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Risk of Inter-Related Health Issues among Children with ASD in Bangladesh

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Abstract- In recent time, autism has become a major concern, globally. Due to its rapid growth, the healthcare professionals and medical researchers have been relentlessly working to identify the causes of ASD (Autism Spectrum Disorder); though the reasons are still unclear. In light of the contemporary research paradigm on ASD, the inter-related health issues of ASD also have raised significant concerns in the field. It is very recent that the researchers are interested in the dimensions and dynamics of inter-related health issues among people with ASD. Keeping in mind the global research advancements, this empirical research focuses on exploring and examining inter-related health issues among the children with autism in Bangladesh. The results of this research clearly show that there is evidence of various forms of inter-related health issues among the children with autism in Bangladesh.

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Risk of Inter-Related Health Issues among Children with ASD in Bangladesh

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Abstract- In recent time, autism has become a major concern, globally. Due to its rapid growth, the healthcare professionals and medical researchers have been relentlessly working to identify the causes of ASD (Autism Spectrum Disorder); though the reasons are still unclear. In light of the contemporary research paradigm on ASD, the inter-related health issues of ASD also have raised significant concerns in the field. It is very recent that the researchers are interested in the dimensions and dynamics of inter-related health issues among people with ASD. Keeping in mind the global research advancements, this empirical research focuses on exploring and examining inter-related health issues among the children with autism in Bangladesh. The results of this research clearly show that there is evidence of various forms of inter-related health issues among the children with autism in Bangladesh.

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I. INTRODUCTION

In recent time, autism has become a major concern, globally. To be more specific, “...it is the fastest growing serious developmental disability and since 2002 through 2006 its growth rate is around 57 per cent” (Autism Speaks, 2011)¹. Though the rate of autism is increasing to a greater extent, the reasons/causes behind autism haven't been identified clearly (Trottier et al. 1999). Several arguments can be observed regarding causes of autism (e.g. hereditary, environmental factors, genetics) but, none of them is conclusive and their claim is often disproportionate (e.g. some issues are overstated and some are understated) (Hallmayer et al. 2011). Some also argue that there is link between autism and childhood vaccination, though there is no scientific proof for this claim (Freitag, 2007). Irrespective of the causes of autism, it is for real that the autistic people suffer a lot of problems in terms of various forms of physical and mental issues and, thus, one of the primary concerns is to identify the common problems that the autistic people face and how to treat them.

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II. AUTISM: CONCEPT AND RELEVANT ISSUES

It is difficult to define autism with a single universally accepted definition. Medical professionals and relevant academics/researchers hold vast range of concepts regarding autism. Firstly, autism, rather than a well-defined medical condition, it is considered as a “spectrum of disorders” that ranges from biological dysfunctions to psychological disorders. Hence, from technical perspective, autism can be defined as a “...behavioural syndrome of multiple neurological injuries associated with a wide variety of medical conditions” (Gillberg, 1990). In more non-technical words it can be defined as “...a spectrum of behavioral anomalies characterized by impaired social interaction and communication, often accompanied by repetitive and stereotyped behavior” (Ashwood and Water, 2004). It means that, in broader sense, autism affects a person's overall social skills – speech competencies, encoding and decoding language skills, socio-relational skills and overall socio-communicative skills. Though the major focus is always given to the psychological aspects while defining autism, its biological anomalies cannot be ignored. In some cases severe biological anomalies (e.g. inadequate motor skills, tics issues, hearing and vision issues) can even make an autistic person physically disable. In short, it can be said that the “fundamental problems” that directly results from autism are broadly various forms of mental problems (e.g. social and learning problem); physical problems (e.g. lack of motor skills, feeding and eating problem); and behavioural problems (e.g. repetitive patterns of behaviour problem).

a) Contemporary Issues

Currently, it is widely argued that children with Autism Spectrum Disorder (ASD) prone to experience “other inter-related”, both mental and physical, health issues than that of the core “fundamental problems” (as mentioned in the previous section). In recent time, a researcher of health psychology and a clinical child psychologist, University of Missouri, USA, Micah Mazurek, argued that adolescents with ASD also have chronic gastrointestinal problems, such as constipation, abdominal pain, bloating or nausea (Saracino, 2012). In line with this argument, a recent study conducted by her found that many children with autism also experience anxiety, chronic gastrointestinal (GI) problems and atypical sensory responses, which are heightened

¹ It is estimated that 1% of the world's population or 67 million are affected by autism (Autism Speaks, 2011).

reactions to light, sound or particular textures (McIntyre, 2012). Another study found that children with autism have sleeping disorder (Mayes, Calhoun, 2009). Similarly, various health organizations state that autism often associated with other inter-related health specific issues, such as, epilepsy, dental issues, tics and other mental issues².

