

## **Psychosocial Adaptation of Orthopedically Disabled Mexican Children and Their Siblings**

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*This article reports a study of psychosocial adaptation of orthopedically disabled children and their siblings in Mexicali, Baja California, Mexico to determine if the psychodynamic of disability documented in U.S. studies is also found in this group. This was achieved by an examination of disabled-nondisabled differences through comparison of children with disabilities and their siblings on a wide range of psychosocial variables, and assessment of the relationship of disability, school and family factors to behavior problems and self-esteem. The investigation used multiple methods of evaluation, including assessment of physical, behavioral, social, and psychological adaptation. Findings include many predicted differences between disabled and non-disabled children on measures of adjustment, self-esteem and professional expectations; negative correlation of self-esteem with disability; an increase in behavior problems with poor self-esteem; and a decrease in behavior problems with improved self-esteem and increased family and social activities.*

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**KEY WORDS:** orthopedically disabled children; psychosocial adaptation.

### **INTRODUCTION**

The literature on childhood adaptation to both mental and physical disability and chronic illness is voluminous (Drotar, 1981; Leventhal, 1984; Jessop and Stein, 1985). However, the extent to which psychosocial adjustments documented in studies in the United States are pertinent to children from other cultures has been insufficiently considered (Arnold, 1983). This paper reports part of an investigation of orthopedically disabled children

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in Mexicali, Baja California, Mexico, examining the inter-relationship in these Mexican families of disability, behavioral problems, self-esteem, and how they are affected by school, family, and social activities. The overall intent is to: (1) determine if the Mexican dynamics of psychosocial adaptation to disability are similar to the pattern in the United States, and (2) ascertain the factors which affect the functioning of children with physical disabilities, especially in areas of self-esteem, behavioral problems, and social activities, and how these might be addressed through family-directed programs and resources.

Such concerns are especially relevant since the American health care system regularly must deal with immigrant families from abroad, particularly in border states such as California and Texas with their large numbers of immigrants from Mexico (Schreiber and Hamiak, 1981). Development of psychosocial rehabilitation programs for disabled children here and in developing countries must address cultural patterns and resources relevant to the adaptation of these children and their families.

For example, in Mexico, opportunities for professional rehabilitation of children with orthopedic disabilities are minimal. There are no governmental agencies specifically charged with such programs, and the local level opportunities for disabled individuals are virtually non-existent. Our informal assessment of educational opportunities in the Mexicali, Baja California area through conversations with parents and local social workers indicated that there were no schools present which provided special education for the children with disabilities or even provided special programs within the mainstream schools for the care or education of the disabled child. Further, strong cultural traditions concerning disabled individuals still prevail, where deformity is sometimes seen as evidence of "sins of the parents" and "punishment from God" (Asch, 1984; Shapiro and Tittle, 1986b). Clearly, the sociocultural milieu does not provide a supportive atmosphere for adaptation to the problems presented by orthopedic handicaps. How children with disabilities and their families adapt in this milieu has implications for the development of therapeutic resources and rehabilitation programs.

This research project was designed to investigate related applied clinical research questions, specifically: (1) the psychosocial adaptation of orthopedically disabled Mexican children and their siblings, and the factors predicting child adjustment and behavior problems; (2) the parental coping skills and prejudices toward disabled individuals in the families of these children; (3) the relationship between parental coping and prejudice to children's behavior problems and self-esteem. This study addresses the first issue only. Findings related to the latter two questions are reported elsewhere (Shapiro and Winkelman, in preparation).

## HYPOTHESES

It has been established that children with long-term illnesses and disabilities are at significant risk for developing problems in psychological adjustment and in activities of daily living (Perrin and MacLean, 1988; Pless, 1984). There is a likelihood of both behavioral and school problems in this population (Sargent and Liebman, 1985), which has been documented for a culturally different population as well (Bhargava, 1984). An epidemiologic survey (Cadman *et al.*, 1987) confirmed that the combination of chronic illness with disability put children at a greater than threefold risk for psychiatric disorders and social adjustment problems as compared to healthy peers. Examples of behavioral problems noted in children with disabilities include more frequent negative social encounters, more hyperactive behavior, and more problematic classroom behavior (Pertschuk and Whitaker, 1985).

