

Prevalence of emotional and behavioural problems in Cerebral Palsy Children in Gaza Strip

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Abstract

Background: *This study aimed to estimate the prevalence of child behaviour problems among cerebral palsy children aged 6-12 years old.*

Method: *A cross sectional method was chosen registered children aged 6-12 years-old at the physiotherapy clinics in the Gaza Strip. A systematic random sample of 219 children suffering from cerebral palsy was selected and their parents were interviewed using the Achenbach child behavior checklist (CBCL), also teacher report form (TRF) was used for physiotherapist.*

Results: *The results indicated that, the prevalence of child behaviour problems rated by parents was (37%). While, the prevalence of child behaviour problems rated by therapist was (44.7%). There was discrepancy on detection of caseness between parents and therapists ($p < .007$). Therapists were detecting child behaviour problems in CP children more than the parents. There were no statistical significance differences between boys and girls in total child emotional and behavioural problems and internalizing problems, however boys scored more than girls in externalizing problem ($p=0.04$). There were age differences in total child emotional and behavioural problems according to parents. Children aged 6-9 years-old had more child emotional and behavioural problems according to the therapists than the age group 10-12 years-old ($p=0.05$). Children live in villages had higher rates of child emotional and behavioural problems rated by parents and therapists than did the other children living in city and camp, also children living in village had significantly higher in internalizing symptoms of parents and therapists and externalizing symptoms of therapists. Furthermore, the results indicated a significant statistical differences between place of residency and total emotional and behavioural problems, internalizing problems and externalizing problems rated by therapist, that's in favor to the children who reside in village. While, a significant statistical differences was observed between place of residency and emotional and behavioural problems and internalizing problems rated by parents, that's in favor to the children who reside in village. Total emotional and behavioural problems, internalizing and externalizing problems were significantly associated with types of cerebral palsy when rated by therapist. Whereas, internalizing and externalizing problems were significantly associated with types of cerebral palsy when rated by parents. Children*

from family with low monthly income had more emotional and behavioural problems and internalizing problems rated by therapists than the other groups.

Conclusion: *Despite certain limitations, although few sociodemographic differences in CBCL and TRF were found, a longitudinal prospective study on child behavior is recommended.*

Key words: *Cerebral palsy, Emotional and behavioural problems, CBCL, TRF, Gaza Strip*

Introduction

Cerebral palsy is one of the most common developmental disability in children and adults in the United States; half a million Americans have some degree of the disorder. Centers for Disease Control and Prevention (CDC) found that the average annual prevalence rate of disabilities was 2.8 per 1,000 children (ages 3 to 10, 1991-1994). Annually, at least 8,000 cases are diagnosed in infants, while almost 1,500 are identified in children of preschool age (National health, 1997).

Using the definition “a disability which restricts a child’s ability to perform tasks associated with daily living (Australian Institute of Health and Welfare, 2002). Previous reports showed that in 2002 almost 300,000 Australian children (7.5%) had a disabling chronic illness. The disability was primarily physical in 54% of children and intellectual/developmental/behavioural in 46%, and 15%–20% of survivors have a major disability (cerebral palsy).

Swanston (2000) demonstrated that all children with disabilities, limitations to schooling, mobility and communication constitute the most significant restrictions of daily activity. Chronic conditions put increased stress on the child and the child's parents and siblings. Children with any chronic condition have twice the risk of developing mental health disorders of healthy children, and three times the risk if they have an accompanying disability. In recent studies on the European sample, the prevalence of mental health problems among children with cerebral palsy was 50% (Cromack et al, 2000), Dekker et al, 2002) found similar results 50%; Koskentausta & Almqvist (2004) found less rates 34%, and Linna et al. (1999) found similar low rates 32% . Mental

health problems have frequently been reported to be more common in cerebral palsy males than females (Giles et al., 1995).

Roussos et al (1999) in study of Greek normative school children found that parents' and teachers' ratings tended not to having high correlation except for externalizing dimension and aggressive behaviour scale for boys and the attention problems scale for both sexes. Greek parents saw their children as more anxious and depressed, more aggressive and delinquent , while teachers agreed with the parents that their pupils were more anxious and depressed and had more attention problems. Frigerio et al (2004) in study of Italian children found that boys had significantly higher scores, except for internalizing broadband scale and its three component syndromes scales. Where, younger children obtained higher score in total problems, externalizing, attention problems, and aggressive behaviour scales.

