	.0000	.415	.000
2	PSSFR	.46515	(2,55)=23.917	.0000	.338	.001
3	PSSFA	.54796	(3,54)=21.415	.0000	.312	.003

at step 1 ($R^2 = .11314$, $F(1,29) = 3.700$, F significance = .0643). At step 2 was entered the reflected appraisals of significant person number 2 (IMPPER2F) ($R^2 = .45673$, $F(2,28) = 11.770$, F significance = .0002). At step 3 perceived social support from friends (PSSFR) was entered ($R^2 = .67043$, $F(3,27) = 18.309$, F significance = .0000). At the final step frequency of participating in a team sport (FTEAM) was entered ($R^2 = .77348$, $F(4,26) = 22.195$, F significance = .0000). The beta weights for each variable at the final step were FXLEVEL .166, IMPPER2F .347, PSSFR .428, and FTEAM .344.

Further examination of the relationship and influence of the second significant other was warranted by these findings. For the physically disabled adolescent group, the reflected appraisals of this "second other" (Greenspan, 1982) were a significant predictor of self-esteem. Further analysis of the identity of this person revealed that for 17, or 44% of PDA, this person was father; for 7, or 18%, it was mother. Other relationships (sibling, friend) were indicated less frequently.

Two new sub-groupings of disabled subjects were established to attempt to distinguish if the effect on self-esteem was due to the position as "second other" or to the relationship of the most frequently named person, father. One group consisted of subjects who identified "father" as their second other, compared to the other group, "not-father". For these two groups, the self-esteem score, reflected appraisal score,

the correlation of self-esteem with the reflected appraisal, and the correlation of self-esteem with age were determined. The results are indicated in Table 34. For the "second other is father" group, the correlation of self-esteem with the reflected appraisals from father was notably higher than for the "not-father" group ($r = .7792$, $p = .000$ compared to $r = .5932$, $p = .002$).

The differential effect of father's reflected appraisals on self-esteem was further investigated by repeating the groupings, but this time for subjects who did or did not select father as their first significant other. The same variables and relationships were examined, and results also presented in Table 34. Statistical comparisons were not performed because the number of subjects in each group was small. As before, for "first other is father" group, correlation of self-esteem with reflected appraisals were much higher than the "not-father" group ($r = .9096$, $p = .006$ compared to $r = .4978$, $p = .002$). Also of note is the high correlation of self-esteem with age for the "first other is father" group.

TABLE 34

**COMPARISON OF SELF-ESTEEM SCORES, REFLECTED APPRAISALS,
CORRELATION OF SELF-ESTEEM WITH REFLECTED APPRAISALS
AND AGE, FOR GROUPS DEFINED BY SELECTION
OF FATHER AS SIGNIFICANT OTHER**

Group	n	Self-esteem (S-E)	Reflected Appraisals (RA)	Correlations:	
				S-E & RA	S-E & Age
"First other" is father	6	59.67 ± 13.1	4.50 ± .84	.9096 .000	.7902 .031
"First other" not father	32	53.94 ± 11.9	4.53 ± .91	.4978 .002	.1898 .149
"Second other" is father	17	52.06 ± 12.0	4.35 ± .79	.7792 .000	.0796 .000
"Second other" not father	21	57.09 ± 12.0	4.52 ± .93	.5932 .002	.4014 .036

Able-Bodied Adolescent Group

For this group, no demographic variables correlated significantly with self-esteem. Thus, none was entered in the prediction equations.

The two stage multiple regression procedure was repeated for ABA, finding three factors which accounted for 54.8% of variance in self-esteem (Table 33). Step 1 identified frequency of attending an athletic event at school (FATHLETE) ($R^2 = .33282$, $F(1,55) = 27.94$, F significance = .0000). Step 2 identified Perceived Social Support from Friends (PSSFR) score ($R^2 = .46515$, $F(2,54) = 23.917$, F significance = .0000). Step 3 identified Perceived Social Support from Family (PSSFA) score ($R^2 = .54796$, $F(3,53) = 21.415$, F significance = .0000). In the third step, beta weights for each variable were .415, .338, and .312 respectively.

Between-Group Comparison of Prediction Factors

The PDA and ABA groups thus shared two of three factors in common as predictors of self-esteem: Perceived Social Support from Friends scores, and participation in group/team activities with friends or agemates. Between the two groups, the other factors differ. For ABA, it was scores on Perceived Social Support from Family; for PDA, it was reflected appraisals from the second significant other and the level of

functional independence. Obviously, since functional skills among ABA were equal and fully independent, this would not be a useful predictor of self-esteem for the ABA group, but for PDA it was statistically significant.

However, further analysis was interesting. Correlations of Perceived Social Support from Family scores with Piers-Harris Total were quite high for both groups (.510 for PDA, and .516 for ABA) (Table 27) but PSSFA was a significant predictor of self-esteem only for the ABA group. The lack of significance of family social support for PDA was primarily a statistical phenomenon accounted for by the differences between the two groups in intercorrelation between family and friend perceived social support (PSSFA and PSSFR). For ABA, the intercorrelation was low (.140), while for PDA it was substantial (.662). Statistically, when there is high intercorrelation, as in the PDA group, entering both variables in one equation uses redundant information, and prediction is less effective. The significant contribution of the variable with higher correlation, in this case friend social support, with the dependent variable remained in the equation, while the one with lower correlation, Perceived Social Support from Family (PSSFA), dropped out. The inclusion of other variables for the PDA group, in this case reflected appraisals and functional independence, further enhanced prediction of the dependent variable.

Thus, for the PDA group, Perceived Social Support from

Family scores were not as valuable a predictor of self-esteem as Perceived Social Support from Friends scores. However, this obscured the contribution of family social support to the self-esteem of disabled adolescents. If PSSFA scores were substituted for PSSFR scores in the prediction equation, and included with frequency of participating in a team sport (FTEAM), together they accounted for 54.3% of the self-esteem variance ($R^2 = .54335$, $F(2,34) = 16.65$, F significance = .0028) (Table 35). In this equation, each carried a beta weight approximately equal at .52. The variance accounted for was almost identical to the 54.8% accounted for in the ABA group by the three factors of family and friend social support, and frequency of attending a school event. Thus it is clear that the PDA group was similar to the ABA group in importance of perceived social support from family. Family support is clearly related to self-esteem of disabled adolescents.

**STEPWISE MULTIPLE REGRESSION ON PREDICTORS OF SELF-ESTEEM
SUBSTITUTING PSSFA FOR PSSFR
FOR PDA GROUP**

Step	Variable	R ²	F (DF)	F signif
1	FTEAM	.26976	(1, 35) = 12.930	.0000
2	PSSFA	.54335	(2, 34) = 16.658	.0000

Note: FXLEVEL, the third predictor, was not significant in this equation.

Functional Level and Self-Esteem of PDA

Further understanding of self-esteem of adolescents with physical disabilities was achieved by considering their functional independence level. In this study functional level was a composite variable created by a weighted formula summing function in walking or wheelchair use at school and home, ability to communicate verbally, and amount of assistance required in feeding and the bathroom. Three of these correlated significantly with self-esteem: ability to walk at home ($r = .277$, $p = .051$), amount of assistance required in feeding ($r = .306$, $p = .033$) and in the bathroom ($r = .297$, $p = .037$) (Table 36). None of these separately was a powerful predictor, but the summed variable of functional level was a significant predictor ($r = .341$, $p = .028$). Higher scores in functional independence of physically disabled subjects predicted higher self-esteem, while more functional dependence was associated with lower self-esteem.

**PHT CORRELATIONS WITH FUNCTIONAL ABILITIES
FOR PHYSICALLY DISABLED GROUP**

Functional skill	PHT r (p)
Function at school	.161 (.171)
Function at school walking	.217 (.096)
Function at school in wheelchair	.072 (.335)
Function at home	.256 (.063)
Function at home walking	.277 (.051)
Function at home in wheelchair	.166 (.164)
Function eating	.306 (.033)
Function in bathroom	.297 (.037)
Function in communication	.221 (.094)
Functional level (composite)	.341 (.028)

Mental Ability and Self-Esteem

For the total sample, mental ability score represented by the Otis-Lennon Deviation Intelligence Quotient (OLDIQ) correlated significantly with self-esteem ($r = .3150$, $p = .002$) (Table 37). However, the significance was entirely due to higher correlation for the ABA group ($r = .3878$, $p = .002$) while the correlation for the PDA group was insignificant ($r = .1361$, $p = .211$).

The power of mental ability to predict self-esteem was analyzed in a single forced entry multiple regression equation. Mental ability score accounted for 10% of the variance for the total population ($R^2 = .099$, $F(1,89) = 9.8$, F significance = .0024). Repeating the equation separately for the ABA group, mental ability accounted for 15% of the variance in self-esteem ($R^2 = .15038$, $F(1,52) = 9.204$, F significance = .0038). For PDA group, mental ability could not be forced into a prediction equation because its correlation was insignificant. Thus, for able-bodied adolescents but not for physically disabled adolescents, mental ability can be a significant predictor of self-esteem. For physically disabled adolescents, mental ability scores cannot predict self-esteem.

When ABA mental ability was entered into a multiple regression equation with other significantly correlating variables, it dropped out as a significant predictor. Perceived social support from family and friends, and frequency

TABLE 37

MENTAL ABILITY (OLDIQ) CORRELATIONS BY GROUP

Variable	PDA OLDIQ r (p)	ABA OLDIQ r (p)
Piers-Harris Total	.1361 (.211)	.3878 (.002)
Piers-Harris Subscale 1	.2900 (.041)	.2803 (.020)
Piers-Harris Subscale 2	.1633 (.167)	.5891 (.000)
Piers-Harris Subscale 3	-.2333 (.082)	.4181 (.001)
Piers-Harris Subscale 4	.2375 (.078)	.1901 (.084)
Piers-Harris Subscale 5	-.1024 (.273)	.1413 (.154)
Piers-Harris Subscale 6	-.0302 (.430)	.1971 (.077)
Perceived Social Support-Friends	-.1170 (.245)	.2162 (.060)
Perceived Social Support-Family	.0489 (.387)	.3336 (.008)
Social Network-Family	-.1167 (.246)	.1937 (.082)
Social Network-Best Friends	-.2279 (.087)	.2167 (.060)
Functional Level	.3358 (.032)	....

of attending athletic events at school were more effective than mental ability in predicting self-esteem for the ABA group.

Summary of Predictors of Self-Esteem

The physically disabled and able-bodied adolescent groups were found to share two factors in common in prediction of self-esteem: perceived social support from friends, and participation in group/team activities with friends or agemates. Between the two groups, the other factors differed. For ABA, the third and final factor was perceived social support from family. For PDA, the third and fourth factors were reflected appraisals from the second significant other and the level of functional independence. Family social support can be an important predictor of self-esteem of physically disabled adolescents but its statistical redundancy with friend support causes its significance to be obscured. For PDA, mental ability cannot predict self-esteem at all, while for ABA, mental ability considered separately can predict a small but significant portion of their self-esteem.

Summary of Findings

The hypotheses were structured to determine which research variables related to self-esteem. The overall hypothesis examined the collective relationship of social support

variables with self-esteem. The sub-hypotheses separated the social support variables and examined them individually, then in combination with individual attribute variables and interactions among them in predicting self-esteem.

Three clear findings resulted from the hypothesis testing. 1) There was an overwhelming main effects relationship between Perceived Social Support from Family and Friends score) and self-esteem (as measured by the Piers-Harris Total score. Perceived social support had a higher correlation with self-esteem than social network size, but both were significant. 2) Gender did not correlate with self-esteem and was not a factor in prediction of self-esteem. Girls did not have lower self-esteem than the boys in either group (PDA or ABA). 3) Presence of a physical disability alone was not a factor in prediction of self-esteem; however, physical disability interaction with total social network size was a weak predictor (that is, physically disabled adolescents with smaller total social networks were more likely to have low self-esteem).

The physically disabled adolescent group and the able-bodied adolescent group were similar in many demographic measures. Their background characteristics were similar in family composition and SES. The ABA group was almost one year older than the PDA group, and included more girls than boys. The mental ability scores of the PDA were within the normal range but were statistically lower. The PDA group had

wide distribution of functional abilities, from fully independent to fully dependent in functional tasks.

The PDA and ABA groups were quite similar in a number of important measures: self-esteem, both total scores and sub-scale scores; perceived social support from family; size of family network; similar preferences for people with whom they had significant relationships, and the reflected appraisals from those significant others.

PDA reported significantly less frequent participation in shared activities typical of adolescents, and more frequent solitary activities. They reported smaller social networks of friends and best friends, and significantly lower perceived social support from friends. PDA were more likely to indicate a non-family adult (usually teacher or therapist) as a member of their friend social network. Smaller social networks further limit participation because they have fewer friends with whom to interact in peer-related activities.

The physically disabled adolescent group and the able-bodied adolescent group shared two common factors which predicted their self-esteem level: scores on Perceived Social Support from Friends and activities participated in with friends or on a team. For ABA there was a third predictor, score on Perceived Social Support from Family. For PDA, family support was important but did not emerge as significant in the final equation. Two additional factors contributed to the final regression prediction for PDA: reflected ap-

praisals from the second significant other (father), and level of functional independence.

