

“Prevalence of Depression in Mothers of 3-10 Years Old Children Diagnosed With Autism Spectrum Disorder in India- Cross Sectional Study”

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Abstract:

Background: ASDs is a neurodevelopmental disorder in which persons present with a range of impairments in social interaction, verbal and nonverbal communication, as well as restrictions in behaviours and interests.

Aim of the study: The main objective of our study is to investigate the Prevalence of Depression in mothers of 3-10 years old children with ASD.

Materials and method: A cross sectional study design was chosen for this study. A total 163 (F=57, M=106) subjects were selected from different area of Surat, India. Two tools were used i.e. Indian scale for assessment of autism (ISAA) to diagnose and to rate the severity of autism in children and Beck Depression Inventory (BDI) self-reporting questionnaire to assess the depression in mothers with Autism spectrum disorder.

Result: A large number of participants (95%) show different level of symptoms of depression. More than a fifth (23.9%) of population is having borderline depression, two-fifth (43.6%) of participants had moderate depression, (17.2%) of mothers were found with severe level of depression and a minority (10.4%) of participants was suffering from mild depression and also a negligible number (4.9%) of mothers reported having no symptoms of depression.

Conclusion: Mothers of children with autism spectrum disorder needs to be screened for the presence of depressive symptoms and referred for appropriate psychological counselling so that appropriate treatment can be started and mother can manage better way of social impairments and behavioural problems of the child.

Key words: Autism spectrum disorder, Children, Depression, Mothers.

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I. Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder in which persons present with a range of impairments in social interaction, verbal and nonverbal communication, as well as restrictions in behaviours and interests.¹ While the most prominent features of ASD relate to impairments in social communication and interaction, evidence suggests that children with ASD also have a motor impairment that cannot be explained by neurocognitive deficits alone.^{2,3}

Motor skill deficits commonly observed in children with ASD include, fine and gross motor delays; ^{3,4} gait abnormalities such as differences in joint angles and ground reaction forces; postural instability due to possible difficulties using sensory information⁵ and coordination difficulties with motor planning and execution^{2,6}

Several factors have been shown to work in concert to increase stress in parents of children with ASD. Aspects of the child's behaviour, specifically socially inappropriate and aggressive behaviours typically associated with ASD, have been found to be associated with increases in parenting stress^{7,8,9} as well as being confronted by antipathy for their child's behaviour^{7,10} due to a lack of understanding of ASD^{7,11} additionally, raising a child with ASD typically involves allocating extra time to meet the needs of the child.^{7,12}

Specifically, children of depressed mothers are at increased risk for a variety of psychiatric problems, including depression and behavioural disturbances, and they also have social and achievement deficits.^{13,14}

ASD is a prevalent disorder with tremendous impact on individuals, families and society. It occurs ubiquitously, regardless of races, nationalities, cultures and social classes.¹⁵ Recent figures released by the CDC show that autism spectrum disorders now affect 1 in 88 children.¹⁵ Males have shown higher rate of affected compared to females around 4.3 males are affected to 1 female.^{16,17} A theory has proposed that a biological factor in female protective them against autism.^{16,18}

II. Material and Method

Study Design: Cross sectional study

Sample size: 163 subjects

Sample size calculation: Following parameters were considered for sample size calculation:

Confidence level was kept: 95%, Precision was kept: 0.05. The calculated sample size was 158. There were no chances of withdrawal but to enhance the precision total 163 subjects have been included in the present study.

Sampling method: simple random sampling method

Inclusion Criteria:

1. Age: Mothers of 3 – 10 years old children diagnosed as having autistic spectrum disorder.
2. Both boys and girls mothers

Exclusion Criteria:

1. Children with any other neurological problem except ASD
2. Mother's with any physical health problem
3. Mother's with any previous history of psychological problem
4. Mother's taking any medication for psychological problem

Tools and Materials used:

1. ISAA (Indian scale for assessment of autism)¹⁹ Tool was used to diagnosed autism and to rate the severity of autism spectrum disorder.
2. Different types of toys were used to assess the children.
3. Beck depression inventory (BDI)²⁰ self-reporting questionnaire was used to evaluate the severity of the depression in mothers with autism spectrum disorder.

Procedure:

A Cross sectional study design was chosen for the study. Approval to conduct the study was obtained from the ethics committee, Nirmal hospital, Surat, India prior to commence of the study, after which subjects were randomly selected and screened following the criteria's mentioned under the heading of inclusion and exclusion criteria. Once the screening process was completed and the subjects, who were found to be eligible for the present study, and willing to be the part of the study, had explained the purpose of the study and written consent form was signed by the subjects.

A total 163 mothers were enrolled in the study. Subjects were selected from paediatric physiotherapy clinics, occupational clinics and special schools from the different areas of the Surat. Two tools were used for the data collection: Indian scale for assessment of autism (ISAA) tool was used to diagnosed autism and to rate the severity of autism spectrum disorder and Beck Depression Inventory (BDI) self-reporting questionnaire was used to assess the depressive symptoms and their severity in mothers with autistic children.

