DEPRESSIVE SYMPTOMS IN MOTHERS OF CHILDREN WITH CEREBRAL PALSY

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ABSTRACT

Objective: To find out depression in mothers of children with cerebral palsy, exploring the various factors that affect depressive symptoms in these mothers.

Design: Cross sectional study.

Place and duration of study: The study took place over a three year period between January 2006 and January 2009 in the city of Mumbai.

Subjects and Methods: 200 mothers of children with cerebral palsy were compared to normal controls on depression scores using the Beck Depression Inventory (BDI). These scores were compared within the group on the basis of various maternal, child and family factors.

Results: Both groups were well matched in all respects. 71% mothers of children with cerebral palsy reported depression compared to 33% in the control group. The presence of increasing age, poor spousal support, unemployment and low education seemed to aggravate depression in these mothers. Having another child with normal development, good family support and joint families served as protective factors. Presence of epilepsy in the child, low intelligence, severity of paralysis, motor problems, feeding issues and behavioral problems along with poor toilet training worsened BDI scores in these mothers.

Conclusions: Maternal, child and familial factors all affect depression in mothers of children. Further research shall be of help in the management of depression in such subjects.

Key words – Depression, mothers, Cerebral palsy.

INTRODUCTION

The presence of a child with cerebral palsy in a family often evokes complex feelings in both parents. Denial, shock, aggression, anger, depression and anxiety along with lack of acceptance for the child are common at various developmental stages[1]. The same holds true when they realize they have a child suffering from cerebral palsy. The detection of cerebral palsy in the child has been shown to disrupt the family equilibrium and arrests the developmental cycle of a family[2].

Parents of children with cerebral palsy are known to exhibit greater psychopathology than the normal population. Mothers of such children have been shown to have higher levels of stress and depression than mothers of normal children[3]. There is often a denial of symptomatology in this group and depression and anxiety may be hard to detect[4-5]. Various studies have shown that around 30-70% of mothers with children having cerebral palsy suffer from major depression, 20-40% show anxiety disorders while more than 15% have more than one psychiatric disorder[6].

Studies done in the developing world have shown that mothers of children with various developmental disabilities suffer from depression and anxiety which is often influenced by a variety of factors[7-8]. Disturbed family relationships, lack of social support, poor marital adjustment and financial burdens all play a role in aggravating the existing depression[9]. Depressive symptoms in mothers of children with developmental disabilities may often be chronic, untreated, last longer and have a poorer prognosis than depression in the general population[10].

A large number of child variables are also known to influence the depression in mothers of children with cerebral palsy. Depression in these mothers has been linked to poor speech development, degree of paralysis and motor problems, feeding problems, poor toilet training, presence of epilepsy in the child and poor self care skills[11].

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There are many epidemiological studies on cerebral palsy worldwide and in Asia but relatively fewer studies have focused on depression and the variables influencing it in mothers of children with cerebral palsy. Today the role of parental dynamics in child psychiatric disorders is being studied across the world[12]. We aim to throw light on depression of the mother who has to bring up a child with cerebral palsy. The main objectives of this study were to detect the various factors that affect depressive symptoms in mothers of children with cerebral palsy when compared to normal controls and to assess various maternal, family and child variables that may influence depressive symptoms in these mothers.

SUBJECTS AND METHODS

The study subjects were 200 mothers of children between the ages of 6-12 years with cerebral palsy and attending various special schools in Mumbai. A total of 286 subjects were screened and the first 200 that met the inclusion criteria were included in the study. The control subjects were the first 200 mothers of children between the ages of 6-12 years attending various mainstream schools in Mumbai that met inclusion criteria. A total of 303 mothers were screened for the same. The subjects were recruited over a 3 year period from January 2006 to January 2009.

The inclusion criteria were as follows –

The Children – these children were diagnosed at least a year prior to the study with Cerebral Palsy by a neurologist or pediatrician. The intelligence of the children was tested using the Wechsler Intelligence Scale for Children – Revised (WISC-R). The testing and administration was done by a qualified psychologist. None of the children had hearing or visual impairment.