The major between-group differences were in two categories: frequency of shared activities, and social network and support from friends. The categories may be inter-related, connected by the common function of time spent with peers or friends, which provides opportunity to build one's network and obtain social support. Failing to develop common activities could impede development of networks and support.

The next chapter will analyze the findings of this study and discuss the implications of these results. Recommendations will be made for application of findings of this study for health care professionals and educators of adolescents with physical disabilities.

CHAPTER V

DISCUSSION AND RECOMMENDATIONS

This research investigated the relationship of self-esteem and social support in adolescents who were able-bodied or were physically disabled due to cerebral palsy or spina bifida with myelomeningocele. Factors including family and friend social support, relationships with significant others, activities participated in, functional skills of the disabled group, and attributes of mental ability, age, and gender were considered. In early chapters, the research questions were stated, relevant literature reviewed, and methodology of the study described. The previous chapter presented results of the hypothesis testing, and compared similarities and differences between the groups on selected measures. Factors which predicted self-esteem were identified separately for the two groups.

In the present chapter, first, three broad categories of results will be reviewed and analyzed: 1) similarities and differences between the physically disabled and able-bodied adolescent groups, 2) the prediction of self-esteem for both groups, and 3) the limitations of this study. Second, the answers to research questions asked in Chapter I will be

summarized briefly, followed by implications of the findings for education and therapy, and recommendations based on results of the study. Last, suggestions for further research will be presented.

Similarities and Differences between PDA and ABA Groups

In this section, the two groups, physically disabled and able-bodied adolescents, will be compared. Five areas of similarities and differences will be analyzed in the context of theoretical prediction and prior empirical findings. The five areas are (1) maintained self-esteem in the presence of disability, (2) significant but inconsequential differences between groups in mental ability, (3) similarities of relationships with significant others, (4) differences in social support between physically disabled and able-bodied adolescents, and (5) differences in activity participation.

Maintained Self-esteem in the Presence of Disability

The present study found no difference in levels of self-esteem between able-bodied and physically disabled adolescent groups. The findings of prior research regarding self-esteem of disabled are mixed. Some studies have found lower self-esteem (Hayden et al, 1979; Martinek & Karper, 1982), or lower only in the disabled girls (Magill & Hurlbut, 1986). Other studies have found no significant differences. Adams and Weaver (1986), Zeltzer and colleagues (1980), and

offer and colleagues (1984) found chronically ill adolescents had self-esteem levels similar to controls. Magill and Hurlbut (1986) found the overall group of adolescents with cerebral palsy had self-esteem levels comparable to controls (though a sex-by-disability interaction found the disabled girls tended to have lower self-esteem).

The findings of no significant differences merit some interpretation. Though the results were comparable to findings of prior research, the question arising from theoretical predictions remains: Why wasn't the self-esteem of the physically disabled adolescents lower than their able-bodied counterparts? Reduced physical competence and social stigma of physical disability were theoretically likely to lower the self-esteem of physically disabled adolescents. Yet the self-esteem levels of the physically disabled adolescents in this study are similar to the able-bodied group, suggesting that certain factors may be operating to mitigate deleterious influences. For this outcome there are five potential theoretical and practical explanations, which are not mutually exclusive: (1) stress/coping and self-efficacy theories, (2) the self-protective properties of social stigma, (3) developmental processes, (4) denial as a psychological defense, and (5) efficacy of prior therapeutic or educational interventions for self-esteem.

stress/Coping and Self-efficacy Theories

Adolescents with physical disabilities and normal intelligence are aware of their physical condition and limitations. Though they experience difficulty and slower speed with tasks of daily living and other activities, over time they are able to adapt. The activity may be modified or equipment obtained to make function possible. The growing child faces his or her limitations, accommodates to them, and learns to cope. Stress and coping theory predicts that learning to cope enhances self-esteem (Pearlin & Schooler, 1978), so coping with disability may actually enhance self-esteem. Offer and colleagues (1984) found chronically ill adolescents had superior self-images, and most of the subjects in that study were able to cope effectively with fears and worries associated with their disease.

Self-efficacy is gained in learning that one can face difficulty and succeed in going on despite it. By this, self-worth is increased (Gecas & Schwalbe, 1983). In this context social comparisons may also be favorable: a disabled adolescent looking at others without disabilities may wonder how they would manage if they had his or her body, and come to believe that he or she is doing better than they would.

The Self-Protective Properties of Stigma

The maintenance of self-esteem in the presence of disability also can be interpreted using the inner and outer

esteem model (Franks & Marolla, 1976), and recognizing that membership in a stigmatized group may protect self-esteem. Outer esteem is bestowed by others, with reference groups and significant others as mirrors reflecting images of the self. This is important in the labeling theory of deviance, which asserts that the imposition of a deviant identity on a person is an etiological factor in stabilization of deviance (Goffman, 1963). Outer esteem taken alone is a passive and external conceptualization of self-esteem formation. Inner esteem derives from the experience of the self as an active and efficacious agent striving in the face of obstacles (Franks & Marolla, 1976).

Physically disabled adolescents, because they are different in appearance, and because they experience some limitations in functional abilities, have ample opportunity to practice active striving in the face of obstacles. While the disability may limit mastery of physical tasks, some efficacy at physical tasks may be achieved. In addition, competence may be gained in other behavioral areas (social, cognitive). Gecas and Schwalbe (1983) argued that the various contexts of action can be differentially valued at the cultural and community level, in a hierarchy of contexts of action. If, however, objective features of the workplace or task

severely restrict one's potential for efficacious action, this context may lose its salience as a source from which a sense of efficacy is derived.... [In addition,] in-

dividuals may restructure the meaning of action such that it can become a source of self-esteem (p. 84).

physically disabled adolescents may select contexts in which they are able to be efficacious as salient for their self-esteem, and dismiss as unimportant those activities in which they are limited. In other words, they may emphasize their personality attributes or artistic or other accomplishments and selectively devalue the dimensions in which they do not excel. They may consider their physical limitations as irrelevant to self-esteem.

Society clearly stigmatizes and devalues disability, and conveys a devalued attitude toward disabled persons (Gliedman & Roth, 1980). However, the self-esteem of the physically disabled adolescents in this study apparently was not significantly affected by that attitude. Further understanding of the physically disabled adolescents' apparent immunity to accepting social devaluation may be found in Rosenberg's (1979) discussion of socially devalued minority groups. For social stigma or devaluation to negatively influence self-esteem, four conditions must be met: the individual must be aware of society's attitudes, must agree with that evaluation, must find the attitudes personally relevant, and believe that the attitudes are significant to him/her.

Since the group of adolescents with physical disability in this study did not have significantly lower self-esteem

than the ABA group, for each individual one or more of Rosenberg's conditions may not have been met. Stager and colleagues (1983) followed Rosenberg's reasoning in finding that individuals who were committed to their deviant group identity had high self-esteem. The personal relevance of society's standards about the group's characteristics should not lower self-esteem if the individual disagrees with those standards and holds a positive attitude toward his/her deviant group.

Verkuyten (1988) examined Rosenberg's fourth condition, "attaching value to the judgments of society", in studying self-esteem in socially acceptable (Dutch) and socially discriminated (ethnic minority) adolescents in the Netherlands. No significant differences in self-esteem were found between the two groups. Significant differences were found between the groups in their identification of the relationship of persons who were considered to be significant others (eg., family, peer, teacher). Correlations between self-esteem and those persons as providers of reflected appraisals were also significant. The adolescents from ethnic minorities focused to a much larger extent on the judgments of family members while the Dutch adolescents focused on peers and teachers. Thus, adolescents who were members of a socially devalued minority group were able to maintain high levels of self-esteem by focussing on the reflected appraisals of selected persons whose opinions they valued, and

ignoring the appraisals of the larger society.

These results on the surface appear to be contradictory to those of the present study because the ethnic minority (devalued) group preferred family support over peers, while the present study found the PDA-(devalued) group's self-esteem was more closely related to friend support. This may be explained by analysis of the definition of peer versus friend in the respective studies. The Verkuyten study included all peers as the group compared to family, while the present study considered only friends who were already providing social support. For devalued groups in both studies, the adolescents were able to focus on the reflected appraisals of persons whose opinions they valued. In the present study, the disabled adolescents were also particularly sensitive to the reflected appraisals of their significant others, as evidenced by the predictive capacity of reflected appraisals for their self-esteem. Rosenberg's (1979) fourth condition of societal attitude toward the devalued group may not have been significant to the members of the group because their significant others consisted of a smaller, intimate, and supportive social group who do not convey that negative attitude.

Crocker and Major (1989) analyzed the discrepancy between theory and data on consequences of stigma for self-esteem. They identified self-protective properties of stigma which work through three mechanisms: (1) external attribu-

tions (prejudice) for negative evaluations or outcomes, (2) selectively comparing their outcomes with members of their own group, and (3) selectively devaluing those performance dimensions on which they or their group perform poorly, and valuing those in which they excel. One or more of those mechanisms might have been operating in this group.

Developmental Processes

According to Erikson's theory of psychosocial development, children face a series of crises or conflicts which must be resolved (Erikson, 1963; Thomas, 1985). The adolescent conflict is between a sense of identity and role diffusion. Shulman and Rubinroit (1987) predicted that handicapped adolescents, having difficulty achieving physical separation from dependence on parents, would also have difficulty consolidating the sense of individuality. However, in a study of Erikson stages and conflict resolution in physically disabled and able-bodied college students, Kriegsmann (1985) found, contrary to expectations, that the physically disabled subjects were at the same level or more advanced than their able-bodied peers. The experience of living with a physical disability may crystallize the conflicts and facilitate values clarification. Evidence that physically disabled persons change their fundamental value structure in response to the disability (Schulz & Decker, 1985; Taylor, 1983) illustrates the selectivity of values

principle discussed by Crocker and Major (1989).

The presence of a disability during adolescence may heighten awareness of oneself, including one's differences from others. The disabled adolescent needs to develop a sense of self as a person with a disability. The disability can be integrated into the personality but not be dominated or overwhelmed by it (Reiss, 1985). In this way a healthy self-concept and self-respect are possible for persons with a physical disability.

Denial as a Psychological Defense

Disabled persons may use cognitive reappraisal strategies and psychological defense mechanisms to try to cope. Defenses, including denial, represent unconscious processes aimed at reappraisals and distortions of a threatening reality to make it more bearable (Mattson, 1972).

In order to deal with the painful realities of rejection, scorn, and embarrassment, the disabled adolescent will resort to devices such as fantasy and denial. Depending on their intensity and frequency, these defense mechanisms need not be pathological (Strax & Wolfson, 1984, p. 49).

Denial may be a useful coping strategy (Adams & Weaver, 1986; Zeltzer et al, 1980) to protect the sense of self from overwhelming threats to self-esteem.

However, in the Offer and associates (1984) findings of normal self-image of physically ill adolescents, the range of emotional responses was not restricted as would be expected

if denial were operating. The authors considered the possibility that denial caused the normal results, but concluded that they "do not believe that such adolescents are simply denying their own overwhelming anxiety, fear, and loss of a sense of self" (p. 71).

Efficacy of Prior Intervention

Another possible explanation for these results is that the physically disabled adolescents have had ready access to multiple support services which may have bolstered their self-esteem (Adams & Weaver, 1986). During childhood, a disability receives considerable attention. Therapeutic support services are usually available for the disabled child and family, and most subjects in this study indicated that they have received such services. Most subjects indicated frequent visits to a doctor or therapist (Table 25), and many were receiving some form of special education services (Table 15). Even mildly disabled subjects were known to school personnel and had received some form of special attention when the school environment was assessed and perhaps adapted to meet their needs.

The fact that the physically disabled adolescents in this study had self-esteem levels similar to the control group may demonstrate that educational and therapeutic interventions regarding self-understanding and self-esteem have been effective. Interventions may have directly or indirect-

ly provided esteem support or values clarification. They may have participated in some discussion about the sociology of disability and the feelings and behaviors of non-disabled toward disabled people. This may have helped them understand the responses of peers toward them. With this information and support, the self-appraisals of the physically disabled adolescents may have been more thoughtful and objective than their non-disabled peers. The disabled adolescents may have been quite selective about the dimensions of the self which would be salient to their self-esteem, and consciously devalued other dimensions.

In review, five possible explanations have been proposed to account for the maintenance of self-esteem in physically disabled adolescents, despite theoretical predictions. These five explanations are (1) stress/coping and self-efficacy theories, (2) the self-protective properties of stigma, (3) developmental processes, (4) denial as a psychological defense, and (5) efficacy of prior interventions. The following sections present other similarities and differences between the physically disabled adolescent group compared to the able-bodied adolescent group.

Significant but Inconsequential Difference

in Mental Ability

The physically disabled adolescent group in this study achieved significantly lower mental ability scores, though

still within normal range. However, there was no discernible influence of mental ability on outcomes of hypothesis testing or prediction of self-esteem. For able-bodied adolescents, mental ability frequently correlated significantly with self-esteem measures ($r = .39$ for PHT), but mental ability was not a significant predictor of self-esteem if other information (eg., Perceived Social Support from Family or Friends scores) were available. For PDA, mental ability did not correlate significantly with self-esteem at all ($r = .14$, not significant) (Table 37). Consistently, mental ability correlated with other variables at a higher level for ABA than for PDA. For neither group, however, was mental ability a significant predictor of self-esteem. The ABA results are consistent with Coopersmith (1967) who reported weak ($r = .28$) correlation between intelligence and self-esteem, and noted that intelligence is therefore not a major determinant of self-esteem.

