

ORIGINAL ARTICLE

# THE EFFICACY OF PEDIATRIC SYMPTOM CHECKLIST IN DETECTING PSYCHOSOCIAL ISSUES IN CEREBRAL PALSY

Mridula Das<sup>1</sup>, Ujwal Bhattacharya<sup>2</sup>, Pallabi Goswami<sup>3</sup>, Urvashi Bhattacharya<sup>3</sup>

<sup>1</sup>Research scholar, MPT 2nd year, Dept of physiotherapy, College of Physiotherapy and Medical Sciences, Guwahati, Assam.

<sup>2</sup>Head, Dept of Physiotherapy, College of Physiotherapy and Medical Sciences, Guwahati, Assam.

<sup>3</sup>Faculty, Dept of Physiotherapy, College of Physiotherapy and Medical Sciences, Guwahati, Assam.

## ABSTRACT

**Background:** Cerebral Palsy children are at higher risk of psychological problems than other non-disabled children. This may result into problems in adjustment to their adverse circumstances as well as psychosocial factors related to have a brain based disability. These psychosocial issues can be the consequence of the permanent damage occurred in the brain. To screen the psychosocial effects the Pediatric Symptom Checklist (PSC) is used in various conditions like seizures, headache, thalassemia, dermatological conditions etc. As the PSC has not been used in Cerebral Palsy so this study aims in assessing the psychosocial issues using PSC in Cerebral palsy.

**Methods:** Children's diagnosed with CP and those who fulfill the inclusion criteria are included in the study. The Pediatric Symptom Checklist questionnaire is administered to 100 samples taken in a convenience sampling manner and the outcome scoring is calculated.

**Results:** The data collected from 100 samples are analysed using SPSS software and Karl Pearson co-relation co-efficient test is done between the age and gender distribution to quantify the actual involvement. Subjects scoring above cut off score (i.e., 28) in PSC with p value considered <0.05. After calculating the K P Co-efficient the r value is found to be 0.8 which is highly significant suggesting the fact that Pediatric symptom checklist is an effective tool to evaluate psychosocial issues.

**Conclusion:** The results of this study supports the previous literature indicating prevalence of psychosocial problems in children with CP. There is positive co-relation found between CP and PSC. Children of age group between 6-16 years were found to have slightly lower score on PSC indicating prevalence of psychosocial issues. The results of the studies indicates that PSC is an effective tool to detect psychosocial issues in Cerebral Palsy children. The outcome can be helpful in resolving the issues related with the mental attire both psychological and social of CP children.

**Keywords:** PSC – Pediatric symptom checklist, CP-Cerebral Palsy, QOL- Quality Of Life, Psychosocial problems.

## INTRODUCTION

Cerebral Palsy in children is seen from an injury or insult to the brain or abnormal development during the brain's formation before delivery or during delivery or after delivery. It affects the subjects in many different ways. Cerebral palsy is not a single condition rather, the term describes a wide range of disorders and developmental disabilities that can arise from damage to a child's developing brain before, during or shortly after birth. The damage may occur at any region of the brain that controls muscle functions. Therefore, people with cerebral palsy might have problems with motor skills (control of muscle movement), muscle tone (abnormally stiff or loose muscles), muscle weakness, reflexes, balance.

As the damage can affect multiple areas of the brain, cerebral palsy child might experience cognitive difficulties. While the cognitive development might also get affected due to abnormal muscle tone and motor skill impairments. These difficulties might trouble the child in moving independently, due to which he may fail to participate in some of the typical childhood activities that foster learning<sup>1</sup>.

The term "cerebral palsy" describes a group of permanent disorders of movement development and postural de-

velopment attributed to non-progressive disturbances that occurred in the developing fetal or infant brain<sup>2</sup>, seen in approximately 2 to 2.5 per 1000 live birth<sup>3</sup>. Cerebral palsy (CP) is the third most common type of disorders from which disabled children suffers<sup>4</sup>.

The condition varies by type, severity, and etiology with milder forms more common. There are also a number of associated impairments related to intelligence, special senses, feeding issues, pain, epilepsy, incontinence, sleeping, and behavioral difficulties<sup>5</sup>. This is an important line of research since the majority of individuals with this condition survive until at least early adulthood<sup>6</sup>.