Other investigations document the differences in psychosocial functioning between children with a serious chronic illness and normal controls (Billings *et al.*, 1987), and suggest that parents of disabled children find their children more difficult than parents of nondisabled children (Friedrich and Friedrich, 1981). This latter finding has received cross-cultural confirmation from a study indicating that Mexican mothers of disabled children viewed their children as significantly less well adjusted than did mothers of nondisabled children (Shapiro and Tittle, 1986). In particular, differences in self-esteem between disabled and nondisabled children appear in the literature (MacMillan, 1977). However, one effort using both nondisabled siblings and nondisabled controls (Harvey and Greenway, 1984) found that while children with disabilities and their siblings had lower self-esteem than did the nondisabled controls, few significant differences emerged between pairs of target children and siblings. In U.S. samples, psychosocial adjustment generally has not been related to severity of disability (Cook, 1983; Harper, 1983; Ungerer *et al.*, 1988), and tends to improve with age of child (Breslau and Marshall, 1985).

Educational aspirations and expectations, as well as overall school satisfaction, have long been used as one index of child adaptation to disability. There is some cross-cultural evidence that children with disabilities tend to rate themselves at a lower level of academic and social ability than do nondisabled children (Ryba *et al.*, 1984). In terms of parental satisfaction with the educational system, there are also data to suggest that, in the U.S., despite initially negative encounters with professionals, satisfaction is adequate (O'Hagen *et al.*, 1984). Further, it appears that children with disabilities usually can adapt satisfactorily to a normal school environment

(Johnson, 1984); however, problems in psychosocial areas (such as self-concept and peer relationships) should be anticipated (Taylor *et al.*, 1987).

Based on this previous research we expected to find: (1) systematic differences between disabled and nondisabled children: lower self-esteem, lower educational/professional aspirations and expectations of success, diminished school satisfaction, and more behavioral problems; (2) that physical disability leads to psychological adjustment problems, specifically behavior problems, low self-esteem, and school difficulties. School satisfaction, family interaction, social activities, and friendships were expected to be mediating factors, establishing positive self-esteem, and reducing behavior problems directly (see Figure 1).

## METHOD

### Subjects

This study is based on a nonrepresentative sample of 19 Mexican families with orthopedically disabled children. Families that participated in this

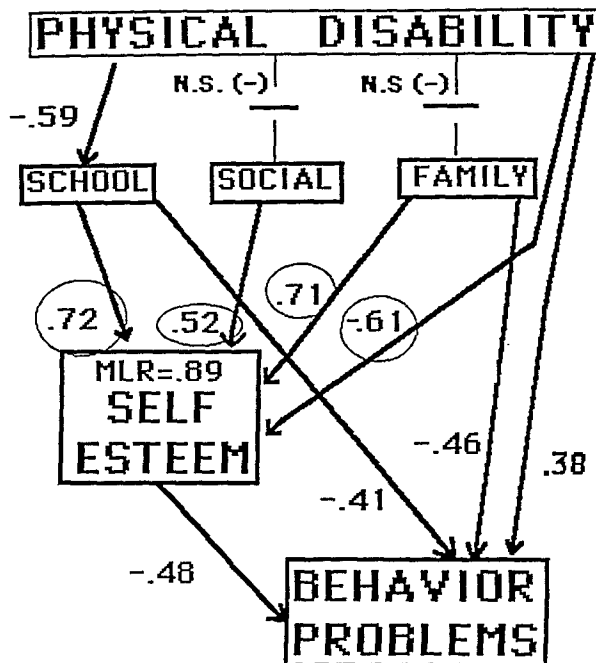


Fig. 1. School, family, and social factors mediating child self-esteem and behavior problems.

study were volunteers who were receiving free medical services at the Clinica Ortopedica del Valle in Calexico, CA., across the border from Mexicali, B.C., Mexico; all of the families resided in Mexico in the Mexicali area. Many of these families had migrated to Mexicali from the interior of Mexico in the hope of acquiring medical help in the U.S. The location in the border area provides socioeconomic resources and a lifestyle atypical of rural and interior regions of Mexico. Several visits were made by the investigators to the Clinica Ortopedica on clinic days designated for the treatment of children with orthopedic disabilities in order to solicit participants.

