Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: www.saspublishers.com

OPEN ACCESS

Paediatrics

Screening for Emotional and Behavioral Problems of 5-11 Years Old School Children by Strengths and Difficulties Questionnaires (SDQ)

Dr. Nusrat Jahan[1*], Professor Nazneen Akhter Banu[2], Dr. Muhammad Monir Hossain[3], Dr. Yamin Shahriar Chowdhury[4], Dr. Mahbuba Afroz[5]

[1]Assistant Professor, Paediatric Haematology & Oncology, Rangpur Medical College Hospital, Rangpur, Bangladesh
[2]Professor & Head, Dept. of Paediatrics, Sir Salimullah Medical College (SSMC) & Midford Hospital, Dhaka, Bangladesh
[3]Junior Consultant (Paediatrics), 250 Beded General Hospitals, Noakhali, Bangladesh
[4]Assistant Professor, Department of Paediatrics, Neurology, National Institute of Neurosciences & Hospital (NINS&H), Dhaka, Bangladesh
[5]Junior Consultant, FCPS, Department of Gynaecology & Obstetrics, Railway General Hospital, Dhaka, Bangladesh

***Corresponding author:** Dr. Nusrat Jahan
| **Received:** 11.02.2019 | **Accepted:** 11.03.2019 | **Published:** 30.03.2019
DOI: 10.36347/sjams.2019.v07i03.037

Abstract | **Original Research Article**

Emotional and behavioral problems in children have emerged as a public health problem in Developing countries. Only few studies are done on the issue. Published evidence emphasizes the benefits of early interventions to prevent behavioral and emotional problems and poor school performance. Understanding of the epidemiology of behavioral and emotional disorders in children is a prerequisite for developing management plan and prevention strategy. Standardized questionnaires for measuring psychopathological symptoms in children has been Developed. The Strength and Difficulties questionnaire is a useful instrument to aid clinicians in diagnosis and could be used as part of the initial assessment process. The aim of study was to screen 5-11 year old school children in Dhaka city for emotional and behavioral problems using Strength and Difficulties Questionnaire (SDQ). A cross-sectional study conducted during the period of January 2010 to December 2010 among 196 school going children of schools of Dhaka city aged between 5 -11 years. A total of 235 students along with their parents were selected and 196 have been interviewed. In the study multistage sampling was adopted. Replacement of the non-responder student is taken from the same school. The Bengali version of the Strengths and Difficulties Questionnaire was used for the interview of the parents of the selected children. Strength and difficulty score was generated based on standard scoring protocol. The individuals were categorized based on cut off used for individual domains as well as total difficulty score. Cross tabulation was done to assess association of disability level with socioeconomic variables. Through multivariate analysis the risk factor were assessed. The prevalence of such disorder was found to be quite higher among them, more than one in five (20.9%) children was found to have emotional and behavioral disorders as screened using the strength and difficulty questionnaire. In the children another 41.8% were with borderline difficulty score and 37.1% were with of normal range. Among male average total difficulty score was 16.55 ± 2.8, and among female average total difficulty score was 17.22 ± 3.5, No sex difference in total difficulty score or individual scale score was found following independent t test (P>.05). Domain wise difficulty prevalence suggests emotional problem in 23% children, Conduct problem in 20.9% children, Hyperactivity in 1.5% children, Peer problem in 22.4% children and Pro-social behavior in 54.1% children. None of the age, sex, and family income, number of children, father's level of education and mother's education appeared as a significant predictor of emotional and behavioral disorder in children of Dhaka city. However Mother's occupational status appeared as a significant predictor of child's emotional and behavioral disorder. In the conclusion, we can say, the prevalence of emotional and behavioral disorder was found to be quite high among school children of Dhaka city. The problems are equally prevalent in both sexes. Around three percent of the children had abnormality in three of the domains, around twelve percent had difficulty in two domains and one third had in one domain. Children of working mothers were found to be more liable to develop emotional and /or behavioral disturbance.

Keywords: Screening, Disorder, Prevalence, Emotion.

