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Adolescent's Adjustment Problem and Mental Health

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and Zerin Rahman Sunny[3]

The present study investigated the relationship of adolescents' adjustment problem with their mental health. The study emphasized on identifying the relationship between mental health and adjustment of adolescents to identify the gender variation in adjustment. The sample of the present study consisted of 200 respondents. A purposive sampling technique was followed to collect data from different schools of Dhaka city. Cross sectional survey design was followed to conduct the study. A revised form of the Mooney Problem Checklist (Hasan, 1985) and the Bangla version of the General Health Questionnaire (GHQ 12) (Ilyas & Aeysha, 2002) were used. Results of the analysis revealed significant gender difference in Courtship, Sex, and Marriage (CSM) with mental health of adolescent adjustment problem.

Keywords: Adolescents adjustment, mental health, and sex

A developmental stage of adolescence is described as a stage of turbulence, a 'period of storm and stress', of emotional instability, a problem age, and exploring the truth behind such statements generates interest. Adolescents are often faced with mixed messages and conflicting demands from parents, teachers, friends as well as themselves (Gupta, 2003). It is a period demanding significant adjustment to the physical and social changes which distinguish childhood behavior from adult behavior. Marking off the begging of adolescence is difficult because the age of sexual maturing varies greatly. On the average the period of adolescence extends from 13 to 18 years for girls and from 14 to 18 years for boys (Hurlock, 1973).

Adolescence in human life is the stage when rapid changes take place. The individual's physical, mental, social, moral and spiritual out looks undergo revolutionary changes. Such changes during adolescence are more rapid than during infancy and childhood. Due to these various changes his personality develops new

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dimension. In adolescence, certain in born maturational processes lead to various physical changes; growth is accelerated; bodily shape changes; primary and secondary sexual characteristics become marked; and hormonal level alters. Each of these physical changes produces psychological effect. Another important change in intellectual orientation that takes place near the beginning of adolescence appears in the child's ability to identify with the circumstance and people outside his own immediate environment. The individual has to make many decisions in his daily life which is necessary for successful adjustment in life. The formation of strong sentiments during this period intensifies the moral development. In this stage, morality is based on respect for others rather than on personal desires. They need a code of ethics to guide him in his human relations, so that he can face the problems of life with confidence and fortitude. One of the most difficult developmental tasks of adolescence relates to social adjustments. To achieve the goal of adult patterns of socialization the adolescent must make many new adjustments. The most important and in many respects the most difficult of which are those to the increased influence of the peer group, changes in social behavior, new social groupings, new values in friendship selection, new values in social acceptance and rejection and new values in the selection of leaders. During adolescence the individual wants to take independent decisions in different situations of his experiences. While adolescent emotions are often intense, uncontrolled and seemingly irrational, there is generally an improvement in emotional behavior with each passing year. Adolescents with better mental health are physically healthier, demonstrate socially positive behaviors and engage in fewer risky behaviors (Resnick, 2010).

The term adjustment refer to the extent to which an individual's, personality functions effectively in the world of people. It refers to the harmonious relationship between the person and the environment. According to Sinha (1988) adjustment is a precarious and even changing balance between the needs and desires of the individual on the one hand the demands of the environment on the society on the others. The adjustment is a process of interaction between oneself and one surrounding environment and so it is improbably bound up with the nature of human personality. The late mature adolescence suffers from criticism, and hostility and other various problems. Physiological differences are thus regarded as the main causes of behavioral differences in the early and late mature adolescents. In respect of health dimension, the college students face the problems related to eye sight /eye strain, difficulty in getting sleep, frequently getting tired towards the end of the day, loss of weight injury in accidents and frequent absence because of illness. The cognitive problems of adolescents are poor memory, decline in academic performance, lack of confidence, absenteeism, dullness and withdrawal, poor

attention/concentration, feelings of worthlessness, hopelessness, heavy work load, ambiguity of goals, lack of commitment to many activities and so many problems. An adolescent tends to react emotionally to any issue of situation. The adolescent is faced with many emotional and psychological problems. Adolescents face problems of at their home, school and society specially girls. Female students should better home adjustment, less hostility and less masculinity than their male counterpart; however male students had better emotional adjustment than female. Begum and Banu (1978) found that, maternal acceptance was positively related to girl's health adjustment only. Youth with mental health problems, such as depression are more likely to engage in health risk behavior. Several recent national studies have indicated more problematic psychological adjustment, behavior and health characteristics for multiracial adolescents when compared to their mono-racial peers. Udry, Li and Smith (2003) studied 3539 multiracial adolescents age 12 to 17 and found they had increased psychological adjustment, health and behavior risks when compare to monocracies adolescents. The problems arise out of the adolescent's adjustment in the society around him with following social group's family, school, associates of one's own sex and associates of the other sex. As the adolescent becomes more independent, he neither needs nor does so much care direction and attention of his parents, which parents still think necessary for his existence and well-being.

Adolescents face many adjustment problems with peers and social relationships. Many of adolescent's difficulties are caused by religion and culture in which they live. Srivastava (1997) observed that sex and caste play in important role in adjustment. The conditions that culture and religion imposes up on him are responsible for stress and strain. They feel that do not belong, that they are different, and that others view him with suspicion and hostility.

Mental health is an important area of focus for the present study and it is an essential component and foundation of overall health status. Mental health is defined as a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community (WHO, 2007). It is estimated that around 20% of the world's adolescents have mental health and behavioral problems. Depression in the single largest contribution to the global burden of disease for people age 15-19 and suicide is one of the three leading causes of mortality among individuals age 15-35 (UNICEF, 2011). Global epidemiologic data reports that up to 20% of children and adolescents suffered from mental illness and up to 50% of all adult mental disorders are rooted in adolescence (Belfer, 2008).

Comprehensive mental health assessments in surveys among adolescent populations are rare in Bangladesh. In an attempt to explore the prevalence of depression (Nasreen, Kabir, and Edhborg, 2013) concluded that depressive symptoms were found to occur commonly among adolescents in Bangladesh, with predominance in urban slums and among girls. We reviewed global research on adolescent mental health taking into account the nature of assessments and focused on studies in comparable populations and comparable indicators. For school-going adolescents, topics that have been associated with mental health are bullying, examination systems, and academic performance. Two studies on bulling in Finland and New South Wales, Australia, showed an association of psychosocial health and bullying – both those who are bullied and those who bully others were more likely to report poor health (Forero, Mclellan, Rissel, and Bauman, 1999). A qualitative study on teenage mental health in Ireland identified academic system of test- taking as a major source of stress. The study sought to explore ways of all aviating mental distress among teens by conducting focus group interviews. Teenagers reported examination system, particularly national school leaving examination, as a major source of stress (Ministry of Health and Children Affairs, 2009). A study exploring the correlation between the academic performances of 83 schools going adolescents at risk for major depression suggest that the participants suffering from depressive symptoms reported feeling sad which affected their academic performance at school, concentrate level in the class room, attendance level and competition of assignments (Humensky, *et al.,* 2010). However, there is very little published work on evaluation of different aspects of adolescent's adjustment. In this communication we bring into focus the observations made in our study designed to evaluate the adjustment problem of adolescents with mental health and sex.

Rationale of the Study

This study collected a lot of concept about adjustment problem and mental health. This type of study was not conducted in our country. To fill up this gap, the present study has been carried out. An adolescents begin to develop a sense of identify and taken on new responsibility, they spend more time with peers and less time with their parents. The period of adolescents is gateway through which one passes from childhood to adulthood. Because of the importance of this particular stage of life the present study aims to investigate the relationship of adolescents' adjustment problem with mental health and sex. It has assumed that the findings of this study will help to find out some factors associated with adjustment problem of the adolescen. The present study was designed to investigate the following issues.

Objectives

The main objective of the study was to find out the relationship between mental health and adjustment problem of urban adolescents. Specific objective were-

1. To identify the relationship between mental health and adjustment problems of adolescents.
2. To identify adolescents mental health level, and
3. Weather there is gender variation in adolescent adjustment.

Method

Sample

The participants of the study consisted 200 respondents who lived in different parts of Dhaka City. They were equally subdivided into boys (N = 100) and girls (N = 100) according to their gender. Each group was again equally subdivided into their socio-economic status. Their age ranged from 14 to 18 years and they were selected following purposive sampling method.

Measuring Instruments

The following instruments were used to collect data of the present study.

(1) Demographic and Personal Information Form: This form was used to collect personal and demographic information such as age, gender, socio economic status, and educational qualification.

(2) Mooney Problem Check Lists (MPCL): A revised form of Mooney Problem Checklists was used (Hasan, 1985) which was originally developed by Mooney and Gordon (1950). There are six forms of the check list. The College and High School Form of MPCL was used in this study. The College and High School Forms of MPCL had 11 categories and each category had 30 items. The eleven categories were: 1. Health and Physical Development (HPD), 2. Finance, Living Condition and Employment (FLE), 3. Social and Recessional Activities (SRA), 4. Social Psychological Relations (SPR), 5. Personal Psychological Relations (PPR), 6. Courtship, Sex, and Marriage (CSM), 7. Home and Family (HF), 8. Morals and religion (MR), 9. Adjustment to College (School) Work (ACW), 10. The further: Vocational and Educational (FVE), 11. Curriculum and Teaching Procedure (CTP). The MPCL is self-administering and the needed instruction is given on the cover page of the booklet. Respondents underline read through the checklist and underline the problem which are concern to them, circle the one's which are of most concern

and finally answer the four questions. The coefficient of this checklist was .62, which was significant at .01 level.

(3) General Health Questionnaire (GHQ-12): General Health Questionnaire developed by Goldberg (1978), translated into Bangla by Ilyas & Aeysha, (2002) was used to measure mental health of the respondents. It is a self administered screening test for detecting minor psychotic disorder in general population. Items of the scale were translated into Bangla. Then English and Bangla version were administered to 30 participants with a gap of 7 days. Half of the respondents were administered Bangla version first. Significant correlation [r (48) = .625, p < .001) between scores of English and Bangla versions indicated translation reliability of the scale. Test-retest reliability co-efficient of Bangla version was found .57 with a gap of two weeks. The Cronbach's Alpha coefficient for internal consistency of Bangla version was .82. This 12-items scale contains 6 positive and 6 negative items. It is a Likert type scale having 4 point response choices. High score in the scale indicates the high mental health problems.

cedure

The questionnaire was administered individually. Necessary rapport was plished before administering the questionnaire. For administering instruments, participant was given general instruction. Beside this general instruction, each ipant was given separate instruction for each of the measure and scales. They allowed to ask question freely if they had any problem regarding any item of

1. Mean (X) and Standard Deviation (SD) of General Health and Adjustment Problem Check List (N=200)

es	N	Mean (X)	Std. Deviation
	200	13.8050	4.447
			3.568

the scale. They were given the opportunity to withdraw from the study at any point, although all participants completed the study. Respondents who were spontaneous and showed positive attitude towards the research, were administrated the questionnaires. The participants were also given a personal Information Form (PIF) to collect information like- gender, age, educational background, socio-economic status, institutions name etc. The scales were administrated individually in their free time. Each respondent took half an hour in a average to fill up the questionnaires. After completing their task, the respondents were thanked for their kind participation and they were assured that, the information given by them would be kept secret.

Table 2. Statistical comparison between male and female group on the basis of general health and problem check list

Scale	Sex	n	Mean	Std. Deviation	t	p
GHQ12	Male	100	14.19	4.59	1.226	.222
	Female	100	13.42	4.28		
HPD	Male	97	6.76	3.52	-.261	.794
	Female	97	6.89	3.62		
FLE	Male	100	9.68	5.19	2.488	.014
	Female	92	7.86	4.85		
SRA	Male	98	9.60	4.60	1.251	.213
	Female	99	8.68	5.61		
CSM	Male	96	7.06	4.20	3.228	.001
	Female	79	5.05	3.97		
SPR	Male	98	8.15	4.69	1.323	.187
	Female	97	7.16	5.69		
PPR	Male	100	8.64	5.08	-1.169	.244
	Female	95	9.55	5.87		
MR	Male	100	7.89	3.83	3.598	.000
	Female	97	6.00	3.52		
HF	Male	100	7.25	3.95	1.560	.120
	Female	97	6.31	4.40		
FVE	Male	98	9.88	5.67	.306	.760
	Female	99	9.63	5.83		
ASW	Male	100	9.54	5.22	.252	.802
	Female	100	9.35	5.45		
CTP	Male	94	5.45	3.89	1.180	.240
	Female	87	4.75	4.06		
General Problem	Male	100	64.23	30.41	1.706	.090
	Female	100	56.70	31.98		
Severe Problem	Male	100	24.35	16.61	1.557	.121
	Female	100	20.83	15.33		

Results

The main objective of the study is to understand the mental health and psychological adjustment of urban adolescents. Statistical comparisons were made between male and female group on the basis of mental health and problem checklist are given in Table 2. Correlation co-efficient between adolescence mental health and Mooney Problem Check List are reported in table 3. To assess the effect on general health and adjustment problem ANOVA was performed. The results of this study are shown in the following tables.

Results shows significant differences between male and female participants with regards to the above problem check list variables, such as- Courtship, Sex, and Marriage (CSM) and Morals and religion (MR).

Results of the Table-3 shows that there is a significant difference (.05 level and .01 level) between adolescence mental health and above Mooney adjustment problem checklist variables i.e. Health and Physical Development (HPD), Finance, Living Condition and Employment (FLE), Social and Recessional Activities (SRA),

Table 3. Correlation co-efficient between adolescence mental health and Mooney adjustment problem checklist

Compared Variables	n	r
GHQ & HPD	194	.157*
GHQ & FLE	192	.203*
GHQ & SRA	197	.189*
GHQ & CSM	175	.193*
GHQ & SPR	195	.169*
GHQ & PPR	195	.306**
GHQ & MR	197	.113
GHQ & HF	197	.185**
GHQ & FVE	197	.177*
GHQ & ACW	200	.237**
GHQ & CTP	181	.040

*. Correlation is significant at the .05 level (2-tailed).
**. Correlation is significant at the .01 level (2-tailed).

