

Original Article

Socio-demographic profile of Autism Spectrum Disorder: A Study in an Urban Area of Bangladesh

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Abstract

This descriptive cross-sectional study was conducted to explore the socio-demographic profile of Autism Spectrum Disorder (ASD). The study was conducted for a period of six months from January to June 2015 and 'Institute for Paediatric Neuro-disorder and Autism' under BSMMU was considered as a place of study. Sample size was 111 ASD children and their parents were considered as respondent for interview. Frequency distributions of the selected socio-demographic factors were undertaken. Association of Socio-demographic profile with the different levels of disability (cognitive type) was tested by Bailey Scale of Infant Development. The mean age of the autistic child was 30.6 months ($SD \pm 6.855$). 72.1% of them were male and 27.9% were female. More than seventy percent of them were first born child and all of them lived with their parents. About 70% mothers were educated. Educational status of the fathers were graduate and above 79 (71.2%) and 18 (16.2%) were limited within primary level. More than half of mothers (60.4%) of the child were housewives. Majority of fathers (86.5%) of autistic child were service holders. Most of the respondents had more than 4 family members. The mean monthly family income of the respondents was BDT 50,162.16 \pm 37,747.857. 96 (86.5%) of the mothers delivered their first child at 25 years of age and below. In the present study more than seventy percent (70.7%) parents faced social problems and 29.3% parents suffered financial problems. In regard to intellectual disability, 85 (76.57%) children had significantly delayed performance level and 26 (23.42%) had mildly delayed performance level. There was no delayed performance in any children of this study group. The findings did not show any association of socio-demographic profile with the levels of intellectual disability. The result of this study gives emphasis for the need of further study in a larger scale with controls and larger sample size to obtain more information for planning and implementation.

Key Words: Socio-demographic profile, Autism Spectrum Disorder, Urban area.

Introduction

Autism Spectrum Disorder (ASD) refers to the syndrome of childhood onset neuro-developmental disorders characterized by impairments in social interaction and communication, and the presence of repetitive and stereotyped behaviors¹. In the 1970s, ASD were considered rare, with prevalence estimate of autism around 2 per 10,000.^{2,3} However, the number of children reported as meeting modern ASD criteria has risen dramatically during the last decade.³ In a UK study, the prevalence of ASD was estimated to be 157 per 10,000.⁵ The most recent Centre of Disease Control (CDC) reported the prevalence of ASD in the US was 1 in 68. There are several factors of potential importance which may underlie this increase: (1) changes in diagnostic criteria and screening instruments. (2) changes in study

design. (3) more advanced and accessible knowledge about ASD. (4) improvements in public and professional awareness. (5) improved health services and (6) better acceptance of ASD by parents.

In the case of autism and Autism Spectrum Disorder (ASD), evidence for an association with socio-economic status (SES) has been mixed and more often in the opposite direction of that for other childhood disorders. In the earliest clinical descriptions of children with autism, it was noted that a preponderance of "highly intelligent parents. A number of clinical^{7,14} and population-based^{14,15} studies subsequently have reported positive associations between autism or ASD and SES indicators such as parental education, occupation, or income. In addition, ecological analyses of school enrolment data have found significant inverse associations between school district level proportions of

disability category and SES indicators such as the proportion of students reported to be economically disadvantaged due to lower household income.

In Bangladesh, some hospital based studies showed that the autism related reported cases are increasing which may be due to increased rate of incidence, lack of awareness or both. Socio-economic factors have a major epidemiological value which may be considered as an effective factor in developing, aggravating or preventing a diseased or unusual condition upon the human body. As the reported cases are increasing that is why the effect of socio-economic factors should be evaluated³². To date, no preventive strategies have demonstrated consistent benefits and no treatments have proven widely efficacious in treating the core symptoms of ASD. Consequently, ASD causes lifelong disabilities for affected individuals and significant burdens on their families, schools, and society. Present government of Bangladesh attaches top most priorities to include autistic population in the main stream of development.

The study aimed to provide information in regard to relationship of socioeconomic status with Autism Spectrum Disorder (ASD) to professionals such as social workers, psychologists, child therapists and teachers, as well as to other parents of children with autism. This information would enable these professionals to enhance partnership with the parents to improve quality of care for Autism Spectrum Disorder.