INTRODUCTION

Mental health is how people think, feel, and act as they face life's situations. It affects the way how people handle stress, relate to one another, and make decision. Caring for and protecting children is an obligation and is critical to their daily lives and their independence. Like adults, children and adolescents can

have mental health disorders that interfere with the way they think, feel, and act. When untreated, mental health disorders can lead to school failure, family conflicts, drug abuse, violence, and even suicide. Untreated mental health disorders can be very costly to families, communities, and the health care system. The prevalence of mental problems in children and adolescents in the general community is approximately 20% in the western world, of which at least half suffer from impairment in functioning. The few studies that examined prevalence in the developing world found similar rates [1]. Four to 6% of these children and adolescents are in need of a clinical intervention for observed significant mental disorders [2].Although children may suffer from a wide range of mental problems, there is a poor awareness amongst health care providers about the occurrence of these conditions. The magnitude of mental health problems in children has not yet been recognized sufficiently by many governments and decision makers. Epidemiological studies of child and adolescent psychiatric disorders in the developing world have generated prevalence estimates ranging from 1 to 49% [3]. In the developing world, child psychiatric disorders are common but child mental health professionals are scarce. In the developed world, child psychiatric disorders cause serious distress or social impairment to around 10% -20% of children at any one time [4,5]. Prevalence studies have indicated that between 17% and 26% of the children and adolescents meet the diagnostic criteria for at least one psychiatric disorder [6]. What few studies there have been of child psychiatric disorders in developing countries suggest that the prevalence there may be at least as high [7], which is perhaps unsurprising since so many children in the developing world are exposed to poverty, malnutrition, infectious disease, violence and social disintegration? However, most of these studies lack one or more of the methodological features required for generating believable prevalence estimates, namely: an adequate sample size, a representative sampling frame, standardized assessment measures that are suitable for generating exact diagnoses, explicit and internationally accepted diagnostic criteria, and assessment not just of symptoms but also of resultant distress and social impairment[8]. Bangladesh is a low-income nation with a large population with a population pyramid with wide base, suggesting younger people in the population. There have been few epidemiological studies of the prevalence of child and adolescent psychiatric disorders in Bangladesh, and indeed there scarcity of validated psychiatric measures in Bengali that could be used for this purpose. The prevalence of childhood disability in Bangladesh is increasing with the improvements in child survival [9]. Now a day's behavior problems form an increasing proportion of the presenting complaints. Studies of mental health disorders in Bangladesh urban settings suggested rates as 20% boys and 10% girls in primary schools as reported by teachers [10].

An understanding of the prevalence of behavior problems in young children is indispensable. In a developing country like Bangladesh, daily life and survival are a struggle. Higher rates of child mental health disorders may be expected for urban children, owing to a combination of family disturbance and housing factors [11]. Questionnaires for measuring psychopathological symptoms in children and adolescents are important for three reasons. Firstly, despite the fairly high prevalence rates of behavior and emotional problems, it should be noted that only a small percentage of the children and adolescents actually come in contact with mental health services. Thus, questionnaires that can be used for detecting youths who are at high risk for developing behavioral and emotional problems are highly relevant. Secondly, clinicians can employ such measures as part of the clinical assessment in order to obtain an initial idea about the type and severity of the psychiatric problem. Thirdly and finally, standardized questionnaires are also helpful to those clinicians who want to quantify the effects of treatment. The Strengths and Difficulties Questionnaire (SDQ) is a promising new instrument for assessing for the psychological adjustment of children and adolescents, first published in 1997 by British psychiatrist Robert Goodman. The SDQ may be administered to parents and teachers of 4-16 year-olds and to 11-16-year-olds themselves .It contains 25 items, selected on the basis of both contemporary diagnostic criteria and factor analysis, divided equally among five scales such that sub scale scores are generated for emotional symptoms, conduct problems, hyperactivity-Inattention, peer problems and prosocial behavior. It has a specificity of 95% and a sensitivity of 63c to predict clinical diagnosis accurately. In a large British study supporting the cross –cultural relevance of the SDQ and raising the possibility that SDQ might be useful as a screen for psychiatric disorders in community or paediatric clinics in Bangladesh. Research into the prevalence of emotional and behavioral disorders in young children is relatively new, and its development is challenged by the question as to what really constitutes an emotional or behavioral 'problem'. Still, recent studies estimate that the prevalence of behavioral and emotional problems in preschool children has increased over the past two decades to more than 10%. This number is considerably higher among preschool and toddlers. However, up until now there has been little research into screening of emotional and behavioral disorders of children by using SDQ in our country. Present study was designed to determine the prevalence of behavioral and emotional disorders including their risk factors among urban school going children, which are not yet elaborately available in our country.