For physically disabled adolescents, the low correlation between mental ability and self-esteem may be evidence of their selectivity of personal attributes on which they based their self-esteem. Within the population of persons with cerebral palsy and spina bifida, mental ability scores tend to be somewhat depressed (Pilling, 1960; 1973), so the slightly lower average mental ability scores of the PDA subjects in this study is expected. PDA would be able to make external attributions (to the disability) for this

limitation (Crocker & Major, 1989). Thus, if their mental abilities were perceived as low and they had negative feedback about it, they would be able emotionally to defend their sense of self and base self-esteem judgments on other dimensions of the self.

Mental ability scores of the able-bodied adolescents in this study were average. Their low but significant correlation with self-esteem was also not unexpected. Able-bodied adolescents may attribute positive outcomes relevant to mental ability to internal causes. Internal attribution of positive outcomes strengthens self-esteem (Crocker & Major, 1989), and would tend to strengthen the relationship between mental ability and self-esteem. A global tendency to dismiss the salience of mental ability to self-esteem was not present in the able-bodied population, so its correlations with self-esteem were higher, but not predictive.

Similarities of Relationships with Significant Others

The physically disabled and able-bodied adolescents in this study tended to identify similar persons as their most significant others (parents, siblings and grandparents) as their closest relationships, and friends and other relatives as important but not quite as close. Unlike Verkuyten's (1989) study in which socially acceptable adolescents selected peers and teachers as their important significant others, both groups in the present study most frequently identified

family members as their significant others.

Also, the two groups in this study derive similar feelings from those significant persons (reflected appraisals). However, the groups differ in how they use those feelings. The self-esteem of the ABA group tended not to correlate with the reflected appraisals of their significant others, depending instead on the specific support perceived as provided by the family. This was indicated by scores on Perceived Social Support from Family being strongly predictive of self-esteem. PDA, however, were strongly influenced by those reflected appraisals, particularly from father and less strongly from mother. This is consistent with Cooley's (1902) metaphor of the "looking-glass self," which is the perception of the attitudes of others toward the self. ABA appeared to base their self-esteem more on what family members do or provide for them (perceived social support), while PDA depend more on the reflected appraisals of others' opinions of their worth.

Differences in Social Support between PDA and ABA

In the interpretation of the results in this area, a caveat should be noted regarding the imbalance between the groups: the able-bodied group consisted of 33 females of 17 or 18 years of age, whereas the physically disabled group had only 6 females in that age range. This may have skewed results in several areas, especially concerning social sup-

port variables.

The findings regarding social support differences between the two groups will be discussed two areas: (1) the significance of differences in levels of perceived social support from friends and social network size, and (2) the significance of having adults as friends in the social network.

Social Support Levels and Social Network Size

The findings of this study that physically disabled adolescents perceive less social support from friends, and report smaller friend social networks, were consistent with clinical predictions. Wallander and Hubert (1987) predicted that peer social competency problems are likely to occur if a child or adolescent has a handicap. Wortman and Conway (1985) stated that disabled persons often are in greater need of social support but may be less likely to get it because of the disability. McAnarney (1985) and Mattson (1972) noted that physically disabled adolescents with mobility problems lack opportunity for normal interaction and psychosocial adaptation with peers. Abramson and colleagues (1979) reported that handicapped adolescents commonly experience rejection more often than acceptance, which hinders opportunity to develop social skills.

The social support results of this study were consistent with prior research findings. Social isolation was

prevalent among adolescents with cerebral palsy (Resnick, 1986), and McAndrew (1979) found social isolation a significant factor in 50% of his sample of youth with spina bifida. Ashmead and others (1985) reported that two-thirds of a sample of orthopedically handicapped adolescents saw themselves as having social difficulties. Wesolowski (1987) found significantly smaller social networks consisting primarily of family members for disabled adults attending a rehabilitation center, in contrast to large and diverse social networks of able-bodied adults attending an evening college.

There are a number of explanations which account for physically disabled adolescents perceiving less social support from their friends, and having smaller friend and best friend social networks. Shears and Jensema (1969) put it bluntly, "Securing acceptance is a major problem for anomalous persons. People who are disabled or otherwise different from the norms of the group all too often find themselves cut off from the larger society" (p. 91). Wallander and Hubert (1987) identified a number of possible causative factors:

Stigmatization and teasing from uninformed peers is common because of atypical appearance and behavior and the need for special equipment.... The physical limitations, moreover, can hinder participation in normal socialization activities such as sports and shared play. Many physical disabilities involve medical complications ... resulting in absences from school and hospitalizations, which decrease opportunities for socialization experiences. Parents may also be overprotective of their physically disabled child, further inhibiting his/her social development.

Finally, related to all these points, physically disabled children are often faced with social situations which are outside the range of those encountered by their peers (p. 210).

These difficulties can be traced back to the social status of disabled persons, and the social construction of disability as devalued and stigmatized (Resnick, 1984a). There is an initial and subsequent interactional awkwardness (Siller and Chipman, 1964) in which both parties in interaction feel uncomfortable. Fichten and Bourdon (1986) studied able-bodied and wheelchair-using college students, finding that nondisabled people tend to avoid social interaction with disabled, and tend to behave atypically during such encounters. Though both groups of subjects in that study cognitively understood appropriate ways to respond socially with the other, normal response patterns were inhibited. Negative attitudes and incorrect assumptions by each group (including self-pity and nonassertiveness on the part of the disabled) interfered with their ability to become acquainted with the other. Burbach and Babbit (1988) studied a group of physically disabled college students, who reported a general problem of poor communication with their nondisabled peers.

Adults as Friends in the Social Network

In the present study a significantly greater number of physically disabled adolescents identified one or more non-family adults within their friend or best friend lists. Most

of the adults listed were paid professionals (eg., therapist or special education teacher) whose acquaintance would be known because of the disability. Concomitant with the listing of such adults was failure to indicate the names of peers in the given limited number of spaces. Thus the identification of an adult in one's friend social network inferred a smaller network of peers. An adolescent selection of a paid professional as part of his or her select group of friends may have been facilitated by the professional conveying an attitude of acceptance toward the disability. Acceptance overcomes the initial awkwardness of the social interaction, which allows the professional to approach the physically disabled adolescent and be there to provide support. The professional also may inappropriately allow or encourage inappropriate emotional and/or social dependence of disabled adolescents because of his/her own need to be needed.

Differences in Activity Participation

Of the eighteen typical adolescent activities queried, (Table 25) there were a number in which the physically disabled group participated significantly less often than their able-bodied peers. While one might assume that many of these activities were limited by the disability itself, the functional independence levels of most subjects did not usually prevent their participation in most activities. More than half of the PDA did chores at home, half walked at school,

and of those in a wheelchair, 84% could independently propel it. All but four of the PDA subjects could speak, and most (68%) could speak easily and understandably. Thus it appears that functional limitations did not constrain their ability to participate in many normal activities of adolescents, though the activity might require modification. Willingness of a nondisabled adolescent to modify an activity would permit their co-participation with disabled peers. The need to make modification may present a creative challenge for the able-bodied and disabled to problem-solve collectively.

Three areas of differences in activity participation between the two groups of able-bodied and physically disabled adolescents will be discussed: (1) less frequent social activities for PDA, (2) more frequent solitary activities for PDA, and (3) team sports participation for PDA. Again, the caveat regarding skew in group distribution possibly affecting social activities should be noted.

Less Frequent Social Activities

Certain of the activities in which PDA participated less frequently were shared social activities engaged in with a friend or group, for example, talking on the phone with a friend, attending a club meeting, participating in a team sport, or visiting friends at each others' homes. Infrequent shared activities were also found by Resnick (1984b) in a group of adolescents with cerebral palsy. Both studies

provided evidence of social isolation of adolescents with physical disabilities from activities in which they would have contact with their peers.

More Frequent Solitary Activities

Activities in which the physically disabled adolescent group participated more often than the able-bodied group tended to be solitary such as watching television, reading a book, or working on the computer, or an activity related to the disability like visiting a doctor or therapist. At the same frequency as ABA were solitary activities like working on a hobby or reading a book, and family activities like shopping together or attending religious services.

PDA reported most frequently watching television while ABA reported most frequently talking on the phone and hanging out with friends. These results are similar to Resnick's (1984b) findings that few adolescents with cerebral palsy belonged to clubs while the majority had a hobby. However, almost twice as many of the PDA of the present study reported spending time with friends frequently (26% compared to 15% of Resnick's), and more than twice as many report participating in sports (34% compared to 15%). These differences are likely due to differences in details of the survey technique (interview versus self-report format) or wording of questions rather than to truly significant differences; both of these activities were carried out by less than half of each group.

The significance of lower levels of peer contact and more frequent solitary activities becomes frighteningly clear in looking ahead to the lives these solitary adolescents might lead as adults. Senft and associates (1990) surveyed a group of 38 adults with cerebral palsy, ages 20-31, drawn from a hospital-based neuromuscular disability clinic. They found these young disabled adults lacked basic independence in self-help and other daily living skills:

The majority ... were dependent on their aging parents for all areas of life from self care to transportation and socialization. None of them lived independently or semi-independently and social isolation was a common finding. Not one drove a car and none used public transportation despite the fact that some buses were wheelchair-accessible. Of the entire group of patients only four could prepare a simple meal for themselves without assistance (Senft et al, 1990, pp. 24-25).

These disabled adults were truly handicapped, in the World Health Organization definition of handicap as failed life roles (Campbell, 1990). This is a grim picture. Families, educators, and therapists need to remember their common goal of preventing or minimizing handicap, to facilitate as fully functioning and independent human being as possible. Their energies should be focused on that goal.

It should be noted that the subjects in the above study were not asked what role their parents had in encouraging or discouraging their independence and socialization. Brown (1988) found parental attitudes about independence to be a serious issue affecting adults with cerebral palsy. Resnick

(1984b; 1986) stressed that parent overprotectiveness was a frequent problem interfering with disabled adolescents' socialization.

The subjects in the Senft (1990) study were drawn from a hospital service, which may have been a less representative sample (i.e., more seriously impaired) than the school attendees of the present study. However, their inability to participate in any semblance of a normal adult role was an unpleasant reality. For disabled children and adolescents to avoid the future of dependent isolation as described above, several efforts are needed: (1) developing social skills, (2) maximizing independence and self-help skills, (3) developing recreational skills and interests, and (4) planning and practice for integrating into mainstream society. These skills do not emerge quickly, so they should be the focus of intervention and education of children with disabilities from an early age.

Team Sports Participation

Though sports participation was an activity only for a minority of disabled teens in this study and in Resnick's (1984b), it is an activity whose potential value should not be overlooked. Resnick (1984b) queried several youths with cerebral palsy about the value of sports participation for them personally. One indicated he was able to modify an activity to be able to participate. Another noted how sports

provide an opportunity to be with friends and do something together. Another appreciated how friends would bend the rules so he could play, which really made him feel good.

Kessell and colleagues (1985) developed and studied the effects of a program to help disabled adolescents attain important developmental tasks related to independence and socialization (Havighurst, 1953). The program, entitled Adventure, Etc., integrated physically disabled, chronically ill, and able-bodied adolescent teens into a 14-day wilderness/urban Outward Bound experience. The focus was experiential learning "requiring active problem-solving, peer interdependence and exploration of new experiences that tested physical and social capabilities" (Kessell et al, 1985, p. 434). The program was a success. They reported an increased sense of personal efficacy, increased personal independence including increased responsibility for self-care, and more social involvement outside the family. Parents, in turn, had to learn to relinquish control as their child gained new skills and attitudes.

Summary of Activity Frequency Findings

Clearly, the physically disabled adolescents participated in shared activities less frequently than their able-bodied peers, though some found ways to manage or to compensate for the disability. The relatively greater frequency of solitary activities was a reality for the disabled

teenagers. As adults, those with physical disabilities may find themselves extremely isolated from normal adult roles, responsibilities, and enjoyment. During the formative years of education, the disabled child and his or her family need to be encouraged to seek opportunities to interact with peers and develop recreational interests. For the non-disabled, presence of a disabled peer can challenge creative problem-solving to permit co-participation for both groups. If social experiences are fewer, opportunities for developing resources for social support are also lost.

Summary of Similarities and Differences

The present study found the two groups of adolescents to be alike in many ways. Their self-esteem levels were similar. They relied on their families for intimate and significant relationships, and on their friends for additional social support. With friends they appreciated doing activities together, and such support and shared time together influenced their own self-evaluations. While there were differences in the mental ability scores between the two groups, the differences apparently had little impact on psychosocial functioning. For subjects in both groups, lack of social support from family and friends and less frequent shared activities with friends directly and negatively related to self-esteem.

The groups differed in indicants of social support,

with the physically disabled adolescent group faring less well. Smaller and less supportive networks of friends and less frequent time together indicate they are at risk for lower self-esteem. The PDA group participated less frequently in many of the typical adolescent activities, especially shared activities with a friend or group. They carried out solitary activities more frequently. This pattern of isolation portends an unhealthy adult life-style of isolation.

The next section will discuss the prediction of self-esteem for both groups of adolescents. First is a note of caution about the meaning of statistical prediction, then the identified predictive factors of family and friend social support, shared activities with peers, reflected appraisals, and functional level will be discussed.