MOH 2003 stated that the studies confirm that the physical disabilities and cerebral palsy have clear effect in personal behaviors and society of physical handicapped people reported that , form about 8.883 physical disabled persons in Gaza , about 65.5% male and 34.5 female , the main causes of physical disability are CP 24% (MOH, 2003).

The aim of the study is to estimate the prevalence of mental health problem among cerebral palsy children age 6-12 years in Gaza Strip.

Methods

Sample:

The sample of this study consisted of 219 cerebral palsy children selected randomly from the physiotherapy centers in governmental and UNRWA centers registration book at the five areas of the Gaza Strip. These centers are providing physiotherapy and rehabilitation daily care for the majority of the Gaza Strip population. The sample consisted of 141 boys (64.7%), and 77 girls (35.3%). Of the 219 children, 116 children live in cities (53.2%), 66 live in camps (30.3%) and 36 live in villages (16.5%). According to family monthly income, 135 (63.5%) monthly income was less than 300 US\$ (low income), 64 (30.0%) family monthly income was 301-750 US\$ (middle income), 9 family income was high (751-1000 US\$) (4.2%), and 5 family income was very high above 1001 US \$(2.3%). Fourteen of fathers (6.6%) were illiterate, 20 finished primary education (9.4%), 76 finished secondary school (35.7%), 43 finished elementary school (20.1%), 35 finished diploma level (16.0%), 22 finished university education (10.3%), and 4 finished post graduate educational level (1.9%). Thirty one of children father's were unemployed (14.6%), 59 were simple worker (27.7%), 62 were skilled worker (29.1%), 46 were civil employees (21.6%) and 15 were merchant (7.0%)

Table 1

Distribution of the study population (N=219)		
<i>Items</i>	N	%
<i>1- Sex</i>		
Boy	141	64.4
Girl	78	35.6
<i>2- Place of residence</i>		
North Gaza	72	32.9
Gaza	66	30.1
Middle area	8	3.7
Khan Younis	72	32.9
Rafah	1	0.5

<i>3- Type of residence</i>		
City	116	53.2
Camp	66	30.3
Village	36	16.5
<i>4- Family monthly income</i>		
Low (Less than 300 US \$)	135	63.5
Middle (301-750 US \$)	64	30
High (751-1000 US \$)	9	4.2
Very high (1001 US \$ and above)	5	2.3
<i>5- Paternal education</i>		
Illiterate	14	6.6
Primary	20	9.4
Elementary	76	35.7
Secondary	43	20.1
Diploma	35	16
University	22	10.3
High degree	4	1.9
<i>6- Maternal education</i>		
Illiterate	17	8
Primary	25	11.7
Elementary	58	27.2
Secondary	68	40.4
Diploma	17	8
University	9	4.2
<i>7- Paternal job</i>		
Unemployed	1	0.5
Unemployed	31	14.6
Simple worker	59	27.7
Skilled worker	62	29.1
Civil employees	46	21.6
Merchant	15	7
<i>8- Maternal job</i>		
House wife	192	90.1
Employee	12	5.7
Simple worker	9	4.2

More than half of the children were diagnosed as spastic cerebral palsy 121(58.5%), 47 diagnosed as flaccid cerebral palsy (22.7%), and 39 diagnosed as mixed cerebral palsy which represents (18.8%).

Table 2
Medical characteristics of the study population

	No	%
<i>1- Types of cerebral palsy</i>		
Spastic cerebral palsy	121	58.5
Flaccid cerebral palsy	47	22.7
Mixed cerebral palsy	39	18.8
<i>2- Etiology of cerebral palsy</i>		
Inborn problems	130	61.0
Acquired problems	83	39.0
<i>3- Duration of cerebral palsy</i>		
Since birth	166	77.6
< 1 year	22	10.3
1-5 years	21	9.8
5-12 years	4	1.9

Measures

Socidemographic data and medical history

The first section address the sociodemographic characteristics of the study sample such as (sex , age , types of cerebral palsy , etc).

Children Behavior Checklist for parent and the TRF (Achenbach et al, 1983, Achenbach, 1991).