Methodology

This descriptive cross-sectional study was conducted to find out the socio-demographic profile of ASD and to correlate the ASD with socio-demographic profile in selected autism institution of Dhaka city. The study was conducted for a period of 6 months starting from 1st January to 30th June 2015. Within this period data were collected for 5 months. The parents/care givers of autistic children and autistic children themselves were study population. The area of the study was Institute for Paediatric Neurological Disorder and Autism in BSMMU which was considered for data collection because the parents were easily accessible there. All the parents having autistic children in upper and middle class in Dhaka city was considered as the unit of the study as their attendance to BSMMU was high. Sample size was 111. Convenient type of non probability sampling was done. Face to face interview was conducted with the parents through a pre-tested

semi-structured questionnaire and checklist. Informed consent was taken by explaining the purpose of the study. Assurance had been given that the confidentiality concerning their information would be maintained strictly. All the data were checked, verified and then entered into the computer. The analysis was carried out with the help of SPSS. All analyzed data were presented in the form of percentages. Chi-square tests were applied where applicable.

Results

In the study, we collected data from the parents of autistic children. In the study samples, the age range (in months) of these children was from 19 months to 42 months. Majority 55(49.5%) of the autistic child were within 25-36 months of age. The mean age of the autistic child was 30.6 months ($SD \pm 6.855$). Out of 111 autistic children, most of them 80 (72.1%) were male and only 31(27.9%) respondents were female. More than seventy percent of the respondents were first born child. All 111(100%) of the autistic children are living with their parents. Majority 82 (73.8%) of the autism spectrum disorder were diagnosed at 0-12 months of age, 12 (10.8%) diagnosed at 12-24 months of age, 11 (10.0%) at 25-36 months of age and only 6 (5.45%) at >36 months of age (Table: 01). In case of parents, majority 61(55%) was within 21-30 years of age. The mean age of the parents was 27.8 years ($SD \pm 5.25$).

Most 75 (67.6%) of the parents faced different kinds of problem. Only 36(32.4%) parents of autistic children did not face any problem at the time of data collection.

Out of 75(67.6%) parents, 53(70.7%) parents of autistic children faced social problem, 22(29.3%) parents suffered financial problem. (Figure: 4)

According to level of intellectual disability, out of 111 autistic children, 85(76.57%) ASD had significantly delayed performance level and 26 (23.42%) autistic child had mildly delayed performance level. There was no normal and accelerated performance level found in this study.

A significant relationship was present between the levels of intellectual disability with age at first diagnosis of ASD children (Table: 4). There is no association found between socio-demographic factors (monthly family income, education of father and mother, occupation of father and mother) with level of intellectual disability of ASD children.

Results

Table-1: Distribution of characteristics of autistic children (n=111).

Characteristics of autistic child	Frequency	Percent	Mean \pm SD
1. Age in months			Mean=30.6306, SD = \pm 6.85556
12-24 months	28	25.2	
25-36 months	55	49.5	
>36 months	28	25.2	
2. Sex			
Male	80	72.1	
Female	31	27.9	
3. Birth position			
first born	81	73.0	
subsequent born	30	27.0	
4. Age at first diagnosis			
0-12 months	82	73.87	
12-24 months	12	10.81	
25-36 months	11	10.00	
>36 months	6	5.45	

Table: 2 Distribution of demographic characteristic of parents/care giver of autistic children (n=111)

Characteristic of the parents or care giver of autistic child	Frequency		Percent Mean
1. Age of parents/care giver			± SD
<20 yrs	9	8.1	Mean=27.8468, SD = ±5.25218
21-30 yrs	61	55.0	
>31 yrs	41	36.9	
2. Religion			
Hindu	23	20.7	
Relation with autistic child			
Mother	83	74.8	

Characteristic of the parents or care giver of autistic child	Frequency		Percent Mean \pm SD
Father	28	25.2	Mean=27.8468, SD = \pm 5.25218
3. Education of mother			
Primary	18	16.2	
Secondary	3	2.7	
Higher secondary	13	11.7	
Graduate and above	77	69.4	
4. Education of father			
Primary	18	16.2	
Secondary	11	9.9	
Higher secondary	3	2.7	
Graduate and above	79	71.2	
5. Occupation of mother			
House wife	67	60.4	
Service holder	44	39.6	
6. Occupation of father			
Service holder	96	86.5	
Others(Businessman, brokers, school teacher, poultry farm owner)	15	13.5	