Personal Psychological Relations (PPR), Home and Family (HF), The further: Vocational and Educational (FVE), Adjustment to College (School) Work (ACW). ANOVA indicate that in case of Courtship, Sex, and Marriage (CSM) [$F= 1.97$, $df = 23,194$, $p < .05$] there is a significant effect on mental health. In case of Adjustment to College (School) Work (ACW) [$F = 2.41$, $df = 23,199$, $p < .05$] there

is a significant effect on mental health of participants. From the result, in case of General adjustment problem [$F = 2.08$, $df = 23,199$, $p < .05$] indicate that there is a significant effect on adolescence mental health.

Table 4. Summary of ANOVA of Mental Health by Mooney problem checklist

Variables	Sum of Squares	df	Mean Square	F	Sig.
HPD	389.85	23	16.95	1.39	.120
FLE	774.93	23	33.69	1.34	.145
SRA	730.24	23	31.75	1.23	.223
CSM	712.61	23	30.98	1.97	.008
SPR	754.82	23	32.81	1.23	.220
PPR	1168.18	23	50.79	1.85	.014
MR	398.63	23	17.33	1.23	.221
HF	617.93	23	26.86	1.63	.041
FVE	1093.70	23	47.55	1.53	.066
ACW	1353.49	23	58.84	2.41	.001
CTP	258.24	22	11.73	.71	.822
General Adjustment Problem	41929.56	23	1823.02	2.08	004
Severe Adjustment Problem	6320.81	23	274.81	1.07	.375

Discussion

The mental health of people is a major public concern worldwide. Due to the supernatural beliefs surrounding mental illnesses in Bangladesh, patients and their families most often seek traditional treatment first. The present study was designed investigate the relationship of adolescents mental health with Mooney problem checklist. This study emphasis to identify the relation between mental health and psychological adjustment of adolescents and also to identify adolescents mental health level. The present study requires the following General Health Questionnaire, Mooney Problem Checklist and The Personal Information for demographic information are used. Based on the analysis of the data results were discussed. First, Table 2 shows that the gender variation of adolescent adjustment. Result shows significant difference between male and female participants with regards to the above problem checklist variables such as Courtship, Sex and Marriage (CSM) where mean score of male is 7.06 and female is 3.97 (3.228, $p < .001$). Another difference is for Moral and Religion (MR) where mean score of male female are

7.90 and 6.00 (3.598, $p <.001$). So in these variables there are significant differences between male female. Third, Table 3 shows that there is positive and significant correlation between General Health Questionnaire and Mooney Problem Checklist variables i.e. Health and Physical Development (HPD), Finance, Living Condition Employment (FLE), Social and Recessional Activities (SRA), Courtship, Sex and Marriage (CSM), Social Psychological Relation(SPR), The Further: Vocational and Educational(FVE) shows .05 level significant correlation to mental health. Another side Personal Psychological Relations (PPR), and Home and Family (HF) shows .01 level significant correlations to mental health.

Table 4 shows that Mooney Problem Checklist variables affect the mental health. Specially the two variables Courtship, Sex, and Marriage (CSM) [$F = 1.97$, $df = 23,194$, $p < .05$] there is a significant effect on mental health. In case of Adjustment to College (School) Work (ACW) [$F= 2.41$, $df= 23,199$, $p < .05$] there is a significant effect on mental health of participants. From the result, in case of General adjustment problem [$F = 2.08$, $df = 23,199$, $p <.05$] indicate that there is a significant effect on adolescence mental health. A number of studies have been done on the adjustment of adolescents. Kundu and Mitra (1969) found a more or less 'average' trend among adolescents in all areas of adjustment. Study shows that maladjusted person is disturbed with marked failures in life and unsatisfactory relations with others. Srivastava (1997) observed that sex and caste play in important role in adjustment. Several recent national studies have indicated more problematic psychological adjustment, behavior and health characteristics for multiracial adolescents when compared to their monorails peers. Udry, Li and Hendrikson & Smith (2003) studied multiracial adolescents and found they had increased psychological adjustment, health and behavior risks when compare to monocracies adolescents.

Based on the research findings and consideration of international literatures, the following steps could be taken by the parents, family members, college authority, teachers and counselor. First, the parents should be aware about the mental health and adjustment of their adolescent's children. It is the age of storm and stress so many difficulties may arise. Parents should maintain regular communication to their children teachers and peers. Secondly, the college authority needs to introduce range of policies to make parents aware about the mental health and adjustment about their children. Thirdly, in every college a college counselor post must be create to solving students' problems and improve mental health developments. Teachers should be trained on adolescents' adjustment to make understand their psychology. So that teachers can easily communicate and guide their students. Fourthly, a teacher can create a good communication with parents and make involve parents to solving

student's adjustment problems so that teacher would not invest much time on the student's problem. Thus, both teachers and parents will be benefitted once they work together. Fifthly, adolescent's period is the time of adjustment problem so awareness should be taken from family to community level. Different organizations are working for adolescents. They can provide free mental health service for adolescents. Now a day's many developmental programs are conducting for this purpose. If government will help these organizations and take more effective steps on these issues then adolescents get much better support from our society.

However, the study has its limitations too. Because of some practical reasons like time and financial constraint the researcher had to select the sample only from Dhaka City. Moreover, there was no empirical study available to prove the present study. There are many other variables which influence adjustment of adolescents which could not be investigated in the present study. Therefore, further research with representative sample including variables like socio-economic status, parent's educational qualification, parental behavior, relationships with parents, genetic and environmental factors etc. is suggested for the generalization of the findings as well as to have better understanding of the concept of adolescent adjustment.

Findings show that there is a connection between mental heath with adolescent adjustment problem. To find out the problematic factors and take positive initiative by parents, teachers, college authorities, and counselors these problematic adjustments can be balanced. In conclusion, it may say that this study has its own merits in throwing lights into an area which needs attention and further research.

References

Begum, H. A., & Banu, S. A. (1978). Bangla Version of Bell Adjustment Inventory, *Unpublished Manuscript*, Department of Psychology, University of Dhaka.

Belfer, M. (2008). Child and adolescent mental disorders: the magnitude of the problem across the globe. *The Journal of Child Psychology and Psychiatry, pp. 1-11.*

Forero, R., Mclellan, L., Rissel, C., & Bauman, A. (1999). Bullying Behavior and Psychosocial Health among School Students in New South Wales, Australia: Cross Sectional Study. *British Medical Journal, 319,* 344-347.

Goleberg, D. (1978). Manual of the General Health Questionnaire. *Windsor: NFER.*

Gupta, S. G. (2003). Teen depression. *Femina Girl, October*, 26 – 27.

Hasan, A. (1985). Problems of College Students of Bangladesh in Relation to Academic Achievement. Unpublished M.Phill. Thesis. Department of Psychology, University of Rajshahi.

Humensky, J., Kuwabara, S. A., Fogel, J., Wells, C., & Voohees, B. W. V. (2010). Adolescence Depressive Symptoms and Their Challenges with Learning in School. *The Journal of School Nursing, 26 (5)*, 377-392.

Hurlock, E. B. (1973). *Developmental Psychology: A Life-Span Approach*. (5th ed.). Tata McGraw-Hill Publishing Company Limited.

Ilyas, Q. S. M., & Aeysha, M. (2001). Bengali version of Goldberg General Health Questionnaire (GHQ). *Unpublished Manuscript*. Department of Psychology, Dhaka University, Dhaka.

Kundu, R., & Mitra, I. (1969). Personality Adjustment pattern of post-graduate male students. *Psychological Studies, 14*, 94-99.

Ministry of Health and Children Affairs (2009). *Teenage Mental Health: What Helps and What Hurts?* ISBN: 987-1-4064-2284-9. Olivia McEvoy. Dublin.

Mooney, R. L., & Gordon, L. V. (1950*). The Manual of Mooney Problem Chek List*, from-C, 204 East, 45th Sreet, New York-10017.

Nasreen, H., Kabir, Z., & Edhborg, M. (2013). "Prevalence and Associated Factors of Depressive Symptoms among Disadvantaged Adolescents in Bangladesh." Dhaka, BRAC-RED and Institute of Education, BRAC University, and Karolinska Institute Sweden.

Resnick, M. D. (2010). Protection, resiliency, and youth development, *Adolescent Medicine: State of the Art Reviews, 11(10)*, 157-164.

Sinha, K. (1988). A study of Adjustment and some Personality Variables in Female Graduates, *Mind, 14(2)*, 5-10.

Srivastava, S. K. (1997). Gender and Caste Difference in Adjustment. *Bangladesh Psychological Studies, 7*, 81-85.

Udry, J. R., Li, R. M., & Smith, J. H. (2003). Health and behavior risks of adolescents with mixed-race identity. *American Journal of Public Health, November, 93(11)*, 1865–1870.

UNICEF. (2011). The State of The World's Children 2011. *Adolescents: An Age of Opportunity*. New York: UNICEF.

Public Understanding and Adaptation with Climate Change in Bangladesh

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The purpose of the present study was to investigate the public understanding and adaptation with climate change in Bangladesh. Bangla version of the "Survey Questionnaire on Climate Change" was administered a sample of 75 students and 25 service holders who were selected by purposive sampling technique. The questionnaire had two dimensions and it was found that the attitude statements and the general statements on climate change were found to be significant at $p < .01$. Only three items of the attitude statements were found to be non significant at $p < .01$. Majority of the respondents identified air pollution as the most concerned environmental issue. It was found that a large portion of the respondents were affected by air pollution and they were also aware about the fact that their friends and family members might also been affected by it. The mass media was identified as not only the common but also as the trustiest source of information on climate change. The individual was identified as the most responsible for climate change and at the same time they were found to perform different activities to slow down the climate change process. Furthermore, the respondents were found to be quite familiar with the term climate change and they were trying their best to cope with it. Therefore it could be said that, climate change is a global concept and it needs higher authorities to provide the necessary measurements for coping with it.

Keywords: Public Understanding, Adaptation, climate change in Bangladesh.

Climate change is a change in the statistical properties of the climate system when considered over long periods of time. This time period may be as long as 30 years. Certain human activities have been identified as significant causes of recent climate change, often referred to as "global warming". Within the scientific journals, global warming refers to surface temperature increases while climate change includes

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global warming and everything else that increasing greenhouse gas levels will affect. There are some indicators of climate change by which we can assume that our climate is really changing.

The first and most common indicator of climate change is temperature rise. The IPCC predicts a rise in annual mean surface temperatures of between 1.4 and 5.8 degree Celsius over the period 1990 to 2100 that causes ice melt. Sea level rise is predicted to be between .09 and .88 meters over the period 1990 to 2100. Higher sea levels will have catastrophic affects for small pacific states and low-lying countries such as Bangladesh. The next indicator is extreme weather events. It is assumed that, increase precipitation will lead to more extensive flooding that leads to soil erosion and results in landslides which cause extensive damage to dwellings and livelihoods. Another indicator of climate change is length of the growing seasons. Increased climate variability is currently leading to unpredictable changes in the length of the growing seasons for all sorts of crops all around the world. Definitely there are some causal factors for which the climate is really changing.

The natural causes of climate change include volcanic eruptions. When a volcano erupts it throws out large volumes of sulphar-di-oxide, water vapor, dust and ash into the atmosphere. Large volumes of gases and ash can influence climate change patterns for years by increasing planetary reflectivity causing atmospheric cooling. We know that the oceans are a major component of the climate system. Changes in the ocean circulation may affect the climate through the movement of carbon dioxide into the atmosphere. The earth makes one full orbit around the sun each year. It is tilted at an angle of 23.5 degree to the perpendicular plane of its orbital path. Changes in the tilt of the earth lead to small but climatically important changes in the strength of the seasons.

The human causes of climate change include increased amount of greenhouse gases like CO_2, CO_3, CFC, Nitrate Oxide, Methane etc. Carbon dioxide is undoubtedly the most important greenhouse gas in the atmosphere. Changes in land use pattern, deforestation, land clearing, agriculture and other activities have all led to a rise in the emission of carbon dioxide. It is predicted that the atmospheric carbon dioxide will result in 1.8 to 3 degree Celsius in the 2050. Methane is another important greenhouse gas in the atmosphere. It is released from animals, such as, dairy cows, goats, pigs, buffaloes, camels, horses and sheep. It is also emitted during the process of oil drilling, coal mining, leaking gas pipelines, landfills and waste dumps.

The common impact of climate change on a low lying country like Bangladesh is soil salinity that affects soil fertility. In Bangladesh, soil salinity is observed only along the coastal belt. Tidal flooding during the wet season (June-October), direct

inundation by saline and upward or lateral movement of saline ground water during dry season (November-January) are the causes of soil salinity. Then, we observe the impact on length and frequency of drought. It is a very common natural disaster to the north-western people of Bangladesh. Every year, 3 to 4 million hectares of land are affected by droughts of different magnitudes. Another impact of climate change is on the availability of fresh water. Low river flow and increased evaporation in the dry period will reduce the amount of fresh water availability. In the coastal zone, there is the additional effect of saline water intrusion into the estuaries and into the ground water. Thus, reduced fresh water availability as a result of reduced supply and growing demand is a threat to all sectors including agriculture. The impact of climate change on the existing crop cultivars and crop patterns are expected most. Due to temperature and humidity changes, some crops will be eliminated or produce less.

Now a question arises as what was the adaptation process and coping responses towards this changing climate? Adaptation to the impacts of climate change has become pressing and urgent, given the alarming rapidity with which predicted climate changes are taking place. Adaptation can be defined as adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (IPCC, 2007). It may include responses made in anticipation of climate change impacts, responses that are a result of deliberate policy decisions based upon awareness of current or upcoming changes and "autonomous" or "spontaneous" responses that represent unplanned responses "triggered by ecological changes in natural systems and by market or welfare changes in human systems" rather than by conscious awareness of changes and specific adaptation plans.

