Self-Evaluation and Self-Concept of Adolescents With Physical Disabilities

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Key Words: adolescents • self-concept

Fifty-three adolescents aged 14 to 18 years with diagnoses of cerebral palsy (n = 27), cleft lip or palate or both (n = 17), or spina bifida (n = 9) took part in this study examining their self-esteem, self-concept, self-acceptance, social self-efficacy, and values, as measured by standardized instruments. Comparisons were made separately for males and females with norms developed for adolescents without disabilities. Significant differences were found only on several aspects of self-concept: females with physical disabilities were lower in perceived social acceptance, athletic competence, and romantic appeal than the normative sample, and males with physical disabilities were lower in perceived scholastic competence, athletic competence, and romantic appeal. In addition, social self-efficacy was found to be a significant predictor of both independence and persistence in adolescents with disabilities, who were significantly less independent and persistent than were normative samples. The discussion focuses on the usefulness of the findings regarding social self-efficacy and the implications of the findings for occupational therapists.

Personality factors, including self-esteem and self-concept, are among the main factors thought to be associated with psychological problems in adolescents (Anderson, Clarke, & Spain, 1982). Personality is also considered a protective factor that can reduce the likelihood of adjustment problems (Garmezy, 1983). How adolescents with physical disabilities value themselves (their self-esteem) and view themselves (their self-concept) may therefore be key predictors of their adjustment and future life success (Kapp-Simon, 1986). In fact, self-esteem, which is defined as a generalized feeling of self-acceptance, goodness, and worthiness (Crocker & Major, 1989), is considered a central aspect of psychological functioning (Crocker & Major, 1989; Taylor & Brown, 1988) and has been shown to be related to a host of variables including general satisfaction with one's life (Diener, 1984).

Little information is available on the self-esteem and self-concept of adolescents with physical disabilities (Anderson et al., 1982; Magill & Hurlbut, 1986). In the present study, we examined both the self-evaluations (self-esteem, social self-efficacy, and self-acceptance) and self-concept (i.e., perceptions of self on specific dimensions such as academic ability and physical appearance) of adolescents with cerebral palsy, spina bifida, and cleft lip or palate or both in comparison to normative data. We also tested several hypotheses about the relation between these aspects of the self and independence (i.e., resisting the influence of others) and persistence at tasks and goals, which are considered important determinants of academic and vocational success (Abramson, Ash, & Nash, 1979).

Literature Review

There have been few empirical studies of the self-esteem and self-concept of adolescents with cerebral palsy (Magill & Hurlbut, 1986), spina bifida (Campbell, Hayden, & Davenport, 1977; Lord, Varzos, Behrman, Wicks, & Wicks, 1990; Murch & Cohen, 1989; Pearson, Carr, & Halliwell, 1985), or cleft lip or palate or both (Brantley & Clifford, 1979; Kapp, 1979; Richman, 1983; Starr, 1978). Several studies have examined mixed subject groups consisting of adolescents with different types of physical disabilities or adolescents with chronic illnesses (Harper & Richman, 1978; Kellerman, Zeitzer, Eilenberg, Dash, & Rigler, 1980; Pless, Cripps, Davies, & Wadsworth, 1989; Tavormina, Kastner, Slater, & Watt, 1976). The majority of these studies have employed standardized measures of self-esteem and self-concept but have used convenience samples from clinic populations, which limits their generalizability.

These studies provide little evidence to support the common assumption that adolescents with disabilities have low self-esteem (see Bryan & Herjanic, 1980; Minde, 1978; Strax, 1988) or poor self-concepts (see Abramson et
inclined that "the most striking and parsimonious conclusion is warranted. In fact, according to Crocker and Major (1989), who reviewed research on the self-esteem of stigmatized groups in general. Adolescents with spina bifida did not appear to differ in self-esteem from a comparison group of adolescents without disabilities (Murch & Cohen, 1989), nor did they differ significantly from matched controls on self-concept or overall self-esteem (Campbell et al., 1977). Magill and Hurlbut (1986) found no significant differences in overall self-esteem between a group of adolescents with cerebral palsy and a matched control group of adolescents without disabilities. In a study of adolescents with cleft lip or palate or both, Starr (1978) found no significant differences in their self-esteem compared with that of a matched control group. Brantley and Clifford (1979) reported that adolescents with clefts had, in fact, greater self-esteem and self-confidence than did comparison groups of adolescents without disabilities and obese adolescents. Kapp (1979) found no significant difference in the global self-concept of adolescents with cleft lip or palate and that of a group of matched controls.