The Arabic versions of the CBCL/4–18 and of the TRF were verified by an independent back translation. The CBCL/4–18 is a questionnaire filled out by parents assessing various types of social competence and behavioral problems in children and adolescents aged 4–18 years. The first part of the scale includes 20 items exploring children’s and adolescents’ social competence. More specifically: their degree of participation in sports, home and school activities, games, and relationships with peers, siblings, and parents. The second part of the CBCL is focused on the children’s and adolescents’ behavioral and emotional problems: It consists of 118 items (range: 0–not true, 1–somewhat/sometimes true, 2–very true or often true). Similar to the CBCL/4–18, the TRF is designed to be completed by therapists of 5–18 – year

– old children and adolescents to assess their behavior at school. It is composed of a section tapping academic and adaptive competences, and a section encompassing 118 behavioral problem items, rated on the same three-point scale. The CBCL/4–18 and the TRF share eight cross-informant syndrome scales derived by principal components analysis: (1) withdrawn, (2) somatic complaints, (3) anxious/ depressed, (4) social problems, (5) thought problems, (6) attention problems, (7) delinquent behavior, and (8) aggressive behavior. These subscales are not directly equivalent to any clinical diagnosis but have proven useful for screening children and adolescents with behavioral problems across multiple cultures (Crijnen et al., 1997; Crijnen et al., 1999; Weine et al., 1995). Cut-off points were identified according to the method described by Achenbach (1991a, b). Briefly, norms were based on the 95th and 98th percentile (T score = 67 and T score = 70) for syndromes scales, and on the 82nd and 90th percentile (T score = 60 and T score = 63) for broadband and Total Problems scales. Normalized T scores to raw scores were also assigned according to the method described in Achenbach's manual (1991a, b). The split half reliability of the scale was high ($r = 0.89$) For the CBCL-parent form, the internal consistency of the subscales, calculated by the Chronbach's alpha, was also high ($\alpha = 0.89$). A test-retest was conducted for the scale with the parents of 19 children, who were random selected from the total sample. The scale was distributed and the same procedure was repeated after 2 weeks. The correlation coefficient of test-retest results was ($r = 0.91$). The split half reliability of the scale was high ($r = .87$). The internal consistency of the subscales, calculated by the Chronbach's alpha, was also high ($\alpha = .88$). A test-retest was conducted for the scale with the parents of 19 children, who

were randomly selected from the total sample. The scale was distributed and the same procedure was repeated after 2 weeks. The correlation coefficient of test-retest results was ($r = 0.93$).

Procedure

An official letter to conduct the study was obtained from Ministry of Health Director, Health department director of UNRWA, Helsinki Committee approval was obtained. Parents and therapist were provided with an explanatory letter about the study objectives attached to each questionnaire emphasizing the purpose of the study, confidentiality of information, some instructions and statement about subject's right to participate or to refuse participation in this study voluntarily. We explained to the parent the purposes of the study and about their right to participate or to refuse participation in this study. After obtaining informed consent from the parents, parents were interviewed and privacy was maintained. At the end of every interview, the researcher looked over the filled questionnaire to check adequate completion of all questionnaire. Response rate for CBCL was 89% while the response rate for TRF was 93%. Data collection took two and half months from May till July 2004.

Statistical analysis

Descriptive statistical techniques frequency distribution of sociodemographic and medical characteristics of cerebral palsy children. Frequency of child behaviour problems rated by parents and therapists were conducted using cut-off points of CBCL, TRF. Association between child behaviour problems and

sex were tested using t-test in which sex and age were the dependent variables and mean of total CBCL, TRF, externalizing and internalizing problems as independent variables. Differences between other variables such as age, place of residence, type of cerebral palsy and child behaviour problems were tested by non-parametric test (Kruskal- Wallis test) in which sociodemographic variables were entered as dependent variable (place of residence and type of cerebral palsy) and mean of CBCL, TRF, externalizing, and internalizing subscales as independent variables. One way ANOVA was performed to test the differences in which monthly income was entered as the dependent variable and total CBCL, TRF, externalizing and internalizing subscales as independent variables.

Results

Prevalence of child emotional and behavioural problems in cerebral palsy children by parents

The prevalence of child emotional and behavioural problems in cerebral palsy children by parents according to cut-off point of 60 and above was 81 (37%). The mean total child emotional and behavioural problems reported by parents for boys was 55.8 (SD=41.7), while mean for girls was 57.6 (SD=45.77). To differentiate between gender and prevalence of child emotional and behavioural problems an independent t-test was used; sex of the children was the dependent variable and children mental health problem rated by parents using CBCL was the independent variables. There were no statistical significance differences between boys and girls in total child emotional and behavioural problems according to parents ($t=.46$, $p = ns$).