In this study there was no caregiver of the ASD except parents. In case of parents, majority 61(55%) was within 21-30 years of age. Among rest, 41(36.9%), 9(8.1%) respondents were >31 years and <20 years of age. The mean age of the respondents was 27.8 years (SD \pm 5.25). Regarding Educational level of mother, majority 77(69.4%) of the respondents were graduate or more and 18 (16.2%) were primary level educated and 16(14.4%) respondents were educated up-to secondary and higher secondary level together. On the other hand, according to the educational status of the respondent's father, 79(71.2%) were educated up to graduate or more, 18(16.2%) were educated up to primary level, 11(9.9%) were educated up-to secondary level and only 3(2.7%) were educated up to higher secondary level. In regard to occupation, majority 67(60.4%) mothers of autistic child were housewives and 44(39.6%) were service holders, while 96(86.5%) father were service holders and rest 15(13.5%) were engaged in other occupation like businessman, brokers, school teacher, poultry farm owner. (Table:2)

In the study, 57(51.4%) respondents had > 4 family members and 54 (48.6%) respondents had <4 family members in their family. In regard to monthly family income (father and mother income together), majority 52(46.8%) had income <30,000 BDT, 30(27.0%) earned 50,001-1,00,000 BDT per month, 15(13.5%) earned 30,001-50,000 BDT per month and a few respondents 14(12.6%) earned more than BDT 1,00,000 per month. The mean income of the respondents was BDT 50162.16±37747.857. Almost seventy percent (69.4%) respondents' monthly family income was satisfactory. Only 21(18.9%) respondents had other disabled member in the family. More than ninety percent mothers were working mother either professional or non manual during pregnancy time. About 96 (86.5%), 13(11.7%) and 2(1.8%) mother delivered their child at 25 or below, at 31-35 and at 26-30 years of age respectively.

Types of family of the respondents of ASD children

Regarding type of family, more than 76 (68.5%) respondents belonged to nuclear family, 35(31.5%) respondents belonged to joint family

Frequency of problems faced by parents of ASD (n=75)

Out of 75(67.6%) parents, 53(70.7%) parents of autistic children faced social problems, 22(29.3%) and some parents suffered financial problem also.

Frequency Distribution of level of Intellectual disability of autistic children (n=111)

According to level of intellectual disability, out of 111 autistic children, 85(76.57%) ASD had significantly delayed performance level and 26 (23.42%) autistic child had mildly delayed performance level. There was no normal and accelerated performance level found in this study.

Table 3: Relationship of level of Intellectual disability with age at first diagnosis of autistic children (n=111)

Age at first diagnosis	Intellectual disability(Cognitive)		Total	χ^2 , P value
	Mildly delayed performance level	Significantly delayed performance level		
0-12 months	11(42.3)	71(83.52)	82 (73.87)	$\chi^2 = 17.608$ P = 0.001
12-24 months	6(23.07)	6(7.05)	12 (10.81)	
25-36 months	6(23.07)	5(5.88)	11 (10)	
>36 months	3(11.58)	3(3.52)	6 (5.45)	
Total	26 (100)	85 (100)	111 (100)	

There is a significant relationship present between levels of intellectual disability with Age at first diagnosis of ASD children. (Table: 3)

Table-4: Relationship of level of Intellectual disability with age at first diagnosis of autistic children

Age at first diagnosis	Intellectual disability(Cognitive)		Total	χ^2 , P value
	Mildly delayed performance	Significantly delayed performance		
1. Monthly family income				$\chi^2 = 0.265$ P = 0.428
BDT<15000	3 (11.53)	7 (8.23)	10 (9.09)	
BDT>15000	23 (88.46)	78 (91.76)	101 (90.99)	
Total	26 (100)	85 (100)	111 (100)	
2. Education of mother				$\chi^2 = 0.933$ P = 0.433
Primary	5 (19.23)	13 (15.29)	18 (16.21)	
Secondary	1 (3.84)	2 (2.35)	3 (2.70)	
Higher secondary	3 (11.53)	10 (11.76)	13 (11.71)	
Graduate and above	17 (65.38)	60 (70.58)	77 (69.36)	
Total	26 (100)	85 (100)	111 (100)	
3. Education of father				$\chi^2 = 0.895$ P = 0.605
Primary	5 (19.38)	13 (15.29)	18 (16.21)	
Secondary	3 (11.53)	8 (9.41)	11 (9.90)	
Higher secondary	1 (3.84)	2 (2.35)	3 (2.70)	
Graduate and above	17 (65.38)	62 (72.94)	79 (71.17)	
Total	26 (100)	85 (100)	111 (100)	

There is no association found between socio-demographic factors (monthly family income, education of father and mother, occupation of father and mother) with level of intellectual disability of ASD children. (Table: 04)