Because of the exploratory nature of this study, the only inclusionary criteria for participation were the following: (1) presence of a locomotor disability, as evidenced by treatment-seeking behavior at the orthopedic clinic; (2) presence of at least one sibling at home; (3) no diagnosis of mental retardation; (4) Index child between the ages of 4 to 13. Any family that expressed interest in what was described as a study and program of psychosocial rehabilitation was included in the sample pool. Actual families evaluated were those with whom the research assistants could make contact.

The comparison group was selected from the families of the disabled children. The rationale for selecting these children as a comparison group was that they were most like the disabled children in terms of family experience and socioeconomic environment. However, because of resource limitations, we were unable to include a second control group of children from families without disabled children, and were therefore unable to test the possibility that the nondisabled siblings from the families of orthopedically disabled children were different from other nondisabled children.

### Data Collection

The research staff, consisting of the primary investigators and members of the faculty and students from the Escuela de Trabajo Social in Mexicali, Mexico, met the selected families in their homes, first to discuss the child's and family's situation, and later to carry out a series of interviews and observations of the behavior of the disabled children and their siblings. Data obtained in this study were primarily collected by the Mexican collaborators, under the initial supervision of the primary investigators. A questionnaire was also administered to the parents dealing with their children's psychosocial adaptation. An additional questionnaire was administered to both disabled and nondisabled children to determine their attitudes, expectations, social behavior, relationships with others, and self-esteem.

### Sample Description

The investigation included 28 children (13 disabled and 15 nondisabled). Thirteen children were female, and 15 were male. Family size ranged from three to nine members. Sixteen fathers of the 19 families represented worked full-time, while two worked part-time and one was unemployed. Six mothers were full-time home-makers; for three their employment status was unknown; the remaining 10 worked part-time. Disabled children in this sample included children whose physical functioning had been affected by accident (one), meningitis (two), cerebral palsy (one), congenital deformities (three), and locomotor impediments including polio (six). All children had locomotor impairments which affected gait and mobility and which required bracing or corrective shoes in some cases, or crutches or wheelchairs in others. In the selection of the sample, the range of birth orders for the disabled children included oldest children in the family as well as middle and youngest children in the family. The group upon which data were actually collected included 31 children from 19 families. Of these, a total of 28 children between the ages of four and 13 years were used for the analyses reported here; three cases of children younger than four years were eliminated since their limited social and personal skills made assessment on most of the measures meaningless. The comparison children were from families containing disabled children as well. The inclusion of a disabled child and nondisabled sibling from the same family was not possible in families with very young disabled children. Within this sample, nine pairs of disabled and nondisabled children came from the same family, while four disabled children and six nondisabled children came from families without their complement included in this study.

For the 13 disabled children and 15 comparison children considered in this study, there were no significant differences in the ages of the nondisabled children (average = 113 months) versus the disabled children (average = 110 months). The sample included 13 females and 15 males. There was a significant bias towards male children with disabilities ( $z = -2.27$ ,  $p = .02$ ), with 10 of the 13 disabled children being male.

There were no significant differences between the nondisabled and disabled children in terms of socioeconomic variables such as family size, number of minors in family, family income levels, and extent of parent's/father's full time employment, as well as number of friends, amount of contact with friends, family activities, time spent with parents and siblings, and social activities such as errands, shopping and places visited (see Table I). This was what was desired in order to compare disabled children with nondisabled children from the same socioeconomic and familial environment;

**Table I.** Comparison of Disabled and Nondisabled Children on Behavioral, Self-Esteem, Educational and Social Variables