In her review of the literature on the psychosocial effect of chronic illness on children, La Greca (1990) concluded that "the most striking and parsimonious conclusion that can be drawn from this considerable data base is that children with chronic or life-threatening illness ... do not differ substantially from healthy youngsters in terms of disease-specific personality patterns or prevalence of severe emotional disorders" (p. 286). Although our focus is on the self-evaluation and self-concept of adolescents with physical disabilities, it appears that a similar general conclusion is warranted. In fact, according to Crocker and Major (1989), there is little empirical evidence that members of any stigmatized group have low global self-esteem. They proposed that a variety of protective mechanisms is used to bolster self-esteem (e.g., persons may attribute negative feedback to the fact that they belong to a stigmatized group rather than to faults that they possess). Thus, both theoretically and empirically, there is reason to question the common assumption that persons with physical disabilities, as a group, are lower in self-esteem than are persons without physical disabilities. As Drotar (1981) has concluded with respect to childhood illness, it may be best to view a physical disability as a stressor that, depending on its interactions with a host of other variables, such as parental psychosocial characteristics and family functioning, will have a varying effect on the adolescent's self-esteem and self-concept.

Rather than attempting to determine whether adolescents with disabilities, as a group, have lower self-esteem and self-concept than do other adolescents, the most productive next steps for researchers would be (a) to determine the factors that have significant effects on self-esteem and specific domains of self-concept within this population, and (b) to examine the effect of self-esteem and self-concept on behavior, adjustment, and key life outcomes (La Greca, 1990).

With regard to the former, it appears that gender may be an important mediator of the effect of disability on self-esteem and self-concept. In the group of studies reviewed above, those that employed matched control groups (i.e., Campbell et al., 1977; Kapp, 1979; Magill & Hurlbut, 1986), although generally finding no overall differences between disabled and control groups, did find that boys and girls with disabilities differed from their counterparts without disabilities on some subscales of the standardized tests. Magill and Hurlbut (1986) found girls with cerebral palsy to be significantly lower than all other groups on their physical self-esteem. Kapp (1979) found girls with clefts to be significantly lower than girls without clefts on several subscales of the Piers-Harris Children's Self Concept Scale (Piers & Harris, 1967), and Campbell et al. (1977) found significant differences between both boys and girls with spina bifida and matched controls on several subscales of a self-image questionnaire. These findings, however, do not portray a consistent pattern of differences for boys or girls, even on the same measures. Both Campbell et al. (1977) and Magill and Hurlbut (1986) used the Tennessee Self-Concept Scale (Fitts, 1965) and reported different findings. Different samples may account for the inconsistencies or the findings may be spurious. In fact, Campbell et al. (1977) stated that, due to small sample sizes, their findings "should be regarded as tentative and repeated on similar groups" (p. 406), as well as on samples of adolescents with other disabilities. The relatively small sample sizes and large number of comparisons in the studies by Magill and Hurlbut (1986) and Kapp (1979) make these matched control studies vulnerable to spurious findings.

Study Rationale

The present study explored the role of gender in mediating the effect of disability on self-esteem and self-concept by comparing means for males and females with disabilities with normative data obtained from males and females without disabilities. A second aim was to extend previous research, which has focused on self-esteem and self-concept. Little attention has been directed toward other elements of the self that may be associated with adolescents' successful adjustment to life. As Kapp (1979) has stated, we need to take a more in-depth look at the self-concept of persons with physical disabilities.

The aspects of the self examined were chosen on the basis of a conceptual framework we developed to guide our research. Five key components were examined: self-esteem (Am I worthy?), self-concept (Who am I?), self-acceptance (Do I accept my disability?), social self-efficacy (Am I competent in social situations?), and values (What do I believe is worth doing?). The social self-efficacy and
values of adolescents with physical disabilities are potentially important variables that have not been examined in previous studies. We believe that a sense of social competence and the values of goal orientation, achievement, and decisiveness can greatly affect successful life outcomes for adolescents with disabilities.