SDQ can be used to detect children at high risk for developing behavioral and emotional problems, besides clinicians can employ such measures as part of the clinical assessment in order to obtain an initial idea

about the type and severity of the psychiatric problem. Standardized questionnaires are also helpful to those clinicians who want to quantify the effects of treatment. Early evaluation of behavioral and emotional problems in school going children and adolescents including their risk factors will guide to develop support and services programs. With these aims in mind the study has been designed to address these related issues and expected to help to unveil the magnitude of the problem in Dhaka city school children.

Objectives

General objective

- To screen 5-11 year old school children in Dhaka city for emotional and behavioral problems using Strength and Difficulties Questionnaire (SDQ).

Specific objectives

- To determine the prevalence of behavioral and emotional disorders among school going children of selected schools of Dhaka city.
- To determine the type of behavioral and emotional disorders among these children.
- To find out relationship of the socio-demographic factors with behavioral and emotional problem in these children.

MATERIALS AND METHODS

This was cross-sectional was carried out during the period of January 2010 to December 2010 in the Department of Pediatrics, Sir Salimullah Medical College Mitford Hospital, Dhaka and different schools of Dhaka city. Our study subjects were school going children aged between 5 -11 years of Dhaka city. We applied multistage sampling techniques. At every stage purposive sampling was adopted due to its suitability in this kind of study. 1st stage: Three administrative thana were selected from 14 thanas in Dhaka city. The Shahbag, New market and Motijheel thana 2nd stage: One ward was selected from each thana. Wards were 57, 52 and 31 and the 3rd stage: There were six schools in the ward 57, of which two Govt. and four private schools. For collection of socio-demographic variables a semi structured questionnaire was developed based on research objectives. Questionnaire for the study of emotional and behavioural disorders: Strength and Difficulties questionnaire was used. The SDQ consists of 25 items: emotional symptoms (5 items), conduct problems (5 items), hyperactivity/inattention (5 items), peer relationship problems (5 items) and prosocial behaviour (5 items). An extended version of the SDQ includes an impact supplement that asks if the respondent thinks that the young person has a problem and explores the chronicity, distress, social impairment and burden for others [22]. Current study used only 25 item of SDQ. On average the SDQ takes 5 minutes to complete [23]. The questionnaire is completed by an informant that is by the parents or the teacher or the young person themselves. Present study used the parent completed version of SDQ. Before commencing field work, SDQ and operational definitions of some variables which were tested on 30 (15.3%) cases of the total study population, in order to finalize the procedure and to evaluate the appropriateness of the instruments. Modification was done accordingly after pre-testing. Some of the questions of emotional and behavioral disorder were discarded and reviewed after pre-testing. A research team was set for data collection along with researcher herself with two supporting personnel's of sociology background School children were taken as sampling frame from registered book provided by the respective schools. Interviewing of the parents of school children were conducted in the respective school premises. Firstly, children who satisfied the inclusion and exclusion criteria were selected. Then, informed consent was taken from the parents of the children. After taking consent, parents were interviewed by the researcher and trained data collectors by using questionnaire for emotional and behavioral disorders. A total of 235 students along with their parents were selected for interview out of them 190 has been interviewed and the remaining students were selected from the same school. Response rate was 83%.Non response was due to parent's absence during the time of interview and objection of the parents to some questions. Collected data were sorted and screened for any discrepancy. The edited data were entered on to the template of SPSS 16 for windows. Informed written consent was taken from the participant after explaining all the facts potential dangers to the subjects in case of primary data collection.

Inclusion criteria: Child age between 5-11 years with their parents.

Exclusion criteria: Child whose parents are unwilling to consent.

RESULTS

This was cross-sectional study conducted during the period of January 2010 to December 2010. A total of 235 children Aged between 5-11 years along with their parents were selected, finally 196 were interviewed (response rate 83%).