Inclusion criteria for the mothers in the study group –

1. Age group 18-50 years.
2. They never suffered from a psychiatric disorder in the past and never took any psychiatric medication in their lifetime.
3. They had a non-consanguineous marriage.
4. They were residing in the same place of residence since the past 5 years.
5. They had only one child with cerebral palsy.
6. They were all staying with their husband.
7. They did not suffer from any medical illness or physical disability.

The Control Group – the control group were mothers of children between the ages of 6-12 years studying in mainstream schools.

Inclusion criteria for the mothers in the control group –

1. Age group 18-50 years.
2. They never suffered from a psychiatric disorder in the past and never took any psychiatric medication in their lifetime.
3. They were in a non-consanguineous marriage.
4. They were residing in the same place of residence since the past 5 years.
5. They had a maximum of 2 children.
6. They were all staying with their husband.
7. They did not suffer from any medical illness or physical disability.

All mothers were explained the nature and aims of the study. A valid written informed consent was taken from the mothers prior to enrollment for the study. The entire study was performed in a cross sectional manner. A semistructured proforma was designed to collect age, socio-demographic and data related to the variables in the focus of the study. The proforma had questions to be answered as fill in the blanks or on a yes / no basis.

Scales Used –

Beck Depression Inventory (BDI) – This is a scale that evaluates depression in its emotional, cognitive and motivational components with 21 items and a total score of 0-63. Scores in the range of 10-15 reflect mild depression, 16-23 reflect moderate depression and scores above 24 indicate severe depression[13-14].

The statistical analysis was done using computer software with Chi square test and Student t test being used wherever appropriate. A value of $p < 0.05$ was considered to be significant.

RESULTS

As shown in table 1, the study and control groups were well matched in all regards.

When assessing scores on the BDI, greater number of mothers with cerebral palsy children (142 out of 180) (71%) showed scores in the depression range compared to normal controls (66 out of 200) (33%). Similar number of mothers in both groups however did show scores in the mild depression range (25-28%) in each group). On assessing the mean scores on the BDI, mothers of cerebral palsy children (19.8 ± 7.6) had significantly greater scores than normal controls (9.8 ± 4.7) ($p = 0.0001$).

On assessing maternal variables (table 3) and intra-group comparison it was seen that mothers of cerebral palsy children aged above 35 years had higher depressive symptom scores than younger mothers. Mothers with lower education (under graduates) and unem-

Table 1
Sociodemographic Data of both Groups

Data	Study Group (N = 200)	Control Group (N = 200)
Mean Age	34.35 yrs	33.26 years
Age < 35 years	108 (54%)	103 (51.5%)
Age > 36 years	92 (46%)	97 (48.5%)
Education		
Under Graduate	43 (21.5%)	48 (24%)
Graduate & Above	157 (78.5%)	152 (76%)
Occupational Status		
Employed	66 (33%)	82 (41%)
Unemployed	134 (67%)	118 (59%)
Family Status		
Joint	72 (36%)	90 (45%)
Nuclear	128 (64%)	110 (55%)
Mean age of the children	9.39 years	9.66 years

Table 2
Scores & Profiles on the Beck Depression Inventory (BDI)

Data	Study mothers	Control mothers		p Value
BDI Depression Levels	**N = 200 (Each Group)**			
NORMAL	69	143	$X^2 = 72(df = 3)$	0.0001*
MILD	52	46		
MODERATE	41	06		
SEVERE	38	05		
	MEAN ± SD			
BDI SCORES	19.8 ± 7.6	9.8 ± 4.1	t = 15.2668	0.0001*

* $p < 0.001$.
(For Depression levels Chi Square test was used).
(For BDI Scores Student t test was used).

Table 3
Maternal Variables Affecting Depression

Variable (N = 200)			BDI Scores	t Value	p Value
AGE	N = 109	< 35 years	16.5 ± 7.2	5.9603	0.0001*
	N = 91	> 36 years	23.3 ± 8.5		
EDUCN	N = 87	Below Grad	27.2 ± 11.2	5.5743	0.0001*
	N = 113	Graduate & Above	19.4 ± 6.3		
EMPLOYMENT	N = 83	Yes	15.4 ± 9.5	5.7623	0.0001*
	N = 117	No	24.4 ± 10.1		
HUSBAND SUPPORT	N = 145	Yes	16.6 ± 11.1	2.6528	0.008*
	N = 55	No	22.7 ± 14.2		

* $p < 0.05$
All statistical analysis done using the student t test.