Discussion

The study aimed to find out the Socio-demographic profile of autism spectrum disorder. In the study, we collected data from the parents of autistic children. The mean age of the autistic child was 30.6 months (SD ± 6.855). Out of 111 autistic children, most 80 (72.1%) of them were male and only 31 (27.9%) respondents were female. The age and sex distributions of the respondents were corresponded with the study "Diagnosis of autism

spectrum disorders in the first 3 years of life" conducted by Rebecca J Landa¹³. More than seventy percent of the respondents were first born child which was similar with the study done in two autism schools in Dhaka City, Bangladesh¹⁷ and a child neurological developmental clinic in Lagos and not similar with the study conducted by Ginny Russell et.al.¹⁵ All 111(100%) the autistic child lived with their father and mother rather than only father and mother and 82 (73.8%) of autism spectrum disorder were diagnosed at age of 0-12 months. Ginny Russell et.al.¹⁵ observed the same findings in their study.¹⁵ In case of parents of autistic child, majority 61 (55%) was within 21-30 years of age. The mean age of the respondents was 27.8 years (SD \pm 5.25) which was almost similar with the study conducted in South West England. Out of 111 respondents, 82 (73.9%) were female and 29 (26.1%) were male. Azina Wati Nikmat et.al indicates the similar findings in their study.¹⁶ Among the respondents Muslim's were predominate which is 88 (79.3%) and rest 23 (20.7%) were Hindu. Parvin MN et. al found the same result done in Protibondhi Foundation Dhaka.¹⁶ Regarding Educational level of mother, majority 77(69.4%) of the respondents were educated up-to graduate and above and 18 (16.2%) were educated up-to primary level and educational level of father, 79 (71.2%) were educated up to graduate and above, 18 (16.2%) were educated up to primary level which was similar in the study conducted by Azina Wati Nikmat Et.al¹⁵ and dissimilar in the study done in two selected school in Dhaka City.¹⁷ According to the mother's occupation, majority 67 (60.4%) were housewives, 44(39.6%) were service holder. Similar findings were noted in the study done in an Arab country. In this study 96 (86.5%) father of autistic child were service holder and rest 15(13.5%) were engaged in other occupation. The study done in Protibondhi foundation indicates the same findings and A et.al found the dissimilar findings in their study.¹⁸ Regarding type of family, more than 76 (68.5%) respondents belonged to nuclear family, 35(31.5%) respondents belonged to joint family and 57(51.4%) respondents had >4 family members and 54(48.6%) respondents had <4 family members in their family. The mean income of the respondents was taka 50162.16 \pm 37747.857. Almost same findings found in the study conducted by Parvin MN et.al. Almost seventy percent 77(69.4%) respondents monthly family income was satisfactory which was similar with the study conducted by Mostafa A et.al. According to maternal occupational class, more than ninety percent mothers were professional at their pregnancy time and 96 (86.5%), 13 (11.7%) mother delivered their child at 25 years or below, at 31-35 years of age. The study done in the UK indicates the same

findings. Out of 111 respondents, 89 (80.2%) lived in brick house and 21 (18.9%) lived in pucca house. Regarding source of drinking water, more than 96 (86.5%) used water from supply source. About 99 (89.2%) respondents used sanitary latrine. In the above table, 75 (67.6%) parents face the different kind of problem. Out of 75(67.6%) parents, it is seen that 53(70.7%) parents of autistic children face social problem, 22 (29.3%) parents suffer financial problem which was quite similar with the study of problems of Autistic Children and Their Families: A Study in the Urban Areas of Bangladesh conducted by Dhaka University, Bangladesh. Only 36 (32.4%) parents of autistic children did not face any problem up-to the time of data collection. According to level of intellectual disability, out of 111 autistic children, 85 (76.57%) respondents had significantly delayed performance level and 26(23.42%) autistic child had mildly delayed performance level. There is no normal and accelerated level performance level found in any autistic child. In today's blog "Autism and IQ" Seattle Children's Autism Center, Kelly Herzberg¹⁸ found the same result in his interview. There is a significant relationship present between intellectual disability with Age at first diagnosis of ASD children and no association found between socio-demographic factors (monthly family income, education of father and mother, occupation of father and mother) with level of intellectual disability of ASD children.

Recommendations

Autism is a biological disorder. It exhibits the same core deficits in all cultures. However, the clinical presentation of ASD may be shaped by culturally determined factors and needs more elaborate/different intervention programs. The cultural context may significantly influence the parental expectation and family concerns about managing the problem. In this study, we have identified several socio economical indicators of ASD. Further research is required to explore what extent of these factors affects in children at development of autism and then appropriate intervention studies can be designed.