Table-1: Socio demographic variables of children (n=196)

	frequency	Percent
Age		
5-7 year	70	35.7
7-9 year	85	43.4
9-11 year	41	20.9
Sex		
Male	89	45.4
Female	107	54.6

Table-2: Distribution of parent's characteristics (n=196)

	frequency	Percent
Father's occupation		
Service	132	67.3
Business	46	23.5
Others	18	9.2
Mother's Occupation		
Housewife	129	65.8
Working Mother	64	32.7
Father's qualification		
Primary or below	30	15.3
SSC	25	12.8
HSC	32	16.3
Graduate	66	33.7
Post graduate	43	21.9
Mother's qualification		
Primary or below	46	23.5
SSC	33	16.3
HSC	42	21.4
Graduate	48	24.5
Post graduate	27	13.8

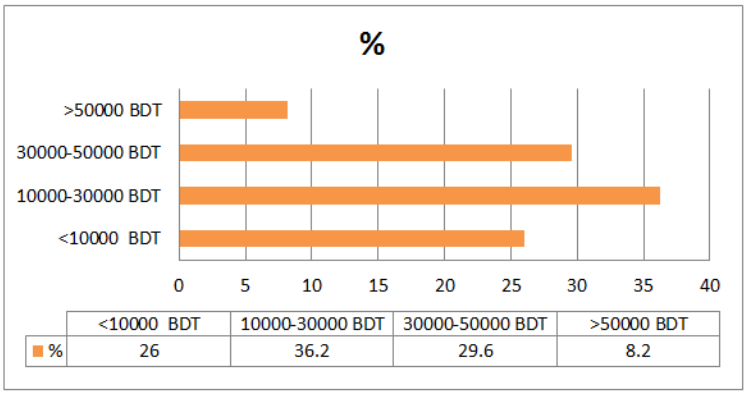

Fig-1: Distribution of the children by monthly family income (n=196)

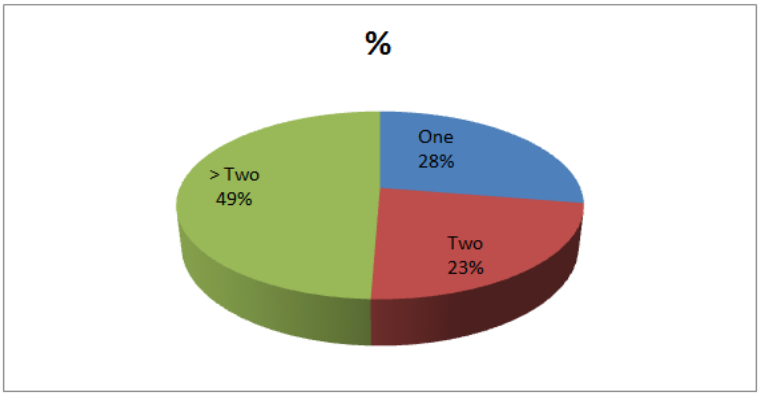

Fig-2: Distribution of the children by number of child in the family (n=196)

Table-3: Distribution of SDQ score of the scales by sex (n = 196)

	Sex				Independent t test	
SDQ	Male		Female			
	Mean	SD	Mean	SD	t	P value
Total difficulty Score	16.56	2.792	17.22	3.457	-1.456	.147
Emotional symptom	4.98	1.764	5.32	1.945	-1.271	.205
Conduct Problem	3.18	1.378	3.55	1.644	-1.694	.092
Hyperactivity	3.82	1.450	3.47	1.192	1.870	.063
Peer Problem	4.58	1.460	4.89	1.532	-1.411	.160
Pro-social Behavior	4.00	1.581	4.30	1.717	-1.258	.210

Table-4: Distribution of SDQ score of the scales by age (n=196)

SDQ score	Age					
	5 – 7 year		7 – 9 year		9 – 11 year	
	Mean	SD	Mean	SD	Mean	SD
Total difficulty Score	16.67	3.234	17.01	3.122	17.17	3.263
Emotional symptom	4.64	1.786	5.47	1.862	5.41	1.871
Conduct Problem	3.73	1.693	3.04	1.410	3.51	1.381
Hyperactivity	3.53	1.259	3.66	1.350	3.73	1.397
Peer Problem	4.77	1.534	4.85	1.708	4.51	.870
Pro-social Behavior	3.83	1.659	4.28	1.645	4.49	1.630

Table-5: Classification of children according to total SDQ score and subscales (n=196)

SDQ	Classification of difficulty*		
	Normal	Borderline	Abnormal
Total difficulties	73 (37.3)	82 (41.8)	41 (20.9)
Emotional symptom	120 (61.2)	31 (15.8)	45 (23.0)
Conduct problem	126 (64.3)	29 (14.8)	41 (20.9)
Hyperactivity	186 (94.9)	07 (03.6)	03 (01.5)
Peer problem	40 (20.4)	112 (57.1)	44 (22.4)
Pro social behavior	41 (20.9)	49 (25.0)	106 (54.1)

