The Role of Family in the Development of Social Skills in Children with Physical Disabilities

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This study aims to identify the family characteristics that promote the development of social skills in children with physical disabilities. Parents and teachers completed a range of questionnaires in an Australia-wide study of 212 parents of children (5–12 years of age) with physical disabilities who attend mainstream schools. The relationships between parental attitudes, parental involvement, family relationships, teachers' opinions, disability severity, and children's social skills were tested using structural equation modelling. The results of this study show the importance of family characteristics for the development of social skills in children with physical disabilities. A strong link was found between aspects of healthy family relationships, especially high levels of parental involvement with schooling, and greater social skills development in children. In short, families with highly cohesive, idealised, and democratic family styles strongly influence children's social skills by providing a safe and sound foundation for children to explore their social environment. Practical implications arising from this study are discussed.

Keywords: Family relationships; Physical disabilities; Social skills

Introduction

Research has shown that children with disabilities may experience social difficulties, low levels of social interaction, limited friendships, extended solitary play, low levels of social acceptance, poor social skills, and negative responses to their attempts at social interaction when placed in mainstream schools (Baker & Donelly, 2001; Coster & Haltiwanger, 2004; Curtin & Clarke, 2005).

Social competence is defined as the general quality of a child’s performance in a social situation (Hops, 1983). By investigating social competence it is possible to...
identify those children who may experience poor socialisation at school. An effective means of identifying high-risk children is vital so that appropriate assistance can be provided to enhance their chances of successful inclusion. A child’s social competence depends upon a number of factors including the child’s social skills, social awareness, and self-confidence. One of the central components of social competence is the development and use of social skills, so for the purposes of this study social skills are used as an index of social competence (Hops). Social skills are complex and include skills of communication, problem-solving, assertion, and peer interaction, all of which are needed to develop and maintain good social relationships. Children’s social skills predict important outcomes, such as peer acceptance, friendships, and positive opinion by significant others (Nassau & Drotar, 1995). The early development of social skills promotes psychological well-being, resilience, and mental health (Kolb & Hanley-Maxwell, 2003).

The current study involves a hypothesised model of characteristics associated with social skills development in children with physical disabilities. Figure 1 illustrates the theoretical model that was tested, and describes the relationships between the selected characteristics. Severity of the disability, parental attitudes, parental involvement, family relationships, and teacher opinion were selected as significant characteristics. These areas have previously been found to relate to the effectiveness of a child’s social assimilation into a classroom (Marfo, Browne, Gallant, Smyth, & Corbett 1991; Shonkoff, Hauser-Cram, Krauss, & Upshur, 1992). However, the relationships between these factors and their respective impacts on social skills development amongst children with disabilities in mainstream schools have not been investigated in depth. Specifically, the model presented here leads to the hypotheses that more severe disability is associated with lower social skills development and increased parental involvement, more positive parental attitudes are related to greater parental involvement with children’s education, healthier family relationships are related to greater parental involvement with children’s education, higher parental involvement leads to more developed social skills, and children in classrooms with teachers who have positive attitudes towards the education of children with disabilities have more highly developed social skills.

For children with physical disabilities, disability severity has been found to significantly impair a child’s development (Shonkoff et al., 1992). Yude and Goodman (1999) reported that children with physical disabilities were more likely to be rejected, isolated, and victimised by other children without disabilities, even when the physical disabilities were mild. Zurmohle et al. (1998) also found children with physical disabilities (spina bifida) were at increased risk of poor social adjustment. Coster and Haltiwanger (2004) found that a substantial proportion of children with physical disabilities who were educated in general classrooms had below-expected levels of social skills. Additionally, children with severe disabilities have been found to benefit the least from inclusion programmes and have the poorest rate of development during and after inclusion programmes (Marfo et al., 1991). Therefore, disability severity was posited to be an important direct determinant of social skills development in children.
On the basis of past research, disability severity should impact on the level of parental involvement (Dallas, Stevenson, & McGurk, 1993). Dallas et al. found higher maternal interaction in children with more severe disabilities.