Conclusion

Further studies are to be done incorporating a comparison group, such as children with mild intellectual disability without autism. This may further clarify the parental expectation differences for both boys and girls in other groups with intellectual and developmental disabilities compared with autism as well. Also, because the co-occurring behaviour problems were gleaned from parent-reports, the potential effects of parental biases must be considered.

Additional assessment by structured clinical interviews and observational measures would have been desirable to provide a more comprehensive view of the participant's problems. We need to include cultural, behavioural and educational management strategies in any comprehensive intervention program for young children and adolescents with ASD.

It is recommended that more detailed studies would reveal more information, so that health authority and other concerned organizations would be able to take appropriate measures to reduce the incidence, prevalence and also proper planning to do early diagnosis, treatment of the ASD children and reduce the problems of their family members.

References

1. Association Psychiatric Association (2013). Diagnostic and statistical manual of mental disorders (DSM-5) (5th Ed.). Washington, DC: American Psychiatric Association.
2. C. Gillberg, L.Wing. Autism: not extremely rare disorder. *Acta Psychiatrica Scandinavica*. June 1999. Vol 99, Issue 6, pages 399-406.
3. Baron-Cohen, S., Scott, F.J., Allison, C., Williams, J., Bolton, P., Matthews, F.E. Prevalence of autism-spectrum conditions: UK school-based population study. 2009. *British Journal of Psychiatry*, 194(6), 500-509.
4. Centre for Disease Control and Prevention. Prevalence of autism spectrum disorder among children aged 8 years-Autism and developmental disabilities monitoring network, 11 sites, United States, 2014. *MMWR Surveillance Summaries*, 63 (Suppl 2), 1-21.
5. Finnegan JA, Quarrington B. Pre-, peri-, and neonatal factors and infantile autism. 1979. *J Child Psychol Psychiatry* 20: 119-128.
6. Hoshino Y, Kumashiro H, Yashima Y, Tachibana R, Watanabe M. The epidemiologic study of autism in Fukushima-ken. 1982. *Folia Psychiatri Neurol Jpn* 36: 115-124.
7. Treffert DA. Epidemiology of infantile autism. 1970. *Arch Gen Psychiatry* 22(5): 431-438.
8. Williams E, Thomas K, Sidebotham H, Emond A. Prevalence and characteristics of autistic spectrum disorders in the ALSPAC cohort. 2008. *Devel Med Child Neurol* 50(9): 672-677.
9. Palmer RF, Blanchard S, Jaen C, Mandell DS. The association between school district resources and identification of children with autistic disorder. 2005. *American Journal of Public Health* 95(1): 125-130.
10. Wing L. Childhood autism and social class. 1980. *Br J Psychiatry* 137: 410-417.
11. Larsson HJ, Eaton WW, Madsen KM, Vestergaard M, Olesen AV, et al. Risk factors for autism: perinatal factors, parental psychiatric history, and socioeconomic status. 2005 *Am J Epidemiol* 161: 961-925.
12. Rebecca J L. Diagnosis of autism spectrum disorders in the first 3 years of life. *Nature Clinical Practice Neurology* (2008) 4, 138-147.
13. Hasnain MG, Akter M. The relation of socio-economic factors with autism among children: a study in an urban area of Bangladesh. *J Pioneer Med Sci*. 2014; 4(1):11-13.
14. Russell G, Colin S, Golding J. Social and demographic factors that influence the diagnosis of autistic spectrum disorders. October 2010. *Soc Psychiatry Epidemiol*.
15. Nikmat A.W, Ahmed M, Lai Oon NG, Razali S. Stress and psychological wellbeing among parents of children with autism spectrum disorder. *ASEAN Journal of Psychiatry* 2008;9 (2):64-72.
16. Parvin MN, Haque MM, Bhuiyan MR, Haque M, Saha PK, Islam ASMM. Knowledge on Care of Autistic Child among the Mother's attending Protibondhi Foundation, Dhaka. *Bangladesh Journal of Medical Science* Vol. 14 No. 02 April'15.
17. Mostafa A, Ali W B, Hablas H, Raddad D, El-Mehesh F, El-Gilany A-H, Al-Shamy H. Socio demographic factors in Arab children with Autism Spectrum Disorders. *Pan Afr Med J*. 2012; 13: 65.
18. Kelly Herzberg. Autism and IQ. Seattle Children's Autism Center. Sand Point Way NE Seattle WA 98105206-987-2000, 866-987-2000

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