Table 3

Mean scores and standard deviations of the CBCL and TRF behaviour problems scales,
by sex

Dependent variables	Boys (n = 141)		Girls (n= 78)		T test	P value
	Mean	SD	Mean	SD		
<i>CBCL</i>						
Total problem	55.8	41.7	56.0	45.2	1.50	0.13
Internalizing symptoms	17.51	12.45	16.92	13.32	.304	0.76
Externalizing symptoms	14.76	13.00	15.31	13.68	.275	0.78
<i>TRF (Therapists)</i>						
Total problem	67.63	40.9	63.60	40.55	2.12 6	0.03
Internalizing symptoms	16.64	11.5	16.34	11.58	.176	0.86
Externalizing symptoms	18.13	12.9	17.50	12.56	.328	0.74

In order to find the difference in the age of children and mean total problems in children, we recoded the age into two groups (6-9-years-old and 10-12 years-old). The results showed that CP children aged 6-9 years-old mean child emotional and behavioural problems according to parents was 59.89 (SD=44.3), and the mean of total problems in children aged 10-12 years-old was 49.58 (SD=39.9). There were no significant statistical difference between both age groups in total emotional and behavioural problems according to parents ($t= 1.6$, $p=.09$).

Internalizing problems by parents

The mean internalizing problems for boys was 16.9 (SD=12.5) and for girls was 17.3 (SD=12.8). There were no significant statistical differences between boys and girls in internalizing problems rated by parent ($t = .16, p = 0.86$).

Externalizing problems by parents

The mean externalizing problems for boys was 15.8 (SD=12.92) and for girls was 11.6 (SD=11.7). There were significant statistical differences between boys and girls in internalizing problems rated by parent toward boys ($t = 2.4, p = 0.04$).

Prevalence of child emotional and behavioural problems in cerebral palsy children by therapists

The results indicated that, children with psychiatric problem represented 98 (44.7%) while children with no psychiatric problems represented 121 (55.3%).

The mean total child emotional and behavioural problems by therapist for boys was 67.6 (SD= 40.90) and the mean for girls was 64.92 (SD = 41.89). To differentiate between gender and prevalence of child emotional and behavioural problems an independent t test was used; sex of the children was the dependent variable and children child emotional and behavioural problems rated by therapist using TRF as independent variables. The results revealed no significant differences between both boys and girls ($t = .46, p = 0.47$).

The mean child emotional and behavioural problems for 6-9 years age group was 70.42 (SD=43.41) and the mean child emotional and behavioural problems for the age group 10-12 years was 59.01 (SD=35.26). The result showed a

significant statistical differences between the age group in total emotional and behavioural problems, children aged 6-9 years-old had more emotional and behavioural problems according to the therapists than the age group 10-12 years-old ($t= 2.1, p=0.05$).

Internalizing problems by therapists

The mean internalizing problems for boys was 18.17 (SD=12.19) and for girls was 14.1 (SD=8.8). There were no significant statistical differences between boys and girls in internalizing problems rated by therapist ($t= 1.6, p=0.10$).

Externalizing problems by therapists

The mean externalizing problems for boys was 19.2 (SD=13.2) and for girls was 13.7 (SD=9.0). There were significant statistical differences between boys and girls in externalizing problems rated by therapist toward boys ($t= 2.7, p=0.006$).

Correlation between CBCL and TRF scores

Parents and teachers are known to differ in their assessment of children's behaviour. In order to test to what degree this holds for the CP children sample, we examined the correlations between parents' and therapists' scores, separately for boys and girls. The crossinformant versions of the scales were used for this analysis. For boys, parents and therapists tended to have correlations with total and all subscales. This is also applicable for girls.