Family characteristics (such as parental attitudes, parental involvement, and family relationships) have been found to be directly and indirectly associated with children’s social competence (Hauser-Cram, Warfield, Shonkoff, & Krauss, 2001; Marfo et al., 1992). Parental attitudes refer to the beliefs and attitudes that parents hold for the future development of their child. Innes and Diamond (1999) reported that the attitudes held and expressed by primary caregivers strongly influence the opinions of other children towards children with disabilities. This suggests that parents mediate their child’s experiences by providing explanations and information about disabilities, and that parents can have an important impact on the social interactions of their children. In this way, parental attitudes may influence parental involvement, which in turn can alter social skills development in children.

A direct relationship between the level of parental involvement and social skills is also predicted from past studies. Parental involvement includes support and expressions of interest in the inclusion of children in mainstream schools as well as actual participation in school activities (Feuerstein, 2000; Gavidia-Payne & Stoneman, 1997). Generally, parents with more positive attitudes and higher expectations are more involved, both directly with the child, through play, and indirectly by showing interest in the inclusion process. It is predicted, based on past studies, that parental attitudes indirectly affect social skills development via parental involvement.

Figure 1. Theoretical model of characteristics associated with social skills in children with physical disabilities
An indirect relationship between family relationships and social skills is also investigated in the model. Family relationships refer to the interactions between family members and how the family copes with the environmental and psychosocial stressors that often occur when a child is disabled. Past research has shown that family relationships, particularly the expressive and connectedness dimensions, influence children’s social outcomes (Hauser-Cram et al., 2001). Studies have found an association between family relationships and parental involvement during inclusion. Gavidia-Payne and Stoneman (1997) reported that families with more positive relationships (defined as good problem-solving, communication, and general healthy functioning) showed higher levels of coping and subsequently more involvement at school. Therefore, it is expected that families with healthier relationships will be more involved with their child’s schooling.

Beyond the areas of individual and family characteristics, the broader environment in which the child lives also influences their social skills. Many studies have indicated a direct association between positive teacher opinion and children’s socialisation (Innes & Diamond, 1999). Negative teacher opinions about including children with physical disabilities may influence a child’s social competence by lowering expectations, and decreasing the amount of interaction the teacher has with the child (Miller, 1996).

Past research was used to develop a model relating to the inclusion of children with disabilities. The aim of this study was to test the hypothesised model to determine individual, family, and teacher characteristics associated with social skills development in children with physical disabilities.

**Methodology**

A review of the literature identified the following areas as having an impact on the social development of children after inclusion in mainstream schools:

1. child characteristics: severity of the disability;
2. family characteristics: family relationships, parental attitudes, and parental involvement with the child; and
3. school characteristics: teachers’ opinions about inclusion.

In order to test the model relating family factors to social skills ratings, structural equation modelling (SEM) techniques were used. SEM is a technique for studying relationships among multivariate data. SEM requires a researcher to hypothesise a model based on theory. Data are then entered into a SEM software package. LISREL 8.30 (Jöreskog & Sörbom, 1999) was used in the current study. The data are then fitted to the hypothesised model and statistics are produced that allow the evaluation of the overall model fit.

**Recruitment Strategy**

Parents of children with physical disabilities were approached through multiple family support organisations across Australia. This selection approach was not a
random sample, but, rather, a sample of convenience composed of clients of the organisations who were willing to complete the study questionnaires. To ensure confidentiality for families, consent forms and research questionnaires were provided to each of these organisations for distribution to families who expressed interest in the study.

**Data Collection Procedure**

Interested families contacted the researchers directly, and research questionnaires were provided to each of these organisations for distribution to families who expressed interest in the study. Parents were then asked to give the name of their child’s classroom teacher and provide written permission for the teacher to be approached. Six months after the completion of the parent questionnaire, teachers of participating families were sent a questionnaire containing items about social skills and opinions about inclusion for children with disabilities. This teacher questionnaire was sent in the middle of the year to allow teachers to have adequate experience of the child in their classroom.