Variable	Predicted	Finding
Age	No Difference	No Difference
Sex/Disability	No Difference	More males
PHYSICAL DISABILITY FACTOR	Comparison <Disabled	Disabled Higher
HEALTH	Comparison >Disabled	No Difference
Physical Ability	Comparison >Disabled	Comparison Higher
Self Care	Comparison >Disabled	Comparison Higher
SELF-ESTEEM 1	Comparison >Disabled	Comparison Higher
SELF-ESTEEM 2	Comparison >Disabled	Comparison Higher
BEHAVIOR PROBLEMS	Comparison <Disabled	No Difference
Educational Aspirations	Comparison >Disabled	No Difference
Professional Aspirations	Comparison >Disabled	No Difference
Educational Expectations	Comparison >Disabled	No Difference
Professional Expectations	Comparison >Disabled	Comparison Higher
SCHOOL FACTOR	Comparison >Disabled	No Difference
School Attendance	Comparison >Disabled	Comparison Higher
Years of School	Comparison >Disabled	No Difference
Educational Satisfaction	Comparison >Disabled	Comparison Higher
School Relevance	Comparison >Disabled	Comparison Higher
Social Activities	Comparison >Disabled	No Difference
Family Activities	Comparison >Disabled	No Difference
Friends	Comparison >Disabled	No Difference

this was in part achieved by the inclusion of nine sibling pairs among the 28 subjects.

## MEASURES

This section describes the variables used, sources, and their validation as measures for this study. All data were from self report instruments administered to family members.

PHYSICAL DISABILITY is a measure of physical abilities based on parent's assessment on five individual indices which have face validity:

(1) DISABILITY ranked child's principal (disabling) condition into three groups: absent; minor locomotor or congenital condition; and major psychomotor impairment, cerebral palsy, meningitis.

(2) EQUIPMENT assessed the use of medical equipment, prosthesis, crutches, or wheelchair.

(3) SELFCARE ranked the child's limitations to: the ability to engage in behaviors of children of own age; the ability to dress oneself, without and with assistance; and the ability to feed one's self.

(4) **PHYSICAL ABILITY** assessed the child's ability to engage in physical tasks (climbing stairs, entering and leaving house) and control elimination (go to bathroom, have "accidents," enuresis). A summary measure was based on the extent (never or rarely, occasionally, almost always) to which child engaged in these behaviors.

(5) **HEALTH** assessed the child's health status on a scale of: poor, fair, good, excellent, don't know.

The first factor extracted with SPSSX Factor Analysis (PA1) accounted for 59% of variance; the subsequent factors all had eigen values of less than 1, and the 5 individual items loaded at an average of  $r = .76$ , (range of  $r = .61$  to  $.88$ ). These all serve to meet the criterion for the reliability of a measure (Carmines and Zeller, 1979). **PHYSICAL DISABILITY** significantly differed between the Disabled and Nondisabled group, ( $r = -.67$ ,  $p < .000$ ), establishing criterion (instrumental, pragmatic) validation as a measure of Disability. The near zero ( $r = .05$ ) correlation with age provides evidence that the measure assesses skills related to an ability/disability dimension rather than maturational change. Further theoretical validation is provided by the Results section in the predicted relationships to behavioral problems, school satisfaction, and self-esteem.

**SELF-ESTEEM** is based on two sets of measures: child's self-assessment on a version of the 28-question Piers-Harris Self-Esteem Inventory (Piers-Harris, 1969) translated, back-translated, and pilot-tested on a subset of five mothers by project staff; and assessments made by the child, comparing themselves as "better than," "equal to," or "worse than" their peers on 16 activities: arts, sports, construction, repairing, reading, sewing, making friends, singing or playing instrument, cooking, winning in discussions, dancing, school work, pleasing parents and teachers, telling jokes and stories, knowing about cars, and gymnastics. The Piers-Harris questions had a reliability alpha of  $.87$ , indicating a single underlying factor. However, the first factor derived from the variables accounted for only 26% of variance. The other 16 assessments of self-esteem had a reliability alpha of  $.97$ . Factor analysis revealed a single factor accounting for 72% of the variance, all loadings =  $.68+$ , and no other factor with an eigen value greater than 1, establishing reliability. The validity of summing these two measures into the combined assessment **SELF-ESTEEM** is substantiated by their alpha reliabilities for individual items; their intercorrelation  $r = .47$  ( $p < .01$ ); their correlation of  $r = .85$  and  $r = .86$  with the sum; and the reliability alpha =  $.94$  for the 44 individual items summed for the **SELF-ESTEEM** measure. Theoretical validation is provided by the predicted relationships of **SELF-ESTEEM** to behavioral problems, disability, and social relationships reported in the Results. The lack of a significant correlation with age suggests that it is peer-related rather than an age-dependent assessment.