Social self-efficacy reflects a person's judgment about whether he or she is capable of carrying out the social tasks that underlie successful relations with others. Self-efficacy is thought to be an important component of social competence in both children (Rutter, 1985) and adolescents (Connolly, 1989). Values are important aspects of the self (Rokeach, 1960) and may be instrumental in determining personal and vocational activities (Gordon, 1967). Both immediate decisions and long-range plans are influenced by value systems (Gordon, 1967). Chronic disease and physical disabilities are thought to affect values such as goal orientation (Kellerman et al., 1980; Werner & Smith, 1982). We examined the values of goal orientation (the desire to have definite goals to work toward), achievement (the desire to set the highest standards of accomplishment for oneself), and decisiveness (the desire to think things through for oneself and make decisions).

As stated above, a second important direction for research on the self-conceptions of adolescents with disabilities is to examine the effect of self variables on behaviors predictive of successful adaptation to life (La Greca, 1990). We examined the relation between aspects of the self and the interpersonal style of adolescents with disabilities—their characteristic ways of relating to other people. More specifically, we were interested in examining the relative importance of self-esteem, social self-efficacy, acceptance of disability, and the values of goal orientation (Kellerman et al., 1979; Tavormina et al., 1976), particularly during adolescence (Bryan & Herjanic, 1980). Due to parental overprotection, children with physical disabilities, like those with chronic illness (Tavormina et al., 1976), may have particular difficulty in expressing their own opinions and resisting the influence of others (Strax, 1988). Persistence at goals or tasks until they are completed is another area in which adolescents with disabilities are assumed to be deficient because others often do things for them and intervene when difficulties are experienced. Lack of independence and persistence likely will have a negative effect on adolescents’ academic and vocational success (Abramson et al., 1979).

Objectives

Using comparisons with normative data, this study examined whether male and female adolescents with physical disabilities differed from male and female adolescents without disabilities on selected self variables, most of which have not been examined in the literature. We also explored the relation between these aspects of the self and independence and persistence in interpersonal style. It was hypothesized that self-esteem, social self-efficacy, acceptance of disability, and the values of goal orientation, achievement, and decisiveness would be positively related to independence and persistence in interpersonal style.

Method

Subjects

This study was a survey of the total population of clients registered at Thames Valley Children’s Centre (the major rehabilitation center for children and adolescents with physical disabilities in Southwestern Ontario) who met the following inclusion criteria: prior or current registration at the Centre; condition diagnosed as cerebral palsy, spina bifida, or cleft lip or palate or both; age between 14 and 18 years; intelligence within normal range (IQ above 80 as determined by previous standardized psychometric assessments); and residence within a 30-mile radius of London, Ontario. Clients whose speech intelligibility was less than 80% or who used an augmentative communication system, such as the Bliss Symbol System, were excluded.

Ninety clients met the inclusion criteria. Of these, 78 were able to be contacted, whereas the others could not be located. Of the 78 contacted, 53 (68%) consented to participate. Various reasons were given by the 25 clients who declined to participate: the travelling distance (n = 6); parent did not consent (n = 5); sensitive topic area (n = 4); not interested (n = 8); busy schedule (n = 2). Chi-square analyses revealed that the participants and nonparticipants did not differ in terms of condition or gender. 

The 53 participants consisted of 16 males and 11 females with cerebral palsy, 3 males and 6 females with spina bifida, and 12 males and 5 females with cleft lip or palate or both (a total of 31 males and 22 females). The mean age of the males was 16.4 years and the mean age of the females was 15.7 years. The specific diagnoses for each group were as follows: of the 27 adolescents with cerebral palsy, 12 were hemiplegic, 9 were diplegic, and 6 were quadriplegic; of those with cleft lip or palate, 6 had cleft palate, 3 had cleft lip, and the remaining 8 had both cleft lip and palate; all 9 participants with spina bifida had hydrocephalus.

