

# Frequency and Severity of Depression in Mothers of Cerebral Palsy Children

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## ABSTRACT

Cerebral Palsy (CP) is a term used for non-progressive brain malformation during the development of brain, affects body movement and motor function. The global prevalence of CP is roughly ranging 1.4 to 4 per 1000 live births. It is observed that parents of CP child especially mothers has elevated levels of stress and depression than a mother of normal children.

**OBJECTIVE:** To determine the frequency and severity of depression in mothers of children with cerebral palsy attending tertiary care hospital.

**MATERIAL & METHODS:** This is descriptive Cross Sectional study conducted at department of Neurology Civil Hospital Karachi / Dow University of Health Sciences from 01<sup>st</sup> March 2013 to 31<sup>st</sup> August 2013. Data was collected from Neurology OPD, Civil Hospital Karachi and Rehabilitation Centre DUHS Karachi. Urdu version of Siddiqui-Shah Depression Scale (SSDS) questionnaire used as a tool to identify depression among mothers' of CP child.

**RESULTS:** A total of 81 mothers, the primary caregiver of the CP children with history of cerebral palsy of at least 6 months duration, were evaluated. Out of those 40(49.38%) mothers of children with cerebral palsy had depression. Among them 30% (12/40) had mild depression, 60% (24/40) moderate and 10% (4/40) had severe depression.

**CONCLUSION:** Depression is very much prevalent among mothers of CP children. This finding demands development of some effective guidelines, for the management of entire family particularly mother of a CP child.

**KEY WORDS:** Cerebral palsy, Depression in Mothers, Siddiqui-shah depression scale.

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## INTRODUCTION

Cerebral Palsy (CP) may be define as a heterogeneous group of clinical syndromes affect body movement or may lead to impairment of motor function. This term is used for non-progressive brain injury / malformation during the development of brain before birth, during birth or early after birth. There are various etiological factors which may be responsible for cerebral palsy like infections (e.g. Cytomegalovirus) to fetus during pregnancy, jaundice in infant and hypoxic brain injury during birth. Prevalence of CP is 1.5 to more than 4 per 1,000 live births<sup>1</sup>. This condition is clinically divided into four types; Spastic (atypical stiffness and rigidity in limb musculature), Athetoid (unintentional body movements), Ataxic CP child is characterized by problems in motor incoordination and Mixed type which is combination of Spastic and Athetoid<sup>2</sup>.

CP children are may frequently developed cognitive, behavioral and seizure disorders along with motor abnormalities<sup>3</sup>. The recognition of CP in a child is usually disturbing for entire family and parents; especially mothers of CP child put up with stress and may likely to suffer from depression compared to mother of normal child<sup>4</sup>. In one study overall prevalence of anxiety

and depressive disorders in the community population was reported as 34%<sup>5</sup>. Worldwide, including Pakistan, published epidemiological studies have reported highly variable prevalence of depression among mothers of CP children, ranging from 6%-40.5%<sup>6-8</sup>. Siddiqui-Shah Depression Scale (SSDS) is a very useful to diagnose depression having high sensitivity as well as specificity for normal sadness, mild depression and for severe depression. It is a self-administered simple Urdu version questionnaire scale which is easily understandable and can therefore may be use for assessing depression. Depression and its severity were assessed and categorized according to the number of points on SDSS labeled as <26 -no depression, ≥26 to 36 - mild depression, ≥37 to 49 - moderate depression and ≥50 - severe depression<sup>9-10</sup>. The objective of this study is to evaluate depression among mothers of CP children. Identification and rectification of the problem may bring improvement in overall psychosocial performance of mothers, ultimately she can take care her child in a better way.

## MATERIAL & METHODS

This is cross sectional, descriptive study was

conducted at department of Neurology Civil Hospital Karachi / Dow University of Health Sciences from 01<sup>st</sup> March 2013 to 31<sup>st</sup> August 2013.