BEHAVIOR PROBLEMS is based on the summation of two sets of 10 questions each, in which parents assessed on a 5-point scale the frequency with which their child engaged in various behaviors. These included: *Set 1*—complaints, restlessness, sadness, stating rejection of self by others, saying they can't do things, fear, withdrawal, indifference, being unaware or uninterested; and *Set 2*—unnecessarily asking for help, incapable of making decisions, unnecessary questions, calling attention to self, angered over failure, upset with others who disagree, ignoring warnings about bad behavior, telling lies, not responding to discipline. These individual sets of questions had alpha reliabilities of .74 and .72 and an intercorrelation of  $r = .57$  ( $p < .001$ ). The reliability of the 20 questions together was  $\alpha = .82$ , while factor analysis suggested three underlying dimensions instead of one. However, the summation BEHAVIOR PROBLEMS had an average correlation of  $r = .77$  with the 20 individual measures, and correlations of  $r = .88$  and  $r = .89$  respectively with the individual summations, further validating its use as a summary assessment of behavior problems. Theoretical validation of BEHAVIOR PROBLEMS is found in the predicted relationships with self-esteem, disability, and social relationships reported in Results.

SCHOOL FACTOR is based on five assessments of the child's school experience which intercorrelated with an average  $r = .74$ . These were: child's school attendance (absent/present); year in school; a summary of eight ranked items (reliability  $\alpha = .86$ ) assessing parent's satisfaction with aspects of their child's education; a four point assessment of parent's overall satisfaction with the school; and a summation of the child's five-point assessment of school staff's interests in eight aspects of academic and social environment (reliability  $\alpha = .95$ ). One factor accounted for 80% of the variance of these variables, which intercorrelated with that factor with an average  $r = .87$ , validating its use as a representation of School Factors.

PROFESSIONAL AND EDUCATIONAL ASPIRATIONS AND EXPECTATIONS are based on the child's statement of the level of education and profession they aspired to achieve, and their expectations of meeting their aspirations. These measures were not included in the School Factor since their intercorrelations were not high enough. These measures have content validity in exhausting categorically the possible educational levels and areas of professional aspiration.

## SOCIAL ASSESSMENTS

FAMILY INTERACTION was assessed based on the child's ordinal estimation (none, 15 min, 1 hr, 2 hr, 2+ hr) of the daily participation in the following activities with parents, with siblings, and on weekdays and

weekends, respectively: eating, watching TV, playing, playing games, talking, going out, and being together. These four measures had an average intercorrelation of .71; a summation score of the 28 individual assessments had an average intercorrelation with the individual measures of .89 (range  $r = .85$  to  $.92$ ) justifying its use as an overall measure of differences in FAMILY INTERACTION.

SOCIAL ACTIVITIES is based on the child's assessment of the frequency with which they participated in the following activities on a monthly basis: number of visits to relatives or friends; number of places visited; number of shopping trips; doing errands; and riding buses. The factor analysis of these variables gave a single factor accounting for 49% of the variance; no other factor had an eigen value greater than 1; and the factor loadings were .67–.86, establishing the reliability of the combined measure and validating the use of this factor as a representation of the child's SOCIAL ACTIVITIES.

FRIENDS is based on the summation of three questions: the number of friends, and the number of times monthly the child visited their best friend and was visited by the best friend. Factor analysis did not substantiate a single dimension. However, the summation of the three measures was used as a proxy measure of the extent of the child's friendships and peer interactions.

## RESULTS

*Differences between Disabled and Nondisabled Children.* It was hypothesized that there would be significantly lower levels of performance of the disabled children relative to the comparison group on a wide range of variables assessing child adjustment, including: (1) physical abilities, (2) self-esteem measures, (3) educational and professional aspirations and expectations of success, (4) school attendance and satisfaction, (5) personal and interpersonal behavioral problems, and (6) social and family activities.