Figure in parenthesis denotes percentage*some children had difficulty in more than one domain

Table-6: Distribution of the children by SDQ scores across age and sex (n=196)

	SDQ score			Test Statistics
	Normal	Borderline	Abnormal	
Age group				
5-7yr	31(42.5)	24(29.3)	15(36.6)	$\chi^2 = 3.07$
7-9yr	28(38.40	40(48.8)	17(41.5)	df 4
9-11yr	14(19.2)	18(22.00)	9(22.00)	P= 0.55
Sex				
Male	35(47.9)	42(51.2)	12(29.3)	$\chi^2 = 5.62$
Female	38(52.1)	40(48.8)	29(70.7)	df 2 p= 0.60

Figure in parenthesis denotes percentage

Table-7: Distribution of the children in different domains in combination (n=196)

Combined difficulty	Frequency	Percent
None	98	50.0
Emotional only	23	11.7
Conduct only	19	9.7
Hyperactivity only	01	0.5
Peer problem only	26	13.3
Emotional + Conduct	09	4.6
Emotional + Peer	07	3.6
Conduct + Peer	07	3.6
Emotion + Hyperactivity + Peer	04	2.0
Emotion + conduct + Hyperactivity	02	1.0
Total	196	100.0

Table-8: Distribution of children by SDQ scores and parents characteristics (n=196)

	SDQ			Test Statistics
	Normal	Borderline	Abnormal	
Fathers education				
Primary or below	10 (33.3)	15 (50.0)	5 (16.7)	χ^2 = 14.5 P= 0.069
Up to SSC	11 (44.0)	8 (32.0)	6 (24.0)	
HSC	11 (34.4)	12 (37.5)	9 (28.1)	
Graduate	31 (47.0)	20 (30.3)	15 (22.7)	
PG	10 (23.3)	27 (62.8)	6 (14.0)	
Mother's education				
Primary or below	17 (37.7)	22(47.8)	7(15.2)	χ^2 =13.17 P= 0.106
Up to SSC	11(33.0)	13(39.4)	9(27.3)	
HSC	21(50.0)	11(26.2)	10(23.8)	
Graduate	16(33.0)	19(39.6)	13(27.1)	
PG	8(29.6)	17(63.0)	2(7.4)	
Mother's occupation				
Housewife	60 (46.5)	46 (35.7)	23 (17.8)	χ^2=12.5 P=0.002
Working Mother	13 (20.3)	34 (53.1)	17 (26.6)	
Income				
<10000	11 (21.6)	24 (47.1)	16 (31.4)	χ^2 =12.44 df = 2 P= 0.014
10000-30000	36 (50.7	24 (33.8)	11 (15.5)	
>30000	26 (35.1)	34 (45.9)	14 (18.9)	
Child number				
One	16(21.9)	24(29.3)	14(34.1)	χ^2=6.21 df 4 P=0.18
Two	42(57.5)	41(50.5)	14(34.1)	
>two	15(20.5)	17(20.7)	13(13.7)	

Figure in parenthesis denotes percentage

Table-9: Multivariate analysis of the factors affecting emotional and behavioral disorder in children (n=196)

Factors	Coefficients β	95% CI	SE	P Value
Age group	0.673	0.04 , 1.30	.323	.078
Sex	0.499	-0.40 , 1.40	.455	.274
Income	0.393	-0.21 , 0.99	.307	.202
Child number	-0.074	-0.73 , 0.59	.334	.824
Father education	1.123	0.40, 1.80	.365	.062
Mothers education	-1.682	-2.50, 0.87	.411	.521
Mother's occupation	1.026	0.05 ,1.90	.493	.008*

Adjusted R^2 =10.5 (F = 3.15 P = 0.004)

DISCUSSION

The cross-sectional study was conducted among school going children aged between 5-11 years of Dhaka city to screen for emotional and behavioral problems with Strength and difficulties questionnaire. Full understanding of the epidemiology of behavioral and emotional disorders is indispensable for developing strategic plan to encounter the potential epidemic. The present study observed emotional and behavioral disorders among 20.9% school going children. Another