Procedure

All eligible subjects and their parents were contacted by telephone by a research assistant who explained the purpose of the study. A consent form and letter of explanation...
A battery of standardized instruments was used, all of which are appropriate for adolescents. These instruments have adequate psychometric properties and, for the most part, provide norms based on samples of adolescents from the general population. They were completed by subjects in a standardized order. The instruments were: (a) the Self-Perception Profile for Adolescents (Harter, 1986), which provides a measure of Global Self-Worth and also measures perceived competence in eight domains (Scholastic Competence, Social Acceptance, Athletic Competence, Physical Appearance, Job Competence, Romantic Appeal, Conduct/Morality, and Close Friendship); (b) the Adolescent Social Self-Efficacy Scale (Connolly, 1989), which elicits self-ratings of behavioral effectiveness in problematic peer contexts; (c) the Attitudes Towards Disabled Persons Scale (ATDP-Form B) (Yuker, Block, & Young, 1966), which provides a measure of the degree to which the respondent perceives disabled persons as being different from persons without disabilities and has been widely used as a measure of disabled persons' acceptance of their own disabilities (Yuker et al., 1966); (d) the Survey of Personal Values (Gordon, 1967), which provides measures of Goal Orientation, Achievement, and Decisiveness, as well as Practical Mindedness, Variety, and Orderliness; and (e) the Interpersonal Style Inventory (Lorr & Youniss, 1988), which evaluates interpersonal style on 15 scales grouped under five empirically-based factors—Interpersonal Involvement, Autonomy (including the subscale Independent), Stability, Socialization, and Self-Control (including the subscale Persistent).

**Analysis Procedures**

**Comparisons with normative data.** Sample scores were compared, by gender, with norms for each scale (after Anderson et al., 1982; Tavormina et al., 1976). The normative samples consisted of students in grades 8 to 11 (for the Self-Perception Profiles for Adolescents) and high school students (for the Adolescent Social Self-Efficacy Scale, the Survey of Personal Values, and the Interpersonal Style Inventory); scores by age or grade were not available for the ATDP. One-tailed, independent $t$-tests, with pooled estimates of variance (as appropriate), were performed to compare means of adolescents with disabilities with the means reported for the normative samples. Separate comparisons were made for males and females on total scores or subscale scores, as appropriate.

**Regression analyses.** Two “all possible subsets” regression analyses were performed, with Independence and Persistence as the outcome variables. In each case, Global Self-Worth (from the Self-Perception Profile for Adolescents), Social Self-Efficacy, Acceptance of Disability, and Goal-Orientation, Achievement, and Decisiveness (from the Survey of Personal Values) were entered as predictor variables.

Variables were entered into the analysis as $T$ scores (Independence, Persistence), raw scores (Goal Orientation, Achievement, Decisiveness, and Global Self-Worth), or total scale scores (Social Self-Efficacy, Acceptance of Disability). Gender and condition were controlled for in the analyses through the use of dummy variables.

The predictor variables were plotted against the outcome variables to look for nonlinear relations and to determine whether transformation of predictor variables was desirable. After selection of a model, residuals were examined to detect outliers. Outliers were removed, individually and in combination, to examine the stability of the coefficients. All cases remained in the final analysis. Final selection of a model was determined by a significant increase in $R^2$, in the presence of controlling variables.

**Results**

**Differences Among Diagnostic Groups**

Before conducting the analyses of interest we examined whether the three diagnostic groups (cerebral palsy, spina bifida, and cleft lip or palate or both) differed in terms of their self-evaluations or self-concepts. On the basis of the literature (Bryan & Herjanic, 1980; Wright, 1960), we did not expect to find that particular personality traits were characteristic of one diagnostic group more than of another group.

A series of one-way analyses of variance were performed on the subscales of the Self-Perception Profile for Adolescents, the Survey of Personal Values, and the Interpersonal Style Inventory, and on total Social Self-Efficacy and Acceptance of Disability scores. Due to the large number of statistical tests performed ($n = 19$) and our desire to avoid spurious effects, alpha was set at $p < .001$ to control for type 1 error rate in this set of analyses (Kirk, 1968). No significant differences were found between the diagnostic groups on the measures employed in this study, except that adolescents with cleft lip or palate or both had higher scores on Athletic Competence ($M = 2.9$) than did adolescents with cerebral palsy ($M = 1.9$) or spina bifida ($M = 1.7, F[2,50] = 9.2, p < .0005$ for comparisons!).