Adaptation as a construct has been used in a variety of ways in Psychology. Like evolutionary psychologists have used adaptation to refer to characteristics that have increased human survival and reproduction (Halberstadt, 2006). Beyond this, adaptation has been used to refer to specific psychological responses such as sensory habituation to various stimuli (e.g., noise) or specific types of coping responses individuals can make to change in their physical environment, including natural disasters (e.g., Bell, Greene, Fisher, & Baum, 2001; Holahan, 1982). However, adaptation is also commonly used to refer to adaptation processes that involve, for instance, accommodating, assimilating, or adjusting to various contexts and new or difficult life circumstances (e.g., work situations, Hulin, 1991; new cultures; Rudmin, 2003; adoption, Tan, Marfo & Dedrick, 2007; chronic disease, Stanton, Revenson & Tennen, 2007).

Coping responses include actions or inhibitions of single, multiple and repeated behaviors done by individuals or groups such as communities as well as intra-psychic responses to climate change. These responses can proactive made in anticipation of an event or reactive made after an event (Aspinwall & Taylor, 1998; Reser, 2009 as cited in Swim and others, 2009). Two constructs often discussed in the climate change literature are resilience and vulnerability. Within Psychology, resilience refers to inner strengths and coping resources necessary for adaptation to situational demands (e.g., Bonano, 2004; Haggerty, Sherrod, Garmezy & Rutter, 1994; Luthar, 2003; Masten, 2001; Rutter, 1987, 1999; Schoon, 2006). Vulnerability refers to the extent to which systems and individuals are susceptible to and unable to cope with adverse effects of climate change (Hartmann & Barajas-Roman, 2009).

The present study was aimed to investigate what people know about climate change and how are they trying to adapt with this changing climate in Bangladesh. As climate change is burning global issue and people are directly affected by it, so this study results will help to know about the level of understanding of people and adaptation process. This study findings will help to design plan and action to challenge the impacts of climate change.

Method

Participants

This study includes 75 students and 25 service holders as sample by following purposive sampling technique. All of the students were selected from the University of Dhaka. On the other hand the service holders were selected from both private and public job sector.

Measures

The Bangla version (Uddin & Khan, 2013) of the Survey Questionnaire on Climate Change (Whitmarsh, 2005) was used to collect data about public understanding and adaptation process on climate change. The questionnaire had 10 questions. Question 1 was about some environmental issues that concern the respondents most. Question 2 was about if the respondents have ever been affected by air pollution. Question 3 was about apart from the respondents own health, if they were aware about the effect of air pollution on their friends or family members. Question 4 was about the sources of information from which the respondents have heard of climate change. Question 5 was about the trustworthiness of the sources of information on a 5-point rating scale towards climate change. In Question 6, the respondents were asked to whom they think should have the main responsibility for tackling climate change. Question 7 had 32 attitude statements on a 5-point

rating scale towards climate change. Question 8 had 10 general statements on a 5-point rating scale towards climate change. Question 9 had a list of activities that the respondents might do in response to climate change. Finally, question 10 was about the condition of the transport system of the respondents' residential area. To test the reliability of the translated scale, the bangle version of the questionnaire was administered on a purposively selected sample of 15 students within a gap of 10 days. Significant correlation $(r = .997)$ indicated translation reliability of the scale. High Cronbach alpha $(a = .994)$ of the Bangla version further indicated internal consistency of the scale. It was significant at 0.01 levels. The validity of the original version of the questionnaire was determined by Whitmarsh (2005) and was significant at $p < .05$. Along with above questionnaire, a demographic and personal information questionnaire was used to collect information about the respondents age, sex, educational qualification, newspaper which they read usually and if they were related with any environmental club or organization.

Procedure

At the beginning of the data collection process, the respondents were informed about the purpose and importance of the study and necessary rapport was established with them. Respondents were given written instructions along with the questionnaire. They were asked to read the questions very carefully and express their opinion. They were assured that the information collected from them would be strictly confidential and would be used for only research purposes. After completing their task, they were thanked for their cordial cooperation.

Results

In question 1, the respondents were asked about environmental issues they thought to be concerned most. The results of the analysis are presented in Table 1.

Table 1. Percentage of the total respondents concerned with the environmental issues

Issues	% respondents
Air pollution	83
Poor waste management	53
Traffic jam/congestion	50
Overpopulation	49
Climate change	44
Radioactive waste	41
Pollution of rivers and seas	39
Flooding	37
Using up the earth's resources	27
Extinction of the species	25

Results from Table 1 shows that respondents were most concerned with air pollution (83%) as indicator of climate change. Others more concerned indicators were poor waste management (53%), traffic jam/ congestion (50%) etc. In question 2, the respondents were asked whether air pollution ever affected their health. The results of the analysis is presented in Table 2.

Table 2. Percentage of the total respondents affected by air pollution

Response options	% respondents
Yes	76
No	15
Don't know	9

Results from Table 2 shows that 76% respondents were affected by air pollution. In question 3, the respondents were asked if air pollution has ever affected the health of any of their family or friends. The results of the analysis is presented in Table 3.

Table 3. Awareness of the respondents if air pollution ever affected the health of their friend or family

Response options	% respondents
Yes	61
No	20
Don't know	19

Results from Table 3 shows that 61% respondents were concerned about health of their friend and family affected by air pollution. In question 4, the respondents were asked from where they have heard about climate change. The results of the analysis is presented in Table 4.

Table 4. The sources of information on climate change selected by the respondents

Sources	% respondents
Television	92
Newspaper	87
School/College/University	59
Internet	57
Friends/ Family	55
Radio	42
Environmental groups	28
Specialized publications	25
Public library	21
Government agencies	16

Analysis regarding question 4 in Table 4 shows that respondents identified television (92%) and newspaper (87%) as most common sources of information on climate change. Other sources were educational institutions (59%), internet (57%), friends and family (55%) etc. In question 5, the respondents were asked about the trustworthiness of the sources of information on climate change. The results of the analysis is presented in Table 5.

Table 5. The trustworthiness of the sources selected by the respondents (Multiple Responses)

Sources	A lot	A little	Not very much	Not at all	Uncertain
Television	52%	39%	8%	1%	
Radio	27%	47%	17%	2%	7%
Newspaper	53%	38%	3%	5%	1%
Internet	36%	57%	4%	2%	1%
Specialist publications	23%	47%	19%	6%	5%
Environmental groups	26%	52%	20%	2%	
School/College/University	40%	52%	6%	2%	
Government agencies	17%	57%	18%	3%	5%
Public library	15%	57%	12%	8%	8%
Friends/Family	37%	50%	13%		
Government	17%	59%	11%	7%	6%
A scientist	36%	14%	12%	8%	30%

Results from Table 5 shows that newspaper (53%) and television (52%) were more trustworthy sources of information. This results also shows that trustworthiness of sources of information like public library (15%), government (17%), government agencies (17%) were less. In question 6, the respondents were asked who they thought should have the main responsibility for tackling climate change. The results of the analysis is presented in Table 6.

Table 6. The respondent's identification on who is more responsible for climate change

Category	% respondents
Individuals	40
The national government	24
International organizations	18
Business and industry	12
Environmental club/group	6

Analysis regarding question 6 in Table 6 shows individuals (40%) was identified as most responsible for climate change. In question 7, the respondents were asked about respondents attitudes to climate change (closed questions). The results of the analysis is presented in Table 7.

Table 7. Percentages of the respondents' attitudes to climate change

Statements	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	Chi-square value
We can all do our bit to reduce the effects of climate change	65%	28%	3%	4%		103.40*
Climate change is inevitable because of the way modern society works	36%	41%	14%	6%	3%	60.90*
People should be made to reduce their nergy consumption if it reduces climate change	29%	44%	21%	5%	1%	61.80*
Climate change will improve the Bangladeshi weather	13%	11%	32%	12%	32%	26.50*
Climate change is just a naturalfl uctuation in earth's temperature	5%	17%	27%	34%	17%	45.40*
I would only do my bit to reduce climate change if everyone else did as well	19%	23%	25%	19%	14%	5.10*
The government should provide incentives for people to look after the environment	32%	26%	17%	18%	7%	23.20*
It is already too late to do anything about climate change	6%	11%	7%	22%	54%	83.60*
Human activities have no significant impact on global temperatures	7%	6%	8%	41%	38%	74.60*
Climate change is something that frightens me	14%	28%	33%	8%	17%	22.60*
Developing countries should take most of the blame for climate change	29%	22%	12%	20%	17%	3.40
I am uncertain about whether climate change is actually happening	6%	13%	10%	34%	37%	40.50*
Radical changes to society are needed to tackle climate change	46%	33%	11%	8%	2%	72.60*
People are too selfish to do anything about climate change	14%	41%	18%	16%	11%	23.50*
The evidence for climate change is unreliable	15%	13%	35%	29%	8%	28.10*
The United States should take most of the blame for climate change	26%	31%	14%	12%	10%	14.80*
Claims that human activities are changing the climate are exaggerated	12%	48%	14%	20%	6%	73.04*

Statements	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	Chi-square value
If I come across information about climate change I will tend to look at it	13%	41%	36%	8%	2%	67.50*
Leaving the lights on in my home adds to climate change	16%	22%	49%	9%	4%	67.50*
Climate change is a consequences of modern life	16%	42%	19%	18%	5%	51.70
The effects of climate change are likely to be catastrophic	53%	23%	15%	9%		51.44*
Nothing I do makes any differences to climate change one way or another	5%	22%	30%	28%	15%	32.50*
Pollution from industry is the main cause of climate change	21%	49%	14%	14%	2%	55.90*
It is too early to say whether climate change is really a problem	5%	12%	33%	21%	29%	36.70*
The media is often too alarmist about issues like climate change	5%	29%	31%	32%	3%	40.30*
There is no point in me to do anything about climate change because no one else is	10%	22%	14%	14%	40%	41.30*
Experts are agreed that climate change is a real problem	43%	38%	10%	7%	2%	78.50*
Industry and business should be doing more to tackle climate change	30%	50%	12%	7%	1%	76.30*
For the most part, the government honestly wants to reduce climate change	13%	46%	18%	16%	7%	48.60*
The government is not doing enough to tackle climate change	26%	42%	14%	18%		17.60*
I do not believe climate change is a real problem	21%	26%	13%	21%	19%	5.800
I feel a moral duty to do something about climate change	45%	38%	9%	6%	2%	85.70*

*P < .001

In question 8, the respondents were asked to indicate how much did they agree or disagree with statements about climate change. The results of the analysis is presented in Table 8.

From the above mentioned results in Table 7 and 8, it is seen that, except 3 attitude statements, the rest of all statement (attitude & general) were found to be significant (p<.01). The majority of the respondents agreed that industry and business (50%), and the government (46%) should do more to tackle climate change, while they strongly agreed that everyone could do their bit to tackle climate

Table 8. Percentages of the total respondents agree or disagree with the general statements

Statements	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	Chi-square value
Jobs today are more important than protecting the environment for the future	35%	30%	18%	10%	7%	31.90*
I am unwilling to make personal sacrifices for the sake of the environment	13%	42%	17%	18%	10%	32.00*
If my job caused environmental problems, I'd rather be unemployed than carry on causing them	2%	34%	33%	16%	15%	42.30*
Humans have the right to modify the natural environment to suit their needs	14%	34%	19%	28%	5%	46.90*
Humans are severely abusing the planet	42%	39%	13%	4%	2%	71.20*
Nature is strong enough to cope with the impact of modern industrial nations	8%	17%	32%	34%	9%	105.60*
Humans were meant to rule over the rest of nature	8%	18%	31%	35%	8%	36.30*
Plants and animals have the same rights as humans to exist	55%	28%	12%	3%	2%	43.90*
The balance of nature is very delicate and easily upset	6%	37%	29%	24%	4%	46.40*
Having a car is part of having a good lifestyle	19%	31%	10%	28%	12%	20.30*

*P < .001

change (65%). They also supported the idea that, the nature of human being and modern society means that actions should be equitably enforced, rather than left up to individuals.

A widespread tendency to place responsibility for tackling climate change with the government and industry, a large part of the respondents agreed that for the way modern society works climate change was inevitable (41%), pollution from industries was main cause for climate change (49%) and climate change was a consequence of modern life (42%). Similarly, although most respondents have little faith in other people to tackle climate change, a majority (45%) claimed to feel a moral obligation to do something about the issue, and very few (10%) have felt that there is no point in doing anything about it. It is also noteworthy that, 32% of the respondents have disagreed that "The media is often too alarmist about issues like climate change" reflecting the ambivalent views in media trustworthiness noted earlier. Among them, 41% disagreed and 38% strongly disagreed that "Human activities have no significant impact on global temperatures". Majority of respondents strongly agreed that plants and animals had same rights as human exist (55%), human were severely abusing planet (42%). Among respondents, 42% agreed on unwillingness to make personal sacrifices for the sake of the environment.

Question 9 was about a list of activities that the respondents usually do to slow down the climate change process. For each one that they do regularly, they were asked to indicate the reason or reasons for doing so. The results of the analysis are presented in Table 9.

Table 9. Activity list that the respondents usually do to save the environment

Activities	Conven ience	To save money	To protect the environment	For my health	Moral obligation
Walk or cycle to work	46%	32%	10%	10%	4%
Use public transport	44%	43%	10%	3%	-
Turn off lights I am not using	9%	29%	16%	2%	44%
Buy energy efficient light bulbs	8%	34%	32%	6%	20%
Recycle other items	36%	26%	24%	6%	8%
Take part in a campaign about an environmental issue	8%	4%	40%	15%	33%
Buy organic food	20%	5%	11%	59%	5%

In question 10, the respondents were asked about the condition of the transport system in their residential area. The results of the analysis is presented in Table 10.

Results from Table 10 shows that 43% respondents reported that transport system condition was average, while 8% only responded as excellent.