Prediction of Self-Esteem

Regarding causality and the prediction of self-esteem, it should be noted that this research is correlational, not experimental. The independent variables (disability/ability, social support, activity frequency) were measured, not manipulated. Causality cannot be determined in correlational research (Dooley, 1985). Reverse or reciprocal causation is possible in this study between self-esteem and social support; that is, level of self-esteem may influence the level of the other factors identified. In the same way, prediction is not causation. Prediction of a variable from other known

variables is possible when there is a strong relationship between variables. Prediction is achieved through knowledge of one or a group of variables, together in a weighted formula, predicting the level of the dependent variable. Ability to predict indicates the strength of the relationships, not causation.

For the adolescents in this study, self-esteem was predicted by (1) perceived social support from family and friends, (2) frequency of shared activities with peers, and, for the physically disabled adolescent group, (3) reflected appraisals of significant others and (4) functional independence. These findings were consistent with theoretical predictions about self-esteem, and with findings from prior research.

Perceived Social Support from Family and Friends

Family social support is the important foundation upon which self-esteem is built (Coopersmith, 1967) and continues to be important in adolescence, though friend support comes to rival that of family. In this study, family social support correlated highly with self-esteem for both groups. For ABA, family and friend social support were two of the three most important predictors of self-esteem. For PDA, friend social support was statistically more valuable in the prediction equation. Because of high intercorrelation between family and friend social support, statistically, family

support was not quite as effective a predictor of self-esteem as friend support.

Self-esteem is closely interconnected with peer relationships, for adolescent self-evaluations may be seen as "the experience of the esteem in which one is held by one's peers" (Grunebaum and Solomon, 1987, p. 475). Hoffman and associates (1988) found friend social support to be an important influence on self-esteem primarily when support from mother was low. Brown and Lohr (1987) found social effects on self-esteem, as adolescent self-esteem interacted with crowd membership; the individual appraises the self and the crowd, and evaluates the self considering the salience and context of the crowd appraisal.

Regarding predictors of self-esteem specifically for disabled adolescents, Resnick (1984b) also found that the extended social network of friend and peer relationships was associated with positive self-image. While the present study found social network size a significant predictor, the perceived social support of friends (more than the size of networks) had by far the strongest relationship with self-esteem, and was its best predictor.

Similarly, Varni and associates (1989) found classmate social support to be the most important predictor of self-esteem among a group of children and adolescents with limb amputation. In that study, family social support was also important.

Shared Activities with Peers

Frequency of shared activities with peers was a common factor for both groups in the present study, though the exact nature of activities differed. For the ABA group, frequent attendance at a school athletic event was predictive of higher self-esteem. The nature of such an activity is group and social, having a feeling of belonging, having a group identity working toward achieving the team goal of winning. Group social support is available if the team loses. The importance of attending school athletic events illustrates the salience of group identity for adolescent self-esteem (Hoge & McCarthy, 1984). It is unlikely that most students frequently going to or participating in an athletic event do so in solitary, for attendance is usually optional and social isolation in such a setting would be uncomfortable and awkward. However, for able-bodied adolescents in this study, NOT attending such events was predictive of lower self-esteem. An adolescent's attending extracurricular athletic events could indicate his or her sense of group identity, contributing to the sense of self-esteem.

For the physically disabled adolescents, attending an athletic event was not significant, but participation in a team sport was a very important and unexpected self-esteem predictor. It was the only measured activity achieving significance as a self-esteem predictor for the group. The

pattern of team sport participation tended to be either/or for the group as a whole: 50% never participated, and 34% did so frequently or very frequently (once a week or more). Participation was not divided along levels of disability, for there was no correlation between participation in a team sport and functional level. Several of the most disabled subjects reported that they participated in adapted sports with other disabled classmates.

The direction of causality between self-esteem and team sports is likely bi-directional: PDA who feel good about themselves may be more likely to have the confidence to participate in team sports; while actual participation serves to boost self-esteem. Either way, encouraging non-participants to become involved in team sports may help them gain confidence and contribute to their self-esteem.

Team sports provided the disabled adolescents opportunity to enjoy being with friends and working toward a goal together. Acceptance as a teammate and opportunity to strive together for accomplishment toward a group goal benefits disabled adolescents' self-esteem. Group identity (as discussed above for ABA) may be a factor contributing the importance of team participation for disabled adolescents. Efficacy in a physical challenge may be another factor. Gecas and Schwalbe (1983) stressed the importance of experienced efficacy in a salient context for healthy self-esteem formation. The context salience for participating PDA subjects may

arise both from the physical challenge of sport for a physically disabled person and the importance of team membership promoting group identity and belonging.

Bernhardt (1984) discussed the value of and potential for recreational sports participation for adolescents with cerebral palsy. She stressed that reasons for participation are even more compelling for physically disabled youth than for able-bodied. Important physical fitness benefits can be gained (strength, endurance, mobility). Other benefits include a sense of accomplishment, a feeling of body control, fun, reduction in anxiety and stress, and social interactions. Bernhardt advised health care professionals, especially physical therapists, to incorporate goal setting for fitness and sports participation, which should be addressed by preparation and planning during therapy time.

Valliant and colleagues (1985) have found that sports for the physically disabled provide additional benefits: (1) participation allows an escape from the aversive environmental settings in which they may be confined, (2) sports permit them to direct their energies in a goal-directed activity, and (3) sports provide interaction with a new peer group.

Reflected Appraisals of Significant Others

For physically disabled adolescents, the reflected appraisals of significant others was another powerful predictor of self-esteem. In this study, of three persons listed,

the reflected appraisals of the first and second persons on the list were highly correlated with self-esteem (person 1 $r = .543$, person 2 $r = .656$). The first person listed was most frequently mother (60%), then father (16%), closely followed by other relative (not sibling or grandparent) (13%). The second person listed was most frequently father (44%), followed by mother (18%).

Parents have the capacity to convey to an adolescent their personal attitudes of acceptance and worthiness, or rejection and worthlessness. In this study, that conveyed attitude strongly influenced the self-esteem of the adolescent. The dependence upon the opinion of the important significant others may be the price the disabled adolescent pays for selectively devaluing or ignoring the opinions of society as a whole. The "generalized others" of society (Mead, 1934) convey negative attitudes about the stigmatized disability. Shielding him/herself from the opinions of general society, the disabled adolescent instead relies on those closest to him/her. This is consistent with Verkuyten's (1989) findings about socially stigmatized youth relying primarily on family as their significant others.

The relationship of reflected appraisals, most frequently father's, to self-esteem of disabled adolescents was an unexpected finding. Again, as in perceived social support from friend compared to family, the omission of the reflected appraisals of significant other number one appears to be

primarily a statistical phenomenon. Correlation with self-esteem was quite high for both significant others one and two, but the correlation with the second other was higher. Once the effect of the reflected appraisals of significant other two was partialled out, no significant relationship remained between significant other one and self-esteem.

The specific influence of father's reflected appraisals on their disabled adolescent's self-esteem was demonstrated in the very high correlations presented in Table 35. Although the prediction equation only identified the second significant other as important, that may have been a statistical selection because a greater number of fathers' reflected appraisals were represented in the scores of the second others. The correlation between fathers' reflected appraisals and self-esteem was even stronger for the subjects that chose father as their first significant other. These subjects also tended to have higher self-esteem scores. Most importantly, both groups choosing father as their significant other had extremely high correlations between father's reflected appraisals and self-esteem (.91 and .78). The contrast group, not choosing father, had much lower correlations (.50 and .59). All of these data confirm the powerful influence of the specific person of father. His attitudes toward his disabled adolescent profoundly affect the young person's self-esteem.

Fathers are important significant others in the life of a child or adolescent. They help the child orient to the

world outside the family, and promote reality-testing (Green-span, 1982). Previously fathers have been noted to have definite impact on self-esteem development (Gecas, 1971; Kawash et al, 1985). However, Gecas and Schwalbe (1986) were surprised to find fathers had a stronger influence on adolescent self-esteem than mothers. They proposed that "perhaps the typically greater power and authority of the father in family relations make his behavior more consequential for the child's self-conception" (p. 44). LeCroy (1988) found that father intimacy is a better predictor of adolescent self-esteem than mother intimacy. Isberg and associates (1989) found that father's devaluing behavior and judgmental speeches to their adolescents were, of all parental interaction categories, the only one contributing to adolescent self-esteem, with the effect of lowering it. They also found parental behavior significantly correlated with adolescent self-esteem only for subjects at the lowest ego-development level (pre-conformist). This finding corroborated the Jacobson and associates (1983) study of ego development correlating with self-esteem. The Isberg study (1989) extended the findings by the interaction between ego development level and parental behavior. Such interaction may have occurred in the present study, because physically disabled adolescent subjects were so sensitive to father's reflected appraisals. However, their ego developmental level was not assessed, so no interaction could be confirmed.

Coopersmith (1967) commented about father's impact on son's self-esteem. The majority of high self-esteem boys indicated father as the person in whom they were most likely to confide, while only 17% of the low self-esteem group chose father for that function. The results of the present study were similar to Coopersmith's results in this area.

Significant others, including and perhaps especially fathers, may serve several functions relevant to self-esteem formation (Rosenberg, 1979; Crocker & Major, 1989). For disabled adolescents, fathers may serve three special functions: (1) reality testing; (2) values clarification, helping adolescents understand their world and sort out values about themselves; and (3) influencing the psychological centrality or importance of the disability to the adolescent (Rosenberg, 1979). In this process, decisions are made regarding which features of the self will be personally relevant to self-esteem. Features to be considered include the disability, appearance, and functional limitations. These are subtle, difficult, and important decisions which disabled adolescents must make. Fathers can be helpful, and their attitudes can be persuasive.

Functional Independence

In the present study, level of functional independence was the fourth important predictor of self-esteem for the adolescents with cerebral palsy or spina bifida. This

outcome was consistent with predictions from theory and empirical findings. Independence, defined as "freedom from the influence or control of others" (Coopersmith, 1967, p. 217), is critically important in self-esteem formation. He noted how "the dependency-producing environment provides no basis for testing personal adequacy and leaves the individual uncertain of his worth" (p. 231). Physical dependence of physically disabled adolescents limits opportunities to develop high self-esteem.

Physical independence in self-care activities of feeding, bathing, and toileting are normal skills expected of young children. Dependence of an older child or adult is socially stigmatized. Physical dependence compromises privacy and impairs feelings of autonomy and personal dignity. It is relatively more difficult for dependent persons, especially adolescents, to feel good about themselves when intimate self-care activities require the assistance of another person. Jessop and Stein (1984) found that poor functional status correlated with poorer psychosocial adjustment for children with chronic conditions. However, in the study of child amputees, degree of limb loss was not significantly associated with self-esteem (Varni et al, 1989). Degree of limb loss may be related to limitations in functional independence, but the correlation is not absolute because prostheses can substitute for missing limbs and permit function. Amputees are unimpaired in speech and language abilities,

and independent mobility and self-care are usually possible.

For the population of persons with cerebral palsy or spina bifida with myelomeningocele, substitution for disabled parts is less easily accomplished because their problem is partial or complete paralysis of several limbs. Motor control problems interfere with coordination and movement of existing body parts. For these adolescents, functional independence was likely more limited than for subjects in the amputee study. In this study, more functional dependence was associated with lower self-esteem. The correlations between self-care independence and self-esteem, and the predictive relationship between functional level and self-esteem confirmed Coopersmith's (1967) prediction about lack of independence being damaging to self-esteem.

Summary of Predictors of Self-Esteem

The findings of predictors of self-esteem were consistent with theory and prior research. For both groups of adolescents, quite a large amount of variance could be accounted for by a combination of social influences and activities plus independence level for physically disabled adolescents. For both groups, perceived social support from family and friends, and activities shared with peers were highly predictive of self-esteem. For disabled adolescents, reflected appraisals from the second significant other (father) was

highly predictive. The attitudes of these others, especially fathers, may help or hinder reality testing, values clarification and self-understanding in the adolescent coming to terms with a disability. Also predictive for disabled youth was the level of functional independence which affects privacy, feelings of autonomy and personal dignity. Thus, functional independence impacts on feelings of self-worth.

The limitations of a study influence the ability to generalize results and make recommendations about application of findings. These will be discussed in the next section.

Limitations of the Study

Four limitations can be noted about this study which limit its generalizability and application: (1) design, (2) instrumentation, (3) sample, (4) and lack of detail in certain areas.

Design Limitations

First, the design was correlational, not experimental; thus, the direction of causality cannot be determined. It may be that self-esteem was the primary determinant of social support rather than the reverse. What was clear, however, was the strong relationship between the two. In addition, social support was itself a valuable resource for adolescents. Since social support is modifiable through intervention (Sarason & Sarason, 1986), it is appropriate to study as an independent variable. Improving social support promotes emotional health and may enhance self-esteem.