Because there was only one significant difference among diagnostic groups, the normative comparisons reported here are based on all groups combined. It should be noted that normative comparisons also were conduct-
Comparisons with Normative Data

Means and standard deviations for adolescents with physical disabilities were compared with normative data provided by authors of the instruments, either in manuals or in articles addressing issues of construct validation (see Table 1). The actual size of the study sample differs across the various outcome measures due to missing data. We also selected subjects in grades 9 to 13 on the measure of self-efficacy to obtain a more precise match with the normative sample. Alpha was set at $p < .001$, one-tailed to control for type 1 error rate. Several significant differences were found. As can be seen in Table 1, both males and females with physical disabilities were significantly lower in Athletic Competence and Romantic Appeal than were the normative samples. In addition, disabled males were significantly lower in Scholastic Competence and disabled females were significantly lower in Social Acceptance. Both males and females were significantly lower in Independence and Persistence than were adolescents without disabilities.

Regression Analyses

Independence. Social self-efficacy was the only significant predictor of independence in interpersonal style. Its coefficient remained stable when various outliers were removed. The variables indicating condition were not significant, but were stable and were retained because of the unbalanced distribution of condition in the sample, in spite of causing a reduction in the significance of the coefficient (see Table 2).

Gender was removed as a controlling variable because both the sign and the magnitude of the coefficient changed when outliers were removed, and therefore its effect, in addition to being nonsignificant, was not interpretable. Further analysis revealed that self-efficacy and independence were most strongly correlated for the group with cerebral palsy, both males and females, and that they were uncorrelated for females with spina bifida or clefts. The latter had very small numbers (six and five, respectively) in this sample.

Table 1: Measures of Self-Evaluation, Self-Concept and Interpersonal Style for Adolescents with Disabilities and for Normative Samples

<table>
<thead>
<tr>
<th>Instrument (and subscales)</th>
<th>Study Sample (adolescents with disabilities)</th>
<th>Normative Samples (adolescents without disabilities)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td><strong>Self-Efficacy Profile for Adolescents</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global Self-Worth</td>
<td>M</td>
<td>3.1</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>3.0</td>
</tr>
<tr>
<td>Scholastic Competence</td>
<td>M</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>2.8</td>
</tr>
<tr>
<td>Social Acceptance</td>
<td>M</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>2.7</td>
</tr>
<tr>
<td>Athletic Competence</td>
<td>M</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1.8</td>
</tr>
<tr>
<td>Physical Appearance</td>
<td>M</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>2.1</td>
</tr>
<tr>
<td>Job Competence</td>
<td>M</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>3.1</td>
</tr>
<tr>
<td>Romantic Appeal</td>
<td>M</td>
<td>2.3</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>2.1</td>
</tr>
<tr>
<td>Conduct/Morality</td>
<td>M</td>
<td>2.9</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>2.8</td>
</tr>
<tr>
<td>Close Friendship</td>
<td>M</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>3.1</td>
</tr>
<tr>
<td>Adolescent Social Self-Efficacy Scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>M</td>
<td>118.8</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>119.1</td>
</tr>
</tbody>
</table>

Notes: M = male, F = female. Higher scores reflect higher perceived competence (Self-Perception Profile for Adolescents), higher evaluations of social self-efficacy (Adolescent Social Self-Efficacy Scale), greater acceptance of disability (Attitudes Towards Disabled Persons Scale), greater importance of specific values (Survey of Personal Values), and greater independence or persistence (Interpersonal Style Inventory).

$^*p < .001$, one-tailed.

$^{**}p < .0005$, one-tailed.

Regression Analyses

Independence. Social self-efficacy was the only significant predictor of independence in interpersonal style. Its coefficient remained stable when various outliers were removed. The variables indicating condition were not significant, but were stable and were retained because of the unbalanced distribution of condition in the sample, in spite of causing a reduction in the significance of the coefficient (see Table 2).

Gender was removed as a controlling variable because both the sign and the magnitude of the coefficient changed when outliers were removed, and therefore its effect, in addition to being nonsignificant, was not interpretable. Further analysis revealed that self-efficacy and independence were most strongly correlated for the group with cerebral palsy, both males and females, and that they were uncorrelated for females with spina bifida or clefts. The latter had very small numbers (six and five, respectively) in this sample.

Persistence: As can be seen in Table 2, social self-efficacy was again the only significant predictor of persistence. Gender and condition were not significant but were retained as controlling variables. The correlation between subjects' scores on Independence and Persistence was .32 (n = 49; p < .01).