**Participants**

Two hundred and twelve parents of children aged between 5 and 12 years with a physical disability participated in this research. Only one parent from each family was asked to report on their child. All children were enrolled full-time in mainstream schools in Australia. Classroom teachers at the schools attended by participating families were invited to take part in the research. One hundred and seventy teachers agreed to participate.

**Measures**

In order to model the characteristics that influence the social skills of children with disabilities, a variety of formal questionnaires scales were employed. As parents and teachers have been shown to have a profound impact on the social development of children with disabilities in mainstream schools, multiple scales measuring each of the selected family and teacher characteristics were employed for SEM instead of child self-report responses.

**Descriptive characteristics.** Parents answered demographic questions to measure employment their history. Parents also reported on their child’s type of disability. Information on the severity of the disability was collected using a five-point scale ranging from one to five, where one indicated a low level of severity with no noticeable impairment while five indicated a high level of disability severity.

**Parental attitudes.** Parental attitudes towards inclusion of children with disabilities into mainstream schools were measured using the Attitudes Toward Mainstreaming...
Scale (ATMS) (Berryman, Neal, & Robinson, 1980). Parents indicated their responses on a five-point Likert scale ranging from strongly agree to strongly disagree. The Attitudes Toward Mainstreaming Scale has 18 items and scores ranging from 5 to 90, with low scores indicating more positive attitudes. Prior studies support the use of the ATMS as a reliable and valid scale to measure attitudes toward inclusion (Berryman, 1989).

A subscale of the Statements Regarding Benefits and Drawbacks to Mainstreaming Scale (Bailey & Winton, 1987; Turnbull, Winton, Blacher, & Salkind, 1983) was also used to examine parental attitudes towards inclusion. A 17-item version of this scale developed by Guralnick (2002) was used in the current study. This modified version has been shown to have high internal consistency (Bennett, 2003; Guralnick, 2002). Parents rated each statement on a five-point Likert scale to indicate the extent to which they agree that inclusion is a benefit for their child; scores ranged from 17 to 85, with low scores indicating more positive attitudes.

**Parental involvement.** The level of involvement parents had with their child’s school was measured using the Parent Involvement Index (PII) (Lowitzer, 1989). Parents rate their participation on a three-point scale where higher scores indicate higher levels of involvement and scores ranged from 10 to 30. Lowitzer found that when both parental and teacher ratings of parental involvement were compared, the PII was able to accurately identify parental participation levels. Research using the PII has reported high levels of internal consistency, and the scale has previously been used as a measure of parental involvement (see Gavidia-Payne & Stoneman, 1997).

The Parent Involvement Questionnaire (Winton & Turnbull, 1981) was also administered to measure parental participation in activities relating to their child’s education. Scores on this scale ranged from 7 to 21, with high scores indicating more parental involvement. Five items from the Parent Involvement Questionnaire relating to opportunities for participation at school were measured. Cronbach’s alpha coefficients ranged from 0.85 to 0.95, indicating high levels of consistency among the questions (Winton & Turnbull). The items in the scale were selected on the basis of previous investigation using confirmatory factor analysis (CFA) to ensure that the measures were appropriate for SEM (Bennett, 2003). CFA examines the relationships between the scale items to determine whether data from the items can be grouped into underlying factors. CFA is a fundamental component of SEM.

**Family relationships.** The Family Functioning Scales (Bloom, 1996) were developed to measure key aspects of healthy family functioning. Scores on each subscale ranged from 5 to 20, with higher scores indicating more healthy family functioning. Scores on the subscales have been shown to have acceptable reliability (0.65–0.84) (Bloom). Three subscales (Democratic Family Style, Idealisation, Cohesion) from the Family Relationships area of the Family Functioning Scales were used in structural equation modelling. CFA had previously shown that the subscales had construct validity (Bennett, 2003), and therefore each of the subscales was used in
the modelling analysis. Scores on the subscales range from 5 to 20 and have acceptable reliability (0.65–0.84) (Bloom).