Limitations in Instrumentation

This was a survey design based entirely on self-report measures. Self-report measures are vulnerable to biases of social desirability, random answering, and falsification of answers, among others. The subjects were all adolescents of normal intelligence attending school who were able to read and answer questions about themselves. There was no agenda giving either or both groups any reason to misrepresent the

information they provided; however, lying or simply not answering carefully may have occurred. Savin-Williams and Demo (1983) questioned the validity of paper-and-pencil studies of self-esteem, recommending an unobtrusive observation of external corroborative behaviors. This recommendation was not feasible with the large sample in this study. In defense of self-reporting, perhaps the best and most direct way to find out what someone is thinking is to ask him/her. In this paper-and-pencil study, subject responses occurred across a wide range, and standard deviations of both groups are similar. Thus, both groups appear to have used similar processes in dealing with the tests.

This study did attempt to improve the validity of self-esteem measures by use of two well-known instruments. The Piers-Harris Children's Self-Concept Scale and the Rosenberg Self-esteem Scale did intercorrelate highly in the study (.721); however, the Rosenberg did not correlate as highly as the Piers-Harris with other measures of interest. The RSE range of responses tended to be narrower. Therefore, the Piers-Harris Total was used exclusively to represent self-esteem for both groups. Because only Piers-Harris Total was used, the goal of improving validity by use of two instruments was only partially accomplished. High intercorrelation indicates that they seem to have a relationship, but it is not absolute. The findings of the study hinge very much on the validity of the Piers-Harris Children's Self-Concept

scale. The Piers-Harris is a well-respected self-esteem instrument, and highly recommended. However, Wylie (1989) cautioned about its tendency to have high intercorrelations with non-self-concept variables, casting doubt on its discriminant validity.

Limitations due to Sample

The sample consisted of adolescents with cerebral palsy or spina bifida with normal intelligence. Results can only be generalized to other disabilities or ages with caution. Both of the disorders studied become apparent in infancy. In both cases, therefore, the child grows up knowing only that condition, it becoming a part of his/her identity. The results of this study may not generalize to youth with later onset acquisition of disability because the psychological processes may not be the same. Crocker and Major (1989) note that later onset of stigma shortens the time one has to adjust to the situation. Other disabilities, especially as a result of an accident, may have some component of fault or blame of self, parent, or other, which could affect attributions for outcome and perception of self-worth (Schulz & Decker, 1985). Visibility or concealability of disability may be another factor (usually for cerebral palsy and spina bifida the disability is visible during movement in normal everyday tasks). Other less visible disabilities may provoke different social responses and confuse the individual by the

sense of marginality.

Only adolescents of 12-19 years were the concern of this study. Developmental research has found that younger children tend to value different attributes than older children, particularly physical characteristics and abilities (Damon & Hart, 1982). Since physical skills are less accomplished among physically disabled children, developmental theory then, would suggest that younger children with physical disabilities would have lower self-esteem. Some evidence of that has been found (Martinek & Karper, 1982), though little self-esteem research with younger disabled children has been done. Results cannot therefore be generalized to other age groups because different psychological processes may influence their self-esteem at different ages.

Limitation in Insufficient Detail

The final limitation of this study was failure to inquire deeply into specifics of activities and certain social relationships. While interesting effects of social support from friends were found, there was no attempt to identify characteristics of those friends. Especially omitted was whether the physically disabled adolescents' friends were disabled. In a similar vein, it is not known which of the activities physically disabled adolescents participate in were adapted for the disability, and whether they participated with other disabled peers or with able-

bodied. Resnick (1984b) found that adolescents with cerebral palsy who only had disabled friends had lower self-esteem than those with both able-bodied and disabled friends.

However, Coleman (1983) found that learning disabled children with some resource room time shared with other disabled peers had higher self-esteem. He suggested this could be accounted for because it provided a similar group for favorable social comparisons. In the present study, it was not clear who were the friends, and what type of sports/team activities (including with whom) the disabled adolescents found so supportive of their self-esteem. The significance of team participation for self-esteem was a surprise, unexpected finding, and needs further investigation.

The missing detail would have been helpful in formulating recommendations. For example, did physically disabled adolescents with high self-esteem have a disabled reference group somewhere? Who were their friends? Is it important that they have some contact with similar peers?

In the next section, each research question from Chapter I will be answered briefly.

Answers to Research Questions

In Chapter I of this study three research questions were posed. Each has been analyzed and answered in depth in the preceding pages, but each will be answered briefly here.

1. Is there a relationship between self-esteem and

social support in physically disabled and able-bodied adolescents? Yes, for both. The relationship is very strong for family and friend perceived social support, greater than the relationship for social network.

2. Are there differences between physically disabled adolescents and able-bodied adolescents in levels of self-esteem and extent of social support? For self-esteem, no, there are no differences. For social support, yes. Physically disabled adolescents have lower scores in several social support measures.

3. What factors predict self-esteem for physically disabled adolescents and for able-bodied adolescents? For physically disabled adolescents, the predictive factors are perceived social support from friends, the reflected appraisals from their significant others (especially father), the frequency of their participation in a team sport, and their functional independence level. These factors together can account for 77.4% of the variance in physically disabled adolescents' self-esteem. For able-bodied adolescents, the three factors which together predict 54.8% of self-esteem are perceived social support from friends, perceived social support from family, and frequency of attending an athletic event at school.

The next section will present the implications of the findings of this study, particularly regarding physically disabled adolescents. Recommendations for education and

therapy will also be provided.

Implications and Recommendations

The implications of the results of this study will be discussed in two overall categories: (1) the importance of social support for adolescents, and (2) self-esteem and its predictors.

Importance of Social Support

Social support is known to be an important resource to bolster coping with stress, both in adolescents and adults. The value of social support for contributing to self-esteem in adolescents has been corroborated in this study. The subjective experience of social support as perceived by the individual is particularly important, more so than the size of social network of supportive family members or friends. A supportive family is the starting point for perceived social support for all adolescents, both physically disabled and able-bodied. Physically disabled adolescents are particularly vulnerable because their perceived social support from friends is lower and their social networks are smaller than those of the control group.

Regarding the importance of social support for adolescents with a physical disability, four recommendations emerge from the findings of this research, in the following areas: (1) families and social support, (2) professionals

enhancing preparatory skills, (3) education of able-bodied children and adolescents, and (4) caveats to adult providers of social support. Each recommendation will be further discussed.

Families and Social Support

Families need to learn about the importance of and relationship between self-esteem and social support. They also need to learn about the family's role as support providers. Fathers need to be part of these discussions. Professionals (in early and special education and health care providers) can provide social support intervention when working with families with children, particularly disabled children. Such professionals can help families learn about the importance of social support to healthy child development. In families with older children, the family should be helped to understand the changing roles of parents and peers. They must prepare for and seek to develop a peer social network and repertoire of activities which their disabled child can do with friends. Later, as the child matures into adolescence, the nature of the activities will change but the importance of sharing activities with friends remains.

Professionals Enhancing Preparatory Skills

O'Neal (1984) listed eight essential preparatory skills needed by physically disabled adolescents, to prepare them

for the social and emotional challenges they will encounter among peers. These skills are the appropriate province of families, educators, and therapists. The skills are:

1. understanding the disability
2. recognizing the need for assistance
3. communicating the need for help in a polite and informative manner
4. planning ahead for routine activities and unexpected events
5. answering appropriate questions about the disability
6. making choices to adjust to new situations
7. using task analysis to simplify problem-solving
8. using assertive behaviors appropriately

These specific skills are part of social skills training and should be included in the intervention plan in educational and therapeutic programming (individualized education plan, therapy treatment plan) (Fichten & Bourdon, 1986; Hastorf, Wildfogel & Cassman, 1979; Lueck-Mammen, 1981; Pelligrini, 1990; Strain & Odom, 1988; Wallander & Hubert, 1987). Skills could include introductions, what to say about the disability and equipment, and when and how to say it. Physically disabled children can learn and practice ways to make other people more at ease with their differentness (Hastorf, Wildfogel, and Cassman, 1979). These skills can be practiced in groups or individually in physical and occupational therapy, social service counseling, group discussions and therapy, and

by special educators.

Education of Able-Bodied Children and Adolescents

Able-bodied children and adolescents need opportunities to learn about disabilities and recognize discrimination, so their knowledge and understanding can replace fear of the different or unknown. Educators can provide opportunities for all children to meet successful disabled adults and encourage questions. In teaching all children and adolescents about concepts of fairness and discrimination (similar to race or religious discrimination), the concept of disability as a discriminated minority (Gliedman & Roth, 1980) could be taught. In that context all children can learn something of the sociology of disability. Knowledge and acceptance can begin to break down the barriers to social exchanges between able-bodied and disabled.

Able-bodied persons need not fear befriending a disabled person. Burbach and Babbit (1988) found 41% of physically disabled college students perceived better attitudes among nondisabled peers as a results of interaction with them. While better social skills may smooth social interactions for disabled persons, the burden of change should not fall entirely on the shoulders of the disabled.

Caveats to Adult Providers of Social Support

Adults working with physically disabled children and

adolescents should be careful about offering their own social support, in lieu of peer contacts. The physically disabled adolescent may need the adult support provided, for if he or she is indeed rejected and scorned by peers, the adult may be a safe haven of acceptance, similar to a family, or perhaps as a substitute for one. The adult support may be in addition to peer support but should not be a substitute. Disabled adolescents who rely heavily on the support of paid professionals may prefer the adult's company and avoid situations where they might develop relationships with peers. An observant professional may be able to recognize the evidence of a too-small peer network, and find ways to fill the gap. The support of professionals will cease when schooling or funding stops. The adult should also remember the importance of the adolescent accomplishing his or her own developmental tasks, one of which is the development of supportive peer relationships (Havighurst, 1954). A disabled person will be emotionally healthier and have more resources for socialization and recreation if he or she has skills to make friends with peers.

Two caveats are directed to professionals regarding being perceived as intimate friends of physically disabled adolescents. First, the adolescent may become dependent on the adult relationship as safe and non-threatening, and not seek peers or learn social skills to develop peer relationships. Secondly, the adult should never manipulate or force

the adolescent to choose between the adult and peers.

Self-Esteem and Its Predictors

Five major implications and recommendations will be discussed regarding self-esteem: (1) low self-esteem occurs in both groups, (2) the continuing vulnerability of disabled adolescents' self-esteem, (3) the significance of the self-esteem predictors, (4) intervention in planning shared activities with peers, and (5) the importance of functional independence for disabled adolescents.

Low Self-esteem Occurs in Both Groups

The self-esteem scores of the two groups were comparable. There was considerable variation in scores of both groups of adolescents, and the scores of the disabled group were not significantly lower than the scores of the able-bodied group. However, in both groups there were some subjects whose self-esteem was low. Low self-esteem should be a concern in both populations, able-bodied and disabled. The finding of no significant differences between the two groups may also be considered as a finding that the able-bodied group had self-esteem scores as low as the physically disabled group.

Continuing Vulnerability of Disabled Adolescents' Self-esteem

Though physically disabled adolescents had self-esteem

scores not significantly lower than able-bodied, they should still be considered vulnerable for developing low self-esteem. Disability is associated with less competence at physical tasks, social stigma, social isolation with less social support, and limited participation in normal activities of age-mates. These factors threaten self-esteem. Low self-esteem is associated with less effective coping skills and greater psychosocial dysfunction. Prevention of low self-esteem is an educational and therapeutic goal. This research has identified several factors which predict self-esteem and may be protective of it.

Professionals need to seek and help disabled adolescents to develop protective factors (Pelligrini, 1990) to counterbalance the psychosocial threats caused by the disability or society's response to the disability. Protective factors can be social skills training as indicated above, knowledge about self and the disability, knowledge about self-esteem and how self-evaluations are made, developing competence in other areas, and values clarification. Therapists should include discussion of these factors during therapy conversations. Therapists can help identify and work toward competence in other areas. Similarly, teachers and school counselors should address these factors during school.

Significance of Self-esteem Predictors

Knowledge of factors contributing to self-esteem forma-

tion is essential for professionals working with disabled children and adolescents. Contributing factors may be modifiable through intervention (Varni et al, 1989). In this study, perceived social support, as discussed above, and shared activity participation with peers were two important influences. While perceived social support cannot be manipulated directly, professionals providing intervention can facilitate opportunities to develop social contacts with potential support providers, both family and peers. When a disabled child is still quite young, early intervention may help the family gain understanding about the importance and provision of social support. Later in childhood and adolescence, shared experiences with peers can create an atmosphere of familiarity and acceptance as a prelude to the trust necessary for support provision and perception.

Parents, especially fathers of disabled adolescents, have special opportunity to enhance their child's development through their relationship and their opinions of their child which they convey. Fathers need to understand their unique position to influence how their children feel about themselves. Fathers of disabled children should set as a personal goal to treat their children as an ideal father treats his children. Father's role may include being a reality-oriented empathic figure (Greenspan, 1982). Fathers can help with values clarification and guide their children to become oriented to the world outside the family.

Fathers especially have both responsibility and opportunity to help their disabled adolescents mature emotionally and understand themselves. Children are sensitive to their father's attitude toward and opinions of them. Fathers should not abdicate child rearing as "women's work." Instead fathers should spend time with their children and seek not to mimic mothers' role but to define their own role and involvement with their children in ways that are different from the mothers' (Greenspan, 1982).

Professionals working with families should help parents be aware of these functions. Professionals can also help adolescents learn to seek needed family support and assistance (Power, 1985).

Intervention in Shared Peer Activities

This study found that shared activities with peers are an important factor in understanding the self-esteem of both groups of adolescents. This is likely based in the social value of group identity and sense of belonging. Disabled adolescents often have difficulty participating in typical casual or scheduled peer functions and sports.