41.8% were diagnosed as having borderline disorder and 37.3% were normal. A cross sectional survey of 5–11-year-old children attending main stream private and community schools in Karachi on 675 parents found 47% normal, 19% borderline and 34% abnormal babies. Assessment of children's mental health in their study was conducted using SDQ and based on cut-off provided by Goodman [15]. Majority of the studies conducted on prevalence of psychiatric morbidity among children from community shows wide range of Figures. The variation of the prevalence is probably due to the variation of use of research tool and methodology applied for the research. If the study employ questionnaire with a view to Screen psychiatric problem among children, a higher prevalence is found (probably due to generation of false positive and false negative diagnosis). However, diagnostic consultations by relevant expert of the screened population often reduce the estimates as after expert consultation only true positive among the screened population remains as cases. Literature reported a very widely variant prevalence ranging from one up to fifty one percentages [24]. The higher prevalence of emotional and behavioral problems in the present study may be due to the fact that they are determined based on screening questionnaire alone. The prevalence of emotional and behavioral problems varies between urban and rural children in different studies. As seen in a similar study by Srinath *et al.* [13] reported 4.2% emotional and 12.8% behavioral disorders in rural area. In the same study they observed 11.4% emotional and 17% behavioral disorder in urban area. These dissimilarities either may be due to variations in diagnostic tools or better child mental health facilities. In another study carried out by Mullick *et al*. [17] in Bangladesh found 9.6% emotional disorders and 10.6% behavioral disorders in the urban area. The prevalence in the present study was a bit higher than these estimates from previous literature evidences. One of the reasons may be that, present study was restricted to urban school going children only. One study was done among urban primary school children in Dhaka, Bangladesh by Rabbani [10] and found 13.4% behavioral disorders which are much lower than that in our study. This difference may be due to variations in methodology and diagnostic criteria. For example Rabbani [10] used Rutter B2 Scale for detection of prevalence among primary school children. Mullick [17] in their pioneering study used Bangla translation of a standardized child psychiatric interview, the Development and Well-Being Assessment (DAWBA) which was validated against routine clinical diagnoses on a consecutive series of 100 referrals to a child mental health service. They used stratified sampling for representation of rural, urban and slum strata. In a comprehensive review of studies about the prevalence rates of behavioral and emotional disorders among school going children authors reported 3.6% to 24% with a mean 10.2%.Among the five domains, present study observed emotional problem in 23% children, Conduct problem in 20.9% children, Hyperactivity in 1.5% children, Peer problem 22.4% children and Pro-social behavior 54.1% children. Study by Margot [17] on urban school children using similar method showed significantly higher rates of behavioral problems. In another study carried out by Elhamid [21] in Egypt Using both parent and teacher rated version of SDQ where prevalence of emotional and behavioral problem was high reported by parents 20.6%. Abnormal prosocial score 11.8%, Emotional problem 2.0%, Conduct disorder 6.6%, Hyperactivity 0.7%.The high rate of abnormal Prosocial score may be due to the fact now children lives in nuclear families where they lack sharing, helping others. There is a significant scarcity of child mental health research report in Bangladesh setting. Based on the review of published literature elsewhere, it was evident that socio demographic factors may affect psychiatric morbidity among children such as gender, school type and parental education as well as socioeconomic status. In the present study the average age of the children was 7.9± 2.6 years ranging from 5 – 9 years and the disability is 20.9%. Khan *et al*. [9] had conducted the study among children of 2-9 years and found the prevalence of 14.6%. Mullick and Goodman [17] studied the prevalence of mental health disorders among 5 to 10 year old children in Bangladesh. They reported some kind of disorder in 15.4% of rural children, 10% of urban children and 19.5% of slum children. Current study is done in urban children and the percentage is higher than then the urban prevalence reported other studies. Multivariate analysis showed that, none of the age, sex, and family income, number of children, father's level of education and mother's education appeared as a significant predictor of emotional and behavioral disorder in children adjusting for all other factors in the linear regression model. For multivariate linear regression continuous SDQ total difficulty score was plotted against socio demographic factors and parent's characteristics. Although result of the current study suggests no sex variation, published article provides rather opposite evidence, particularly higher prevalence among boys was found in most studies, one study found female preponderance [1]. Rabbani *et al*. [10] showed that male children were more likely to have behavioral disorders than were females with a male to female ratio: 2:1. Abdel-Fattah *et al*. [12] showed education as a predictor that opposes our study finding. In the present study mother's occupational status appeared as a significant predictor of child's emotional and behavioral disorder adjusting for all factors in the model (P=.002). Similar result reported by [12] that students with working mothers were more liable to develop emotional and /or behavioral disturbance than those with non-working mothers. Due to widespread poverty and for financial freedom mother has to work, and the children remain separated from the mother, thereby lack of spending quality time with the child. Children in Bangladesh usually left overlooked as people hardly can spend time

with their family. That is probably the main reason why the emotional and behavioral problem is quite prevalent in the young population. Among other factor family income showed association with increased risk in univariate association, however the association didn't persist after adjustment for other factors in the multivariate model. The exploration of interaction between the factors is beyond the remit of the study, however non association of the variables probably points toward independence of socioeconomic status of the child on child's emotional and behavioral status.