**Social skills.** Social skills were measured using the Social Skills Rating System (SSRS), a rating scale developed by Gresham and Elliot (1990) that obtains information on the social behaviours of children. The SSRS uses ratings based on frequency to reflect how often a social behaviour occurs, rated on a three-point scale ranging from never to very often. Scores range from 0 to 60 and high scores indicate a behaviour that occurs frequently. Demaray et al. (1995) found the SSRS was the most comprehensive instrument to assess the social skills of school-aged children. Using the SSRS, teachers rated children in three areas of social skills: cooperation, which involves sharing behaviours and complying with rules, such as attempting class assignments; self-control, which involves behaviours in conflict situations, such as responding appropriately when teased; and assertion, which involves initiating contact with other children, for example making friends and initiating conversations.

The SSRS has high reliability and validity for use with children with disabilities when used with a sample of U.S. children (Gresham & Elliot, 1990). Investigations of the psychometric properties have found the coefficient alpha reliability for the social skills scale was 0.90. Test–retest reliability scores at 4 weeks were reported between 0.65 and 0.87 (Gresham & Elliot).

**Teacher Opinion Questionnaire.** A 15-item version of the Teacher Opinion Questionnaire (Larrivee & Cook, 1979) required teachers to respond to statements about inclusion of children with physical disabilities into mainstream schools using a one to five rating system. Scores range between 30 and 150, and a low score indicates a positive opinion towards inclusion of children with disabilities into mainstream schools. Versions of this scale have been found the scale to have high reliability (0.91) when used in Australian schools (Roberts & Pratt, 1988).

**Data Analysis**

Exploratory analysis of the data was performed using SPSS (SPSS Inc., 1999) to investigate normality. Many statistical tests, including SEM, are sensitive to the distributional characteristics of the data, but no variables were found to depart from multivariate normality in the current study. The variables of interest in the current study were then examined individually using descriptive statistics. Following this, SEM was conducted, testing the hypothesised model to determine the combination of factors associated with social skills for children with physical disabilities in mainstream schools.

**Ethical Issues**

The study was approved by the Human Research Ethics Committee of Curtin University of Technology.
Results

Descriptive Characteristics of the Sample

Demographic information gathered for the current study indicated that participants were representative of families in Australia. Results show that 47% of mothers and 74% of fathers were employed. Statistics from the Australian census show that approximately 54% females and 72% of males in Australia were employed (Australian Bureau of Statistics, 2001). The slightly lower rate of employment in females may be due to the presence of a child with a disability in the family.

The mean age of children was 8 years (*SD* = 2.09), 58% were male and 42% were female. These figures reflect the higher proportion of males with physical disabilities found in Australia (Australian Bureau of Statistics, 2000). Ninety-one per cent of parents participating in this research were mothers of the child and 7% were fathers. The remaining 2% indicated they were the primary caregiver, but not the biological mother or father.

Sixty-three per cent of the children were reported by their parents to have severe disabilities, with the remaining 37% rated as having mild to moderate disabilities. Data from parents had a mean score of 3.78 (*SD* = 1.29) on a scale of one to five (1 = minor disabilities and 5 = severe disabilities). These severity ratings were validated against medical reports in a previous pilot study (Bennett, 2003) to ensure the accuracy of parent report.

While children involved in the current research had several types of physical disabilities, the majority (79%) were diagnosed with cerebral palsy. This was due mainly to the recruitment procedure employed, but also because cerebral palsy is the most common physical disability in childhood in Australia, occurring in about 2–2.5/1,000 children (MacLennan, 1995). Other disabilities included spina bifida (5%), muscular dystrophy (1%), Down syndrome (1%), visual impairment (2%), and hearing impairment (4%). The remaining 8% of children had a range of other physical disabilities, including amputation, and bone growth abnormalities. Children with different disabilities disability types were combined in the study since Kruskal–Wallis analyses showed no significant differences between the groups on the variables investigated.