Families with disabled youth as well as professionals should seek opportunities for physically disabled adolescents to participate in group activities of which they are capable. There are activities in which any adolescent attending junior

high or high school could participate. Group activities allow one to be part of the crowd, to practice social skills and break out of isolation. Examples of possible activities include joining a special interest club, attending an athletic event, or being a statistician for an athletic team. While it might be difficult for a physically disabled adolescent to visit a peer's architecturally-inaccessible home, parents of disabled youth could encourage their child to invite potential friends to their home.

Most physically disabled adolescents would be capable of participating in a team at a recreational level at least, perhaps with adaptations, or as manager or score keeper if physical limitations preclude competition. Planned recreational activities including team sports are important for social development. Participation should be encouraged and perfection and competition minimized. In this way, each participant can feel that he or she belongs and can contribute to the group. Community recreational directors and physical education teachers should plan and provide such activities in their programs. Physical and occupational therapists should include preparation for adapted sport in their treatment goals and activities, as an important functional skill that will benefit psychosocial adjustment as well as physical skill development. An effort to break out of isolation and participate in normal structured teen activities may lower barriers to communication and understand-

ing between able-bodied and disabled adolescents.

Functional Independence Level

Functional level of independence is another important predictor of self-esteem which is modifiable through planning and provision of skilled physical and occupational therapy. Feters (1990) challenged physical therapists working with youth with cerebral palsy to develop movement goals that are ecologically valid and functional. Harris (1990) provided guidelines for developing, measuring, and generalizing functional goals that are meaningful for the child and his or her family. Finding ways to enhance, provide for, or maintain functional independence is a creative problem-solving challenge to physical and occupational therapists, especially those working with adolescents with a physical disability. Promoting function requires knowledge of the individual, family context, school situation, as well as confidence with technology, and willingness to be an advocate for obtaining expensive equipment that can make the difference between dependence and independence. It also means following through to make sure the independence skills are being used (O'Neal, 1984).

Functional independence promotes self-efficacy and self-esteem. Butler's work (Butler, 1986; Butler et al, 1983) in powered mobility has provided an example of functional independence promoting self-efficacy in disabled children.

self-initiated behaviors in very young children improved by providing them with a battery-powered wheelchair. The children were able to change their location, initiate social contact, and experience some efficacy and control in their lives. The provision of such equipment combines therapy and technology. Planning for the experience of efficacy can occur in physical education (Craft & Hogan, 1985) and therapy.

This study found that a disabled adolescent's ability to take physical care of him/herself is important for its obvious intrinsic value and predicts how he or she evaluates self-worth. Independence or assistance required in the bathroom and when eating, and walking independently at home were the three functional skills strongly correlating with self-esteem. Other research (Senft et al, 1990) has found adults with cerebral palsy unable to use public access transportation available to them, reinforcing their isolation and extending their handicap. Therefore, professionals evaluating limitations in independence and planning therapy for improving motor skills (eg., physical and occupational therapists) need to understand that independence is critically important in feelings of self-worth. Functional independence should be stated as a primary goal of therapy. Specific activities for independence training, including use of community transportation system, should be provided in physical therapy and occupational therapy for older children and

adolescents. Planning how to use newly acquired functional skills in real-world situations (eg., public areas, cafeterias) and actively practicing them will enhance the likelihood of their use, and promote independence (O'Neal, 1984).

Summary of Recommendations

Recommendations are provided for families, for professionals at schools and treatment centers, and for physical educators and community recreation directors.

1. Families of Physically Disabled Children

A. Families with physically disabled children need knowledge about self-esteem and social support. Families should be prepared for the expected changes in adolescence, especially regarding peer relationships.

B. Families need to recognize the impact of their own attitudes toward their disabled child on his/her self-esteem.

C. Families need to understand the special values of peer activities and functional independence. Professionals working with families in early intervention and through the child and adolescent growing years can help families gain this understanding.

2. Professionals at Schools and Treatment Centers

A. Schools and treatment centers should provide specific preparation for socialization and specific social skills

training for disabled children and adolescents to facilitate normal interaction with their peers. This should be a priority of special education programs. To throw a disabled child into mainstream society without providing opportunity to gain necessary skills to ensure his or her successful integration is to doom the project and the child to failure. Social skills development is urgent in elementary and high schools because without social skills and support, disabled adolescents may become isolated adults.

B. Health care/rehabilitation service providers (especially physical and occupational therapists) should address maximum functional independence as a primary goal of therapy. Important goals are walking at home, and maximum independence in eating and in the bathroom. Also among goals and activities of therapy should be functional preparation for group social activities and sports. Therapists should be cognizant of disabled adolescent social development and needs. The therapist's relatively close and unique relationship with the adolescent may permit candid discussion during therapy time. Important potential topics to discuss may be self-esteem, social support issues including family and peer relationships, planning for using functional skills, and planning for participation in peer activities. Therapist and adolescent together should set goals and develop strategies to improve functional independence.

C. Professionals need to understand and facilitate the

family's role in helping their child or adolescent with a physical disability. They may need to suggest, teach, guide, model, prod, anticipate, encourage, and support families to help the child grow up to the maximum independence possible. They also need to be sensitive to the adolescent's and family's goals.

3. Physical Educators and Community Recreation Directors

A. Agencies should plan recreational activities for nondisabled and disabled peers to share. These are important for psychological and social adjustment as well as physical development. Recreational opportunities to share with peers could include bowling, horseback riding, skiing, ice skating, golf, swimming, track and field events using upper body, and wheelchair basketball and hockey (Bernhardt, 1984).

B. Schools and agencies should seek to expand the numbers of athletic team opportunities available for physically disabled adolescents. They need to overcome the self-consciousness and ignorance regarding opportunities for participating in sports which the disabled and their families may have. They should vigorously seek participants through schools and community notices.

Suggestions for Further Study

1. It would be valuable to replicate this study seeking additional predictors of self-esteem for physically disabled

adolescents, especially identifying modifiable factors and structural aspects of educational programs. For example, do disabled adolescents benefit from contact with similar disabled peers? With the relatively low incidence of physical disability and the current regular education initiative, it is very common that a disabled child is the only physically disabled child in a school. Would he or she benefit from a support group gathered from various schools to meet occasionally? Is this a function which a treatment center might provide? Or if a student has the prerequisite social skills to integrate socially into the nondisabled peer group, is contact with a comparable peer group necessary?

2. Research is needed to evaluate the social skills of physically disabled children and adolescents. If the expected deficiencies are noted, follow-up research could assess the efficacy of intervention.

3. Research is also needed in methods to improve social skills and develop social skills training for physically disabled children and adolescents. Would social support groups with disabled peers suffice (Lueck-Mammen, 1981)? What teaching strategies would be the most effective? Also needed are methods to reduce the awkwardness which the able-bodied experience in interaction with disabled. Would these skills be better taught in classes where disabled are integrated with nondisabled? Integration of disabled into schools and workplaces provides day-to-day encounters rich

with opportunities to learn to live with each other. Research is needed to identify optimal ways to ensure positive learning occurs.

4. Research is needed to further investigate the role of fathers in influencing the self-esteem of their disabled children. If mother is the first significant other, why are father's reflected appraisals more influential than hers? What is it about fathers that gives them their powerful impact? What is it that fathers do or say, or not do and not say, that affects their children's self-esteem? Is intervention needed to help fathers understand their role and do it better? What forms of intervention might be effective?

5. Research is needed to determine the correlation between self-esteem and participation in team sports compared to other group activities where participants work toward a common goal; eg., high school yearbook or newspaper, drama or music groups. If the latter activities also enhance self-esteem, the scope of potential activities recommended for disabled would be broadened. If sports only are related to self-esteem, research could determine if it is the challenge of the physical activity itself, or the social interaction, or winning (and losing) games. Is individual skill development effective, as in becoming wheelchair marathoner or figure skater, or is team participation the determinant, as in soccer or ice hockey?

6. Research is needed to measure social support provided

to disabled adolescents by health care providers and special educators (physical therapy, occupational therapy, speech therapy, resource room teacher). Do they think they are providing support? Do they provide any support that is perceived as significant? Is it helpful or hurtful? What makes it so? How can it be improved, if it should be? Do such providers tend to encourage or permit unhealthy emotional dependence on themselves, to the exclusion of other relationships? Or might the support they offer be the only support some disabled youth are able to find, without which they would be completely isolated?

7. Research is needed to measure the self-esteem of younger physically disabled children in elementary school. Is it comparable to that of their able-bodied age-mates throughout development? Is it lower in the earlier years because of the young child's emphasis on physical attributes, then does it rise in adolescence because the bases of self-esteem shift? Is disability at any age simply not a predictor of self-esteem?

8. Further investigation is needed of the relationship between ego development level and self-esteem in physically disabled adolescents. This could be done in concert with the preceding suggestion regarding younger disabled children. Is self-esteem formed based on their assessment of their physical attributes? What effect does ego development level have? Are there main effects for both, or only one, or is there an

interaction? In this study, there should be adolescents included to obtain a sample of subjects with potential to be at the highest ego development level (post-conformist).

9. Research is needed on the significance of functional level for self-esteem and the acquisition and perception of social support. What functional skills are most important to which individuals? Is lack of independent self-care skills the most irksome to the disabled adolescent? Which are the most troublesome? Is independence in the wheelchair equivalent to independent walking in their impact on self-esteem? Does wheelchair use affect perception of social support? How important are the trade-offs of time and technology in having independence? For example, feeding oneself alone may take an hour, and with assistance may take 10 minutes; an electric feeder may look like a lot of machinery, and be slower than having assistance, but it may permit more feeding independence (Einset et al, 1989; Harris, 1990). Is it worth it?

10. Do disabled youth lack successful role models? Would it be easier for them to imagine themselves as successful if they personally could be acquainted with successful disabled adults? Could such a program influence their willingness to seek social support, if they believed they were worthy of the effort? Could schools or agencies develop such a role model program to serve the disabled students, and perhaps the parents of the disabled? Could nondisabled children have contact with successful disabled adults as role

models, and would that experience modify pervasive stigmatizing attitudes toward the disabled?

Summary

This research concerned feelings of self-esteem and perceptions of social support among physically disabled and able-bodied adolescents. Self-esteem is the feeling of self-worth based on self-appraisal and reflected appraisals of significant others. Social support is perceived emotional support from family and friends, and is affected by the size of one's social network. Social support influences self-esteem by enhancing the feeling that we are loved and valued and that our well-being is of concern to significant others. Physically disabled adolescents face particular challenges in developing high self-esteem due to their reduced competency in physical activities and to the stigma of disability.

The purposes of this study were to compare the self-esteem of physically disabled adolescents (PDA) to that of able-bodied adolescents (ABA), and to identify variables which may correlate with and predict self-esteem. Self-esteem and social support were measured by self-report, using the Piers-Harris Children's Self-Concept Scale, the Rosenberg Self-Esteem Scale, Perceived Social Support from Family and Friends, and a social network measure called Important People for Me. Subjects were able-bodied and physically disabled

adolescents, ages 12-19 years attending school. The PDA group had cerebral palsy or spina bifida, with disability severity ranging from very mild impairment to severe. A total of 98 subjects participated, 38 PDA (19 males, 19 females), and 60 ABA (18 males, 42 females).

In multiple regression analysis to predict self-esteem in the physically disabled adolescent group, four factors predicted 77.4% of self-esteem. These factors were perceived social support from friends, reflected appraisals from family (especially father), participating in a team sport, and functional independence. For able-bodied adolescents, three predictors accounted for 54.8% of the variance in their self-esteem: perceived social support from friends, perceived social support from family, and frequency of attending an athletic event at school.

T-test comparisons found no significant differences between the groups in levels of self-esteem or in perceived social support from family. ABA reported significantly higher levels of perceived social support from friends and larger social networks of friends and best friends. ABA also reported significantly more frequent shared activities with peers.

Conclusions indicate that perceived social support from friends strongly relates to self-esteem, in PDA even more than in ABA. Also, frequency of activities participated in with friends related to self-esteem. For both groups, family

support correlated highly with self-esteem. Families with physically disabled children need to understand what influences their child's self-esteem. Their emotional support given to the child and opinions of their child are important. At the same time, functional independence and time spent with peers are also extremely important. Families have tremendous potential to influence their child's self-esteem, either positively or negatively. Health care and educational professionals working with adolescents with physical disabilities should be aware of the importance of and influences on self-esteem and social support in planning educational, therapeutic and recreational activities for them. The goal of adolescents with a physical disability, and of the adults around them, is that they become adult human beings, as fully functioning as possible, who feel good about themselves.

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APPENDIX A

"THE WAY I FEEL ABOUT MYSELF"

250

The Piers-Harris Children's Self-Concept Scale

Ellen V. Piers, Ph.D. and Dale B. Harris, Ph.D.

Published by



Name: _____ Today's Date: _____
Age: _____ Sex (circle one): Girl Boy Grade: _____
School: _____ Teacher's Name (optional): _____

Directions: Here are a set of statements that tell how some people feel about themselves. Read each statement and decide whether or not it describes the way you feel about yourself. If it is *true or mostly true* for you, circle the word "yes" next to the statement. If it is *false or mostly false* for you, circle the word "no." Answer every question, even if some are hard to decide. Do not circle both "yes" and "no" for the same statement.