**Inclusion criteria:** Primary caregiver mothers aged between 25-55 years, knowing diagnosis of CP for their children for at least last 6 months were invited for this study. The age of CP children considered was between 3-10 years.

**Exclusion criteria:** Mothers of children with other neurological conditions like Down syndrome, Leukodystrophy and Autism were excluded. Mother themselves having chronic illness like diabetes mellitus, chronic obstructive pulmonary disease, hypertension, carcinoma or history of chronic psychological disorder or depression were not considered as study subject.

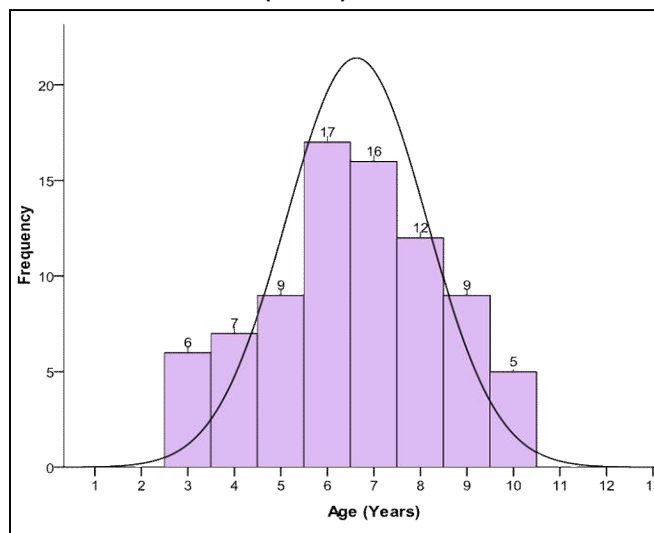
The purpose and benefits of the study were explained to selected mothers and informed consent was taken. Demographic data was collected on a prescribed proforma while to evaluate depression self administered Urdu version of Siddiqui-Shah Depression Scale (SSDS) was used. To classify depression, scale was categorized into mild, moderate and severe. The educational level of mothers were categorized into three; primary education group - up to class 8, secondary education group - class 12 and high education group - graduate and postgraduate. The data was entered on pre-determined proforma and was analyzed with help of SPSS program version 16. Mean and standard deviation of continuous variables like age of CP child, duration of CP diagnosis and age of mother and family income were calculated. Frequency and percentage were computed for categorical variables like, gender of CP child, type of family, occupation and severity of depression in mothers. Effect modifier like age of CP child, age of mother, gender of CP child, education of mother, family status and duration of CP were stratified to assess to see the effects of these variables on outcome. Chi-square test was applied after stratification to see the difference among different strata. P-value  $\leq 0.05$  was taken as significant.

## RESULTS

A total 81 primary caregiver mothers knowing diagnosis of CP for their children, at least for last 6 months were included in the study. Male children were 46 (56.79%) and 35(43.21%) were female children, with male to female ratio of 1.31. Histogram of age of children is presented in (Figure I). The mean age ( $\pm$ SD) of CP children and their mother was 6.57 ( $\pm$ 1.9) years and 40.89 ( $\pm$ 5.31) years respectively. The mean duration of illness was 8.38 ( $\pm$ 2.19) months as shown in