Parental Attitudes

Most parents in the current study held positive attitudes towards including children with disabilities into mainstream schools (e.g., *M* = 36.92, *SD* = 9.52 on the ATMS). Ninety-one per cent of parents indicated via the ATMS that inclusion was a desirable educational practice, 89% reported that it helped prepare their child for the real world, and 85% of parents reported that it helped develop independence in their child. Seventy-three per cent of parents reported that segregation of children with physical disabilities results in negative social and emotional development. However, 55% of parents believed that teachers were not suitably qualified to educate children with physical disabilities, and 48% of parents felt that children with
physical disabilities did not receive enough help from teachers in the classroom. Additionally, 49% of parents were concerned that their child was left out or socially isolated by other children in the classroom.

**Parental Involvement**

Results from the Parent Involvement Questionnaire suggest that parents believed they were highly involved with their children’s schooling, although 24% of parents indicated that limited opportunities for involvement were available at their schools. Eighty-seven percent of parents reported their involvement was through informal contact with teachers (e.g., impromptu discussions after class).

**Family Relationships**

Participating families were found to function within the normal range on many of the subscales measuring family relationships, when compared with previous research (Bloom, 1996). Participants rated moderately high on the scale of family idealisation, falling within the range of healthy family functioning \(M = 12.98, SD = 2.49\). High levels of expression and communication were found among family members \(M = 16.69, SD = 2.46\), along with a high level of family cohesion \(M = 17.23, SD = 2.52\). Participants were asked to report on reported democratic styles in their families, indicating they felt they had open and collaborative family relationships \(M = 14.52, SD = 2.12\). Families in the current study reported levels of conflict in their families that were higher than those reported by healthy functioning families \(M = 11.68, SD = 2.58\), with significantly higher levels of conflict in families with children with severe disabilities than families with children with mild to moderate level of disability severity \(t(208) = 2.315, p = .022\).

**Social Skills**

Teachers in the current study rated children with disabilities to have an average level of social skills \(M = 35.80, SD = 10.97\). Most teachers reported children with average levels of self-control \(M = 13.16, SD = 3.36\) and cooperation with others \(M = 12.54, SD = 3.46\). However, the children in this study were not rated as highly assertive \(M = 10.26, SD = 3.52\). It should be noted, however, that the SSRS norms are based on a U.S. sample of 4,170 children. While children with disabilities were deliberately oversampled to assure adequate representation when developing the norms, no comparison with Australian children is available. This problem was overcoming in the SEM by using the non-standardised social skills ratings.

**Teacher Opinion**

Teachers appeared to hold positive opinions towards the social benefits of inclusion, for example a question asking whether inclusion would foster understanding and
acceptance scored highly ($M = 1.57, SD = 0.76$) (where 1 represented the most positive and 5 the least positive). Questions about whether the children would be accepted by others also produced positive results ($M = 1.57, SD = 0.72$). Teachers felt least positive about the benefit of inclusion for academic achievement for children with physical disabilities ($M = 3.55, SD = 1.11$). They also felt they did not generally have adequate training to teach these children ($M = 3.71, SD = 0.99$).

**Model Testing**

The hypothesised model of child, family, and school characteristics associated with social skills development of children with physical disabilities was assessed using SEM (LISREL 8.30). SEM examines the fit between the hypothesised model and the actual data. It was necessary to examine the reliability of the scales using CFA prior to SEM (Jöreskog & Sörbom, 1999). CFA was used to confirm the scales comprise one underlying factor.

The original model in Figure 1 was tested but failed to adequately explain the data. This means that data collected in the current study did not fit the hypothesised model developed from theory and past research. Modification of the model was necessary to find an adequate fit. In particular, family relationships were found to directly influence social skills and parental attitudes rather than parental involvement levels. The model showing the associations between the variables of disability severity, parental attitudes, parental involvement, family relationships, teacher opinion, and social skills for children with physical disabilities is presented in Figure 2. Non-significant paths are presented as dashed lines. This model has acceptable fit statistics ($\chi^2 = 129.29, df = 95, p < .05$) and the SEM analysis showed that 30% of the variance in children’s social skills was accounted for by the selected child, parent, and teacher characteristics measured. The model resulted in an acceptably low $\chi^2$ per degree of freedom ratio.