Remember that there are no right or wrong answers. Only you can tell us how you feel about yourself, so we hope you will mark the way you really feel inside.

TOTAL SCORE: Raw Score _____ Percentile _____ Stanine _____

CLUSTERS: I _____ II _____ III _____ IV _____ V _____ VI _____

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Due to ethical considerations, the Piers-Harris Children's Self-Concept Scale is not included here. Please contact Western Psychological Services, 12031 Wilshire Blvd, Los Angeles, CA, 90025, (telephone 213-478-2061) to obtain copies.

The Piers-Harris Children's Self-Concept Scale is not included here due to ethical considerations.

APPENDIX B

ID# _____

ROSENBERG SELF-ESTEEM SCALE

For each statement, circle the letter that tells how you feel.

SA = strongly agree

A = agree

D = disagree

SD = strongly disagree

- | | | | | |
|---|----|---|---|----|
| 1. On the whole, I am satisfied with myself. | SA | A | D | SD |
| 2. At times I think I am no good at all. | SA | A | D | SD |
| 3. I feel that I have a number of good qualities. | SA | A | D | SD |
| 4. I am able to do things as well as most other people. | SA | A | D | SD |
| 5. I feel I do not have much to be proud of. | SA | A | D | SD |
| 6. I certainly feel useless at times. | SA | A | D | SD |
| 7. I feel that I'm a person of worth, at least equal to others. | SA | A | D | SD |
| 8. I wish I could have more respect for myself. | SA | A | D | SD |
| 9. All in all, I am inclined to feel that I am a failure. | SA | A | D | SD |
| 10. I take a positive attitude toward myself. | SA | A | D | SD |

APPENDIX C

ID# _____

Perceived Social Support-Friends

DIRECTIONS: The statements which follow refer to feelings and experiences which occur to most people at one time or another in their relationships with friends. For each statement there are three possible answers: Yes, No, Don't know. Please circle the answer you choose for each item.

- | | | | |
|-----|----|------------|---|
| Yes | No | Don't know | 1. My friends give me the moral support I need (they are there for me when I need them). |
| Yes | No | Don't know | 2. Most other people are closer to their friends than I am. |
| Yes | No | Don't know | 3. My friends enjoy hearing about what I think. |
| Yes | No | Don't know | 4. Certain friends come to me when they have problems or need advice. |
| Yes | No | Don't know | 5. I rely on my friends for emotional support (I can count on them when I want to share my feelings). |
| Yes | No | Don't know | 6. If I felt that one or more of my friends were upset with me, I'd just keep it to myself. |
| Yes | No | Don't know | 7. I feel that I'm on the fringe (edge) in my circle of friends. |
| Yes | No | Don't know | 8. There is a friend I could go to if I were just feeling down, without feeling funny about it later. |
| Yes | No | Don't know | 9. My friends and I are very open about what we think about things. |
| Yes | No | Don't know | 10. My friends are sensitive to my personal needs (they understand and care about me). |
| Yes | No | Don't know | 11. My friends come to me for emotional support (when they want to share their feelings). |
| Yes | No | Don't know | 12. My friends are good at helping me solve problems. |
| Yes | No | Don't know | 13. I have a deep sharing relationship with a number of friends. |

ID# _____

Perceived Social Support-Friends (cont)

- | | | | |
|-----|----|------------|--|
| Yes | No | Don't know | 14. My friends get good ideas about how to do things or make things from me. |
| Yes | No | Don't know | 15. When I confide in friends (tell something secret or very personal), it makes me feel uncomfortable. |
| Yes | No | Don't know | 16. My friends seek me out for companionship because they like to be with me. |
| Yes | No | Don't know | 17. I think that my friends feel that I'm good at helping them solve problems. |
| Yes | No | Don't know | 18. I don't have a relationship with a friend that is as intimate (or close) as other peoples' relationships with friends. |
| Yes | No | Don't know | 19. I've recently gotten a good idea about how to do something from a friend. |
| Yes | No | Don't know | 20. I wish my friends were much different. |

Perceived Social Support-Family

Directions: The statements which follow refer to feelings and experiences which occur to most people at one time or another in their relationships with their families. For each statement there are three possible answers: Yes, No, Don't know. Please circle the answer you choose for each item.

- | | | | |
|-----|----|------------|---|
| Yes | No | Don't know | 1. My family gives me the moral support I need (they are there for me when I need them). |
| Yes | No | Don't know | 2. I get good ideas about how to do things or make things from my family. |
| Yes | No | Don't know | 3. Most other people are closer to their family than I am. |
| Yes | No | Don't know | 4. When I confide in (tell something secret or very personal to) the members of my family who are closest to me, I get the idea that it makes them uncomfortable. |
| Yes | No | Don't know | 5. My family enjoys hearing about what I think. |
| Yes | No | Don't know | 6. Members of my family share many of my interests. |

ID# 126

perceived Social Support-Family (cont)

- | | | | |
|-----|----|------------|---|
| Yes | No | Don't know | 7. Certain members of my family come to me when they have problems or need advice. |
| Yes | No | Don't know | 8. I rely on my family for emotional support (I can count on them when I want to share my feelings). |
| Yes | No | Don't know | 9. There is a member of my family I could go to if I were just feeling down, without feeling funny about it later. |
| Yes | No | Don't know | 10. My family and I are very open about what we think about things. |
| Yes | No | Don't know | 11. My family is sensitive to my personal needs. |
| Yes | No | Don't know | 12. Members of my family come to me for emotional support (when they want to share their feelings). |
| Yes | No | Don't know | 13. Members of my family are good at helping me solve problems. |
| Yes | No | Don't know | 14. I have a deep sharing relationship with a number of members of my family. |
| Yes | No | Don't know | 15. Members of my family get good ideas about how to do things or make things from me. |
| Yes | No | Don't know | 16. When I confide in (tell something secret or very personal to) members of my family, it makes me uncomfortable. |
| Yes | No | Don't know | 17. Members of my family seek me out for companionship (because they like to be with me). |
| Yes | No | Don't know | 18. I think that my family feels that I'm good at helping them solve problems. |
| Yes | No | Don't know | 19. I don't have a relationship with members of my family that is as close as other people's relationships with family members. |
| Yes | No | Don't know | 20. I wish my family were much different. |

APPENDIX D

IMPORTANT PEOPLE FOR ME

ID# _____

Among the many people you know in your life, some are especially important to you. You can count on these certain people to be there for you if you need them or want to confide in them. They often make you feel good about yourself.

Who are the most important people in your life?

List any family members who you can count on when you need them, and indicate their relationship to you (example: "my older brother, John"). You may list "no one", or as few or as many as you like, up to 8.

_____	_____
_____	_____
_____	_____
_____	_____

Please list any best friends you can count on to be there for you when you need them. (A best friend is someone you like very much.) You may list "no one" or as few or as many as you like, up to 6.

_____	_____
_____	_____
_____	_____

Please list any friends you can count on. (A friend is someone you work or play with but do not like as much as a best friend.) You may list "no one" or as few or as many as you like, up to 8.

_____	_____
_____	_____
_____	_____
_____	_____

There may be people who are important to you but make you feel bad about yourself. They may say things to you or act toward you in a way that makes you feel put down. If there is someone like this in your life, please indicate their initials and relationship to you (Example: "my classmate KK"). You may list "No one" or as many as you wish, up to 4.

_____	_____
_____	_____

APPENDIX E

ID# _____

ABOUT YOU

Date of Birth _____

Please circle the correct information about you.

1. Age at last birthday.

12 13 14 15 16 17 18 19

2. Sex M F

3. Current grade in school 7 8 9 10 11 12

4. Which of the following persons currently lives in your home? You may check all that apply.

- | | |
|-------------------------------------|--------------------------------------|
| <input type="checkbox"/> mother | <input type="checkbox"/> grandmother |
| <input type="checkbox"/> father | <input type="checkbox"/> grandfather |
| <input type="checkbox"/> stepmother | <input type="checkbox"/> other adult |
| <input type="checkbox"/> stepfather | |

5. How many brothers and sisters do you have, as questioned below?

____ Total number of brothers

____ How many of these brothers are older than yourself?

____ Total number of sisters

____ How many of these sisters are older than yourself?

6. What level of schooling did your mother complete?

- a. did not finish high school
- b. finished high school
- c. started college but did not finish
- d. finished college
- e. some graduate work
- f. Don't know/not sure

ID# _____

7. Who are the 3 most important people in your life? Please list the the initials of 3 individual people, and indicate their relationship to you. Then circle the number which represents how each of them makes you feel about yourself.
- 1 = awful
2 = bad
3 = not good, not bad
4 = pretty good
5 = great

Initials	Relationship	Makes you feel about yourself				
		1	2	3	4	5

8. Listed below are activities which you may or may not do. Please indicate the frequency with which you do each one, using the scale from 1 to 5.

- 1 = never or almost never
2 = very infrequently (3 to 6 times a year)
3 = occasionally (about once a month)
4 = fairly often (several times a month to once weekly)
5 = frequently (several times a week to daily)

1	2	3	4	5	
					music, art, acting, or martial arts lessons
					attend scout meeting
					attend club meeting
					visit doctor or therapist
					attend athletic event at school
					work on hobby or collection at home
					read a book NOT assigned for school
					attend church/temple
					have a friend over after school
					visit a friend's home after school
					go to a mall or store with a friend
					go to a mall or store with a family member
					hang out with friends
					watch television
					work on computer/play computer games
					participate in team sport
					talk on the phone with a friend
					do chores at home
					work out (exercise to develop/maintain your body)

9. What is your favorite thing to do in your spare time?
-

APPENDIX F

DIANNE B. CHERRY
 284 Columbine Drive
 Clarendon Hills, IL 60514

Dear Parent,

We know that feeling good about ourselves, our feelings of self-worth, are important to our happiness and overall well-being. We also know that self-esteem can be high or low, and can be influenced by the other people in our lives. This is even more true for adolescents.

I am a physical therapist working with physically disabled children and adolescents while I am pursuing my Ph.D. at Loyola University of Chicago. For my dissertation research I am studying feelings of self-worth and social support in adolescents who are physically disabled, compared to able-bodied adolescents. I will also obtain other information about age, gender, and mental ability. I am seeking your permission to include your adolescent as a subject in my study. Your adolescent will also be given the option of consenting to participate, though I would appreciate his or her participation very much.

I will be working in cooperation with your adolescent's school, so all of the data will be gathered at school with the assistance of a teacher. The study entails a set of paper-and-pencil questionnaires, most very brief, given to the students in groups or individually, as schedules permit. The measures include feelings about themselves, social support from the important people in their lives, and a quick estimate of mental ability. There will also be a factual questionnaire asking descriptive information (eg., number of children in the family, after school interests, etc.) The group of adolescents having a physical disability will also be asked about their functional abilities. The total testing time should be about ninety minutes for an average child, and can be taken over a period of several days.

Confidentiality of information will be maintained. No names will be used; each student will have an identification number only. No identifying or individual information will shared with the school or be reported. After the data are collected, I will analyze the results and report them according to group patterns, similarities, and differences.

Please complete the enclosed consent form and return it to me by December 12, 1989. You may withdraw your consent at any time with no penalty. If you wish to discuss this further, please feel free to call me at home, (708) 654-1971. Thank you for your time, interest, and assistance with this important research.

Sincerely,

Dianne B. Cherry, MS, PT

Dianne B. Cherry, M.S., P. T.

PARENTAL INFORMED CONSENT FORM

Project Title: SELF-ESTEEM AND SOCIAL SUPPORT
IN PHYSICALLY DISABLED AND ABLE-BODIED ADOLESCENTS

I, _____ the parent or guardian of
_____, a minor of _____ years of age,
hereby consent to his/her participation in the research project
being conducted by Dianne Cherry, M.S., P.T. of Loyola
University investigating self-esteem and social support in
adolescents.

I understand that the purpose of this study is to measure the
self-esteem of adolescents who are physically disabled compared to
able-bodied adolescents, and to identify other variables such as
social support, gender, mental ability and age which may correlate
with high or low self-esteem. The study consists of a set of brief
paper-and-pencil tests which my child will complete at school under
the supervision and with the cooperation of a teacher. The total
testing time will depend on the individual student, but approximately
ninety minutes would be required for the average student. The testing
could be completed over a period of days, according to the discretion
of the teacher.

Confidentiality of information will be maintained. No names will
be used; each student will have an identification number only. No
identifying or individual information will be reported.

Since self-esteem is important to the feeling of well-being and
happiness, this study's potential value is to better understand what
factors influence self-esteem in adolescents who are disabled as well
as those who are able-bodied.

I understand that no risk is involved, but that in any case I may
withdraw my consent at any time without penalty or prejudice.

(Signature of parent)

(Relationship to child)

(Address: Street

City, State ZIP)

(_____) _____
(Phone)

(Name of Child's School)

ID# _____

This page will be separated from the previous one with your name on it, and the ID# will be assigned and placed on it, for confidentiality of information about you and your family.

I would appreciate it if you would answer the questions below.

Please identify the highest level of education completed by the child's mother.

- a. some high school
- b. completed high school
- c. some college
- d. completed Bachelor's degree
- e. some graduate work
- f. completed a graduate degree

Please identify the highest level of education completed by the child's father.