Perceptual abnormalities associated have also been noted overtime in CP children. The motor and perceptual disturbances of CP are often accompanied by impairments in cognitive functioning and learning difficulties<sup>6</sup>. Parents or caregivers from all socio-economic backgrounds, as well as healthcare providers, seems to have struggled with this issue, since they didn't know where to seek care once the child outgrew the pediatric environment. It is quite clear from this experience that there is an immense gap between care for children and that for adolescents and adults with CP in our community. Now that the medical community is

able to improve the life expectancy of children with CP, we also have to take the responsibility for ensuring quality of care for these children who become adolescents and adults with CP. It is important that we understand the secondary abnormalities as a result of the brain injury, and that we are able to combine the best interventions possible to aim for optimal quality of life<sup>7</sup>.

Children with CP have higher risk of psychological problems that might be related to the functional abilities or experience of pain. The origins of psychological problems in this group are complex and it is not possible to ignore these factors that also influence adjustment in all children. The general pattern of research findings is that many of children with CP have a behavior problem and that parents perceive some behaviour problems which are associated with CP<sup>6</sup>. Although children with CP are at greater risk for developing behavior problems, they are less likely to develop problems assessed by the anti-social and peer conflict scales. Conduct disorder was being more prevalent in mildly affected children, mainly in boys.

Parkes et al. cited the prevalence, type and severity of behavioral and emotional symptoms in 8 to 12 year old children with CP in eight European regions that are identified from population-based registers. About a quarter of the children had significant psychological symptoms that are most commonly associated with peer problems. There are a variety of risk and resilience factors that can hamper or promote social development. The parent-child relationship, the parenting beliefs and behaviors as well as the quality of the and even broader socio-cultural influences, such as the stigmatization (that results from perceived disability) can influence children's social interactions and psychosocial adjustment.

Emotional challenges and adjustment is associated with the severity of the condition and the degree of functional limitations experienced by the child. Data reveals that more than a quarter of children with CP experienced abnormal scores on the emotion domain.

Motor impairments are often assumed to have a negative impact on the way of children feelings about themselves. Children with CP did not have a lower global self-worth compared to children with typical development, even though they felt less competent in their athletic skills, schoolwork, and peer relationships. Low score in Social Acceptance domain is important for a clinician to be aware that children with CP may not be accepted in their environment. The child in this group may require assistance in developing interpersonal skills that will enhance their confidence in social settings, and place the need for individual assessment.

Children with greater intellectual impairment or disability have a higher risk for experiencing psychological problems; those with greater functional impairment have a lower risk. Communication problems are associated with more psychological or behavioral problems. Around 40% of parents of children with CP perceive their child to have

severe difficulties in relation to emotion, behavior, concentration and getting on with others<sup>4</sup>.

In this aspect, professionals and parents need to be aware that many of psychological problems require psychological support and interventions<sup>4</sup>. Research indicates that pediatric and adolescent patients with CP have impaired functional and psychosocial QOL when compared with their normative peers. Specifically, previous studies have found a weak relationship between measures of CP severity and psychosocial QOL. This has led to a call for further examination of other patient level variables that could influence psychosocial QOL<sup>2</sup>. Additionally, there is a need to explore mechanisms beyond clinical interventions to improve psychosocial QOL for patients with CP<sup>2</sup>.

The Pediatric Symptom Checklist (PSC) is a brief screening tool, this questionnaire is used by pediatricians and other health-care professionals to improve the recognition and treatment of psychosocial problems in children. The PSC is a one-page questionnaire listing a broad range of children's emotional and behavioral problems that reflects parents' impressions of their child's psychosocial functioning. The screen is intended to facilitate the recognition of emotional and behavioral problems so that appropriate interventions can be initiated as early as possible.

CP children may have behavioral problems or emotional issues that may affect psychological development and their ability to interact socially. Some may have some associated conditions, such as learning disabilities, problems with sleep, communication difficulties, drooling, behavior problems etc. For many parents the child rearing demands can be overwhelming, as because they are aware that their children may lag behind their peers in motor, emotional, social and cognitive development<sup>5</sup>. This may require proper assessment and special intervention or treatment, including behavior modification programs or individual and family counseling.