Discussion

This study examined whether the self-evaluations and self-concepts of adolescents with physical disabilities differed from normative data, and how these self variables related to two key aspects of success in life, independence and persistence at tasks. No differences were found in the self-evaluations of male and female adolescents with cerebral palsy, spina bifida, and cleft lip or palate or both in comparison with normative data obtained on persons without disabilities. However, adolescents with disabilities differed from normative samples in terms of several specific aspects of self-concept. Not surprisingly, both males and females had lower perceived athletic competence. Of greater interest are differences in perceived romantic appeal (for both males and females), scholastic competence (for males), and social acceptance (for females). We also found that adolescents' evaluations of their competence in social situations—their social self-efficacy—was significantly related to both their independence in interpersonal relations and their persistence at tasks.

There were no differences between the sample of adolescents with disabilities and normative samples on measures of self-evaluation. We found no differences in self-esteem, social self-efficacy, acceptance of disability, and values for either males or females. Our findings therefore extend previous research, which has generally found no differences on global measures of self-esteem (e.g., Campbell et al., 1977; Kapp, 1979; Magill & Hurlbut, 1986; Murch & Cohen, 1989; Starr, 1978). We found no evidence that adolescents with disabilities evaluate themselves differently in a global sense, whether it be in terms of their self-esteem, self-acceptance, or perceived self-efficacy in social situations. With respect to clinical implications, these findings indicate that clinicians should not assume that adolescents with physical disabilities will have problems in self-esteem.

The generalizability of these findings concerning self-evaluation needs to be considered. There were no significant differences between the assessed sample and the population from which they were recruited in terms of diagnostic category or gender, and our participation rate of almost 70% is quite high. However, because self-administered measures were used, we did not include in our study adolescents with cognitive impairments, who might have lower self-esteem. It is also possible that those adolescents with feelings of inadequacy were more likely to decline to take part in the study. Our findings do correspond, however, to those reported in the literature, although these past studies have been subject to small sample size and have not addressed the issue of statistical power.

Statistical power refers to the ability of the analysis to detect true differences in the population under study. Our study suffered from two factors that reduce power: small sample size (differences must be larger to achieve statistical significance when the samples being compared are small) and the reduction in the critical p-value (alpha) necessitated by the large number of tests (which means that larger differences are required before being declared significant). Our power calculations indicate that we had low power to detect differences that may truly exist.

If the difference of interest in this study is specified as .5 standard deviations on each of the instruments (a difference that Cohen [1988] defined as moderate or "medium"), the power of our analysis can be calculated. The groups of males and females compared in Table 1 are unequal, and therefore the harmonic mean must be used in power calculations. For example, our analysis of the Self-Perception Profile for Adolescents has the same power as one that compares equal groups of 58 males and 42 females, which is 85% for males and 74% for females at alpha (one-sided) = .05 (Cohen, 1988), 62% and 47%, respectively, at alpha (one-sided) = .01, but 35% and 22% if alpha (one-sided) is set to .001 (Cohen, 1988). Similarly, for the analyses of variance, the power to detect a moderate (medium) difference among diagnostic groups (f = .25, n = 17, k = 3) for any instrument is 3% if alpha = .05, 13% if alpha = .01 (Cohen, 1988).

Our aim was to be conservative and this strategy of minimizing spurious findings led us to set stringent alpha levels. This increases our confidence that the differences reported here are true differences but decreases the chance of finding true population differences of clinical significance. We are therefore unable to conclude firmly that adolescents with disabilities and their peers without disabilities do not differ in self-esteem.

Table 2

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Predictor Variable</th>
<th>Coefficient</th>
<th>Significance of t</th>
</tr>
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<tbody>
<tr>
<td>Independencea</td>
<td>Social self-efficacy</td>
<td>.23</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>Cleft lip or palate or both</td>
<td>-.208</td>
<td>.58</td>
</tr>
<tr>
<td></td>
<td>Spina bifida</td>
<td>-.602</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td>Intercept</td>
<td>19.75</td>
<td>.06</td>
</tr>
<tr>
<td>Persistenceb</td>
<td>Social self-efficacy</td>
<td>.26</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>Cleft lip or palate or both</td>
<td>1.19</td>
<td>.76</td>
</tr>
<tr>
<td></td>
<td>Spina bifida</td>
<td>-.388</td>
<td>.43</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>-.265</td>
<td>.45</td>
</tr>
<tr>
<td></td>
<td>Intercept</td>
<td>13.87</td>
<td>.21</td>
</tr>
</tbody>
</table>