Therefore, the main objective of this research paper is to examine and discuss a range of inter-related health problems of autism and, subsequently, explore inter-related health problems among autistic people, particularly among the autistic children, in the Bangladeshi context.

III. AUTISM AND OTHER INTER-RELATED HEALTH ISSUES

As mentioned earlier, it is often argued that the autism may associated with various interrelated health problems which, based on their nature, can be categorized into physical and mental issues.

a) *Prevalence of Physical Issues among ASD*

i. *Sleeping disorder*

One of the concerns regarding health issues among ASD children is that they often suffer from various forms of sleeping disorders (Mayes and Calhoun, 2009). According to a study conducted by Mayes and Calhoun (2009) with 477 autistic children, it was found that, in most of the cases, the children not only suffer from sleeping disorders, but also this tendency increases as the level of the severity of ASD increases. According to another study, children with ASD sleep less (e.g. insomnia) than their typical peers (Rudy, 2009a).

b) *Poor nutrition due to Food Selectivity & other Feeding Problems*

According Matson and Fodstat (2009), "food selectivity and other feeding problems are endemic in children with autism spectrum disorders (ASD)". To be more specific, the authors stated that autistic children, due to their food selectivity issue, often suffer from poor nutrition. Moreover, in many cases, autistic children with food selectivity problem show aggression in refusing food.

c) *Anxiety, Sensory Over-Responsivity and Gastrointestinal Problems*

It is known that in many cases children with autism spectrum disorders (ASD) suffers from Anxiety, Sensory Over-Responsivity and Gastrointestinal Problems (Mazurek et. al., 2013; Rudy, 2009b, Molly, 2003). However, a recent study (conducted in 2013)

points out that these variables haven't been examined before in light of their association within themselves and, thus, the study revealed their degree and nature of association (Mazurek et. al., 2013). According to the study—

"...twenty-four percent of the sample experienced at least one type of chronic GI problem (constipation, abdominal pain, bloating, diarrhea, and/or nausea lasting three or more months). Children with each type of GI problem had significantly higher rates of both anxiety and sensory over-responsivity. Sensory over-responsivity and anxiety were highly associated, and each provided unique contributions to the prediction of chronic GI problems in logistic regression analyses. The results indicate that anxiety, sensory over-responsivity and GI problems are possibly interrelated phenomenon for children with ASD, and may have common underlying mechanisms" (Mazurek et. al., 2013:165).

d) *Epilepsy & Autism*

In Australia, it is estimated that around thirty percent of people with ASD develop epilepsy (Autism Help)³. According to Autism Help—"Children with a severe intellectual disability are most likely to have seizures. Seizures most often develop during early childhood, with puberty being the next peak onset time, however onset can occur at any age".

e) *Sexuality & Autism*

It is argued that many people with ASD become sexually active, but often do not understand the consequences (Autism Help). In many cases, though the autistic people become sexually active (biologically), but these people lack maturity and social skills to properly deal with sexual skills.

f) *Dental Issues*

Autistic children often suffer from poor dental health (Autism Help). They usually have high level of tolerance for any kind of pain and, hence, when they suffer from dental pain it is difficult to notice their problems. Behavioural differences/changes may be taken as indications of their problems.

g) *Prevalence of Mental Issues among ASD*

It is obvious that the Autistic children have mental issues; however, they often victim of other inter-related mental problems which results from their lack of integration to their social surroundings or to their normal counter peer groups. The common problems that they face are low self-esteem, depression and various forms of anxieties (Autism Help).