Table 10. The condition of the transport system identified by the respondents

Response options	% respondents
Excellent	8
Good	24
Average	43
Bad	15
Worse	10

Discussion

The objective of the present study was to identify what people know about climate change and how are they trying to adapt with changing climate. It was found that, the respondents were more concerned with air pollution as an indicator of climate change than any other environmental issues given in the list of concerns. It was also found that, the respondents were usually affected by air pollution and in most of the cases they were well aware that their relatives or friends might also be

affected by it. As we predicted, the mass media was identified as the most common sources of information on climate change where the least popular sources were government organizations, public library and the specialized publications. In case of trustworthiness of the sources of information on climate change, as predicted, the mass media was again identified as the trustiest source of information on climate change. It was found that; majority of the respondent would identify themselves as their activities were more responsible for climate change. It was also found that, the service holders were less likely to give up their job for the sake of the climate change. This finding was the only difference between the findings of the present study and the findings of a previous study on the same topic done by Whitmarsh (2005). This was probably because as ours is a developing country in comparison with England as the previous study was conducted there.

In a developing country like ours getting a good job is considered as a huge achievement and when it comes to give up that job for the sake of the environment, it seemed from the findings of the present study as quite extravagant. It was also found from the obtained result that, the students did know much more about climate change and they were also predicted to be more active in response to climate change than the service holders. It can therefore easily be said that, in case of Bangladesh, the term climate change is still ambiguous. The mass media (radio, television and newspaper), the government organizations along with the scientists, specialized publications and different environment groups are trying their best to make people aware about not only what is climate change and what are its indicators, causes and effects but also what we can do to reduce the extremeness of it.

From the obtained result it was found that, 59% of the respondents were strongly agreed that they feel it was their moral duty to do something about climate change. Majority of the respondents were agreed that their activities were more responsible for climate change. It seemed that, the respondents are not trying their best to do something different against climate change and from a conversation with some respondents it was also found that, they were waiting for the initiatives that might be taken by the government or the industrial sector along with the different environment organizations. 65% of the respondents have strongly agreed that to reduce the effect of climate change we could try our best. On the other hand, 41% of the respondents agreed that we should be more careful about the way modern society works and for which climate change is inevitable. Another important finding of the present study was that, 32% of the respondents have strongly disagreed that climate change would improve the weather of Bangladesh. Where 54% of the respondents have strongly disagreed that, there is nothing to do about climate change.

This is potentially an important finding, because, as the respondents thought that there is still something that we can do to reduce the effects of climate change, they might cooperate fully if the initiatives were taken as early as possible. The respondents usually perform different activities for adapting with the changing climate. From the findings it was also seen that, 46% of the respondents usually walks or use cycle for going their work place for their own convenience where only 10% of the respondents have indicated that, they did so for the sake of the environment. This finding may be a controversial one, because, majority of the respondents didn't perform that activity for the sake of the environment, but still it is important as this activity helps to slow down the climate change process. When the respondents were asked did they turn off the lights they were not using? 44% of the respondents have indicated that, they did turn off the lights from their moral values and 16% of the respondents have indicated that they did so to save the environment. On the other hand, 40% of the respondents have indicated that, they took part in different environment related programs to save the environment where, 33% of the respondents have indicated that, they did so from their moral values. From the findings it seemed to the researcher that, in case of moral values, they respondents were more active in response to climate change but when it comes to them for real to do something or take an initiative against climate change they just wait for others. This might be a controversial finding, because, 40% of the respondents strongly disagreed that, individually they have nothing to do about climate change and at the same time they didn't take any initiative or perform an action that may slow down the climate change process. One possible reason may be, they (40% of the respondents) might try to present themselves as active in response to climate change where in reality they were not.

Chi-square analysis indicated that, attitude differs according to terminology. There was significantly higher agreement (65%, $p<.01$) with the statement "we can all do our bit to reduce the effects of climate change", (41%, $p<.01$) with the statement "Climate change is inevitable because of the way modern society works", (44%, $p<.01$) with the statement "people should be made to reduce their energy consumption if it reduces climate changes", (46%, $p<.01$) with the statement "radical changes to society are needed to tackle climate change", (41%, $p<.01$) with the statement "if I come across information about climate change I will tend to look at it", (53%, $p<.01$) with the statement "the effects of climate change are likely to be catastrophic", (49%, $p<.01$) with the statement "pollution from industry is the main cause of climate change", (45%, $p<.01$) with the statement "I feel a moral duty to do something about climate change", (42%, $p<.01$) with the statement "human are severely abusing the planet", and (55%, $p<.01$) with the statement "plants and animals have the same rights as human to exist". Significantly more

respondents (34%, $p < .01$) disagreed that "Climate change is just a natural fluctuation in earth's temperature", (54%, $p<.01$) with the statement "it is already too late to do anything about climate change", and (41%, $p<.01$) with the statement "human activities have no significant impact on global temperatures". These findings relate to the finding, discussed above, that more respondents see climate change as a human caused problem. Furthermore, respondents appeared to view climate change as a more serious issue, for instance, 29% of the respondents strongly disagreed that, "It is too early to say whether climate change is really a problem". This study also examined concern about climate change relative to concern about other environmental issues. The respondents were asked to select as many issues as they felt applicable from a list of 10 environmental issues. Overall, we can see that, concern about local environmental issue is generally higher than concern about global issues. The most popular environmental concern, selected by 83% of the respondent is "air pollution" while "water pollution" and "traffic/congestion" are also popular environmental concerns. Climate change was ranked midway and 44% of the respondents listed it as a concern.

As other studies have shown, (e.g., DEFRA, 2002, 2007), awareness of the term climate change is nearly universal. Broadly speaking, there was also recognition amongst respondents about the causes and impacts of climate change. Furthermore, the findings of the present study are found to be consistent with the findings of the previous study done by Whitmarsh (2005). In the present study, the measuring instruments investigated only 75 students and 25 service holders understanding level on climate change and how were they trying to adapt with this changing climate. Therefore further studies considering all type of people, a better picture on this issue may be found. Although some limitations were present in this study, the obtained results have important implications amongst some sections of the public for basic education about the salient features of climate change.

References

Aspinwall, L. G. (2004). Dealing with adversity: Self-regulation, coping, adaptation, and health. In A. Tesser & N. Schwarz (Eds.), *Blackwell handbook of social psychology: Intraindividual processes* (pp. 591-614). Oxford: Blackwell Publishing.

Bell, P. A., Greene, T. C., Fisher, J. D., & Baum, A. (2001). *Environmental psychology* (5th ed.). Fort Worth: Harcourt College Publishers. Retrieved May 7, 2013, from http://www.sagepublications.com.

Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist, 59,* 20-28.

Department for Environment, Food, and Rural Affairs [DEFRA]. (2002). *Survey of Public Attitudes to Quality of Life and to the Environment-2001*. London: DEFRA.

Department for Environment, Food, and Rural Affairs [DEFRA]. (2007). *Survey of Public Attitudes and Behaviors towards the Environment-2007*. London: DEFRA.

Halberstadt, J. (2006). The generality and ultimate origins of the attractiveness of prototypes. *Personality and Social Psychology Review, 10*(2), 166-183.

Holahan, C. J. (1982). *Environmental Psychology*. New York: Random House.

Hulin, C. L. (1991). Adaptation, persistence, and commitment in organizations. *Handbook of industrial and organizational psychology, 2*, 445–505.

Haggerty, R.J., Sherrod, R., Garmezy, N., & Rutter, M. (1994). *Stress, risk, and resilience in children and adolescents: Processes, mechanisms, and interventions*. New York: Cambridge University Press.

Hartmann, B., & Barajas-Roman, E. (2009). *Reproductive justice, not population control: Breaking the wrong links and making the right ones*. Paper presented at the WE ACT for Environmental Justice conference on Advancing Climate Justice: Transforming the Economy, Public Health and Our Environment, New York.

Intergovernmental Panel on Climate Change [IPCC]. (2007). *Glossary of Terms used in the IPCC Fourth Assessment Report: Working Group II (WG2)*. Retrieved June 15, 2009, from http://www.ipcc.ch/glossary/

Luthar, S. A. (2003). *Resilience and vulnerability: Adaptation in the context of childhood adversities*. New York: Cambridge University Press.

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist, 56*(3), 227-238.

Rudmin, F. W. (2003). Critical history of the acculturation psychology of assimilation, separation, integration, and marginalization. *Review of General Psychology, 7*(1), 3-37.

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry, 57*, 316-331.

Schoon, I. (2006). *Risk and Resilience: Adaptations in changing times*. Cambridge: Cambridge University Press.

Stanton, A. L., Revenson, T. A., & Tennen, H. (2007). Health Psychology: Psychological adjustment to chronic disease. *Annual Review of Psychology, 58*, 562-592.

Swim, J., Stern, S., Doherty, T., Clayton, S., Reser, J., Weber, E., Gifford, R., & Howerd, G. (2009). *Psychology and Global Climate Change: Addressing a Multifaceted Phenomenon and Set of a Challenges*. Report of the American Psychological

Association Task Force on the Interface between Psychology and Global Climate Change. APA: USA.

Tan, T. X., Marfo, K., & Dedrick, R. F. (2007). Special needs adoption from china: Exploring child-level indicators, adoptive family characteristics, and correlates of behavioral adjustment. *Children and Youth Services Review, 29*(10), 1269-1285.

Uddin, M. K., & Khan, M. I. (2013). *Bangla translation of the Survey Questionnaire on Climate Change.* Dhaka, Bangladesh: Department of Psychology, University of Dhaka.

Whitmarsh, L. (2005). *A Study of Public Understanding of and response to Climate Change in the South of England.* Unpublished doctoral thesis. Department of Psychology, University of Bath. Retrieved November 2, 2013, http://www.pus.sagepub.com

Whitmarsh, L. (2005). What's in a name? Commonalities and differences in public understanding of climate change and global warming. Public Understanding of Science 2009; 18; 401; DOI: 10.1177/0963662506073088.

Relationship between Student Engagement and Coping Strategy of University Undergraduates

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The aim of the present study was to determine whether there is any relationship between student engagement and coping strategy among public and private university undergraduate students in Bangladesh. Moreover, it investigated the differences in student engagement and coping strategy between male and female students and also examined the interrelation among the variables. Two hundred (200) respondents were chosen by purposive sampling method from pointed areas in Dhaka city. In order to measure the variables, a self-developed demographic questionnaire, adapted Bangla version of the Student Stress Scale and Coping Strategy Scale were administrated on the respondents. The results indicated that there were no significant differences in student engagement and coping strategy among public and private university undergraduates. The results further showed that there was a significant difference in student engagement but not found significant difference in coping strategy between male and female undergraduates. Furthermore, the results of the current study also demonstrated that the coping strategy is positively and significantly related to student engagement.

Keywords: coping strategy, student engagement, male and female, public and private university undergraduates

The concept of engagement was extended by Finn and Voelkl (1993) to include both behavioral and affective or psychological components that are viewed as mutually beneficial. Contemporary conceptualizations of student engagement emphasize its influence on academic achievement rather than behaviors. It is the action component of our model of motivational development (Connell & Wellborn, 1991; Deci & Ryan, 1985; Skinner & Wellborn, 1994). It refers to energized, directed, and sustained action, or the observable qualities of students' actual

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interactions with academic tasks. Student engagement is rapidly becoming a dominant concept in the management and organization of higher education (Leach & Zepke, 2012). Student engagement refers to the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught.

A coping strategy is a conscious effort to solve a personal or interpersonal problem that will help in overcoming, minimizing, tolerating stress or conflict (Davis, 2016). In psychology, coping is expending conscious effort to solve personal and interpersonal problems, and seeking to master, minimize or tolerate stress or conflict (Janeth, 2015). The effectiveness of the coping efforts depends on the type of stress and/or conflict, the particular individual, and the circumstances.

The first time a young person leaves home to enter college and embark upon early adulthood can be a psychologically and emotionally taxing period. A large number of studies suggested that there was a positive link between student engagement and coping skill (Ames et al., 2011; Asberg, Bowers, Renk, & McKinney, 2008; Dyson & Renk, 2006; Fisher & Hood, 1987; Larose & Boivin, 1998; Renk & Smith, 2007; Shaver, Furman, & Buhrmester, 1985). New and transitioning students were highly involved in academic and extracurricular activities as well as they were also belonging in a good mental health and strong coping skills (Cutrona, 1982; Pritchard, Wilson, & Yamitz, 2007; Reynolds, MacPherson, Tull, Baruch, & Lejuez, 2011; Shaver et al., 1998; Wintre & Yaffe, 2000). Conversely, better adjustment to college seems to predict better overall health, well-being and, as well as better academic performance (Aspinwall & Taylor, 1992). Studies of other correlates of negative emotions and low coping skill have established associations with stress in students (Austin, Saklofske & Mastoras, 2010) and with poorer academic adjustment and low student engagement (Halamandaris & Power, 1999). Researchers found that, academic performance and academic engagement had positively associated with highly adaptive quality and coping skills (Lewis, Huebner, Reschly, & Valois, 2009; Pekrun, Elliot & Maier, 2009; Reschly, Huebner, Appleton, & Antaramian, 2008).

Rationale of the Study

Now a days student face many problems with engagement and coping strategies when they first take admission into a University. They do not have any prior knowledge about their new role in life and the adjustment. They feel confused, uncertain and anxious with the new atmosphere. Students who can cope with any situation will be able to perform better in the university and if they get proper facility

from the university they will successfully cope with academic stress. If they have adaptive coping strategies and engagement skill they will face their problems adjustably. As a consequence students will have better mental health and will be better in leading their life.

In Bangladesh, educational facilities are different in public and private universities. They vary in terms of environment, teaching methods, facilities, evaluation system etc. Research has shown that, students of public university students get more facilities than private universities changed (Zaman & Muhammad, 2012). Again gender is the external factor which influences engagement and coping strategy. Angier and Chang (2005) found gender differences in cognitive skills. But university gives equal facilities to both male and female students. Because of the importance of these particular issues in the university the present study aimed to investigate student engagement in both male and female students of public and private universities.

Objectives

The objectives of the present study were

1. To see whether there are any differences in student engagement and coping strategy among public and private university undergraduates.
2. To explore whether there are any differences in student engagement and coping strategy according to gender.
3. To investigate the relationship between student engagement and coping strategy of undergraduate students.

Hypotheses

In the light of the above literature and the objectives, the following hypotheses were formulated to examine in the present study:

H_1: There will be significant differences in the coping strategy and student engagement among public and private university undergraduates.