Examination of the parameters of the model provides mixed support for the selected characteristics associated with development of social skills. A number of relationships were supported: family relationships and social skills were positively associated and significant (.20, $p < .05$), teacher opinion and social skills were positively associated and significant (.49, $p < .01$), and the relationship between disability severity and parental involvement was positively associated and significant (.22, $p < .01$).

The following relationships were not supported: the relationship between parental attitudes and parental involvement, which was small and non-significant (.10, $p > .05$); as were the relationships between disability severity and social skills (−.05, $p > .05$), between parental involvement and social skills (.15, $p > .05$), and between family relationships and parental attitude (.16, $p > .05$).

**Discussion**

Children in the study displayed levels of social skills that were within the average range for children with physical disabilities, but teachers rated children’s socialisation
with peers and level of assertive behaviour as low. Previous research has identified this profile of behaviour showing that children with disabilities often have difficulty initiating and making friends in inclusive environments (Stanovich, Jordan, & Perot, 1998), suggesting that children in the current study display a fairly typical social skills profile.

Several of the hypothesised relationships are supported by the model. A highly significant relationship was found between family relationships and social skills. Families with high cohesion (strong emotional bonds between family members), high idealisation (family is highly prized by its members), and democratic family styles (open communication and participation with other family members) strongly influenced the positive development of children’s social skills, presumably by providing a safe and sound foundation for children to explore their social environment. Most families of children with physical disabilities participating in this research...
reported healthy family functioning. There appears to be increasing support for this profile of families for children with disabilities (Baker & Donelly, 2001).

Families in the current study indicated moderately high levels of conflict in their families, at levels that were higher than those found in healthy functioning families. Conflict refers to how often family members get angry, criticise, and fight with each other (Bloom, 1996). This finding is supported by previous research that has found higher than average levels of family and marital conflict amongst families of children with disabilities (Nelson, Ruch, Jackson, Bloom, & Part, 1992).

Within the model, a significant relationship was found between teachers’ opinions of inclusion and social skills. Positive teachers’ opinions were associated with higher ratings of social skills in the children with physical disabilities. This finding is consistent with previous research, and anecdotal information from parents suggests that teachers’ opinions play an important role in predicting social acceptance for children with disabilities at primary school (Jordan & Stanovich, 2001). Teachers’ opinions that have been found are known to influence teaching practices and management strategies in the classroom (Capell, 1998), and therefore may directly impact on children’s learning and experience within the school. Research indicates that teachers’ opinions and teaching styles that are positive towards the inclusion of children with disabilities can improve the self-concept of students (Jordan & Stanovich, 2001). In particular, teachers’ beliefs about the ability of a child with a disability may determine the extent to which teachers are willing to adjust their teaching methods, curriculum, or classroom organisation. The majority of teachers in this study reported positive attitudes towards the inclusion of children with physical disabilities into mainstream classrooms. This result is in line with Scruggs and Mastropieri (1996), whose comprehensive review showed that about two-thirds of teachers in their study supported the idea of inclusion. Previous research in Australia has shown that, while teachers are generally positive towards inclusion, a range of factors influence their opinions, including disability severity, disability type, and teacher experience (Kemp & Carter, 2005).

A concern of teachers in the current study was the need for training and the belief that they may be under-qualified to teach children with physical disabilities. Only around 30% of teachers surveyed by Scruggs and Mastropieri (1996) agreed that they had sufficient time, training, or resources to implement inclusion successfully. A correlation between positive opinions and proper training has been reported in research investigating teachers’ opinions towards inclusion (Schmelkin, 1981).

Parents in the current study reported that the more severe their child’s disability, the more actively they are involved at school. This finding may be a result of parents with children with severe physical disabilities more actively participating to ensure their child’s inclusion in the classroom. Previous research by Dallas et al. (1993) suggested an increase in parental involvement in social school situations as disability severity increased. Overall, a high level of parental involvement was found, with parents more willing to participate in strategies aimed directly at their children rather than themselves. In the current research, a large number of parents indicated that they were comfortable providing suggestions and expressing their opinions about
their child’s education, being willing and able to take on an advocacy role for their child when necessary. This finding is contrary to previous research, which had suggested that, although parents attend school conferences and meetings, they do not actively participate—although severity of disability was not investigated and may impact on this finding (Vaughn, Bos, Harrell, & Lasky, 1988).