Table 4

Correlation between parents' and therapists' ratings of problem behaviours for boys and girls

Scale	Boys (n = 141)		Girls (n = 78)	
	r	p	r	p
Total problems	0.85	< 0.001	0.77	< 0.001
Internalizing	0.79	< 0.001	0.73	< 0.001
Externalizing	0.80	< 0.001	0.78	< 0.001
Withdrawn	0.70	< 0.001	0.51	< 0.001
Somatic complaints	0.77	< 0.001	0.76	< 0.001
Anxious/depressed	0.76	< 0.001	0.70	< 0.001
Thought problems	0.76	< 0.001	0.68	< 0.001
Attention problems	0.69	< 0.001	0.69	< 0.001
Delinquent behaviour	0.73	< 0.001	0.74	< 0.001
Aggressive behaviour	0.76	< 0.001	0.73	< 0.001

Child emotional and behavioural problems in cerebral palsy children and place of residency

A non-parametric test (Kruskal-Wallis test) was used to estimate the differences between child emotional and behavioural problems and place of residency. There were a significance statistical differences between total emotional and behavioural problems by therapists and parent and child place of residency ($\chi^2= 17.6$ $p < 0.001$), ($\chi^2 = 9.8$, $p < 0.001$). This indicated that children live in villages had higher rates of child emotional and behavioural problems rated by parents and therapists than did the other children living in city and camp. Consistently, the results revealed a significant statistical differences between internalizing problems rated by therapists ($\chi^2 = 16.9$, $p > 0.001$), internalizing problems rated by parents ($\chi^2 = 11.33$, $p < 0.003$), externalizing problems rated by therapists ($\chi^2= 7.8$ $p < 0.02$) and not for externalizing symptoms by parents. Children living in village had significantly higher in internalizing symptoms of parents and therapists and externalizing symptoms of therapists.

Child emotional and behavioural problems in cerebral palsy children and types of cerebral palsy

A non-parametric test (Kruskal-Wallis test) was used to estimate the differences between child emotional and behavioural problems and type of CP (flaccid, spastic, and mixed cerebral palsy). There were a significance statistical differences between total child emotional and behavioural problems rated by parents ($\chi^2= 12.37$ $p < 0.002$), internalizing problems rated by parents ($\chi^2 = 11.5$, $p < 0.003$), internalizing problems rated by therapists ($\chi^2 = 11.7$, $p > 0.003$) and CP type. Children with flaccid cerebral palsy scored more than the

other two groups. However spastic cerebral palsy children reported less externalizing problems rated by therapists ($\chi^2= 13.7$ $p < 0.02$) and externalizing problems by therapists ($\chi^2= 14.2$ $p < 0.001$)

One way ANOVA statistical test was used to estimate the differences between child emotional and behavioural problems and household monthly income. The results revealed a significant statistical difference between family monthly income and children emotional and behavioural problems ($p = 0.02$) and internalizing problems rated by therapists than the other groups ($p = 0.006$). Tukey test indicates that children coming from families with average monthly income less than 300\$ had reported more emotional and behavioural problems than the other groups by the therapists.

Discussion

The aim of the study was to investigate the rate of child emotional and behavioural problems in cerebral palsy children attending physiotherapist department in the Gaza Strip. The majority of children were diagnosed as were represented as spastic cerebral palsy (58.5%), 22.7% had flaccid cerebral palsy, and 18.8% diagnosed as mixed cerebral palsy. This result was congruent with other study (Eiben and Croker, 1993). We refer this differences in diagnoses due to the nature of the cerebral palsy disorder, where the spastic type is the common type. The findings revealed that the 61.0% of the cerebral palsy was due to inborn problems and 39.0% was due to acquired problems. The results was consistent with Hagberg results, who found that the most common cause of cerebral palsy disorder was inborn problems which may attributed to asphyxia or prolonged labour and eclampsia (Hagberg, 1979). Therefore,

special attention should be taken in vulnerable high risk pregnant women during labour.

The results showed that the prevalence of the child emotional and behavioural problems in cerebral palsy children rated by parent was (37%). This result consistent with other studies based on CBCL (Cormack et al, 2000; Dekker et al, 2002). Our results was inconsistent of findings of psychiatric disorders among children with speech and language problems in which Cantwell and Baker (1987) found in study of 100 children that 50% had psychiatric disorders. Also our results showed lower rate of behavioural problems than the study of Noterdaeme and Amoroso (1999) in study of children with speech and language problems in which 80% of them had psychiatric disorders. In this study, there were no gender differences in total child emotional and behavioural problems according to parents. This is inconsistent with other studies in which boys reported high scores than girls in externalizing problems and girls reported more internalizing problems than boys (Nøvik, 2000). Our results were consistent with study of Koskentausta et al (2004) in study of children with intellectual disability, 43% of children scores 60 and above in cut-off point of the scale. Total problem, internalizing, and externalizing scores were higher among children with moderate intellectual disability and lowed among those with profound intellectual disability. Total problems were significantly higher among boys aged 6-11 years and among girls aged 6-12 or 12-13 years. However no sex significant in internalizing and externalizing scores.