H_2: There will be significant differences in the coping strategy and student engagement between male and female undergraduates.

H_3: Coping strategy will be positively correlated with student engagement.

Method

Participants

A cross-sectional survey research method was used for this research. The sample was made up of 100 from private and 100 from public university undergraduates.

Participants were selected by purposive sampling technique studying in various subjects at undergraduate level. Every respondent was chosen in terms of age ranged 19-23 years. Among 118 of them said that, they were satisfied to their present subject and 82 were not satisfied. It is to be noticed that all members energetically tuned in the study and were affirmed that their cooperation was intentional and their answers could stay confidential.

The following figure is a presentation of some demographic variables of the respondents which are represented through the percentage and total score value of the variables.

Design of the Study

The present study has been conducted by following the cross-sectional survey research-design. According to this design all data have been collected from the respondents at a single point in time.

Table 1. Number of Items and Internal Consistency of Student Engagement Scale

Student Engagement Variables	No. of Item	Total Item Consistency	Internal
Transition Engagement Scale (TES)	01-07	07	.721
Academic Engagement Scale (AES)	08-17	10	.778
Peer Engagement Scale (PES)	18-26	09	.859
Student-staff Engagement Scale (SES)	27-37	11	.861
Intellectual Engagement Scale (IES)	38-42	05	.716
Online Engagement Scale (OES)	43-55	13	.871
Beyond-class Engagement Scale (BES)	56-61	05	.723

Measures

For data collection the following assessment instruments were employed in this study: 1) Personal Information Form 2) Student Engagement Scale (Kerri-Lee Krause & Hamish Coates, 2000) and 3) Coping Strategies Scale (Folkman & Lazarus, 1980).

Demographic and personal information form. The PIF elicited demographic, personal, and social information that included respondent's gender, age, grade in school, types of institute, home town (urban & rural) family socioeconomic status etc.

Student engagement scale. To assess individuals' academic involvement Student Engagement Scale (Kerri-Lee, Krause, & Hamish Coates, 2000) was used which

was published by Australian Council for Educational Research in Griffith University. The Bangla version was translated by Zaman & Hossain (2015) that contains 61 items and participants rated each item using a 5 point scale anchored" 1" (*Not at all*), "2"(*A little*),"3" (*Uncertain*), "4" (*A lot*), "5" (*Very much*). The 61 items of the scale evaluates seven engagement status: transition engagement measures first year student views on three dimensions of the transition process ; academic engagement measures the capacity to manage one's time, study habits and strategies for success as a student ; peer engagement measures three contexts in which engagement occurs; student-staff engagement measures the critical role academic staff plays in helping first year students to engage with their study and the learning community as a whole; intellectual engagement measures students' views on the extent to which their subjects provide intellectual stimulation and challenge and also students' views on the level of intellectual stimulation in their course after almost one year of study. Items of online engagement sub-scales measures three main ways in which first year students engage online. Items reported in last part (beyond-class engagement) of the scale measures students' sense of belongingness and social connectedness with other students beyond the classroom setting. The scale has demonstrated internal reliability, achieving a Cronbach alpha coefficient of .745 ($N = 200$) with all items producing significant corrected item-total scale correlations. The sum of the scores of all items was the score for the individual. High scores (305) indicate high level of student engagement and low scores (61) indicate low level of student engagement.

Coping strategy scale. Bangla version (Haque, 2004) of coping strategy scale was used which originally developed by Folkman and Lazarus (1980) to measure coping behavior of the respondents. This tool contains 22 items and participants rated each item using a 4 point scale anchored "1" (*I usually don't do this at all*), "2" (*I usually do this sometimes*), "3" (*I do this most of the time*), "4" (*I do this always*). Among the 22 items 13 items are coping adaptive type and 9 items are coping non-adaptive type. The scoring of item number 1,2,4,5,6,12,14,15,18,19,20,21 and 22 respondents got '1' for "I usually don't do this at all", '2' for "I usually do this sometimes" '3' for "I do this most of the time" & '4' for "I do this always". The sum of the total score was the adaptive coping strategy score of the respondents. The scoring of item number 3,7,8,9,10,11,13,16 and 17 were in reverse order. The sum of the total score was the non-adaptive coping strategy score of the respondents. The reliability of the translated version of the coping scale was reported to be highly significant($r = 0.86$, $p < 0.01$). The test-retest reliability of the Bangla version of each of the subscales was also reported to be significant ($r = 0.80$, $p < 0.01$).

Procedure

For collecting proper information from participants, at first, permission was taken from the concerned authority. Necessary rapport was established before administration of the test and all the subjects were treated individually for each of the specific conditions. Each participant was well instructed both verbally and in written form. At first participants were asked to fill up the personal information form (PIF) which was attached with the first page. The questionnaires were provided after the participants were appropriately instructed. The respondents were allowed to ask question freely if they had regarding any item of the scale through the process. After completing the questionnaires the respondents were expressed gratitude toward for their kind co-operation by the researchers.

Results

The aim of the present investigation was to find out the relationship between student engagement and coping strategy of undergraduates. The data obtained from the returned surveys were analyzed through SPSS software version 16 to prove the formulated hypotheses. Both descriptive and inferential statistics were calculated which have been presented in the following tables.

The results presented in Table 2 indicated that there was a significant difference among public and private universities undergraduates in terms of their online engagement ($t = -3.882, p < .05$). Findings also suggested there was no significant

Table 2. Difference in Student Engagement and Coping Strategy among Public and Private University Undergraduates

Variables	Public University		Private University		t
	X1	SD	X2	SD	
Coping Strategy	61.370	6.711	60.730	6.707	.675
Student Engagement	189.380	30.094	187.850	27.704	.374
Transition Engagement	20.830	3.923	21.610	3.419	-1.499
Academic Engagement	25.070	5.199	25.820	5.219	-1.018
Peer Engagement	29.440	4.566	28.750	3.921	1.146
Student-staff Engagement	34.070	8.788	34.180	8.284	-.091
Intellectual Engagement	16.860	6.093	16.440	6.752	.462
Online Engagement	42.120	11.176	45.770	10.461	-3.882*
Beyond-class Engagement	20.990	4.829	20.280	4.158	1.114

* t test is significant at the .05 level (2 tailed)

difference among public and private university students in their coping strategy, student engagement, transition engagement, academic engagement, peer engagement, student-staff engagement, intellectual engagement and beyond-class engagement.

The results presented in Table 3 indicated that there was a significant difference among male and female undergraduates in terms of their student engagement $(t = 2.196, p < .05)$ and transition engagement $(t = 3.020, p < .05)$. It showed that the mean of student engagement of male students is $(X_1 = 191.73)$ more than female student $(X_2 = 189.50)$. The findings further indicated that there was no significant difference between male and female undergraduates in their coping strategy,

Table 3. Difference in Student Engagement and Coping Strategy among Male and Female Undergraduates

Variables	Male		Female		t
	X_1	SD	X_2	SD	
Coping Strategy	61.380	6.767	60.720	6.650	.696
Student Engagement	191.730	29.185	189.500	28.637	2.196*
Transition Engagement	24.220	3.764	21.220	3.636	3.020*
Academic Engagement	25.380	5.136	25.510	5.307	-.176
Peer Engagement	29.100	4.461	29.090	4.070	.017
Student-staff Engagement	34.500	8.361	33.750	8.699	.622
Intellectual Engagement	16.770	6.056	16.530	6.790	.264
Online Engagement	41.800	10.811	41.090	10.869	.463
Beyond-class Engagement	20.960	4.756	20.310	4.246	1.019

* t test is significant at the .05 level (2 tailed)

academic engagement, peer engagement, student-staff engagement, intellectual engagement, online engagement and beyond-class engagement.

Table 4 represents the correlation co-efficient of coping strategy and student engagement among undergraduate students of private and public universities. Results of correlation indicate that the coping strategy had a positive correlation with student engagement *i.e.* transition engagement, peer engagement, student-staff engagement, intellectual engagement, online engagement, and beyond-class engagement $(r = 0.419, p < 0.01)$. We also found that coping strategy have negative correlation with academic engagement. Further Table 4 indicated that there were less inter-correlation among independent variables. Thus the findings support the third hypothesis.

Table 4. Correlation Co-efficient between Student Engagement and Coping Strategy

Variables	1	2	3	4	5	6	7	8	9
Coping Strategy	1								
Student Engagement	.419**	1							
Transition Engagement	.281**	.356**	1						
Academic Engagement	-.519**	.219**	.326**	1					
Peer Engagement	.627**	.600**	.082	-.273**	1				
Student-Staff ngagement	.418**	.892**	.342**	.142*	.492**	1			
Intellectual Engagement	.196**	.437**	.117	-.011	.009	.131	1		
Online Engagement	.373**	.898**	.027	-.060	.669**	.829**	.331**	1	
Beyond- Class Engagement	.496**	.828**	.133	.132	.595**	.735**	.238**	.728**	1

Discussion

The general purpose of the present study was to explore the relationship between student engagement and coping strategy of first year undergraduate students. The results showed that there were no significant differences in coping strategy and student engagement among public and private universities undergraduates. The findings did not support the first hypothesis. In explaining the findings it can be said that few years ago, huge differences prevail in the evaluation system of public and private university students (Begum, 2017). But, now a days the atmospheres of public and private university have been changed. The teachers are now more friendly and helpful with the students. So it is easy for the fresher's to cope with the campus atmosphere and properly they engaged with their circumstances. On the other hand, once upon a time it was enrooted that only those students who have higher class family background are study at private university and finally they want to get a certificate only. But at present, the study and class system has been improved at private universities. The authorities now take more attention to class engagement for the students. For this consistent and equilibrium environment there is no significant difference in coping strategy and engagement among public and private universities undergraduates.

Results indicated that, there was significant difference in student engagement between male and female undergraduates which partially proved the second hypothesis. According to Zaman & Hossain (2015) the study system of the universities has been gradually improved but female students have to face many problems to the engagement of new situation. Especially those female students come from rural area do not match with the new circumstance of Dhaka city which is not comfortable for a woman. The female students also have to face the accommodation problem in Dhaka city. They cannot manipulate their accommodation properly which is easy for the male students. So they feel uneasy and embarrassed with the university engagement than the male students. But those female students who are from urban area and who are prepared for the admission in Dhaka they are easily cope with the new situation. Though there have been significant differences in student engagement between male and female undergraduates but we don't found any significant difference on coping strategy. The female students also want to improve their engagement with others. So they follow the proper strategy to cope with new situation which are as same as the male students. Jones et al., (2000) also found males were more likely to have extracurricular experience than girls. The research also found that, male students were highly engaged with academic and non-academic activities in college than females. Brotman and Moore (2008) have revealed that, females are typically more concerned about their life. For this consequence they were anxious in each and every new situation. So when they were surviving in a new environment, they were less engaged and more stressed.

Results reported in Table 4 that there was a significant positive correlation between coping strategy and student engagement which proves the third hypothesis. Usually it has been noticed that those students who are very advanced and do better in academic performance they are properly engaged with the new situation (Speirs & Finch, 2006). They can easily cope with their circumstance and follow the exact strategy for the engagement. So coping strategy is positively correlated with students' engagement. That means if any undergraduate student has perfect strategy for engagement he/she can easily cope with the university environment. On the other hand, if any students cannot apply proper strategy for coping he/she cannot engage with others perfectly. Student academic and social success may significantly benefit through the provision of classroom supports such as established norms of expectations, trust, communication, and engagement (Crosnoe, 2004; Stanton-Salazar, 1997). Student-teacher well communications may also be indicators of the internalized expectations and trust levels teachers have of students (Good & Brophy, 2003).

However, the study has some limitations. The biggest obstacle felt by the researchers was that some respondents did not give their exact feedback because they were afraid of negative consequences, thus skewing the results. Again, the sample size of the study was relatively small and not selected randomly. Further, the disparity of sample size is so high because some respondents are not so interested to join our study work.

References

Ames, M. E., Pratt, M. W., Pancer, M. S., Wintre, M. G., Polivy, J., Birnie-Lefcovitch, S., & Adams, G. (2011). The moderating effects of attachment style on students' experience of a transition to university group facilitation program. *Canadian Journal of Behavioral Science*, 43, 1-12. DOI: 10.1037/a0020648.

Angier, N., & Kenneth, C. (2005). "Gray Matter and the Sexes: A Gray Area Scientifically." *Editorial*. The New York Times. The New York Times Company, 24 Jan. 2005. Web. 10 June 2015.

Asberg, K. K., Bowers, C., Renk, K., & McKinney, C. (2008). A structural equation modeling approach to the study of stress and psychological adjustment in emerging adults. *Child Psychiatry and Human Development*, 39, 481-501. doi: 10.1007/s10578-008-0102-0.

Aspinwall, L. G., & Taylor, S. E. (1992). Modeling cognitive adaptation: A longitudinal investigation of the impact of individual differences and coping on college adjustment and performance. *Journal of Personality and Social Psychology*, 63, 989-1003. doi: 10.1037/0022-3514.63.6.989.

Austin, E., Saklofske, D., & Mastoras, S. (2010). Emotional intelligence, coping and exam related stress in Canadian undergraduate students. *Australian Journal of Psychology*, 62(1), 42-50. doi: 10.1080/00049530903312899.

Begum, H.A. (2017). শিক্ষার্থীদের মূল্যায়ন প্রক্রিয়া: প্রেক্ষিত বাংলাদেশের উচ্চশিক্ষা। ফেয়ার প্রে পাবলিকেশন, ফকিরাপুল ঢাকা।

Connell, J. P., & Wellborn, J. G. (1991). Competence, autonomy and relatedness: *A motivational analysis of self-system processes*. In M.

Cutrona, C. E. (1982). Transition to college: Loneliness and the process of social adjustment. In L.A. Perplau & D. Perlman (Eds.), *Loneliness: A sourcebook of current theory, research, and therapy* (pp. 291-309). New York, NY: Wiley-Inter- science.

