

Risk Factors for Autism Spectrum Disorder – A Study in Selected Areas of Bangladesh

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Abstract:

As a neuro-developmental disorder autism is now burning issue not only for Bangladesh but also for whole world. However, very few researches had been completed about Autism spectrum disorder (ASD) in Bangladesh till now. In this study researcher tried to find out some risk factors which might increase the level of autism spectrum disorder. The study area was the selected areas of Sirajganj district in Bangladesh. In Sirajganj district Autism spectrum disorder is more than other district as it is disaster prone area and people are unconscious about health problem. Cross sectional analytical study was followed for this study. In this study total 124 respondents selected through random sampling technique. Data collection was done by face to face interview to the parents of autistic child with semi-structured questionnaire. According to this study most of the autistic child age was below 10 years and mean age was 8.8 years. Among the entire autistic child 62% were male and 38% were female. Most of the autistic child family type was nuclear (90%). In this study, Most of the autistic child parents had 2 or less children. Number of children had negative association with level of autism. If, number of children increased level of autism decreased and number of children decreased then level of autism increased. Birth order also was significant factor for increased level of autism. It also had negative association with level of autism. That means level of autism increased for lower birth order or 1st and 2nd baby. Therefore, it is important to know about other risk factors for

autism spectrum disorder by more research which may helpful for minimizing level of autism.

Key words: Risk Factors; Autism Spectrum Disorder; Bangladesh

INTRODUCTION:

Autism spectrum disorder is a complex neuro-developmental disability that typically appears during the first three years of life ^[1]. It is the result of a neurological disorder that affects the functioning of the brain ^[1, 2]. In 1943 Dr. Leo Kanner of the Johns Hopkins Hospital studied a group of 11 children and introduced the label early infantile autism into the English language. At the same time a German scientist, Dr. Hans Asperger, described a milder form of the disorder that became known as Asperger syndrome. Thus these two disorders were described and are today listed in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) as two of the five pervasive developmental disorders (PDD), more often referred to today as autism spectrum disorders (ASD) ^[3]. All these disorders are characterized by varying degrees of impairment in communication skills, social interactions, and restricted, repetitive and stereotyped patterns of behavior. The pervasive developmental disorders, or autism spectrum disorders, range from a severe form, called autistic disorder, to a milder form, Asperger syndrome ^[3, 4]. Autism and its associated behaviors have been estimated to occur in as many as 2 to 6 in 1000 individuals ^[5]. Autism is more prevalent in boys than girls and knows no racial, ethnic, or social boundaries ^[6]. Family income, lifestyle, and educational levels do not affect the chance of autism's occurrence. In Bangladesh context, it is not possible to find out the genetic predisposition or environmental factors, rather researcher interest to explain the present socio-demographic condition of autistic children in Bangladesh. It is established that autism spectrum disorder has a

neurobiological basis, which manifests itself through behavioral abnormalities.

METHODOLOGY:

In this study cross sectional analytical study was followed. Study was carried out at the selected areas of Sirajganj district of Bangladesh. This study was conducted among 124 pre-identified autistic children lived in Sirajganj district. Sample size was selected by simple random sampling technique. The entire 124 autistic children were selected by lottery method and they were below 18 years old. Data collection was conducted through face to face interview to the autistic child parents with semi-structured questionnaire. Autistic child parents willingly answered the entire question which was clearly defined by researcher. Then entire data properly processed for analysis in SPSS (Version 17.0). Frequency analysis was done almost all the relevant variable. Chi-square analysis had done with cross-tabulation for socio-demographic factors and level of autism. Regression analysis had done for quantitative variables and level of autism. Level of autism was determined by following guidelines:

Autism Related Observation to determine level of Autism (01-25)