- a. some high school
- b. completed high school
- c. some college
- d. completed Bachelor's degree
- e. some graduate work
- f. completed a graduate degree

Mothers' occupation

Father's occupation

DIANNE B. CHERRY
 284 Columbine Drive
 Clarendon Hills, IL 60514

Dear Student,

I need your help for a study I am doing with junior high and high school age students. I am interested in you, your feelings of social support from the people in your life, and your feelings about yourself. I am studying both able-bodied and physically disabled students. I would appreciate your willingness to cooperate with my research. The information you give me will be confidential. You will have an ID number; no names will be used. Information will not be shared with family, friends, or school.

The study will be conducted at your school with the help of a teacher. It is a set of questions which you will answer in writing. The questions are in a multiple-choice or list format (no essays). I believe it should take most students about 90 minutes to complete all questions. This does not have to be done all at once; it can be spread out over several days. You may answer the questions during free time at school, or after school if you and your teacher can arrange schedules and transportation.

To ensure privacy of your answers, as you finish each set of questions for a day, you will place the forms in an envelope, seal it and sign it before turning it in, thus keeping it confidential. After all forms are completed and in envelopes, they will be placed in a large envelope and sent directly to me.

If you are physically disabled and cannot write the answers, you may select one person (teacher or aide) at school to help you do the tests. This is a person you trust to know how you feel about you.

I would really appreciate your participation because your beliefs and feelings are important to me and my research about adolescents. If you have any questions which you would like to ask me before you agree to participate, I would be happy to answer them. Please feel free to call me at (708) 654-1971. The best time to reach me is Tuesday or Wednesday daytime, or any evening but Thursday.

If you agree to participate and later change your mind, you may withdraw from participation. Your parents have already given their consent for you to participate. Please indicate below your response to my request.

_____ I consent voluntarily to participate as a subject in the study about adolescents' feelings of social support and feelings about self.

_____ I do not wish to participate in this study.

 (Date)

 (Signature)

Physically disabled students: If you are unable to write, please identify the name of one person (teacher or aide) at school whom you trust to be with you while you answer the questions. This person will write the answers you indicate.

APPENDIX G

Otis-Lennon Mental Ability Test

By Arthur S. Otis and Roger T. Lennon

**ADVANCED
LEVEL
FORM
J**

SCORE RECORD

NAME			<input type="checkbox"/> BOY <input type="checkbox"/> GIRL		
LAST	FIRST	MIDDLE			
SCHOOL	DATE OF TEST				
	YEAR	MONTH	DAY		
TEACHER	DATE OF BIRTH				
	YEAR	MONTH	DAY		
GRADE	SECTION	AGE			
	YEARS	MONTHS	DAYS		
CITY	STATE				

RAW SCORE

CHRONOLOGICAL AGE

YRS. MOS.

PERFORMANCE BY AGE

DQ

PERCENTILE RANK

STANINE

PERFORMANCE BY GRADE

PERCENTILE RANK

STANINE

APPENDIX H

ID# _____

FUNCTION

Please identify your current functional status by placing a circle around the letter of the response which best describes you or your physical abilities.

1. To get around from place to place at school, I usually:

- a. walk.
- b. use a wheelchair.
- c. other _____

2. I usually walk to get from place to place at school by:

- a. walking independently without any equipment (braces or crutches, canes or walkers).
- b. walking independently with braces.
- c. walking independently with crutches, cane(s) or a walker.
- d. walking independently with braces, and with crutches, cane(s) or a walker.
- e. walking with the assistance of another person.
- f. walking holding on to walls and/or furniture.
- g. I don't walk at school.
- h. other _____

3. To get around at school, usually I:

- a. push myself in the wheelchair.
- b. propel myself using a battery-powered wheelchair with a hand-operated control.
- c. propel myself using a battery-powered wheelchair with a head-operated or mouth-operated control.
- d. have another person push me.
- e. I do not usually use a wheelchair at school.
- f. other _____

4. To get around from place to place in my home, usually I:

- a. walk.
- b. use a wheelchair.
- c. roll, creep, crawl.
- d. other _____

ID# _____

5. At home, usually I:

- a. walk independently without equipment (braces or crutches, canes or walkers).
- b. walk independently with braces only.
- c. walk independently with crutches, cane(s) or a walker.
- d. walk independently with braces, and with crutches, cane(s) or a walker.
- e. walk with the assistance of another person.
- f. walk holding on to walls and/or furniture.
- g. walk for exercise but not to get from place to place.
- h. do not usually walk to get around at home.
- i. other _____

6. At home, usually I:

- a. push myself in the wheelchair.
- b. propel myself using a battery-powered wheelchair with a hand-operated control.
- c. propel myself using a battery-powered wheelchair with a head-operated or mouth-operated control.
- d. have another person push me.
- e. do not use a wheelchair to get around at home.
- f. other _____

7. Please indicate your ability to speak with other people:

- a. I am able to speak easily and understandably.
- b. I am able to speak but the speed is slow.
- c. I am able to speak but the words are hard for most people to understand.
- d. I am able to speak but the speed is slow and the words are hard for most people to understand.
- e. I use an alternate form of communication that requires equipment (symbol board, computer, etc).
- f. I use sign language.
- g. My primary means of communication are gestures and body language.
- h. Other _____

ID# _____

8. Please rate your level of independence at mealtime.

- a. I am completely able to cut my food and feed myself independently.
- b. I am able to feed myself independently but need assistance in cutting food.
- c. I require some assistance with some aspects of feeding myself but there are some foods I can manage on my own.
- d. I am unable to feed my self and require the assistance of another person for all aspects of a meal (cutting, drinking liquids, use of spoon or fork).
- e. Other _____

9. Please rate your level of independence in the bathroom for toileting or bathing.

- a. I am completely independent.
- b. I need minimal assistance at some times to help with clothing or balance.
- c. I need moderate assistance for transfer and/or clothing.
- d. I need full assistance for transfer and clothing.
- e. other _____

10. At school this year you attend classes which are:

- a. completely separate, with disabled classmates
- b. mostly separate with disabled classmates, but a few classes are mainstreamed with nondisabled classmates
- c. mostly with nondisabled classmates, but some separate classes
- d. completely mainstreamed with nondisabled classmates
- e. other _____

11. Please identify the diagnosis causing your physical disability:

12. Please indicate how frequently you have been receiving physical therapy in the past year (at school, in a clinic or at home).

- a. once a week or more often
- b. about once or twice a month
- c. several times a year
- d. about once a year
- e. I carry out an exercise program independently, but do not receive physical therapy.
- f. I do not receive physical therapy or carry out my own exercise program.
- g. other _____

13. If you have received physical therapy in the past year, please indicate where you receive it:

- a. at school
- b. at a hospital
- c. at a clinic (like Easter Seals or UCP)
- d. at a physical therapy office/treatment center
- e. at a doctor's office
- f. at home
- g. other _____
- h. I have not received physical therapy in the past year.

APPENDIX I

284 Columbine Drive
Clarendon Hills, IL 60514
October 19, 1989

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Judy Surfus
RESA
105 Sage Street
Channahon, IL 60410

Dear Ms. Surfus;

I am writing to you to seek your assistance for research I am conducting for my doctoral dissertation in Educational Psychology at Loyola University. I am a pediatric physical therapist interested in self-esteem and social support in physically disabled adolescents and able-bodied controls. I am trying to locate potential subjects for my research through the schools, and ask the schools' cooperation and assistance in administering the tests.

Enclosed are the summary of the proposal as it is being submitted to Loyola's Institutional Review Board for Protection of Human Subjects and the tests which will be administered. The proposal addresses the questions of purpose of the study and risk and benefit to the subjects. Not addressed in the proposal but of interest to you is the potential benefit to the school. Results of the individual tests cannot be made available to the school because of confidentiality, but the study should provide the school with greater understanding of the dynamics of adolescent self-esteem formation and social support and influences on them, especially in the physically disabled population. Special education may be more effective in both planning and implementing instruction for physically disabled adolescents, and able-bodied as well, if these two processes are better understood and interaction between them clarified. Social support and means to enhance social skills are a growing area of interest in special education curricula. The results of this study may add significantly to that knowledge.

In addition to the benefit to the schools, I believe that individual students participating may benefit from participation, because I am asking questions about subjects that are very important to adolescents. The opportunity for them to speak to these concerns may be meaningful to them in their personal growth toward autonomy and adulthood.

Specifically from your school I am seeking the following:

1. Subjects for the research who are physically disabled adolescents with cerebral palsy or spina bifida with myelomeningocele who are in junior high or high school with normal intelligence (85 IQ or better), and a reading ability of 5th grade level or higher. These students can be attending special education programming or be mainstreamed part- or full-time.

2. For each disabled student participating, I would ap-

preciate a control subject of the same age, gender, and mental ability (approximate), selected from regular education classes. Thus, if your school had 8 physically disabled adolescents participating, I would appreciate 8 control subjects also from your school.

3. Assistance with identifying potential subjects, and administering the tests. When the school has agreed to participate and identified potential subjects, I will contact the parents to obtain their consent. Once obtained, I will work through the schools to obtain the student's consent to participate, and begin testing. The testing is likely to require about 90 minutes altogether, which can be broken up into segments and spread out over a period of two weeks. (One test, the Otis-Lennon Mental Ability Test, requires 40 minutes; all of the rest are much shorter -- from one to 20 minutes to complete.) Physically disabled students who cannot physically write their responses may require assistance from a teacher or aide they select as a trusted person for this confidential information.

I would be happy to meet with you personally, and I plan to be available by telephone and personal contact with you and teachers if needed. The reality of dealing with this low-incidence group of students means that there are actually very few at any one location, and there are many locations (I am hoping to have at least 50 physically disabled students and 50 able-bodied) making personal testing by me almost impossible because they are so scattered. The tests have been designed or selected so that students can take them with little or no adult assistance, except for the one standardized mental ability test which requires brief instruction and a timer. The administration of the tests is quite flexible, to be scheduled at the convenience of the student and teacher, and need not take up large chunks of the day, except for the Otis-Lennon. I realize that even this process is an imposition on the school, its schedule, the teachers, and the limited available time of the students. However, I feel that the benefits to be gained for the individual student and the school, as well as knowledge about disability, are worth the effort.

The study has been approved by my research committee, and simultaneous with this request to you, is being submitted to the IRB for approval. Of course, I could not begin to contact parents or collect data without that approval, but I do need to begin to locate potential cooperating schools and subjects. The participation of your program in my study would be very much appreciated.

The time frame of the study is as follows:

October 1989	oral examination of study design completed submit proposal to IRB for approval
Oct/Nov 1989	seek subjects through schools and

treatment centers
obtain school's cooperation

November 1989 obtain parental informed consent

December 1989 work with school personnel to explain
testing procedures

January 1990 students complete test battery
responses sent to investigator

Feb to April 1990 data analysis

summer 1990 final results

I hope the proposal, the sample test forms, and this letter have answered most of your questions. If you have any further questions regarding my study, I would be more than happy to answer them, on the telephone or in person. You can reach me at (312, later 708) 654-1971.

Sincerely,



Dianne B. Cherry, M.S., P. T.

APPENDIX J

INSTRUCTIONS

Enclosed are the following questionnaires:

1. About you.
2. Rosenberg Self-esteem scale
3. Piers-Harris Children's Self-concept Scale
4. Perceived Social Support from Family and Friends Scales
5. Important People for Me
6. Function (some of you may not have this questionnaire)
7. Otis-Lennon Mental Ability Test.

WHICH QUESTIONNAIRES WHEN?

Please complete the questionnaires in the order listed if possible. You may answer several in one day or only one each day, and take several days to finish the set. Or you may complete all in one day if you have the time and would like to do it that way.

TIME ALLOTMENT:

You may take as long as you like with any of the questionnaires, except the last, the Otis-Lennon. This is to be completed in 40 minutes, unless other arrangements have been made for your answering the questions.

TRUTHFULNESS ABOUT YOUR FEELINGS:

It is very important that you be as truthful and honest about your feelings and experiences as possible. Please remember that your answers are confidential, and will never be reported about you individually to anyone at home or at school.

COMPLETION OF QUESTIONNAIRES/TESTS:

As you finish answering one or several questionnaires and are finished for that day, place your answer sheets in one of the envelopes provided, and seal it. Place it in the larger envelope for storage until all forms have been completed. When you have finished all forms, place all of the smaller sealed envelopes containing your responses into the one large envelope with my name and address on it, and seal that envelope. The school will mail it to me.

DEADLINE

Please try to complete all of the questionnaires and return them to me by Friday, January 19, 1990. If something comes up and you do not finish on time, please don't quit just because it may be late! Just call me or ask the school to call me at 708-654-1971 and tell me when you think you will be done.

Please know that I REALLY APPRECIATE YOUR PARTICIPATION, and the time you are taking in helping me find out what you think, to answer my research questions.

APPROVAL SHEET

The dissertation submitted by Dianne B. Cherry has been read and approved by the following committee:

Dr. Anne M. Juhasz, Director
Professor, Counseling and Educational Psychology,
Loyola University of Chicago

Dr. Joy Rogers
Professor, Counseling and Educational Psychology,
Loyola University of Chicago

Dr. Jack A. Kavanagh
Professor, Counseling and Educational Psychology,
Loyola University of Chicago

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

December 10, 1998
Date

Anne M. Juhasz
Director's Signature