Table I. Regarding educational status of mothers, 27 (33.33%) had primary education, 43(53.09%) had completed secondary education and 11 (13.58%) mothers were reached to higher education. In this study 59 (72.84%) mothers were house wives, while 22 (27.16%) were employed, majority of them 48 (69.26%) were living as nuclear family system. In this study out of 81 mothers of CP children, 41(50.62%) had no depression while 40 (49.38%) mothers had depression (Figure II), Out of which 12(30%) had mild, 24 (60%) had moderate and 4 (10%) had severe depression respectively (Figure III). Stratification analysis with respect to child age, frequency and severity of depression in mothers showed insignificant difference as presented in Table II and III. Frequency of depression in mothers of CP children by gender is not significantly differed. Among Mothers of male CP child (n=46) depression was noted in 21(45.7%) mothers, while 25(54.3%) mothers had no depression. While mother of female CP child (n=35), depression was noted in 19(54.3%) while 16(45.7%) were without depression giving a p value 0.44. Similarly severity of depression was assessed in mothers of 21 male CP children, it was mild in 6(28.6%), moderate in 14 (66.7%) and severe in 1(4.8%) mothers. Severity of depression in mothers of 19 female children's, it is mild in 6(31.6%), moderate in 10(52.6%) and severe in 3(15.8%) with p value 0.45. Therefore gender of CP child has no association with depression of mother. Mothers < 40 years were 40 and depression was noted in 21(52.5%) while 19(47.5%) had no depression, mothers > 40 years were 41 and depression was noted in 19(46.3%), no depression in 22(53.7%) mothers which is statistically insignificant (p=0.57). Stratification of mother's age showing that depression and its severity in mothers was insignificant between mother's age groups. In 55 CP children duration of illness was between 6-8 years while 26 have CP children it was more than 8 years. Among mothers of CP children having illness between 6-8 years (n=55), 32 (58.2%) mothers had depression while in 23(41.8%) mother we found no depression. Among children having CP for more than 8 years (n=26), 8 (30.8%) mothers had depression while 18 (69.2%) had no depression (p=0.21). The severity of depression among mothers of CP children having illness between 6-8 years (n=32) was severe in 3 (9.4%), moderate in 20(62.5%) and mild in 9 (28.1%) mothers. The severity of depression for mother of CP children with duration of CP more than 8 years (n=8) was severe in 1(12.5%), moderate in 4 (50%) and mild in 3 (37.5%) mothers giving p=0.81. In other words frequency and severity of depression in mothers was not significant when considered with respect to the duration of Cerebral Palsy.

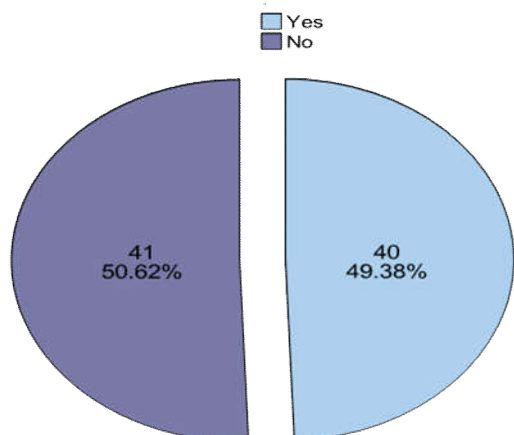
**FIGURE I: AGE DISTRIBUTION OF CHILD WITH CEREBRAL PALSY (n= 81)**



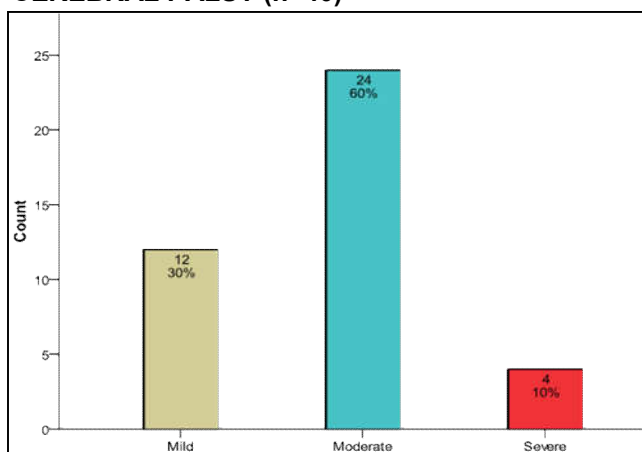
**TABLE I: DESCRIPTIVE STATISTICS OF CHILD AND MOTHER'S AGE AND DURATION OF CEREBRAL PALSY**