Table 4

Family Variables Affecting Depression

Variable (N = 200)			BDI Scores	t Value	p Value
FAMILY TYPE	N = 83	Joint	17.1 ± 8.3	2.8782	0.0045*
	N = 117	Nuclear	21.4 ± 9.8		
NORMAL CHILD	N = 86	Yes	18.5 ± 9.7	5.5689	0.0001*
	N = 114	No	28.7 ± 12.4		
SOCIAL SUPPORT	N = 131	Yes	18.4 ± 9.2	6.3196	0.0001*
	N = 69	No	29.2 ± 12.8		

* $p < 0.05$

All statistical analysis done using the student t test.

Table 5

Child Variables Affecting Depression

Variable (N = 200)			BDI Scores	t Value	p Value
EPILEPSY	N = 66	Yes	18.8 ±11.1	2.1021	0.0369*
	N = 134	No	15.5 ± 8.7		
HYPER ACTIVITY	N = 82	Yes	22.5 ± 10.8	1.5552	0.1217
	N = 118	No	20.1 ± 9.2		
I.Q.	N = 111	< 70	21.3 ± 11.3	1.3145	0.1094
	N = 89	> 70	19.4 ± 10.7		
TOILET TRAINING	N = 141	Yes	15.2 ± 8.3	7.4473	0.0001*
	N = 59	No	28.5 ± 13.3		
MOTOR IMPAIR	N =81	Yes	22.5 ± 13.5	3.8234	0.0003*
	N = 119	No	15.4 ± 10.3		

* $p < 0.001$

All statistical analysis done using the student t test.

ployed mothers had significantly greater scores on BDI than mothers who were educated and employed ($p = 0.0001$ in each case). Mothers who complained of lack of spousal support were depressed to greater extent than mothers with good support ($p = 0.008$).

On assessing certain family variables (table 4) mothers in a nuclear family had significantly greater depressive symptoms than mothers living in a joint family ($p = 0.0045$). Presence of another child who was normal served to reduce depressive symptoms in these mothers when compared to mothers who had a lone child with cerebral palsy. Good family social support led to significantly lower BDI scores than mothers who had poor support ($p = 0.0001$).

On assessing child variables (table 5), depressive symptoms on BDI seemed to be greater in mothers when the child had co-morbid epilepsy ($p = 0.0369$) and when there was lack of toilet training ($p = 0.0001$). Intelligence level of the child and the presence or absence of hyperactivity did not affect BDI scores. Increased severity of paralysis and motor problems also affected BDI scores ($p = 0.0003$). Hyperactivity in the child was assessed through clinical interview of the mother by the authors.

DISCUSSION

With regard to scores on the BDI (table 2), mothers of children with cerebral palsy showed higher scores than mothers of children without CP. This is in keeping with previous studies[15]. A certain percentage of mothers in the control group did show scores in the mild depressive symptom range. These might be cases of sub-threshold depression that do not visit a psychiatrist and often go undetected in the community[16]. Almost equal numbers showed scores of mild, moderate and severe depressive symptom scores on the BDI indicating that depressive features in varying severities may be present in mothers of children with cerebral palsy. Depression in these mothers is known to be progres-

sive and may vary in intensity across the developmental periods of the child and as per his or her developmental changes[17]. To the best of our knowledge, there are no studies so far that document that the intensity of depression in mothers of children with cerebral palsy.