Indian scale for Assessment of Autism (ISAA)¹⁹ was developed by National Institute for Mentally Handicapped (NIMH) for diagnosing and measuring the severity of autism in 2009.¹⁹ it is a reliable and valid tool for making diagnosis of person with autism. This scale has 40 items divided under six domains – social relationship and reciprocity; emotional, Responsiveness; speech, language and communication; behavior patterns; sensory aspects and cognitive component. The items are rated from 1 to 5, increasing score indicating increasing severity of the problem. A score of <70 indicates (no autism), 70-106 (mild autism), 107-153 (moderate autism), and >153 (severe autism). It takes about 15 to 20 minutes for administration of ISAA.

Beck Depression Inventory (BDI)²⁰ is self-reporting questionnaire. It is one of the most widely used psychometric tests for measuring the severity of depression. It consists of 21 questions about how the subject has been feeling in the last week. It took approximately 10–15 min to complete. The lowest possible score for each question is zero and the highest possible total for the whole test would be 63. Higher total scores indicate more severe depressive symptoms.

Based on Beck Depression Inventory (BDI) score the severity of depression was measured as: 01-10: No depression, 11 – 16: Mild mood disturbance, 17 – 20: Borderline clinical depression, 21 – 30: Moderate depression, 31 – 40: Severe depression, over 40: Extreme depression.

All the children were screened using this ISAA diagnostic tool for the assessment of Autism Spectrum Disorder. After assessing the children with ASD, then Beck Depression Inventory self-reporting questionnaire was administered to the mothers. The results from the mother's responses were reported qualitatively and quantitatively.

Data analysis:

Data analyses was done by using SPSS version 20.0.Descriptive statistics i.e. mean, percentage, frequency, standard deviation were analyzed.

III. Result:

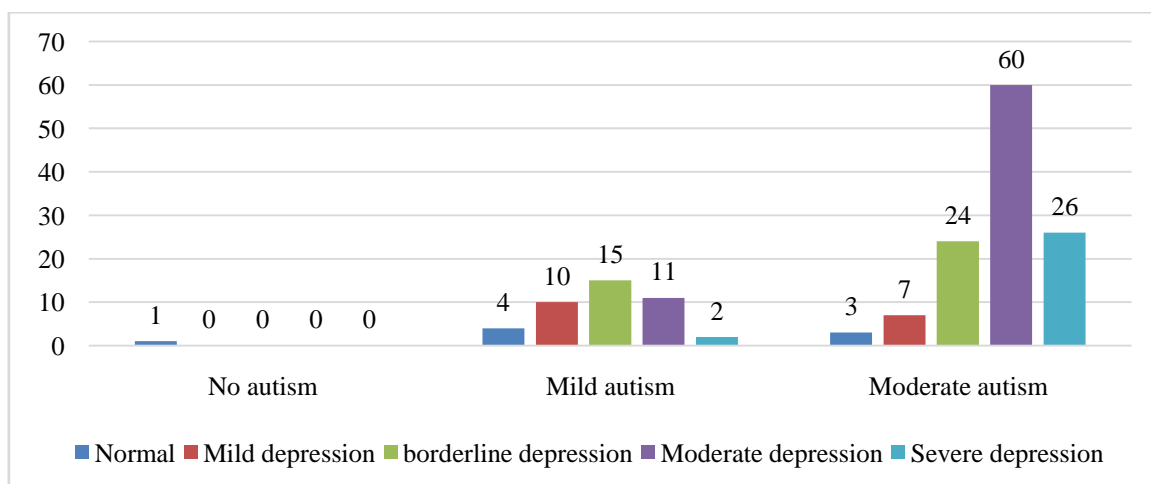
The mean age of the children was 6.10 (SD ±2.54).Most of the children were school going. Most (65%) children were male. The mean age of the mothers was 30.4 (SD ± 3.80).

Table 1: Represents the Descriptive Analysis

	Mean (SD)
N=163	
Child Age	6.10 ± 2.54
ISAA	117.2 ±16.7
Beck Depression Inventory	23.3 ±7.29
Mother’s Age	30.4 ±3.80

Table 2:Represents frequency distribution of theseverity of the depression in mothers of children in relation to the severity of autism in children. (n=163)