The disabled children differed from their nondisabled siblings on most predicted measures (see Table I). Children with disabilities were higher on PHYSICAL DISABILITY ( $t = -3.34, p < .004$ ) and lower on SELF-ESTEEM ( $z = -2.26, p < .02$ ). Although overall years of school attendance did not differ, the disabled children were less likely to attend school ( $z = -2.28, p < .02$ ) and were significantly lower on many measures of School Satisfaction (SCHOOL FACTOR,  $t = -2.41, p < .03$ ; Parent's Education Satisfaction ( $t = -2.14, p < .03$ ); and Child's Perception of School Relevance ( $t = -2.44, p < .02$ ). The summary BEHAVIOR PROBLEMS measures did not differ between disabled and nondisabled children as predicted;

only three of the individual behavior problems questions were significantly higher for the children who had disabilities (saying people don't like him/her, being fearful, and appearing indifferent or apathetic).

The group of disabled children was not significantly lower than their nondisabled siblings in Educational Aspirations or Expectations. However, the Professional Aspirations of subjects in school were significantly lower for the group with disabilities ( $t = -2.00, p < .05$ ), as were the disabled children's Professional Expectations (assessment of likelihood of success) ( $t = -2.6, p < .006$ ). All of the comparison children expected success while five of 13 disabled children expected *not* to achieve their Professional Aspirations. Although there were no significant group differences in Educational Aspirations, this reflects two factors: (1) the uniformly high aspirations of all children, with 75% aspiring to college or higher professional aspiration; (2) high aspirations of disabled children who were not even in school. Comparisons of only those children in school shows the anticipated lower Educational Aspirations for the children with disabilities ( $z = -1.75, p < .05$ ). Of the children who did not expect to meet their educational aspirations (Educational Expectations), 2/3 were disabled; all of them attributed their low expectations of success to their physical disability.

### Child Adjustment

As predicted, BEHAVIOR PROBLEMS was significantly correlated with most variables; it was not significantly correlated with age, indicating that it does not assess age-related factors. Importantly, while BEHAVIOR PROBLEMS did not significantly differ between disabled and nondisabled groups, the PHYSICAL DISABILITY measure correlated significantly with BEHAVIOR PROBLEMS ( $r = .38, p < .03$ ), suggesting that physical disability is associated with behavior problems. BEHAVIOR PROBLEMS was also significantly correlated with SELF-ESTEEM ( $r = -.48, p < .006$ ), SCHOOL FACTOR ( $r = -.41, p < .02$ ), and FAMILY INTERACTION ( $r = -.46, p < .007$ ). Multiple regression on BEHAVIOR PROBLEMS did not improve the prediction levels provided by SELF-ESTEEM. Forced entry of PHYSICAL DISABILITY, SCHOOL FACTOR, and SOCIAL ASSESSMENTS did not substantially increase explained variance and resulted in a non-significant Multiple *R*. The significant negative correlations of BEHAVIOR PROBLEMS and SELF-ESTEEM were found in the disabled and nondisabled groups separately.

SELF-ESTEEM differed significantly between disabled and nondisabled children ( $z = -2.26, p < .02$ ) and was significantly correlated with PHYSICAL DISABILITY ( $r = -.61, p < .000$ ). SELF-ESTEEM was also

significantly correlated with BEHAVIOR PROBLEMS ( $r = -.48, p < .006$ ); the correlation was stronger for the disabled group alone ( $r = -.65, p < .01$ ). SELF-ESTEEM was positively and significantly correlated with SCHOOL FACTOR ( $r = .72, p < .000$ ) and all of the SOCIAL ASSESSMENTS including SOCIAL ACTIVITIES ( $r = .52, p < .003$ ); FAMILY INTERACTION ( $r = .71, p < .000$ ); and FRIENDS (Spearman  $r = .34, p < .05$ ). SELF-ESTEEM was negatively correlated with INCOME ( $r = -.33, p < .05$ ). Multiple regression (stepwise) of these and other variables on SELF-ESTEEM found the most significant contributions from SCHOOL FACTOR, FAMILY INTERACTION, SOCIAL ACTIVITIES, and PHYSICAL FACTOR, respectively, for a Multiple  $R = .89$  (79% variance,  $p < .0000$ ).

The differences between disabled and nondisabled groups with respect to these relationships were examined. BEHAVIOR PROBLEMS was uncorrelated with predicted variables for the group of nondisabled children; the group of children with disabilities had significant correlations of BEHAVIOR PROBLEMS with PHYSICAL DISABILITY ( $r = .48, p < .05$ ), SELF-ESTEEM ( $r = -.65, p < .01$ ), SCHOOL FACTOR ( $r = -.49, p < .05$ ), and FAMILY INTERACTION ( $r = -.58, p < .02$ ). Multiple regression did not significantly improve the prediction of BEHAVIOR PROBLEMS in the disabled beyond that provided by SELF-ESTEEM.