Younger mothers were shown to have lower BDI scores than older mothers (table 3). Educated mothers fared better on the BDI than non-educated mothers. This may be due to the fact that education and knowledge may add insight to a complex problem like cerebral palsy. These mothers may probably learn and know how to handle their children better than non educated mothers. Educated mothers may also choose the right resources for treatment and management of their children yielding better results and may thus have fewer problems in managing their children with cerebral palsy. Mothers with lower education or illiterate mothers may get frustrated easily and have lower tolerance than educated mothers[18]. Employment is known to serve as a buffer against any depression[19]. Mothers who were employed fared better than unemployed mothers. This may be due to the fact that the child with cerebral palsy was not the only focus in their life leading to a closed circle ad emotional burn out. Their job and work served as an outlet for their depression where they always something else to look forward to in their life. Employment also serves as a buffer that makes up for poor financial support and family support[20]. Spousal support is the key factor in bringing up a child with developmental disabilities. In India often the women is blamed for the birth of child with developmental disability and often bears the brunt of the family members and relatives. Divorce is a very common occurrence after the birth of a disabled child. These factors often increase the depression in such mothers. Proper spousal and family support serves as an important factor in alleviating depression[21].

In India, the joint family system provides ample support in caretaking of the child with developmental disabilities. Multiple mothers in the form of female family members provide relief to mothers of such children. In the nuclear family set up though the entire burden of bringing up the child with cerebral palsy falls on the lone mother who often suffers silently with no one share her plight[22]. A nuclear family may also increase the financial burden on the mother in bringing up a child with cerebral palsy. In keeping with the same, mothers from joint families showed lower scores on the BDI than mothers from nuclear families (table 4). Presence of a healthy child boosts the morale of parents when they have a child with developmental disabilities. It also provides them hope for their old age as well as assures them that someone would look after the child with developmental disability after them. Mothers who had just a single child who had cerebral palsy showed much higher levels of depressive symptoms than mothers who had second healthy child[23].

Epilepsy is a disorder that highly prevalent in children with cerebral palsy seen across all types of the disorder and in around 30-40% of cases. Epilepsy, in these cases is often uncontrolled and resistant to drug treatment[24]. Epilepsy in a child with developmental disabilities often affects academic and cognitive abilities and may also lead to behavioral problems and is often a life long disorder. Epilepsy is a dreaded diagnosis for both patients and caregivers[25]. Our study did not take into account uncontrolled versus controlled epilepsy, but the mere presence of epilepsy in their children affected BDI scores to significant extent. The presence of mental retardation in a child with cerebral palsy is known to further impair the capacity of the child. Mental retardation is seen in 40-50% of children with cerebral palsy[26]. Children with this combination often fare poorly in academics, show higher rates of behavioral problems and are difficult to train in activities of daily living or life skills. Mothers of children with cerebral palsy coupled with mental retardation showed higher depression scores than mothers of children who had normal intelligence scores.

Successful and complete toilet training is an integral component of child development in children with cerebral palsy as well as normal children[27]. Lack of toilet training often incapacitates the child in day to day activities and may affect his performance in school and acceptance by peers as well. These children may be a source of embarrassment to parents outside the home or in social functions. This often increases stress and restricts the life style of these parents. Mothers of cerebral palsy children with absence of or incomplete toilet training showed greater BDI scores than mothers who children were toilet trained. The greater the degree of paralysis, there is often a greater responsibility on the caregiver as the child is often not independent[28]. In our study too mothers of children with quadriplegic cerebral palsy had greater BDI scores when compared to mothers of cerebral palsy children who were semi-independent.

CONCLUSIONS AND IMPLICATIONS

Mothers of children with cerebral palsy show depressive symptoms more frequently than the general population. Factors in the family and child along with maternal factors may alleviate or aggravate this depression. In our study the factors that aggravated depressive symptoms in this subset of mothers was increasing age, being unemployed, lack of formal education and poor support from the husband. Being in a nuclear family, having the child with cerebral palsy as the only child and poor family and social support also aggravated the depressive features. Among the factors in the child, presence of epilepsy, low intelligence, lack of toilet training and presence of severe paralysis increased the severity of their depressive symptoms.

Our study has its limitations as well. It is a circumscribed study related to just 200 mothers from a small circumscribed location in Mumbai and these findings thus cannot be generalized to all populations and cul-

tures. A number of factors like financial status, age of the child, speech development, presence or absence of medical illnesses in the parents and parental psychopathology that may affect depression were not studied.

Mothers of children with cerebral palsy need support and care at each stage in bringing up such a child. The mental health of a mother when positive will no doubt transmit positive mental health in the child and enhance his further growth and development.

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