Descriptive Statistics		Age (Years)	Duration of CP	Mother Age (Years)
Mean		6.57	8.38	40.89
95% Confidence Interval for Mean	Lower Bound	6.15	7.90	39.71
	Upper Bound	6.99	8.87	42.06
Median		7	8	41
Std. Deviation		1.90	2.19	5.31
Inter quartile Range		3	2	9

**FIGURE II: FREQUENCY OF DEPRESSION IN MOTHERS OF CHILDREN WITH KNOWN CEREBRAL PALSY (n=81)**



**FIGURE III: SEVERITY OF DEPRESSION IN MOTHERS OF CHILDREN WITH KNOWN CEREBRAL PALSY (n=40)**



**TABLE II: FREQUENCY OF DEPRESSION IN MOTHERS OF CHILDREN WITH KNOWN CEREBRAL PALSY BY AGE OF CHILD (n=81)**

Age of Children with CP	Depression		Total	p-Value
	Yes	No		
3 to 6 Years	20 (51.3%)	19 (48.7%)	39	0.74
7 to 10 Years	20 (47.6%)	22 (52.4%)	42	
Chi-Square Test Applied				

**TABLE III: FREQUENCY OF SEVERITY OF DEPRESSION IN MOTHERS OF CHILDREN WITH KNOWN CEREBRAL PALSY BY AGE OF CHILD (n=40)**

Age of Children with CP (Years)	Severity of Depression			Total	P-Values
	Mild	Moderate	Severe		
3 to 6	4(20%)	14(70%)	2(10%)	20	0.36
7 to 10	8(40%)	10(50%)	2(10%)	20	
Chi-Square Test Applied					

**DISCUSSION**

Cerebral palsy (CP) is the common cause of childhood disability; depending on the type; in 30-50% cases it is associated with intellectual impairment<sup>11</sup>. Parents especially mothers are real care provider having important role in the management of CP children. Parents can contribute in all phases of management

as they are directly involved or responsible to follow the instruction of doctors for implementing home therapy. By exercising continuous efforts while managing needs and disability of a CP child, mothers are highly vulnerable to mental stress. Therefore appropriate education and attention to the mothers of CP child should be integral part while managing a CP child<sup>12</sup>.

In our study, the principal care provider are the mothers in 100% of cases, identical observation was also reported by Hirose and Ueda et al<sup>13</sup>. During our literature search, limited studies were found to focus on the quality of life of mothers of cerebral children. In our study, 40(49.38%) mothers of CP children had depression; mild depression was observed in 30% (12/40) mothers, moderate in 60% (24/40) while 10% (4/40) had severe depression. Mubarak et al<sup>14</sup> had reported 41.8% prevalence of depression among mothers of CP children which is in agreement with this current study. However other international studies had reported higher prevalence among caretaker of the CP children<sup>15,16</sup>.

A CP child when aged 2 to 3 years develops various behavior problems which increases mental stress among mother. This increased mental stress can be the precipitating factor for the development of depression among mothers of CP children. It has been suggested that appropriate interventions programs, for care giver mothers, to improve skills in every day living for example feeding, bathing, toilet along with behavior management programs are vital to minimize psycho social stress among parents<sup>17</sup>.

Similarly it had been reported that a CP child have more sleep problems than normally developing child, which indirectly adversely affect sleep quality of mothers. This poor sleep of mothers may be considerably interrelated with maternal depression<sup>18</sup>.

As mothers are the principal caregiver in almost all cases, by optimizing mothers' physical and mental health the target therapy for CP child can conveniently be accomplished. It is therefore highly desirable to develop active health strategies (health program/policy) to support mothers of the disables children. This must include support for the caregiver, training to cope with stress, time management and appropriate treatment of mental health problems<sup>19,20</sup>.

## CONCLUSION

We found that depression is very common in mothers of CP children. This thought provoking finding demands development of active, comprehensive guidelines for the management of caregiver as well as without them it is not possible to achieve our goal of ideal management of a CP child.

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