SELF-ESTEEM in the nondisabled group was significantly correlated only with FAMILY INTERACTION ( $r = .58, p < .02$ ). The disabled group had numerous significant correlations with SELF-ESTEEM: AGE ( $r = .56, p < .03$ ); PHYSICAL FACTOR ( $r = -.64, p < .01$ ); BEHAVIOR PROBLEMS ( $r = -.65, p < .01$ ); SCHOOL FACTOR ( $r = .86, p < .000$ ); FAMILY INTERACTION ( $r = .83, p < .000$ ); SOCIAL ACTIVITIES ( $r = .68, p < .005$ ); FRIENDS ( $r = .59, p < .02$ ). Multiple regression did not improve on the prediction of SELF-ESTEEM by SCHOOL FACTOR.

## DISCUSSION

The interrelationship of the various variables (see Fig. 2) shows that the psychodynamic of disability, behavioral problems, and self-esteem in this Mexican population is generally quite similar to the patterns established in U.S. populations. We find that the primary correlation of behavioral problems is low self-esteem, and that this is particularly true for children with disabilities. Physical disability, school factors, and family and social activities do not provide additional explanation of the variance in behavior problems (for the combined data and for the disabled group). This indicates that their significant correlations with behavior problems re-

flect covariation with self-esteem. However, the finding that the two groups did not significantly differ in levels of BEHAVIOR PROBLEMS indicates that the disability status alone does not lead to behavioral problems.

Self-esteem is positively associated with school, family and social relations. SELF-ESTEEM has the most significant correlations with SCHOOL FACTOR, FAMILY INTERACTION, SOCIAL ACTIVITIES, and PHYSICAL FACTOR. SELF-ESTEEM is mostly strongly predicted by FAMILY INTERACTION for the nondisabled children, while SCHOOL FACTOR is most important for the disabled children. The multiple regression on SELF-ESTEEM in the two groups and the combined data indicate that low levels of social factors—school, family, and social relations—are more important than physical disability in relationship to low self-esteem. Behavior problems are directly correlated with low self-esteem; and this is particularly true for the children with physical disabilities.

It is noteworthy that although the school, family, and social relations are negatively correlated with behavior problems, it is SELF-ESTEEM alone which significantly predicts BEHAVIOR PROBLEMS. The multiple regression on SELF-ESTEEM indicates that several variables are important in developing the self-esteem which serves as a buffer or is preventive to behavioral problems associated with disability or other sources. While physical disability has a negative relationship to self-esteem, the more important factors in predicting SELF-ESTEEM are the positive effects of school experience, family interaction, and social activities.

While the disabled children did not differ from their comparison siblings in all ways expected, the differences with respect to Self-Esteem, School Satisfaction, and Professional Aspirations and Expectations indicate important areas to be addressed. Although the disabled children were significantly differentiated from their siblings both physically and functionally, in some respects they did not appear much different psychosocially from their nondisabled siblings. They reported themselves to be equally involved with their family, participating equally in social activities, and in interactions with friends. Their parents reported that their social and interpersonal behavior (BEHAVIOR PROBLEMS) did not differ significantly from that of their siblings. However, they were somewhat less likely to attend school, and generally their parents were less satisfied with their educational program and opportunities than they were for their siblings.

Some of the lack of between-group differences may reflect a spreading of the effects of disability within the family. Prior research shows that comparisons with matched siblings may underestimate pathology in the disabled children (Breslau, 1983). However, the data are equivocal with respect to the popular belief that, as a group, siblings are adversely affected by their disabled brothers and sisters (Lobata, 1983). Psychosomatic, be-

havioral, emotional, and social problems have been reported in siblings, but documentation of these findings has been lacking (Breslau *et al.*, 1982) leading to the speculation of protective factors operating within certain family systems (Daniel *et al.*, 1986). It is still possible that some of the findings of non-significance between disabled and nondisabled children in our sample may reflect a spreading of the psychosocial effects of disability to the siblings of the handicapped children.