² Source: Autism Help: A health organization that work in the Autism area known as Gateway Support Services, Australia. <http://www.autismhelp.info/default.aspx>

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IV. EMPIRICAL STUDY

a) *Background of the Empirical Study: Autism & Inter-Related Health Issues in Bangladesh*

In Bangladesh, there are no exact statistics on how many children is experiencing autism (Hossain, 2011). However, Ranjit Kumar Biswas, secretary to Social Welfare Ministry, claims that about 10% of the country's people could be challenged where 1% to be affected by ASD⁴. Moreover, till now, in Bangladesh, we do not have sufficient data (secondary data) or research work regarding prevalence of other health related issues among children having ASD. Therefore, the purpose of this research paper is to explore other health related issues among children with ASD in Bangladesh based on primary data.

b) *Methodology*

i. *Central Research Question*

Do autistic children suffer from inter-related health problems?

ii. *Objective*

The objective of this report is to explore whether autistic children suffer from inter-related health problems or not, and, subsequently, their implications among autistic children of the Bangladesh.

iii. *Hypothesis*

Six particular alleged inter-related health problems (as discussed in the literature review section) among children with ASD are considered in this study; they are sleeping disorder, constipation, stomach pain, gastrointestinal problem, obesity, and epilepsy. Thus, six sub-hypothesis were tested in order to answer the central question:

Association of ASD and Sleeping Disorder

H₀: ASD is not associated with sleeping disorder

H₁: ASD is associated with sleeping disorder

Association of ASD and Constipation

H₀: ASD is not associated with constipation

H₁: ASD is associated with constipation

Association of ASD and Stomach Pain

H₀: ASD is not associated with stomach pain

H₁: ASD is associated with stomach pain

Association of ASD and Gastrotestinal Issue

H₀: ASD is not associated with gastrotestinal issue

H₁: ASD is associated with gastrotestinal issue

Association of ASD and Obesity

H₀: ASD is not associated with Obesity

H₁: ASD is associated with Obesity

Association of ASD and Epilepsy

H₀: ASD is not associated with Epilepsy

H₁: ASD is associated with Epilepsy

iv. *Research Approach*

Considering the scope and resource, a case study approach was followed. As a case, one particular centre/institute that deals with autism was considered as "case subject"; and the autistic children that are registered in that centre were considered as "research elements". In order to compare the prevalence of the alleged inter-related health issued among children with ASD, a group of non-autistic children (children who do not have ASD) were considered as "comparison group" in the study.

v. *Case Subject*

Beautiful Mind (A Special Centre for Autistic & Mentally Challenged Children), Uttara, Dhaka, Bangladesh.

vi. *Research Elements (Autistic Children)*

The registered autistic children at Beautiful Mind, Uttara, Dhaka, Bangladesh.

vii. *Comparison Group (non-Autistic Children)*

Children who are enrolled in various mainstream education institutes and who do not have ASD.

viii. *Sample Size*

50 children with ASD and 25 ordinary (non-autistic) children.

ix. *Sampling Technique*

Total population of the case subject (Beautiful Mind) was considered for the study. Total population was approached for the study; however, parents of 50 children with ASD of the institute participated in the study. For the "comparison group", convenient sampling was used. The questionnaire was developed in such a way that it is self explanatory and thus the questionnaires were distributed among the parents, who agreed to participate in the study. Subsequently, the respondents returned the completed questionnaires afterwards. The parents were given the flexibility to consult the researcher in case they are not clear about any aspect of the questionnaire.

x. *Data Collection Tool* Semi-Structured Questionnaire.

xi. *Ethical Consideration*

As the subject of the study (children) are minor, their parents and/guardians were considered as respondents for this study. Moreover, due to privacy protection issue, anonymity of the respondents is ensured throughout the research.

xii. *Testing Hypothesis*

Chi-square test is performed to test the hypothesis.