01.	Eye contact	<input type="checkbox"/> 0	Frequently	<input type="checkbox"/> 1	Occasionally	
		<input type="checkbox"/> 2	Rarely	<input type="checkbox"/> 3	Never	
02.	Able to communicate verbally	<input type="checkbox"/> 0	Frequently	<input type="checkbox"/> 1	Occasionally	
		<input type="checkbox"/> 2	Rarely	<input type="checkbox"/> 3	Never	
03.	Responds when name is called	<input type="checkbox"/> 0	Frequently	<input type="checkbox"/> 1	Occasionally	
		<input type="checkbox"/> 2	Rarely	<input type="checkbox"/> 3	Never	
04.	Asks question	<input type="checkbox"/> 0	Frequently	<input type="checkbox"/> 1	Occasionally	
		<input type="checkbox"/> 2	Rarely	<input type="checkbox"/> 3	Never	

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05.	Answers questions	<input type="checkbox"/> 0	Frequently	<input type="checkbox"/> 1	Occasionally	
		<input type="checkbox"/> 2	Rarely	<input type="checkbox"/> 3	Never	
06.	Repeats words or phrases	<input type="checkbox"/> 0	Never	<input type="checkbox"/> 1	Rarely	
		<input type="checkbox"/> 2	Occasionally	<input type="checkbox"/> 3	Always	
07.	Unable to understand simple directions	<input type="checkbox"/> 0	Never	<input type="checkbox"/> 1	Rarely	
		<input type="checkbox"/> 2	Occasionally	<input type="checkbox"/> 3	Always	
08.	Unusually fearful of people other than family members	<input type="checkbox"/> 0	Never	<input type="checkbox"/> 1	Rarely	
		<input type="checkbox"/> 2	Occasionally	<input type="checkbox"/> 3	Always	
09.	Self smiling	<input type="checkbox"/> 0	Never	<input type="checkbox"/> 1	Rarely	
		<input type="checkbox"/> 2	Occasionally	<input type="checkbox"/> 3	Always	
10.	Interacts with other children	<input type="checkbox"/> 0	Frequently	<input type="checkbox"/> 1	Occasionally	
		<input type="checkbox"/> 2	Rarely	<input type="checkbox"/> 3	Never	
11.	Affectionate and loving toward parents	<input type="checkbox"/> 0	Frequently	<input type="checkbox"/> 1	Occasionally	
		<input type="checkbox"/> 2	Rarely	<input type="checkbox"/> 3	Never	
12.	Flaps arms or hands	<input type="checkbox"/> 0	Frequently	<input type="checkbox"/> 1	Occasionally	
		<input type="checkbox"/> 2	Rarely	<input type="checkbox"/> 3	Never	
13.	Adapts to new situations	<input type="checkbox"/> 0	Always	<input type="checkbox"/> 1	Occasionally	
		<input type="checkbox"/> 2	Rarely	<input type="checkbox"/> 3	Never	
14.	Destructive & aggressive	<input type="checkbox"/> 0	Never	<input type="checkbox"/> 1	Rarely	
		<input type="checkbox"/> 2	Occasionally	<input type="checkbox"/> 3	Always	
15.	Bites own self (hand, wrist or arm)	<input type="checkbox"/> 0	Never	<input type="checkbox"/> 1	Rarely	
		<input type="checkbox"/> 2	Occasionally	<input type="checkbox"/> 3	Always	
16.	Examines objects closely in front of eyes	<input type="checkbox"/> 0	Always	<input type="checkbox"/> 1	Occasionally	
		<input type="checkbox"/> 2	Rarely	<input type="checkbox"/> 3	Never	
17.	Difficulty with resists wearing clothing	<input type="checkbox"/> 0	Never	<input type="checkbox"/> 1	Rarely	
		<input type="checkbox"/> 2	Occasionally	<input type="checkbox"/> 3	Always	
18.	Becomes anxious or distressed without obvious reason	<input type="checkbox"/> 0	Never	<input type="checkbox"/> 1	Rarely	
		<input type="checkbox"/> 2	Occasionally	<input type="checkbox"/> 3	Always	
19.	Laughs or giggles without obvious reason	<input type="checkbox"/> 0	Never	<input type="checkbox"/> 1	Rarely	
		<input type="checkbox"/> 2	Occasionally	<input type="checkbox"/> 3	Always	