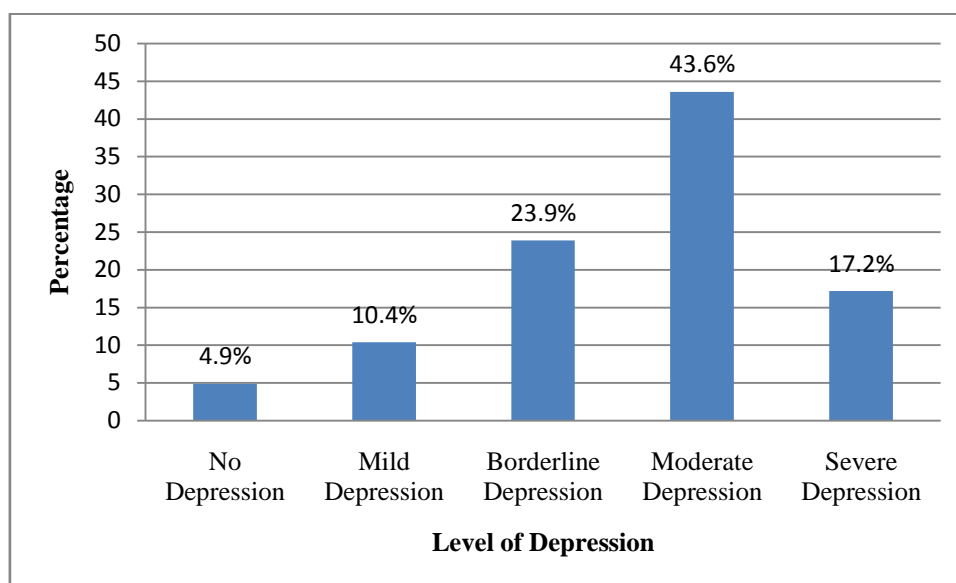
ISAA	BDI	Frequency (%)
No autism	Normal	1(100.0)
Mild autism	Normal	4(9.5)
	Mild depression	10(23.8)
	Borderline depression	15(35.7)
	Moderate depression	11(26.2)
Moderate autism	Normal	3(2.5)
	Mild depression	7(5.8)
	Borderline depression	24(20.0)
	Moderate depression	60(50.0)
	Severe depression	26(21.7)
	Total	163



Graph 1:Above graphical representation shows numbers of the subjects have the severity of the depression in mothers of children in relation to the severity of autism in children. (n=163)

Table 3: Represent the frequency distribution of depression in mothers of Autism spectrum disorder children (n=163)

Beck Depression Inventory (BDI)	Frequency (%)
No Depression	8(4.9)
Mild Depression	17(10.4)
Borderline Depression	39(23.9)
Moderate Depression	71(43.6)
Severe Depression	28(17.2)



Graph 2: Above graphical representation shows the percentage distribution of level of depression in mother of autism spectrum disorder children (n=163).

IV. Discussion:

A cross sectional study was design to investigate the prevalence of Depression in mothers of 3-10 years old children with autism spectrum disorder.

The Result of this study found that (95%) mothers reported depression. Most of the(10.4%) mothershad mild depression, (23.9%) mothers had Borderline depression, and (43.6%) mothers had moderate depression whereas(17.2%) mothers had severe depression.

Most of the autistic patients, whose mothers participated in this study, were male (65% vs. 35%female), similarly to the autism morbidity being higher in male than in female at an approximate ratio of 4-5:1 which supports the present study.²¹

One of the findings in the present studyfor the higher level of depression in themothers of Autism spectrum disorder (ASD)could be the symptoms of the child. Most of the autistic patients had problem of social relationship and reciprocity, language and communication problem and behaviour issues so that the mothers needs to focus on more additional attention.^{21, 22}

There was no significant association found between severity of depression in the mothers and their age. This finding is consistent with the previous study.¹⁵Severity of depression in the mothers was significantly associated with the child’s autism severity, which supports the present study. Similar result is found in previous studies which found that child’s symptom severity mediated the maternal depression¹⁵

The results of the present study is higher than the other studies,^{13, 15, 21, 23}the possible explanation could be many of the studies have included parents or caregivers, small sample size,cultural differences, different tool used to assess the depression and others components, where as in the present study we have included only mothers of autism spectrum disorder (ASD) because mothers spends the maximum time with the child for the special needs and care. The impairment of physical and psychological well-being was more in mothers when compared to the fathers in the ASD.²⁴

A study on parenting stress in mothers of children with ASD reported behavioral symptoms as the primary source of parenting stress for mothers. Mothers reporting more parenting stress had more depressive symptoms and lower levels of well-being.²⁴

The mother is the primary caregiver, and this role is more common when there is a child with ASD in the home. This may lead the mother with ASD to feel more worried than typical about their parenting skills, and increase feelings of guilt and stress.²⁵

V. Conclusion:

This study provides there is a significant relationship between the level of depression among mothers and the severity of autism in children. Most of the mothers had moderate depression. Levels of depression in mothers were associated with child's symptom severity and the physical health of the mother. Mothers of children with autism spectrum disorder needs to be screened for the presence of depressive symptoms and referred for appropriate psychological counselling so that appropriate treatment can be started and mother can manage better way of social impairments and behavioural problems of the child.

Limitation of the study:

1. The study was restricted to one city of India.
2. First, time elapsed since autism diagnosis was not quantified.
3. Social support, socio-economic history of parents, qualification of mothers like variable was not considered in the present study

Future recommendations:

1. Future studies should therefore address the time of interplay between time since diagnosis and the onset of psychological distress
2. Different geographical area with larger sample size
3. Intervention studies can be done to study the effectiveness of psychological counselling and reduce the stress and depression level in mothers.

Competing of interest:

The authors declare that they have no competing interests

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