⁴ The Daily Star, Sunday, July 24, 2011. Source: <http://archive.thedailystar.net/newDesign/news-details.php?nid=195486>

V. RESULTS & DISCUSSIONS

a) *Overview of the Case-Subject: Beautiful Mind*

Beautiful Mind is a private organization registered under the Ministry of Social Welfare, Bangladesh. The center is situated at Dolipara North of Uttara Model Town, Dhaka. The area is in a semi-rural with urban development closing in around the center. This centre was established in July 2004 by the founder chairperson Dr. Shamim Matin Chowdhury – a child and adolescence psychiatrist and an autism specialist in Bangladesh. Since then the centre is offering wide range of flexible programs for autistic and mentally challenged children. The centre responds specific needs of each individual depending on their issues. The student population of special needs comes from varied socio economic and cultural backgrounds with no apparent majority group. The centre has modern equipped physiotherapy, speech-therapy and occupational-therapy laboratories to support children's clinical needs. Academically this centre follows the National Curriculum and the Foundation Stage but modified by centre staff to meet the needs of pupils with autism and mental retardation. Moreover special approaches are followed to teach the special children, such as Verbal Prompt, TEACCH, PECS and ABA system are used to provide individualized methodology for each pupil.⁵

b) *Data Analysis and Findings*

In relation to the earlier discussion regarding autism and inter-related health issues, the primary data of the autistic children of the Beautiful Mind also shows that there is prevalence of some inter-related health issues among the autistic children (see figure 1).

i. *Sleeping Disorder*

64% of the respondents highlighted the fact that their children have sleeping disorder, though the nature of the problems varies among the children. The major issues are: (i) less sleeping hours compare to normal sleeping standards; (ii) difficulty in sleeping normally (medication needed); (iii) if sleeps few hours at day time, do not sleep at night. In few cases, the problem is quite serious; for instance, one of the respondents stated that:

"...Yes, he has various issues with his sleeping. Firstly, he has sleeping disorder. He doesn't have deep sleep. A slight sound wakes him up. Moreover, he doesn't sleep at all at night if there are any irregularities with his medications" (Interview: respondent code: 15)

⁵ Source: Beautiful Mind Website: <http://www.beautifulmindbd.net/>

Figure 1. Inter-related Health Problems among Children with ASD in Bangladesh

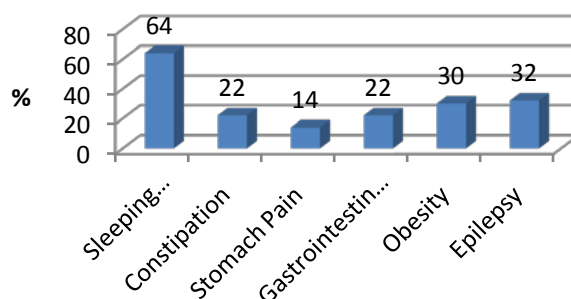


Figure 1 : Inter-related Health Problems among Children with ASD in Bangladesh

ii. Constipation

Around 22% respondents said that their children have constipation problem. Most of them said that their children do not want to eat fruits and vegetables. They prefer to eat chips, crisps and unhealthy fast food. So they suffer from constipation.

iii. Stomach Pain

According to the primary data, 14% respondents said that their children suffer from stomach pain. Some said that though their children cannot speak clearly but they could communicate through other means of communications to make them understand that they have stomach pain.

iv. Gastrointestinal Problem

Around 22% parents said that their children are suffering from Gastrointestinal problem. Some said that their children seriously suffer from gastric. Some said that they suffer occasionally.

v. Obesity

30% patients are obese. Some mother said that their children eat a lot. They do not understand that whether their stomachs are full or not. That might be the reason that these children suffer from obesity.

vi. Epilepsy

According to the data we can see that 32% children are suffering from epilepsy. One of the respondents said that, "when my child suffers from fever then he suffers from epilepsy". Most of the patients are under medication for epilepsy.

The above discussion is descriptive and that does not signify the statistical relationships of the concerned inter-related health issues and ASD. Thus, in order to answer the central question of the study, hypothesis testing is conducted in the following section.

c) Hypothesis Tests

Table 1 : Prevalence of Sleeping Disorder among ASD and Non-ASD Children

	Positive Sleeping Disorder	Sleeping Disorder Negative	Total
ASD	32	18	50
Non-ASD	1	24	25
Total	33	42	75

Chi-square value

24.35; Result: Failed to accept null hypothesis; ($\alpha=0.05$; $df=1$).

Decision

Evidence support that ASD may be associated sleeping disorder.

Table 2 : Prevalence of Constipation among ASD and Non-ASD Children

	Positive Constipation	Constipation Negative	Total
ASD	11	39	50
Non-ASD	0	25	25
Total	11	64	75

Chi-square value

6.45; Result: Failed to accept null hypothesis; ($\alpha=0.05$; $df=1$).