While the similarities between disabled children and their nondisabled siblings are reassuring, they might be questioned on two counts. *First*, since the above findings were based on parental report, it is possible that parents (whether consciously or not) tended to minimize differences between their children, perhaps in an effort to protect or normalize (Knafl and Deatrick, 1986) the disabled child. Further, since siblings were used as the comparison group, it is possible that, while no differences were found between these two groups, both groups were functioning at a lower level than would have been true of a nondisabled control condition. Such speculations need exploration in further research.

The major cause of concern emerging from this study was the disabled children's self-reported lower self-esteem. This was a particularly striking finding in light of support to the contrary in sibling comparisons found in American samples. Despite the fact that the disabled children appeared to be well-integrated into social and family activities, and despite their lack of significant behavioral disturbances as compared to siblings, such indicators of support and integration appeared insufficient to completely protect these children from feelings of inadequacy and poor self-worth. It was beyond the scope of this study to investigate the sources of these feelings. However, it is noteworthy that in American studies, it is often from the larger social milieu that disabled children receive the "history of learned inferiority" (Bullard and Dohnal, 1984) which is so emotionally damaging. This is clearly a potential source of low self-esteem in a Mexican sample, where disability still carries a moral implication.

Self-esteem differences between the two groups are also supported by the finding of significant differences between disabled and nondisabled groups in terms of Professional Expectations. This difference may partly have been due to the low expectations of achievement by the youngest disabled children. However, it also suggests that many of the disabled children simply did not know if they could meet their aspirations. When this was the case, the presence of physical incapacity was mentioned as the primary obstacle to success. The underlying doubts and fears of the disabled children as to whether they could actually succeed in their aspirations for the real, adult world may also have been reflected in the fact that differences in actual school attendance between the two groups were only partially age-

related. Perhaps these children (and/or their parents) had already started to abandon the dream of a normal lifestyle.

Although PHYSICAL DISABILITY substantially predicts BEHAVIOR PROBLEMS and SELF-ESTEEM, multiple regression showed SELF-ESTEEM to be the most powerful predictor of BEHAVIOR PROBLEMS; and SCHOOL FACTOR was the best predictor of SELF-ESTEEM. Thus, the links between PHYSICAL DISABILITY, SELF-ESTEEM, and BEHAVIOR PROBLEMS emerge as a problematic constellation from these data, with factors supporting self-esteem functioning as the important causal variables.

In American children, poor self-esteem has been correlated with a range of psychosocial disabilities (e.g., depression, antisocial behavior) (Kazdin, 1989; Patterson, 1986). The strong negative association emerging between SELF-ESTEEM, DISABILITY, and BEHAVIOR PROBLEMS suggests that physically disabled children in this study may be at risk in terms of their future psychosocial development. Physicians and health care professionals working with this population should, therefore, be especially sensitive to signs of poor self-esteem; and community-based interventions should make self-esteem a priority.

Specific ways of focusing on this concern are indicated by some of the study's other results. Especially for the group of disabled children, certain factors were associated with more positive self-image. These included: family activities, improved health, higher educational expectations, and regular school attendance. The substantial correlations of FAMILY ACTIVITIES and SCHOOL ATTENDANCE with SELF-ESTEEM (positive) and with BEHAVIOR PROBLEMS (negative) are encouraging. Directions for rehabilitation programs are found in the fact that SELF-ESTEEM was a stronger predictor of BEHAVIOR PROBLEMS than was PHYSICAL DISABILITY, and that FAMILY ACTIVITIES and SCHOOL ATTENDANCE were stronger predictors of SELF-ESTEEM (positive) than was PHYSICAL DISABILITY (negative). Apparently, adequate involvements of the disabled child with family, peers and school settings helped counteract the impact of disability, helped assure the development of self-esteem, and inhibited the emergence of behavior problems.

These assessments of behavior problems and self-esteem in children with disabilities suggests that a similar dynamic exists for American and Mexican populations, and that programs designed to reduce behavior problems and improve self-esteem should focus on building the child's school and social relations. Child self-esteem improves and behavior problems are diminished as a function of the extent to which the child has a relevant school experience, substantial interaction with family and friends, and adequate social activities.

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