Almost one-half of the mothers participating in this study held degrees from a university, with a further 33% having completed additional educational qualifications. The high levels of parent participation found in this research may be accounted for by the change in education levels of mothers over the past 10 years, which has seen a rise in the number of people with higher education degrees (Australian Bureau of Statistics, 2004). The change in education levels may have altered how parents view teachers and, consequently, how teachers view parents (Epstein, 1987). Second, the legal requirement for schools to discuss and explain the education of children with disabilities with their parents has increased the participation of parents in school programmes (Education Department of Western Australia, 1995). In virtually all developed countries that have embraced the practice of inclusive schooling, greater recognition has been given to the need for parental involvement in the education of students with disabilities (Jenkinson, 1997). Education policy in Australia requires that parents be actively included in decisions about their child’s education, with principals required to ensure all “parents received appropriate advice in order to make informed decisions about how their children’s needs are to be best met” (Education Department of Western Australia, 1995, p. 1).

Some of the hypothesised relationships were not strongly supported by the data. Positive attitudes towards children’s education were not associated with higher levels of parental involvement at school, possibly as those parents with more negative attitudes may not have volunteered to participate in the current study. The limited variability found in parental attitudes in the current study may have limited the findings. Future research to evaluate the impact of negative attitudes on social outcomes may shed further light on this issue. Interestingly, a study by Guralnick, Neville, Connor, and Hammond (2003) also reported no relationship between parent attitudes and parental involvement for children with mild disabilities.

Finally, the model did not support a strong relationship between family functioning and parent attitudes towards inclusion. Although it was expected that parents with healthy family functioning would hold more positive attitudes towards their child’s schooling, a strong link between these areas was not found. The relationship between family functioning and attitudes has not been well studied and generalisable conclusions cannot be drawn from the current research.

**Limitations**

Despite significant relationships between family characteristics and social skills in the model, the selected characteristics only explain 30% of the variance that influences children’s social skills. This suggests that characteristics outside the measured
aspects of the family environment may also be crucial to the development of social skills. However, inclusion of additional characteristics, such as peer attitudes and school environment, was restricted by the need to have an acceptably sized questionnaire.

Additionally, a limitation in this study is the sampling strategy used. Participants were self-selected and were identified through support organisations. The sample may therefore be biased as it is impossible to determine whether this group accurately reflects the entire population. Families participating in the current study were found to have concern about the possible rejection of their children by peers. It is possible that those parents who were more concerned about their children’s social relationships were those who agreed to participate in research investigating this issue.

Many of the relationships described in the model may be reciprocal, exerting mutual influences. However, it would be necessary to examine families across several years to determine whether characteristics influence social skills levels and/or whether the reverse argument is also true.

Note: There was no research funding for this study, and no restrictions have been imposed on free access to, or publication of, the research data.

Conclusion

The findings from the current research emphasise the importance of family characteristics in predicting social skills in children with disabilities. This study was designed to investigate the impact of parents and teacher factors on social skills development in children. However, it is acknowledged that further research that incorporates the views of the children with disabilities and their peers would also be needed to further explain the social experience of children with disabilities at school. Future research to examine the possibility of reciprocal relationships in the model may be warranted to determine whether family characteristics influence social skills levels and/or whether the reverse argument is also true.

An important finding from the current research is the significant role that healthy family functioning plays in the social skills of children. This suggests that intervention programmes targeting the whole family would be of considerable benefit. However, as parents reported reluctance to participate in programmes they do not consider to be of direct benefit for their child, care should be taken to ensure that families are well informed about the benefits before programmes are implemented.

Finally, this study identified the important role that teacher opinion towards inclusion has on the social outcomes of children with physical disabilities. Longitudinal and intervention studies are still required to fully evaluate the relationships found in this study, but support for developing interventions that consider healthy family functioning and positive teacher opinions to promote social skills are strongly supported.
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