## METHODOLOGY

In this Cross-sectional study 100 samples fulfilling the criteria of the study are collected from Composite Rehabilitation Centre, Guwahati, Assam; Shishu Sarothi, Rehabari, Guwahati, Assam; Diganta's Physiotherapy and Rehabilitation Centre, Guwahati, Assam in a Convenience Sampling manner. Children diagnosed as Cerebral palsy by Pediatrician and those who fulfil the inclusion criteria are included in the study. An informed consent is taken from the parents.

PSC was used to detect the psychosocial issues from the parents. The PSC is a 35-item psychosocial screening questionnaire designed to alert pediatricians to which school-aged children are in need of a more substantial mental health evaluation. There are two versions available for PSC, the parent-completed version (PSC) and the youth self-report (Y-PSC). Each item describes a behavior that the parent rates as occurring "never, sometimes, or often" and is assigned a score of "0, 1, or 2," respectively. An overall score is calculated by simple addition. The highest score is 70 and

the cut off score is 28. Children scoring 27 and below fall within the normal range of functioning, and those scoring above 28 are considered to be at risk of significant behavioral and emotional problems. The PSC takes approximately 5 minutes to administer and score. The PSC has been found to be both valid and reliable instrument<sup>9</sup>.

## RESULTS

Statistical analysis is done using SPSS software. Karl Pearson co-relation co-efficient test was done between age group of CP and subjects scoring above cut-off score in PSC. P value <0.05 was considered as significant for the analysis. Data from 100 subjects who completed the study were analysed. The frequency percentage of distribution of subjects is distributed in 5 years age interval arising in 3 groups. The sample contained 70 of the total population in 5-10 years, 24 in 10-15 years and 6 in 15-20 years

Total subjects (N)	Minimum age group	Maximum age group	Mean age group	Standard deviation (SD)
100	6	16	11	3.32

Table 1.1 – Shows the demographic data

Age	Frequency	Percentage (%)
5-10	70	70%
10-15	24	24%
15-20	6	6%

Table 1.2 -Shows distribution of age

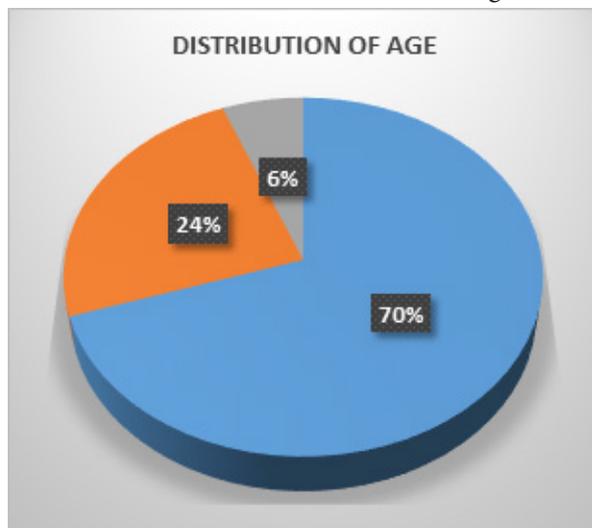


Figure 2.1 – Pie diagram showing the distribution of age. Subjects were categorized according to gender. 71 were male (71%) and 29 were female (29%)

	Frequency	Percentage
Male	71	71%
Female	29	29%
Total	100	100%

Table 1.3 – Shows the distribution of gender

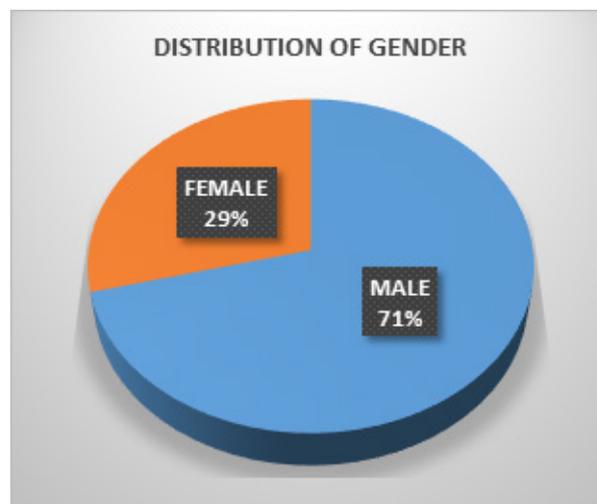


Figure 2.2: Pie diagram showing distribution of gender. Total score of PSC is 70 in which a cutoff score of 28 or higher indicates psychosocial impairment. Among 100 subjects, 22 scored below 28 and 78 subjects scored more than or equal to 28.