The actual prevalence of child behaviour problems among young children is difficult to determine with any certainty because the prevalence rates reported in the literature vary greatly. In addition, most of studies that reported prevalence of behavior problems in children generally defined the children as having behavior problems on the basis of cut-off scores on adult informant checklist-type measures (Dekker, 2002). Our results consistent with study of African- American children, in which parents reported that younger children presented more attention problems, aggressive behaviour and total problems than older children (Lambert et al, 2002). This is consistent with other study of Italian children in which total problems were significantly higher among boys aged 6-11 years and among girls aged 6-12 or 12-13 years. However no sex significant in internalizing and externalizing scores (Koskentausta et al, 2004)

Generally, the results of this study regarding child emotional and behavioural problems in cerebral palsy children reported by parents depend on how parents perceives, interpret, and tolerate a child's behavior problems and how they react when they find the behavior unacceptable. Therefore, differences in parents' perceptions and expectations of children's behavior and their tolerance for reporting child emotional and behavioural problems could influence the rate of such problems in children.

While the prevalence of child emotional and behavioural problems reported by therapists was (44.7%). It seems that therapist are more accurate in reporting the level of the child's child behaviour problems due to their knowledge of the type of child mental health problems. This study has important implications for

investigators using multiple informant data in longitudinal research. Interpret of the results showed that, parents and therapist differed in the way they viewed the children in different age. Significant age effects were found for some CBCL scales, young children had more had higher scores general child behaviour problems according to the therapists than the older age group. The result was in accordance with several studies reported age effects (Fitzpatric et al., 1999; Larsson et al., 1999; Mckelevy et al, 1999). However, significant age effects were found for many TRF scales, younger children had higher scores on all subscales except somatic problems. The results was consistent with other studies on some child behaviour problems and inconsistent with other studies on other child behaviour problems (Larsson et al., 1999; Mckelevy et al, 1999; Rousses et al., 1999).

The results showed that children live in villages had higher child behaviour problems rated by parents and therapists than those living in city and camp. This is consistent with study of Greek children in which emotional and behavioural problems were lower in rural areas than in Athens city (Roussos et al, 1999). Consistently, the results revealed a significant statistical differences between internalizing problems rated by therapists, internalizing problems rated by parents, externalizing problems rated by therapists, and not for externalizing symptoms by parents toward children live in villages.

The results indicated that children living in poor areas such as villages which considered as a urban face stresses more than those children who lives in rural areas and camps. This could be due to the availability of services in camps and cities for handicapped children and difficulties in having the same services in the urban areas.

The results revealed a statistical difference between children total problems rated by therapists and average household monthly income, those children coming from families with average monthly income less than 300\$ (low income families) were more disturbed mentally than the other groups. Families with children with average monthly income less than 300\$ had higher general and internalizing problems rated by therapists than the other groups. This is consistent with study of Roussos et al (1999) in which they found that Greek children with low socioeconomic status had higher behavioural problems scores and lower competence. However, there were no statistical significant differences between all other subscales of CBCL and monthly income. Results of the study reviewed support the premise that children who are poor are at greater risk for the development of child behaviour problems than are children from higher socioeconomic status. Although, there is variability in reported scores rated by therapists and parents, the results suggested that the interaction of children, parent, and socioeconomic characteristics may produce and sustain certain child behaviour problems in children from low-income backgrounds, but no studies have examined these interactions directly. This is consistent with other studies in the same culture (Thabet & Vostanis, 1998; 2001).

Clinical implications

We have to give a significant focus on the role of family in psychological intervention through awareness raising activities such as lectures, meeting and symposiums. Different institution must offer rehabilitation program with high adequacy that allow cerebral palsy cases become more integrated in their society. We have to develop of community support programmes for cerebral

palsy children and enhancing program for families and all people had direct relation to the cerebral palsy children.

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