20.	Appears apathetic in most situation	<input type="checkbox"/> 0	Never	<input type="checkbox"/> 1	Rarely	
		<input type="checkbox"/> 2	Occasionally	<input type="checkbox"/> 3	Always	
21.	Cautious of appropriate danger	<input type="checkbox"/> 0	Always	<input type="checkbox"/> 1	Occasionally	
		<input type="checkbox"/> 2	Rarely	<input type="checkbox"/> 3	Never	
22.	Needs help washing hands, brushing teeth, toileting	<input type="checkbox"/> 0	Never	<input type="checkbox"/> 1	Rarely	
		<input type="checkbox"/> 2	Occasionally	<input type="checkbox"/> 3	Always	
23.	Jumps over small objects without falling	<input type="checkbox"/> 0	Frequently	<input type="checkbox"/> 1	Occasionally	
		<input type="checkbox"/> 2	Rarely	<input type="checkbox"/> 3	Never	
24.	Eats inedible objects	<input type="checkbox"/> 0	Never	<input type="checkbox"/> 1	Rarely	
		<input type="checkbox"/> 2	Occasionally	<input type="checkbox"/> 3	Always	
25.	Has difficulty falling asleep	<input type="checkbox"/> 0	Never	<input type="checkbox"/> 1	Rarely	
		<input type="checkbox"/> 2	Occasionally	<input type="checkbox"/> 3	Always	

To determine the level of autism 25 observations were made with diagnostic and prognostic criteria. Level of Autism determined with average number of level of 25 criteria.

Therefore,

$$\text{Level of Autism} = \text{Total level of 25 criteria}/25.$$

There are three level of Autism. Level 01 indicates as mild, Level 02 indicates as moderate, Level 03 indicates as severe.

(Source: Disability detecting service through Department of Social Service, Bangladesh, 2013-14)

RESULTS:

Education of Parents:

Education plays an important role regarding autism. Therefore, education one of the key factors that attributes in the decision regarding autism related various problems. Mother education is a great factor which helps her to take decision for her child. In this study Fathers of autistic children were more likely to have higher secondary education. The modal category was 0-5 (16.7%). 6-10, 11-16, >16 completer fathers consisted

respectively 22.2%, 44.4% and 16.7%. It seems the father admitted their children to centre are not cautious but want their child to be adaptive with the society. Mothers of autistic children were more likely to have secondary education. The modal category was 0-5 (22.2%). 6-10, 11-16, >16 completer mothers consisted respectively 44.4%, 27.8%, 5.6%. It seems the mother admitted their children to centre are also not cautious.

Schooling Years of Father	Percentage	Schooling Years of mother	Percentage
0-5	16.7	0-5	22.2
6-10	22.2	6-10	44.4
11-16	44.4	11-16	27.8
>16	16.7	>16	5.6
Total	100.0	Total	100.0

Table 1: Education of parents (n=124)

Occupation of parents:

Fathers were more likely to be private job & business than others. The modal category consisted with private job & business respectively 27.8% each. Among others the percentage of day labor & retired consisted of respectively 11.1% each. However, almost all mothers of autistic child (88.9%) were house wife.

Fathers Occupation	Percentage	Mothers Occupation	Percentage
Govt. Job	16.8	Govt. Job	5.6
Private job	27.8	Day Labor	5.6
Business	27.8	House wife	88.8
Retired	11.1		
Day Labor	11.1		
Others	5.6		
Total	100	Total	100

Table 2: Occupation of parents (n=124)

Monthly Income:

38.9% autistic child families' monthly family income was 3000-10000Tk. Among others 33.3% & 27.8% families monthly income was 10000-20000Tk & >20000Tk respectively.

Income Range	Percentage
3000-10000	38.9
10000-20000	33.3
>20000	27.8
Total	100.0

Table 3: Monthly family income (n=124)

Gender of the autistic child:

Male child was more autistic than female. The ratio was 11:7.