Decision

Evidence support that ASD may be associated with constipation.

Table 3: Prevalence of Stomach Pain among ASD and Non-ASD Children

	Positive Stomach Pain	Stomach Pain Negative	Total
ASD	7	43	50
Non-ASD	2	23	25
Total	9	66	75

Chi-square value

0.57; Result: Null hypothesis cannot be rejected; ($\alpha=0.05$; $df=1$)

Decision

Evidence does not support that ASD and stomach pains are associated

Table 4: Prevalence of Gastrotestinal problem among ASD and Non-ASD Children

	Positive Gastrotestinal Problems	Gastrotestinal Problem Negative	Total
ASD	11	39	50
Non-ASD	4	21	25
Total	15	60	75

Chi-square value

0.38; Result: Null hypothesis cannot be rejected; ($\alpha=0.05$; $df=1$)

Decision

Evidence does not support that ASD and gastrotestinal problems are associated

Table 5: Prevalence of Obesity among ASD and Non-ASD Children

	Positive Obesity	Obesity N/A	Total
ASD	15	35	50
Non-ASD	7	18	25
Total	22	53	75

Chi-square value

0.03; Result: Null hypothesis cannot be rejected; ($\alpha=0.05$; $df=1$)

Decision

Evidence does not support that ASD and obesity are associated

Table 6: Prevalence of Epilepsy among ASD and Non-ASD Children

	Positive Epilepsy	Epilepsy N/A	Total
ASD	16	34	50
Non-ASD	0	25	25
Total	16	59	75

Chi-square value

10.17; Result: Failed to accept null hypothesis; ($\alpha=0.05$; $df=1$)

Decision

Evidence support that ASD may be associated epilepsy.

The above results show that, statistically ASD does have association with sleeping disorder, constipation and epilepsy. This findings support the argument that children with ASD are prone to experience other inter-related health issues. However, it is to be noted that the results for other factors (stomach pain, obesity and gastrotestinal issues) do not support this argument.

VI. TREATMENT

An Autistic child is a big problem for a family. Not only the autism but also the interrelated health issues have a negative effect for the patient. The inter-related health issues can critically influence the regular life of a person subject to autism and moreover these issues can have significant effects on their functioning at home and in school.

Clinicians should be aware that anxiety, GI problems and sensory sensitivity often co-occur in individuals with ASD. Effectively managing these concurrent issues may improve children's quality of life and their responses to treatment. Parents need to be aware that these problems may underlie some of their children's difficulties, so if they notice any symptoms, they should talk to their doctors or therapist about treatment options (Mazurek et al. 2013).

It is not possible to cure autism with any type of medication. But the associated health issues like anxiety, aggressive behaviour, sleeping disorder, epilepsy can be controlled with medication. Parents and doctors should be careful about medications; because all medications have short term or long term side effects. The side effects that occur from medications are- weight gain, nausea, sleepiness, increased aggression, headaches and long term liver or kidney problem. So parents and doctors should be very careful to use medicines for autistic children.

VII. CONCLUSION

The health care services regarding autism and standard of diagnosis in this field in our country is still very basic (Ethirajan, 2011). Moreover, it is quite unfortunate that there is a dearth of nationwide statistical data in this field⁶. It is good that in 2001 Bangladesh government passed Disability Act and, in addition, the Government established the 'Centre for Neurodevelopment and Autism in Children' at the Bangabandhu Sheikh Mujib Medical University (Autism Speaks⁷). It is true that the awareness regarding autism is increasing but the current health services mainly focus

⁶ Bangladesh does not have specific data on those affected by autism but officials estimate that around 150,000 children may be classified as autistic (Ethirajan, 2011).

⁷ <http://www.autismspeaks.org/site-wide/bangladesh>

on the fundamental issues of autism in our country. There is not much concern regarding the inter-related health issues among the autistic people among the health professionals in this field. But this study clearly shows that there is evidence of various forms of inter-related health issues among the children with autism in Bangladesh. Thus, along with all other critical issues of autism, the inter-related health issues of autism should be brought into the limelight of contemporary autism research and these issues should be addressed through the local autism health care facilities.

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