Emotional, behavioral, and psychiatric problems in children are substantial public health problem which warrants immediate attention. Emotional, behavioral and psychiatric disorders of children pose huge burden of morbidity on health system. School children or toddlers with emotional and behavioral problems have a substantial adverse impact on their families, schools, and the own long term wellbeing. Mental wellbeing in childhood plays an important role in development of the children. Before 'thought' and 'language', 'emotion effect' within the context of relationships that forms the basis for all future development of the children. Early onset of emotional and behavioral problems in school going children and adolescents are related to a variety of health, social and academic problems including juvenile crimes and school dropout [25]. Early interventions can prevent behavioral and emotional problems and poor school performance which requires early detection, evaluation and identification of risk factors of behavioral and emotional problems in school going children and adolescents. SDQ can be used as a screening tool and after screening high risk children should be referred to child mental health clinic or child developmental centre for thorough psychiatric assessment. Studies like present one will guide psychiatrists to develop programs of supports and services for children with emotional and behavioral problem.

Limitations of the study

Schools are used as sampling unit for recruiting and assessing children in Dhaka city, however not all children in Dhaka. The access to formal education is limited in Bangladesh; therefore the generalizability of findings of this study is limited only to school attending children. There is significant difference in socioeconomic status gradient across private and government schools; they should have been separately studied. Sample size was relatively small for screening. Purposive sampling was done.

CONCLUSIONS AND RECOMMENDATIONS

The study aimed to assess the distribution of emotional and behavioral disorder among school going children of Dhaka city. The prevalence of such disorder was found to be quite high among school children of Dhaka city. The problems are equally prevalent in both sexes. More than one in five (20.9%) children was found to have emotional and behavioral disorders, another 41.8% were with borderline difficulty score and 37.1% were with of normal range. Domain wise difficulty prevalence suggests emotional problem in 23% children, Conduct problem in 20.9% children, Hyperactivity in 1.5% children, Peer problem in 22.4% children and Pro-social behavior in 54.1% children. None of the age, sex, and family income, number of children, father's level of education and mother's education appeared as a significant predictor of emotional and behavioral disorder in children of Dhaka city. However Mother's occupational status appeared as a significant predictor of child's emotional and behavioral disorder. Base on the study finding, the following recommendations were made: Policy makers should be made aware about the important issue of behavioral and emotional problem which is prevalent in one fifth of the school children, so that they can address the issue in strategic planning. Emotional and behavioral problems in children should be regarded as a public health problem and action should be made to counteract the burden of morbidity on health system. Parents should be made aware about the possible factors that precipitate the condition among the children. Psychiatric assessment of the children should be included in the school health program, and should cover all children at least once in a year. Parents should be advised to spend substantial amount of quality time with their children further study is hereby recommended in the issue with greater sample size.

REFERENCES

1. Eapen V, Jakka ME, Abou-Saleh MT. Children with psychiatric disorders: The Al Ain community psychiatric survey. The Canadian Journal of Psychiatry. 2003 Jul;48(6):402-7.
2. Fombonne E. Epidemiological surveys of autism and other pervasive developmental disorders: An update. J Autism Dev Disord. 2003;33(4):365–382
3. Hackett R, Hackett L, Bhakta P, Gowers S. The prevalence and associations of psychiatric disorder in children in Kerala, South India. The Journal of Child Psychology and Psychiatry and Allied Disciplines. 1999 Jul;40(5):801-7.
4. Bird HR. Epidemiology of childhood disorders in a cross–cultural context. Journal of child psychology and psychiatry. 1996 Jan;37(1):35-49.
5. Bird HR, Canino G, Rubio-Stipec M, Gould MS, Ribera J, Sesman M, Woodbury M, Huertas-Goldman S, Pagan A, Sanchez-Lacay A, Moscoso M. Estimnates of the prevalence of childhood maladjustment in a community survey in Puerto Rico: The use of combined measures. Archives of general psychiatry. 1988 Dec 1;45(12):1120-6.
6. Muris P, Meesters C, van den Berg F. The strengths and difficulties questionnaire (SDQ). European child & adolescent psychiatry. 2003 Feb 1;12(1):1-8.