Gender	Percentage
Male	62
Female	38
Total	100

Table 4: Gender of the autistic child (n=124)

Total number of children of the autistic child parents:

Most of the autistic child parents has two children (39%), 29% parents has only one child and the rest has 3 or 4 children.

Number of children	Percentage
1	29
2	39
3	16
4	16
Total	100

Table 5: Number of the children of the autistic family (n=124)

Number of Children of the autistic family has negative association with level of autism that means if number of children increased then level of autism decreased. On the other hand birth order also has negative association with level of autism.

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Number of children	Level of Autism			Chi-square value	P value
	Mild	Moderate	Severe		
1	7	21	7	5.955	0.015
2	14	27	7		
3	21	0	0		
4	20	0	0		
Total	62	48	14		
Birth order of the autistic children					
1 st	7	41	7	5.918	0.015
2 nd	20	7	7		
3 rd	21	0	0		
4 th	14	0	0		
Total	62	48	14		

Table 6: Association between socio-demographic factor and level of autism (n=124)

Most of the autistic children were mild level of autism. It is about 50%. 39% children were moderate level and only 11% were severe level.

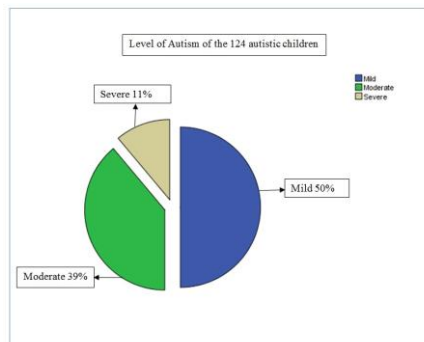


Figure 1: Distribution of the autistic child according to level of autism

DISCUSSION:

This study has attempted to discover some socioeconomic & demographic variables for which autism might occur in children and also increase the level of autism. According to this study almost 62% autistic children were Male and 38% autistic children were female and the ratio between male and female were 11: 7. From other study it is proved that male are more suffering from autism spectrum disorder than female [6, 7]. Male

children are predominantly risky for autism spectrum disorder. Education, Occupation and family income has no effect on autism spectrum disorder. From other study it is evidence based that above factors has no or less effect on autism spectrum disorder. However, number of children of parents is very important factor for increased level of autism spectrum disorder. In this study most of the parents has two children (39%), 29% parents has only one child and the rest has 3 or more children. Moreover, those parents have more children their autistic child was less severity than other parents who have 1 or 2 children [8]. According to this study number of children has negative association with the level or severity of autism spectrum disorder. It is evidence based that if, autistic child played or gathered with more same aged children their level of autism reduced than other autistic children. In this study; it is observed that most of the autistic children have got poor or low breast feeding. Therefore, Breast feeding is closely related with the level and occurrence of autism. Completely no or low breast feeding may lead to autism and also increase the level of Autism. Breast feeding plays an important role to build mental and physical health of children. First six months every child needs exclusive breast feeding. Only one child has got exclusive breast feeding. Therefore, Exclusive breast feeding might reduces autism in children. That is why no or low breast feeding might increase the level of autism spectrum disorder. Birth order is also important for level of autism spectrum disorder. First and second baby has higher level of autism than third or fourth baby. It is also clearly evidence based that first baby has higher level of autism than second, third or next order baby. As first baby got no near aged company by family their level of autism increased. According to this study birth order of the autistic children has negative association with the level of autism spectrum disorder. In this study most of the autistic children has mild level of autism (50%), 39% has moderate level

and only 11% has severe level of autism. Autism spectrum disorder is not curable but manageable [9].

CONCLUSION:

Male children are more suffering from autism spectrum disorder (ASD) than female. More children of parents also reduce the level of autism in case of autistic child. In case of first baby the level of autism may higher than other order autistic child. Proper breast feeding is also important for reducing level of autism. As autism spectrum disorder is a manageable disorder we should manage autism spectrum disorder by proper management of autism.

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