Davis, D. (2016). Coping Strategy: Definition & Overview (study.com). Retrieved from:https://study.com/academy/lesson/coping-strategy-definition-lesson-quiz.html

Deci, E. L., & Ryan, R. M. (1985). Intrinsic motivation and self determination in human behavior. New York: Plenum Press.

Dyson, R., & Renk, K. (2006). Freshman adaptation to university life: Depressive symptoms, stress, and coping. *Journal of Clinical Psychology*, 62, 1231-1244. doi: 10.1002/jclp.20295.

Finn, J. D., & Voelkl, K. E. (1993). School characteristics related to student engagement. *Journal of Negro Education*, 62(3).

Fisher, S., & Hood, B. (1987). The stress of transition to university: A longitudinal study of psychological disturbance, absent-mindedness and vulnerability to homesickness. *British Journal of Psychology*, 78, 425-441. DOI: 10.1111/j.2044-8295.1987.tb02260.x.

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior*, 21, 2 i 9-239.

Janeth, O. B. (2015). Coping Strategies, Slide Share. Retreived from aign= profiletracking&utm_medium=sssite&utm_source=ssslideview

Halamandaris, K. F., & Power, K. G. (1999). Individual differences, social support, and coping with the examination stress: A study of the psychosocial and academic 13 adjustment of first year home students. *Personality and Individual Differences*, 26, 665-685.

Kerri-Lee, K., & Hamish, C. G (2000). Students' Engagement in First-year University, *Australian Council for Educational Research*.

Larose, S., & Boivin, M. (1998). Attachment to parents, social support expectations, and socio emotional adjustment during the high school-college transition. *Developmental Psychology*, 41, 281-289. DOI: 10.1207/s15327795jra0801_1.

Leach, L., & Zepke, N. (2012). Student engagement in learning: Facts of a complex interaction. In I. Solomonides, A. Reid, & P. Petocz (Eds.), *Engaging with learning in higher education* (pp. 231-256). Oxfordshire, UK: Libri Publishers.

Lewis, A. D., Huebner, E. S., Reschly, A. L., & Valois, R. F. (2009). The incremental validity of positive emotions in predicting school functioning. *Journal of Psych educational Assessment*, 27, 397–408.

Pekrun, R., Elliot, A. J., & Maier, M. (2009). Achievement goals and achievement emotions: Testing a model of their joint relations with academic performance. *Journal of Educational Psychology*, 101, 115–135.

Renk, K., & Smith, T. (2007). Predictors of academic-related stress in college students: An examination of coping, social support, parenting, and anxiety. *Journal of Student Affairs Research and Practice*, 44, 803-829. DOI: 10.2202/194966051829.

Reschly, A. L., Huebner, E. S., Appleton, J. J., & Antaramian, S. (2008). Engagement as flourishing: The contribution of positive emotions and coping to adolescents' engagement at school and with learning. *Psychology in the Schools*, 45, 419–431.

Speirs Neumeister, K. L., & Finch, H. (2006). Perfectionism in high-ability students:

Relational precursors and influences on achievement motivation. *Gifted Child Quarterly*, 50, 238–251.

Skinner, E. A., & Wellborn, J. G. (1994). Coping during childhood and adolescence: A motivational perspective. In D. Featherman, R. Lerner, & M. Perlmutter (Eds.), *Life-span development and behavior* (Vol. 12, pp. 91–133). Hillsdale, NJ:Erlbaum.

Reynolds, E. K., MacPherson, L., Tull, M. T., Baruch, D. E., & Lejuez, C. W. (2011). Integration of the brief behavioral activation treatment for depression (BATD into a college orientation program: Depression and alcohol outcomes. *Journal of Counseling Psychology*, 58, 555-564. DOI: 10.1037/a0024634

Shaver, P., Furman, W., & Buhrmester, D. (1985). Transition to college: Network changes, social skills, and loneliness. In S. Duck & D. Perlman (Eds.), Understanding personal relationships: *An Interdisciplinary Approach* (pp. 193-220). London, England: Sage.

Pritchard, M. E., Wilson, G. S., & Yamitz, B. (2007). What predicts adjustment among college students? A longitudinal study. *Journal of American College Health*, 56, 15-22. DOI: 10.3200/JACH.56.1.15-22.

Wintre, M. G., & Yaffe, M. (2000). First-year students' adjustment to university life as a function of relationships with parents. *Journal of Adolescent Development*, 15, 9-37. doi: 10.1177/0743558400151002

Zaman, F.T.Z.B., & Hossain, M. (2015), Validation of Student Engagement Scale *Unpublished Manu Script*. Department of Psychology, Jagannath University.

Zaman, F.T.Z.B., & Hossain, M. (2015). Impact of Stress on Students Engagement of First Year Undergraduates of Dhaka Based University. *Unpublished Manu Script*. Department of Psychology, Jagannath University.

Zaman, F.T.Z.B., & Mohammad, N (2012). A Comparative Study of the Values of Bangladeshi Male Students in Public and Private Universities"- Published in *Biannual Journal of ASA University* Review, Vol-6, No.1 (10th issue) January to June, 2012, at Centre for Socio-Economic Research. ASA University, Bangladesh.

*Note: ** Correlation is significant at the level of .01;* Correlation is significant at the level of .05*

Role of Non-cognitive Factors in Academic Achievement of Undergraduates

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This study explored the role of non-cognitive factors (i.e., peer group influence, academic self-efficacy, achievement motivation, perception of the school psychological environment, academic engagement) on the academic achievement of undergraduates. The sample consisted of 245 young adults (145 males and 100 females) from Dhaka, Bangladesh ranging in age from 18 through 25 years. Bangla translated measures included the Personal Information Form (PIF), peer group influence scale, academic self-efficacy scale, revised achievement motivation scale, perception of the school psychological environment scale, academic engagement scale and students' academic achievement (CGPA). Results showed that key variables were significantly correlated with one another. Descriptive statistics revealed that there is a significant gender difference in academic achievement, perception of school psychological environment and academic engagement. Females were found to be higher achieving, academically more engaged and to have a better perception of school environment. This gender difference was also reflected in the extent in which the factors predicted students' academic achievement. Academic engagement has been found to be an important predictor of academic achievement for both males and females.

Keywords: academic achievement, peer group influence, academic self-efficacy, achievement motivation, perception of school psychological environment

Young adults' academic achievement at undergraduate level is very crucial for their further achievement and success in life. When they, as young adults, make the transition into an undergraduate educational institution, they are in the process of getting involved into new social environment. If the institution fails to meet the psychological needs of students, it may lead to drops in academic motivation, which

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may contribute to diminished school engagement, which in turn lead to poor academic achievement (Wang & Eccles, 2013). Clear understanding about some particular aspects of psychological environment or characteristics of an institution affecting students' academic achievement is of great importance in the field of School Psychology. An active academic engagement is crucial to students' educational success. Students must be keenly engaged with their academic activities in order to acquire the knowledge and skills required for successful careers ahead. Currently, and particularly at the graduate level, student engagement is an explicit goal of many professionals to reduce student boredom and inattention, to reduce high drop-out rate, to reduce overall low academic achievement as well as to ensure quality education as a whole.

In literature, there are numerous non-cognitive factors, other than cognitive factors, like perceived academic context, teacher quality, academic engagement, and peer influences that affect academic achievement. According to previous researches "academic self-efficacy" is also an important predictor of academic achievement (Adeyemo & Torubeli, 2008; Høigaard, Kovač, Øverby, & Haugen, 2014). Self-efficacy refers to self-beliefs about the degree of perceived self-control over future actions. Higher level of academic self-efficacy is important, perhaps even critical, in attaining desired high levels of academic performance. High self-efficacy may increase achievement motivation and academic engagement, which may in turn increase academic achievement.

Like academic self-efficacy, another non-cognitive factor that is important in students' academic achievement is "peer group influences". Peer can influence everything from what they choose to wear to whether or not they engage in other delinquent behavior. Peers have also a significant influence on students' day to day behavior and feelings, including how much they value school, how well they perform in class, and so on (Adeyemo & Torubeli, 2008).

While cognitive factors like memory, verbal abilities and aptitude for reasoning remain important in this area, the teaching community is starting to realize the importance of non-cognitive factors such as academic environment as well as academic engagement. In fact, it has emerged over the years that these factors are equally important for learning. Therefore, with the ongoing movement to ensure quality education, it is important investigating the impact of non-cognitive factors on academic achievement in Bangladesh as no empirical study attempted such investigation.

The general objective of the present study was to investigate whether the non-cognitive factors like students' the perception of school psychological environment,

academic self-efficacy, peer influence, achievement motivation, and academic engagement significantly associated with students' academic achievement. The specific research objectives were-

1. To investigate whether the student's perception of school psychological environment, academic self-efficacy, peer influence, achievement motivation, academic engagement, and academic achievement are significantly correlated with one another.

2. To investigate whether the student's perception of school psychological environment, academic self-efficacy, peer influence, achievement motivation and academic engagement are significant predictors of academic achievement.

3. To investigate whether the student's perception of school psychological environment, academic self-efficacy, and peer influence are significant predictors of achievement motivation and academic engagement.

Methods

Sample

Data was collected from 245 university students (40.8% women and 59.2% men) in Bangladesh. The mean age of the respondents was 22.16 years ($SD =1.406$), with a range of 18 through 25 years. They were selected by employing convenience sampling technique namely purposive-incidental. Participants were selected from 4 public universities in Dhaka district of Bangladesh and their level of education ranges from 2nd year through masters. Most of the participants (65.3%) were from middle class family background.

Measures

All participants in this research responded to the following self-report questionnaires along with the demographic form. Two pilot testing have been conducted before the field test. In the first pilot testing, alpha coefficients of five scales ranged from 0.58 to 0.85 and in the second one, it ranged from 0.58 to 0.88. The questionnaires were administered in the following sequence:

The Personal Information Form (PIF). The PIF elicited demographic, personal, and social information about respondent's gender, age, grade in university, number of siblings, birth order, family size, parental education, parental occupation, family socioeconomic status, types of family etc.

Peer Group Influence questionnaire (PGI). The *Peer Group Influence Assessment Questionnaire* (Uzezi & Deya, 2017) with 15-items was translated into Bangla and

used to measure peer influence on students. The questionnaire consists of five point scale as follows: Strongly agree (SA), Agree (A), Undecided (U), Disagree (D), and strongly disagree (SD). The alpha coefficient for the scale is 0.74. A sample item of this scale is "I and my friends compete for good grades". This scale has 4 items (i.e., 3, 5, 12, and 15) that required reverse scoring.

Academic Self-Efficacy Questionnaire (ASE). The *Academic Self-efficacy Scale* (Roeser, Midgley, & Urdan, 1996) was translated into Bangla and used to measure students' academic self-efficacy. The scale's six items assess whether students believe they could master the academic material and skills if they were provided sufficient time and exerted sufficient effort. An item example follows: "If I have enough time, I can do a good job on all my schoolwork." The alpha coefficient for the scale is 0.81. It is a 5-point scale ranging from 1 (not at all true of me) to 5 (very true of me). Thus, higher values indicate higher levels of academic self-efficacy.

Achievement Motivational Beliefs (AMS). 10-item revised *Achievement Motives Scale* (AMS) (Lang & Fries, 2006) was translated into Bangla and used to measure students' achievement motivation. This scale provides a measure of two salient factors related to achievement motivation namely hope of success and fear of failure. A higher score indicates a higher level of achievement motivation and lower score indicates lower level of achievement motivation. The alpha coefficient for the scale is 0.72. Sample item is "I like situations, in which I can find out how capable I am" and responses for each item will be rated on 4-point scales ranging from strongly agree (4) to strongly disagree (1).

School Psychological Environment Scale (SPE). The *School Psychological Environment Scale* (Roeser, Midgley, & Urdan, 1996) was translated into Bangla and used to measure students' perceptions of the academic contexts. This scale consists of three subscales, two reflecting the goal dimension and one reflecting the relationship dimension. Items were measured on 5-point Likert scales (1 = *not at all true in this school*, 5 = *very true in this school*). The scale measuring student perceptions of a school-task goal structure consists of six items (e.g., "Trying hard counts a lot in this school") and had an alpha coefficient of 0.72. Items in this scale assess students' perceptions of an emphasis in the school on effort, understanding, and the belief that all students can learn and be successful. The scale measuring perceptions of school-ability goal structure consists of 5 items (e.g., "In this school, teachers treat kids who get good grades better than other kids") having an alpha coefficient of 0.80. It includes items tapping student perceptions that relative ability is a salient marker of success in the school, and that higher achieving students are treated better than other students. The teacher-student relationship scale is composed

of 5 items (α = .88) and measures student perceptions of the quality of teacher-student relationship in school (e.g., "In this school, teachers treat students with respect").

Academic Engagement Scale (AES). The Academic Engagement scale consists of three subscales. The Bangla translation of this scale was used to assess the three dimensions of student engagement.

The Behavioral Engagement Scale (Finn & Voelkl, 1993) consists of items from the Attentiveness subscale and items from the School Compliance subscale. The three-item subscale Attentiveness measures the extent to which students report being distracted in classes and have trouble getting schoolwork done. A sample item is "How often do you get schoolwork done on time?" Some items for this indicator were reverse coded, so that higher scores indicated a higher level of attentiveness. The five-item scale School Compliance, describes the levels to which students engage in misconduct in school. A sample item is "How often have you skipped class?" Responses for both of the scales were rated along a 5-point scale, ranging from 1 (almost never) to 5 (almost always). The alpha coefficient for the scale is 0.63.

The Emotional Engagement Scale (Pintrich, 2000) consists of the School Belonging scale and the Valuing of School Education scale. The three-item scale School Belonging represents the extent to which adolescents feel personally accepted, respected, and supported by adults and peers in school. A sample item is "I feel happy and safe in this school". The six-item scale Valuing of School Education assesses adolescents' interest and belief in the importance and relevance of the general goals of education and academic achievement espoused by the school. A sample item is "I often learn a lot from my schoolwork". Some items for this indicator were reverse coded, so that higher scores indicated higher levels of emotional engagement. Responses for each item in both scales were rated along a 5-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The alpha coefficient for the scale is 0.76.