Total subjects (N)	Total PSC score	Subjects scoring PSC score (<28)	Subjects scoring PSC score (≥28)
100	70	22	78

Table 1.4 - Showing scores of questionnaire.

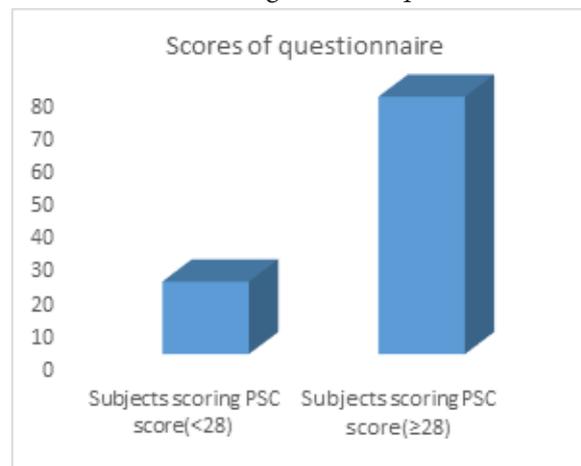


Figure 2.3: Graphical representation of scores of the questionnaire

Co-relation was estimated between Age range of CP and subjects scoring PSC above cut-off score for Karl Pearson co-relation co-efficient value,  $r = 0.8$

## DISCUSSION

The primary focus of the present study was to identify psychosocial problems associated with CP using PSC. This study was conducted in 100 subjects attaining primary care in and around Guwahati. 100% of the participating parents/ care givers completed the study. The findings shows 78% of the total population with psychosocial problems. The data from this study support that the PSC is an efficient and valid means of determining mental health evaluation.

Anderson et al, 1999 supports the present study as the PSC offers a time-efficient screening tool that parents can com-

plete in the clinic itself<sup>8</sup>. This easy to use test provides guidance to the physician or team members about which psychosocial areas need further psychiatric assessment and in which areas the child is performing well. The physician can easily discriminate between children not needing further assessment of psychosocial issues (those scoring below 28) vs those who need additional in-depth assessment (children scoring 28 or above).

The higher risk of emotional or behavioural symptoms in CP children with intellectual impairment has been reported before (Rutter et al., 1970<sup>9</sup>; Goodman & Graham, 1996<sup>10</sup>; Davies, Heyman, & Goodman, 2003). In the present study, it is clear that living through the difficult experience of pain associated with CP are at higher risk of abnormal psychosocial symptoms.

The physician/physiotherapist may then focus the enquiry accordingly and make arrangements for further psychiatric referrals as indicated. The PSC allows efficient psychosocial screening and enables the physician/physiotherapist to focus on the unique needs of each child.

Rashida et al, 2010 in a study provided a firm evidence that parents of children with disabilities are more likely to suffer from stress, anxiety and depression than parents of normal children. This study supports the present study as there were some parents not willing to provide the correct information related to their child<sup>11</sup>.

Solveig et al, 2010 in a study stated that although upon assessment large proportions of children with CP exhibit impairing behavioural and emotional symptoms, their problems frequently go unrecognized and untreated<sup>12</sup>. Therefore, therapeutic programmes need to monitor psychological and social well-being of young children with CP as early identification and intervention may prevent chronic maladjustment.

Pediatricians should be aware of and prepared for the care of children with disabilities, as early intervention can have a positive effect on the course of these disabilities and minimize their impact on the child and society as a whole. Early diagnosis and intervention with psychosocial/psychiatric problems is necessary to assist each child in reaching his or her maximum academic, social, and emotional potential.

## CONCLUSION

The present study supports the previous literature indicating prevalence of psychosocial problems in children with CP. There is positive co-relation found between CP and PSC. Children of age group between 6-16 years were found to have slightly lower score on PSC indicating psychosocial issues to be prevalent in this age.

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