aOverall F = 3.58, p = .03, R² = 18.4
bOverall F = 3.17, p = .02, R² = 22.3
The sample sizes of this study are larger than those of most published studies in the field (see e.g., Campbell et al., 1977; Magill & Hurlbut, 1986); all eligible subjects of one major treatment center were approached for inclusion in this study. To conclusively address whether, or to what extent, adolescents with and without disabilities differ in self-efficacy requires a very large, multicentered study with adequate sample size. The strengths of our study in this regard have been (a) our explicit consideration of the issue of statistical power, which has not been addressed by previous research in this area, and (b) our examination of other measures of self-evaluation (e.g., social self-efficacy and acceptance of disability) in addition to self-efficacy.

We did find several significant differences in self-concept that are noteworthy in light of our conservative analyses. Both males and females with disabilities view themselves as lacking in romantic appeal. This view may be realistic, but nonetheless is an area of particular concern and worry for this group. Anecdotal and clinical evidence of this concern with dating and attractiveness to the opposite gender is present in the literature (Bryan & Herjanic, 1980), but the present study is the first to demonstrate it empirically. Campbell et al. (1977) found male adolescents with spina bifida to have poorer body images than did matched controls, and Magill and Hurlbut (1986) found girls with cerebral palsy to score lower than matched controls on physical self-esteem. These concerns with physical image may be related to our finding of lowered perceived romantic appeal.

We also found that males with disabilities viewed themselves as lower in scholastic competence than did males without disabilities, a finding that has not been previously reported in the literature. As well, females with disabilities viewed themselves as lower in social acceptance than did female adolescents without disabilities, which parallels Campbell et al.'s (1977) finding that adolescent girls with spina bifida expressed more social concerns, including isolation and loneliness, than did control girls. Because the presence of good friendships has been found to be a particularly important protectant factor against adjustment problems for adolescent girls (Rae-Grant, Thomas, Offord, & Boyle, 1989), the lower perceived social acceptance of females is of particular concern.

Exploration of the relations between aspects of self and independence and persistence reflects a general research strategy that has clinical utility: the exploration of the intrapersonal, interpersonal, familial, and environmental factors associated with key life outcomes for adolescents with disabilities. As expected, we found adolescents with disabilities to be significantly lower in both independence (the disposition to express one's opinions and to resist the pressure of others to conform) and persistence (the disposition to persist at tasks or goals until they are completed, despite obstacles or difficulties). We found that social self-efficacy was positively related to both increased independence and persistence, and that independence and persistence were only moderately (yet significantly) correlated. These findings indicate that social self-efficacy is an important predictor of two relatively independent behavioral tendencies with important implications for life success in adolescents with disabilities.

The concept of self-efficacy is receiving increased attention in the literature on stress and coping (Moos & Billings, 1982), although self-efficacy is usually conceptualized as a personal resource used in handling adverse environmental events, rather than in dealing with social situations and difficulties. Persons with higher levels of self-efficacy are thought to be more persistent in their efforts to handle threatening situations, whereas those low in self-efficacy tend to avoid such situations (Moos & Billings, 1982). Our investigation of social self-efficacy in adolescents with physical disabilities has indicated that persons high in social self-efficacy are also more persistent at tasks and goals. Concrete evidence for this relation has not previously been demonstrated.

Although we found no overall differences between adolescents with and without disabilities on social self-efficacy, there are assuredly adolescents with social skill deficits related to their feelings of inadequacy in dealing with social situations (Shultz, Warr-Leeper, King, McGoldrick, & Stanceyk, 1990). Certain adolescents, due to their physical limitations and social isolation, will not have had the mastery experiences in social situations that form the basis for one's sense of efficacy.

The present research has indicated that exploration of the social self-efficacy of adolescents with disabilities is an important endeavor, because social self-efficacy is related to important behavioral tendencies for this group. One useful research direction would be to examine whether social self-efficacy can be enhanced by social skills training programs. Because social self-efficacy is based on self-expectations for interpersonal skill, these programs could increase feelings of self-efficacy by providing opportunities for successful experiences with peers, reinforcing appropriate interpersonal behavior, and encouraging realistic expectations. These strategies are employed by many social skills programs, although there are few programs for persons with disabilities (Shultz et al., 1990); furthermore, the effect of such programs on the skills and social competency of adolescents with disabilities remains to be addressed. Social self-efficacy might be an important outcome to include in such effectiveness evaluations.