7. Nikapota AD. Child psychiatry in developing countries. The British Journal of Psychiatry. 1991 Jun;158(6):743-51.
8. Fleitlich-Bilyk B, Goodman R. Prevalence of child and adolescent psychiatric disorders in southeast Brazil. Journal of the American Academy of Child & Adolescent Psychiatry. 2004 Jun 1;43(6):727-34.
9. Zaman SS, Khan NZ, Islam S, Banu S, Dixit S, Shrout P, Durkin M. Validity of the 'Ten Questions' for screening serious childhood disability: results from urban Bangladesh. International journal of epidemiology. 1990 Sep 1;19(3):613-20.
10. Rabbani MG, Hossain MM. Behaviour disorders in urban primary school children in Dhaka, Bangladesh. Public health. 1999 Sep 1;113(5):233-6.
11. Quinton D. Urbanism and child mental health. Child Psychology & Psychiatry & Allied Disciplines. 1988 Jan.
12. Abdel-Fattah MM, Asal ARA, Al-Asmary SM, Al-Helali NS, Al-Jabban TM, Arafa MA. 2004. Emotional and Behavioral Problems among Male Saudi Schoolchildren and Adolescents Prevalence and Risk Factors. German J Psychiatry, 1, 1-9.
13. Srinath S, Girimaji SC, Gururaj G, Seshadri S, Subbakrishna DK, Bhola P, Kumar N. Epidemiological study of child & adolescent psychiatric disorders in urban & rural areas of Bangalore, India. Indian Journal of Medical Research. 2005 Jul 1;122(1):67.
14. Syed EU, Hussein SA. Prevalence of emotional and behavioural problems among primary school children in Karachi, Pakistan—multi informant survey. The Indian Journal of Pediatrics. 2009 Jun 1;76(6):623-7.
15. Syed EU, Hussein SA, Mahmud S. Screening for emotional and behavioural problems amongst 5–11-year-old school children in Karachi, Pakistan. Social psychiatry and psychiatric epidemiology. 2007 May 1;42(5):421-7.
16. Mullick MS, Goodman R. Questionnaire screening for mental health problems in Bangladeshi children: a preliminary study. Social psychiatry and psychiatric epidemiology. 2001 Apr 1;36(2):94-9.
17. Mullick MS, Goodman R. The prevalence of psychiatric disorders among 5–10 year olds in rural, urban and slum areas in Bangladesh. Social psychiatry and psychiatric epidemiology. 2005 Aug 1;40(8):663-71.
18. Shatkin JP, Belfer ML. The global absence of child and adolescent mental health policy. Child and Adolescent Mental Health. 2004 Sep;9(3):104-8.
19. Woo BS, Ng TP, Fung DS, Chan YH, Lee YP, Koh JB, Cai Y. Emotional and behavioural problems in Singaporean children based on parent, teacher and child reports. Singapore Medical Journal. 2007 Dec;48(12):1100.
20. World Health Organization. The ICD-10 classi®cation of mental and behaviouraldisorders: Diagnostic criteria for research. Geneva. 1994.
21. Youth in Mind. SDQ: Information for researchers and professionals about the Strength and Difficulties Questionnaire. 2005. Retrieved, 2008, from http:/www.sdqinfo.com
22. Goodman SA, Svyantek DJ. Person–organization fit and contextual performance: Do shared values matter. Journal of vocational behavior. 1999 Oct 1;55(2):254-75.
23. Klasen H, Woerner W, Wolke D, Meyer R, Overmeyer S, Kaschnitz W, Rothenberger A, Goodman R. Comparing the German versions of the strengths and difficulties questionnaire (SDQ-Deu) and the child behavior checklist. European child & adolescent psychiatry. 2000 Dec 1;9(4):271-6.
24. Letterio JJ, Roberts AB. Regulation of immune responses by TGF-β. Annual review of immunology. 1998 Apr;16(1):137-61.
25. Chow WS, Anderson JM. Photosynthetic responses of Pisum sativum to an increase in irradiance during growth. I. Photosynthetic activities. Functional Plant Biology. 1987;14(1):1-8.