The scale of *Cognitive Engagement* (Skinner & Wellborn, 1994) consists of Self-Regulated Learning scale and the Cognitive Strategy Use scale. The four-item scale Self-Regulated Learning represents adolescents' perceived ability of self-monitoring and evaluation. A sample item is "How often do you try to learn from your mistakes?" The four-item scale Cognitive Strategy Use measures adolescents' perceived use of strategic approach to learning. A sample item is "How often do you try to relate what you are studying to other things you know about?" Responses for each item in both of the scales were rated along a 5-point scale, ranging from 1

(almost never) to 5 (almost always). For this scale, higher score indicates higher level of cognitive engagement. The alpha coefficient for the scale is 0.66.

Academic Achievement Measures. Academic achievement was measured by asking students to report their C/GPA obtained in the most recent examination.

Procedures

For main data acquisition, standard data collection procedure was followed. For taking consent at the beginning, each participant was briefed about the general purpose of the study and assured that their responses would be kept confidential and used only for research purposes. Participants were given a general instruction verbally of how to respond before going through the items on the scale. Before going through the items they were asked to provide general demographic information (e.g., age, gender, CGPA, socioeconomic status, etc.) Also further clarifications were done whenever they faced any problems to understand the items. It took 15 minutes on an average to complete the task.

Results

In order to test gender difference in perception of school psychological environment, academic self-efficacy, peer influence, achievement motivation, academic engagement, and academic achievement, independent sample t tests were calculated. Results of t tests shown in Table 1 reveal significant gender difference in academic achievement, perceived school psychological environment and academic engagement. Further inspection of Table 1 shows that there is no significant difference between male and female in academic self-efficacy, peer group influence, achievement motivation.

Simple correlation between six major variables were calculated. Table 2 shows that perception of school psychological environment, academic self-efficacy, peer group

Table 1. Descriptive Statistics and Gender Differences in Major Variables

Variables	Male ($n = 145$)		Female ($n = 100$)		t
	Mean	*SD*	*Mean*	*SD*	
Academic achievement	3.21	0.32	3.41	0.30	-4.86
Peer group influence	50.99	8.64	52.92	7.18	-1.84
Academic self-efficacy	22.33	4.04	21.39	4.55	1.70
Achievement motivation	32.79	2.92	32.79	3.24	0.01
School psychological environment	51.88	11.86	56.88	10.30	-2.95
Academic engagement	81.74	9.98	88.10	8.89	-5.12

influence, achievement motivation, academic engagement, and academic achievement are significantly positively correlated with one another. That is, the more supportive and fair the participants perceived their school psychological environment to be, the higher their CGPA was ($r = .16$, $p < .01$). The more they had been positively influenced by their peer group ($r = .36$, $p < .01$), the higher academic self-efficacy they had ($r = .19$, $p < .01$), the more achievement motivation they have ($r = .17$, $p < .01$) and the more academic engagement they had ($r = .33$, $p < .01$), the higher their CGPA was.

Results also show that peer group influence was significantly correlated with academic self-efficacy ($r = .27$, $p < .01$), achievement motivation ($r = .21$, $p < .01$),

Table 2. Simple Correlations among Major Variables

Variables	1	2	3	4	5	6
Academic achievement	1					
Peer group influence	.36**	1				
Academic self-efficacy	.19**	.27**	1			
Achievement motivation	.17**	.21**	.26	1		
School psychological environment	.16*	.43**	.14*	-.01	1	
Academic engagement	.33**	.53**	.38**	.18**	.50**	1

*$p < .05$; ** $p < .01$

perceived school psychological environment ($r = .43$, $p < .01$) and academic engagement ($r = .53$, $p < .01$). Again, academic engagement is also significantly correlated with academic self-efficacy ($r = .38$, $p < .01$), achievement motivation ($r = .18$, $p < .01$) and perceived school psychological environment ($r = .50$, $p < .01$). Academic self-efficacy is also significantly correlates with perceived school psychological environment ($r = .14$, $p < .01$). Because there was a significant gender difference in three of the variables, all further analyses were performed for male and female separately.

Table 3. Multiple Regression Analysis Predicting Academic achievement of male (n=145) and female (n=100) participants

Variables	Male		Female	
	B	β	B	β
Peer group influence	.01	.38***	.01	.22*
Academic self-efficacy	.003	.03	.02	.33**
School psychological environment	.00	-.02	-.004	-.13
R^2	.148***		.176***	

*$p < .05$; **$p < .01$; ***$p < .001$

In order to find out the contributions of the predictor variables (e.g., peer group influence, academic self-efficacy and perception of school psychological environment) to the academic achievement of male and female participants separately, we performed multiple regression analysis. Results presented in Table 3 shows that for male participants, peer group influence ($\beta = .38, p < .001$) made a significant contribution to the variance of academic achievement. This predictor accounted 14.8% variance in academic achievement of male participants. Academic self-efficacy and perception of school psychological environment did not contribute significantly to the variance of their academic achievement. For female participants, academic self-efficacy ($\beta = .33, p < .01$), and peer group influence ($\beta = .22, p < .05$) significantly contributed to the variance of academic achievement and they jointly accounted 17.6% variance in female participants' academic achievement, but perception of school psychological environment failed to make a significant contribution to the variance in academic achievement of female participants.

As depicted in Table 4, for male participants, peer group influence and perception of school psychological environment do not contribute significantly to the variance of achievement motivation. But, 14% variance in achievement

Table 4. Predicting achievement motivation of male (n=145) and female (n=100) participants

Variables	Male B	Male β	Female B	Female β
Peer group influence	.05	.16	.10	.23*
Academic self-efficacy	.21	.29***	.12	.17
School psychological environment	.002	.01	-.10	-.32**
R^2	.14***		.13**	

*$p < .05$; **$p < .01$; ***$p < .001$

motivation of male participants could be explained by the variation of their academic self-efficacy. For female participants, academic self-efficacy does not contribute significantly to the variance of achievement motivation; and peer group influence and perception of school psychological environment jointly contributed 13% to the total variance of achievement motivation.

As shown in Table 5, peer group influence, academic self-efficacy and perception of school psychological environment jointly accounted 48% variance in academic engagement of male participants. On the other hand, peer group influence and academic self-efficacy jointly accounted 38% variance in academic engagement of female participants. But, perception of school psychological environment failed

to make a significant independent contribution to the variance in academic engagement of female participants.

Table 6 shows that, achievement motivation and academic engagement jointly accounted 13% variance in academic achievement of male participants. But, as depicted in Table 6, only 6% of the variance of female participants' academic

Table 5. Predicting academic engagement of male (n=145) and female (n=100) participants

Variables	Male		Female	
	B	β	B	β
Peer group influence	.37	.32***	.38	.30**
Academic self-efficacy	.67	.27***	.71	.36***
School psychological environment	.30	.36***	.14	.16
R^2	.48***		.38***	

**p < .01; ***p < .001

achievement could be explained with their academic engagement and their achievement motivation failed to make a significant contribution to it.

Discussion

The present study was designed to explore the non-cognitive factors affecting academic achievement of undergraduates. The results of this study suggest that the

Table 6. Predicting academic achievement of male (n=145) and female (n=100) participants

Variables	Male		Female	
	B	β	B	β
Achievement motivation	.03	.26**	-.002	-.02
Academic engagement	.01	.19*	.01	.23*
R^2	.13***		.06**	

*p < .05; **p < .01; ***p < .001

academic achievement of both male and female is significantly correlated with peer group influence, academic self-efficacy, achievement motivation, perceived school psychological environment and academic engagement.

The results of this present study reveal that peer group influence is a significant predictor of academic engagement as well as academic achievement regardless of the gender of the participants. This finding is in agreement with Kindermann (1993) who found that peer group influence is crucial for students' engagement in learning activities. Results from the analyses showed that peer influence in academic value

exerted significant effects on young adults' academic engagement that eventually predict their academic achievement. The implication based on the results is that perceived cooperation from peers can motivate students to develop a sense of competency which positively affect their future behavior related to academic activities in the long term. It is, therefore, judicious to conclude that peer group influence may have a noticeable impact on students' academic achievement.

Along with peer influence, academic self-efficacy is also found to be a strong predictor of academic engagement both for male and female and also affects young adults' academic outcomes. Again, all of these three factors are also positively correlated with perception of school psychological environment according to our findings. That is, students who reported more positive perception of school psychological environment also reported the feelings of academic engagement and also felt academically more efficacious. These results corroborate previous research by Roeser and Midgley (1996). Students' perceptions of the teacher and peer environment is predictive of future adaptations. Students who feel that teachers in their institution are less supportive, less caring and emphasizing relative ability become less motivated to work and engage academically (Wang & Holcombe, 2010).

Achievement motivation of students' also plays a significant role in academic engagement and directly and indirectly predict academic achievement. Because motivation is a strong correlate of engagement and might lead to engagement, motivation is where teachers need to begin. Students are motivated to academically engage themselves when they feel interested or have a real purpose for doing so. So motivation to engage is a must for improving academic skill and outcome. However, institutions where teachers are not concerned enough about students' needs for choice, autonomy support, purpose and encouragement, students there might perceive the classroom environment negatively. As a result, there will be diminished motivation and academic engagement.

In our present study, significant gender difference was found in under graduates' academic achievement, perception of school psychological environment and academic engagement. In our society, males and females often differ in their patterns of development and types of socialization which, in turn, shapes their perceptions of school psychological environment. Research has suggested that males perceive school environments as less satisfactory than do females as a result of bias for expectations and actions that favor females (Wang, 2009; Way, Reddy, & Rhodes, 2007). In terms of gender difference, we found that females reported better perception of school psychological environment, academic engagement, and

academic achievement than did males. It is likely that social expectations placed upon females are more parallel to those placed upon "good" students than being the expectations placed on males (Samdal, Nutbeam, Wold, & Kannas, 1998). Generally, good students are expected to be focused, achievement oriented, cooperative with teachers, and confident about communicating and reading skills. These characteristics match more strongly with traditional female gender roles and diverge from traditional male gender roles. Thus, males may face more trouble meeting the expectations of teachers; in turn, their troubles may result in further negative perceptions about the academic environment and lead to a reduced amount of engagement.

Female students' higher achievement can also be explained in the light of current women empowerment in Bangladesh. In recent years, there have been increased political empowerment for women, better job prospects, improved education and the adoption of new laws to protect their rights. Bangladesh has already achieved gender-parity in primary education. The education of females up to grade XII in public institutions is free and to reduce their dropout rates, stipends are awarded. This upbeat strategy for females' education resulted in gender parity. For example, female enrollment in primary and in secondary schools is greater than that of males. These flows of women empowerment might have an influence on females' academic engagement and thus making them higher achiever than males.

However, several limitations of this study need to be noted that might have precluded us from obtaining more expected findings. Data in our present study was obtained using self-report measurement. There is a possibility that students may be influenced by social demands while responding, thus introducing bias into the results. We also did not have a sufficiently large sample to explore important socio-demographic variables and other psychological characteristics that might have contributed to our findings. Again, there might be some unknown factors that caused the difference between male and female students in the extent predicting academic achievement from the five non-cognitive factors. Further research should be conducted to explain the inter-correlations among the factors more rigorously.

References

Adeyemo, D. A., & Torubeli, V. A. (2008). Self-efficacy, self-concept, and peer influence as correlates of academic achievement among secondary school students in transition. *Pakistan Journal of Social Sciences, 5(1)*, 10-16.

Eccles, J. S., Midgley, C., Buchanan, C. M., Flanagan, C., Mac Iver, D., Reuman, D. et al., (1993). Development during adolescence: The impact of stage/environment fit. *American Psychologist, 48*, 90-101.

Finn, J. D., & Voelkl, K. E. (1993). School characteristics related to school engagement. *Journal of Negro Education, 62,* 249-262.

Hoigaard, R., Kovač, V. B., Øverby, N. C., & Haugen, T. (2014). Academic self-efficacy mediates the effects of school psychological climate on academic achievement. *School Psychology Quarterly, 30(1),* 64-74.

Kindermann, T.A. (1993). Natural peer groups as contexts for individual development: The case of children's motivation in school. *Developmental psychology, 29,* 970-977.

Lang, J. W. B., & Fries, S. (2006). A revised 10-item version of the Achievement Motives Scale: Psychometric properties in German-speaking samples. *European Journal of Psychological Assessment, 22,* 216-224. doi: 10.1027/1015-5759.22.3.216

Midgley, C., Kaplan, A., Middleton, M., Maehr, M., Urdan, T., Anderson, H. L. (1998). The development and validation of scales assessing student's achievement goal orientations. *Contemporary Educational Psychology, 23,* 113-131. http:// dx.doi.org/ 10.1016/j.bbr.2011.03.031.

Pintrich, P. R. (2000). The role of goal orientation in self-regulated learning. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation: Theory, research, and application* (pp. 451-502).

Roeser, R. W., Eccles, J. S., & Sameroff, A. J. (1998). Academic and emotional functioning in early adolescence: Longitudinal relations, patterns, and prediction by experience in middle school. *Development and Psychopathology, 10,* 321-352.

Roeser, R. W., Midgley, C., & Urdan, T. C. (1996). Perceptions of the school psychological environment and early adolescent's psychological and behavioral functioning in school: The mediating role of goals and belonging. *Journal of Educational Psychology, 88,* 408-422. doi:10.1037/0022-0663.88.3.408

Samdal, O., Nutbeam, D., Wold, B., & Kannas, L. (1998). Achieving health and educational goals through schools—a study of the importance of the school climate and the students' satisfaction with school. *Health Education Research, 13,* 383–397.

Skinner, E. A., & Wellborn, J. G. (1994). Coping during childhood and adolescence: A motivational perspective. In D. Featherman, R. Lerner, & M. Perlmutter (Eds.). *Life-span development and behavior, Vol.12,* (pp. 91-133). Hillsdale, NJ: Erlbaum.

Temitope, B. E., & Christy, O. F. (2015). Influence of peer groups on academic performance of secondary school students in Ekiti State. *International Journal of Innovative Research and Development, 4(1),* 324-331.