Implications for Occupational Therapy Practice

The findings have a number of implications for assessment and intervention with children and adolescents with physical disabilities. Occupational therapists can and do
employ a wide variety of methods to facilitate persistence and independence and decrease feelings of scholastic incompetence, social nonacceptance, and lowered romantic appeal. Some of these methods are general techniques that apply regardless of content, whereas others are specific to a particular area of perceived difficulty.

Therapists should not assume that clients will have self-esteem or self-concept difficulties and therefore should assess for such concerns (Magill-Evans & Restall, 1991). Our findings challenge the widely held perception, shared by therapists, that most persons with physical disabilities have lower feelings of self-worth (Arnold & Chapman, 1992). Our findings reinforce the need to use a client-centered approach (Canadian Association of Occupational Therapists [CAOT], 1991a) to determine whether clients themselves, rather than parents or teachers, have concerns related to self-evaluation or self-perception. The newly developed Canadian Occupational Performance Measure (CAOT, 1991b) may be a useful tool for assessment in this area as it enables the client to identify areas of perceived needs and goals for intervention. Our findings indicate that therapists assessing clients with physical disabilities should pay particular attention to concerns about romantic appeal, feelings of scholastic incompetence (for boys) and feelings of social nonacceptance (for girls).

General intervention strategies that are thought to have positive effects on self-esteem and self-concept include involving the client in goal setting, encouraging problem solving and role playing around problem situations, and reinforcing behaviors related to the acquisition of competence. Teenagers may also need to be motivated to acquire behavioral or social competencies. On the basis of Harter’s (1978) theory of competence motivation, it is important to ensure that teenagers have an optimal degree of challenge, are able to define the boundaries of competence by experiencing failure, and are reinforced for attempting to succeed. Perhaps most important, occupational therapists need to empower clients to have more control in therapy, to promote feelings of self-worth and competence.

Specific suggestions can be made for interventions designed to address particular types of difficulties. Perceptions of lack of romantic appeal can be addressed through problem solving around practical issues (such as clothes and grooming); role playing (e.g., how to ask someone for a date); discussing societal attitudes and beliefs about physical attractiveness and sexuality (particularly with regard to those with physical disabilities); and, as suggested by Magill and Hurlbut (1986), helping teenagers redefine attractiveness. Depending on the reasons for perceptions of lack of scholastic competence, occupational therapists can target visual-perceptual, motor, or communication difficulties (Kielhofner, 1985), teach organizational skills, or motivate teenagers to want to do well by discussing the consequences of lack of academic interest. To foster social acceptance, therapists should promote opportunities for girls to develop close friendships. This may involve encouraging parents to allow their daughters to go out with others more frequently or spend more time on the phone. Therapists might also assist in setting up informal support groups for teenagers.

Adolescents with physical disabilities are described as being more dependent on their parents than are adolescents without disabilities, not only in a physical sense (Blum, Resnick, Nelson, & St. Germaine, 1991), but behaviorally and socially as well (Bryan & Herjanic, 1980). Therapists need to promote independence and autonomy early on and not wait for dependency issues to arise in adolescence before addressing these issues with parents and children. Useful techniques include problem solving around issues of independence (e.g., difficulties with parents and transportation problems), involving the teenager in decision making and goal setting around treatment, and training in assertiveness. A lack of persistence may be tied in with dependency on others, because children may be less likely to persist at tasks when they know that parents will provide assistance when requested. Therapists can promote persistence at tasks by discussing the issue with parents and helping them see the longer-term, negative consequences of assisting their child too readily.

Future research should attempt to replicate the findings here, and extend them by examining the reasons behind the lower self-concepts in certain areas. Why do teenage boys with physical disabilities feel lower in scholastic competence? Once the reasons are known, specific interventions can be used, perhaps in a preventative way, to address the issues. Clearly, not all adolescents with physical disabilities are at risk for lower self-concepts. However, if those who are at risk can be identified early, before behavior patterns become more resistant to change, then interventions may be easier and the burden of concern may be alleviated. ▲

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