Uzezi, J. G., & Deya, G. D. (2017). Relationship between Peer Group Influence and Students' Academic Achievement in Chemistry at Secondary School Level. *American Journal of Educational Research, 5(4),* 350-356. doi: 10.12691/education-5-4-2

Way, N., Reddy, R., & Rhodes, J. (2007). Students' perceptions of school climate during the middle school years: Associations with trajectories of psychological and behavioral

ustment. *American Journal of Community Psychology, 40,*194–213.

A. T., & Eccles, J. S. (2013). School context, achievement motivation, and academic agement: A longitudinal study of school engagement using a multidimensional spective. *Learning and Instruction, 28,* 12-23. http://ds.doi.org/ 10.1016/j rminstruc.2013.04.002.

A.T., & Holcombe, R. (2010). Adolescents' perceptions of school environment agement, and academic achievement in middle school. *American Educational earch Journal, 47,* 663–662.

[. T., Willett, J. B., & Eccles, J. S. (2011). The assessment of school engagement: nining dimensionality and measurement invariance across gender and 'ethnicity. *Journal of School Psychology, 49,* 465-480.

A., Eccles, J. S., & Pintrich, P. R. (1996). Development between the ages of eleven twenty-five. In D. C. Berliner, & R. C. Calfee (Eds.). *The handbook of educational hology.* New York: Macmillan Publishing.

Does Self–Esteem Vary According to Narcissistic Personality

Muhammad Alamgir Hossain[1], and Oli Ahmed[2]

The present study was conducted to determine theamount of variance of self-esteem due to narcissistic personality. To do this, 103 adult participants (38.8% female) were takenconveniently by purposive non random sample technique. The measures were – (i) translated Bangla version (Uddin, 2017) of Rosenberg Self-Esteem Scale (Rosenberg, 1979), (ii) translated Bangla version (Ahmed & Hossain, 2018) of Narcissistic Personality Inventory – 13, and (iii) Personal Information Form. The findings evidenced that there were significant positive correlation among self-esteem, narcissism, age, and being male. Narcissism and age manifested as significant predictors of self-esteem. Narcissism predicted 5% variance of self-esteem after controlling age and sex of the participants. The whole model explains 23.3% of the variance. The results also revealed significant differences between male and female on self-esteem ($t = 2.84$, $p<.01$)and narcissism ($t = 2.14$, $p<.05$). Male obtained higher scores on these measures than female participants.

Keywords: Narcissism, Narcissistic Personality, Self-Esteem, Age, Sex, Male, Female, Residence, Family.

Narcissism is structured and similar to other personality trait (Foster & Campbell, 2007). Now-a-days it is a construct of growing interest to psychologists in various disciplines such as social, clinical, and organizational psychology. It comprises grandiose sense of self, feelings of entitlement, and a dominant interpersonal style. It is positively associated with both defensive and non defensive self-esteem(Raskin, Novacek, & Hogan, 1991). It tends to be manifested as extreme self-confidence, egocentricity, and self-absorption. Narcissistic people tends to be unrealistically evaluated their abilities and achievements but little failure can give them a sense of unworthiness. They may be quite successful in workplace but this is happened only for their exhibition, rec-ognition, fame, and glory which Kernberg refers as "pseudo-sublimatory" (Kernberg, 1975). Research indicated that narcissistic personality is significantly associated with self-esteem (Andreassen, Pallesen, & Griffiths, 2017).

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Self-esteem is a set of attitudes and beliefs of people about themselves. It refers the sense of values or worth and the degree to which one appreciates or likes him or herself. It can be described as how we value ourselves, others, and the world. It influences our workplace behaviors, intimate relationships and our overall life. Personality and social psychologists usually define self-esteem as a whole and affective assessment of the self that can differ from very positive to very negative (Rosenberg, 1965). In addition, it refers how we like, accept and respect ourselves as a person (Feldman, Elliot, & Harter, 1990). Self-esteem is generally defined as our positive or negative judgment of lives and our environment. In psychology, it is a subjective evaluation about oneself as intrinsically favorable or unfavorable to some extent that may be more positive or negative while facing successes or failures in everyday life.

Gentile et al. (2013) conducted a research having 361 undergraduates using three narcissistic personality inventory (NPI-13, NPI-16 and NPI-40) and found significant correlation between self-esteem and narcissism. Another study on two distinct dimensions (self-liking and self-attractiveness) of implicit self-esteem and their relation to narcissistic reaction shows that these are differently correlated with self-reported narcissism(Sakellaropoulo & Baldwin, 2007). Individuals show the greatest level of narcissism who have discrepant high self-esteem (Zeigler-Hill, 2006; Jordan, Spencer, Zanna, Hoshino-Browne, & Correll, 2003). Adaptive aspects of narcissistic personality significantly predict greater level of self-esteem and more matured interpersonal sensitivity whereas maladaptive narcissism shows opposite results (Watson, Little, & Sawrie, 1992). Same findings has found in research with a sample of at-risk adolescents which shows adaptive narcissism is positively associated with self-esteem but maladaptive narcissism fails to show significant relation with self-esteem (Barry, Grafeman, Adler, & Pickard, 2007).

Most of the research evidences suggest that self-esteem and narcissism are highly associated but when the variable 'dominance' entered into analysis it was found that correlation value was decreased(Brown & Zeigler-Hill, 2004). In addition, another study also found weak correlation between narcissism and self-esteem (Thomaes, Bushman, Stegge, & Olthof, 2008).

Variation in associations have also found between narcissistic subtype and contingent self-esteem. It showed that grandiose view of self was positively correlated with self-esteem while vulnerable narcissism was negatively correlated (Zeigler-Hill, Clark, & Pickard, 2008). Sex differences in narcissism and self-esteem emerge in various studies. Men reported significantly greater level of narcissism than women (Zeigler-Hill et al., 2008; Carroll, 1987).

One the other hand, there aremixed results of gender differences in self-esteem. Most of them indicate there are significant differencesbetween male and female in self-esteem (Malik, 2013), but few studies demonstrate opposite results (Audu & Jekwu, 2011;Jain & Dixit, 2014; Aryana, 2010). A meta-analysis has revealed that female students' self-esteem is moderately lower than males' self-esteem and this difference is higher around 16 years of age (Kling, Shibley Hyde, Showers, & Buswell, 1999). It has also found male scored slightly higher score on self-esteem measure than female do (Quatman & Watson, 2001). There is also found a significant difference between boys and girls students that is male students have high score on self-esteem as compare to female students (Arshad, Muhammad, & Mahmood, 2015).

Malik and Khan (2015) conduct a study with 200 undergraduate students from different departments having 50% male and 50% female. Results show no significant gender differences in narcissism and self-esteem. Moreover, they do not find significant correlation between narcissism and self-esteem.

People with greater self-esteem are inclined to do well on the job and keep cognitive consistency with their high self-assessments (Korman, 1970). Moreover, self-esteem serve as a buffer against role stressors which hamper job motivation and performance(Brockner,1988). Not only in the workplace but also in educational setting it has found that there is a significant correlation between self-esteem and academic performance (Arshad et al., 2015). Besides, research on self-esteem and happiness shows that psychological well-being has positive effects on self-esteem and happiness and that self-esteem positively affect our happiness (Dogan, Totan, & Sapmaz, 2013).So, the researcher is interested to identify whether narcissism can, like other variables, affect self-esteem or not.

1. The aim of this study was to determine the effect of narcissism on self-esteem after controlling related demographic variables. It includes the following specific objectives:

2. To identify the relationships among self-esteem, narcissism, age, sex, type of family and residential status.

3. To investigate the differences on self-esteem and narcissism according to participants' sex, type of family and residence.

4. To examine the influence of narcissism and mentioned demographics on self-esteem.

5. To find out the variation of self-esteem due to narcissism after controlling demographic variables.

Method

Participants

The sample of the present study consist of 103 adult participants (age from18 – 28 years old, $M = 23.06$, $SD = 2.28$) who were university students and selected purposively from three major faculties (Arts, Social Science, and Business Studies) of the Chittagong University. Data were collected in classroom settings. Among them 31.1% students were selected from Arts faculty, 35.9% from Commerce faculty, and rest of the participants were chosen from Social Science faculty. Moreover, 55.3% students were undergraduates (25.2% from 2nd year, 10.7% from 3rd year, and 19.4% from 4th year) and the remaining were graduates (Students of MS degree).Males were 61.2% of total students. All of them come either from nuclear family (80.6%) or joint family. And 18.4% students were residential. The following table also shows the figure of the participants.

Table 1. Sample Distribution

Faculty	Gender		Family		Residence		Year of Study			
	Male	Female	Nuclear	Joint	Resident	Non-resident	2nd	3rd	4th	MS
Arts	21	11	26	6	8	24	0	11	20	1
Comme-rce	21	16	29	8	7	30	26	0	0	11
Social science	21	13	28	6	4	30	0	0	0	34
Total	63	40	83	20	19	84	26	11	20	46

Instruments

Personal Information Form (PIF): The PIF was designed to collect social demographic information such as age, gender, type of family and residence, faculty and year of study.

Bangla Version of Rogenber Self-Esteem Scale (RSES). The Translated Bangla Version(Uddin, 2017) of Rosenberg Self-Esteem Sale(Rosenberg, 1979) was used to measure participants' self-esteem. The RSES is a 10-item 4-point Likert type scale (0 = strongly disagree, 1 = disagree, 2 = agree, and 3 = strongly agree). In this scale 5 items were positive (item 1 to 5) and rest of these were negative. Corrected item total correlations were found high and positive for item number 1, 2, 3, 4, 5, 6, 7, 8, and 10 (.396 to .618) but item no. 9 showed a negative item totalcorrelation. After deleting this item Cronbach's Alpha of the scale was found .80 as well. So, item no. 9 was not considered on the total scale score. The higher score achieved on the scale indicates high self-esteem of the participants.

Bangla Version of Narcississtic Personality Inventory (NPI-13). The Translated Bangle Version (Ahmed & Hossain, 2018) of Narcissistic Personality Inventory-13 (Gentile et al., 2013) was used to assess narcissism. It has three factors- Leadership/authority (LA), grandiose exhibitionism (GE), and entitlement/ exploitativeness (EE). LA includes item no. 1, 2, 3, and 4 (α = .684), GE includes item no. 5, 6, 7, 8, and 9 (α = .595), and EE includes item no. 10, 11, 12, and 13 (α = .422). And the overall Cronbach's Alpha was found 0.767.

Procedure

Data was collected by following a uniform and standard procedure. Respondents were informed about the purpose of the study and necessary rapport was established before collecting data. Respondents were assured that their information would be kept confidential and data would be used only for the research purpose. They were also informed about their right to withdraw from the study at any time.After getting their consent, they were requested to complete the questionnaires at their own pace. In addition, they were encouraged to ask questions arising on their mind during the task. Finally, researcher thanked the participants for their cooperation.

Results

A Shapiro-Wilk's test (p>.05), Kolmogrove-Smirnove's test (p>.05) and a visual inspection of their normal Q-Q plots showed that the scaled scores were approximately normally distributed with a skewness of -.256 (SE = .238) and a kurtosis of -.558 (SE = .472). Breussch-Pagan and Koenker's test (p>.05) and Levene's test of equality error variance (p>.05) showed that heteroscedasticity was not present, that is, sample variance was same as population variance. Variables (narcissistic personality and self-esteem) were measured in interval scale. These sample characteristics fulfilled the assumptions of parametric test. In order to analyze data independent sample t-test, Pearson correlation, and hierarchical multiple regression analysis were applied using SPSS software. According to research objectives results are given below:

The above table – 2 revealed that there were significant positive correlations among self-esteem, narcissism, age, and being male. But belonging to a nuclear family showed a negative significant correlation with age (r = -.247, p<.01).

Results on Table – 3 indicated that there were significant differences between male and female participants on self-esteem and narcissism. Male students scored higher both on self-esteem scale and narcissistic personality inventory than female students. The differences between means of male and female were 2.73 for self-esteem and 1.21 for narcissism respectively.

Table 2. Pearson Correlations among RSE, NPI, and Different Demographics

Variables	1	2	3	4	5	6
1. Self – esteem	-					
2. Narcissism	.286**	-				
3. Age	.380***	.074	-			
4. Sex	.272**	.209*	.213*	-		
5. Type family	-.031	.094	-.247**	-.139	-	
6. Type of residence	.046	.089	.054	-.032	-.020	-

***$p<.001$, **$p<.01$, *$p<.05$, Male = 1, Female = 0, Nuclear family = 1, Joint family =0, Residential = 1, Non residential = 0.

Table 3. Mean Differences of Self-esteem and Narcissism by Gender, Types of Family and Residence

DV	IV	Levels of IV	N	M	SD	t
Self-esteem						
	Gender	Male	63	17.90	5.07	2.84**
		Female	40	15.17	4.19	
	Family	Nuclear	83	16.77	4.98	-.30
		Joint	20	17.15	4.71	
	Residence	Residential	19	17.31	5.43	.46
		Non-residen	84	16.73	4.81	
Narcissism						
	Gender	Male	63	5.41	3.17	2.14*
		Female	40	4.20	2.07	
	Family	Nuclear	83	5.07	2.91	.94
		Joint	20	4.40	2.56	
	Residence	Residential	19	5.47	2.87	.90
		Non-residen	84	4.82	2.84	

**$p<.01$,*$p<.05$, DV=Dependent Variables, IV=Independent Variables.

Table – 4 represents the results of the regression analysis. Age and sex were entered in step-1 which explained 18.2% variance in self-esteem. These measures showed their distinct significant contribution on the dependent measure ($\beta = .337$, $p<.001$ in case of age and $\beta = .200$, $p<.05$ for sex).

Narcissism, entered in step-2, additionally explained 5% of the variance ($\Delta R^2=.050$, $\Delta F_{1,99}=6.512$). In this final step, age significantly contributed ($\beta = .330$, $p<.001$) the most followed by narcissism ($\beta = .230$, $p<.00$). But sex did not contribute significantly ($\beta = .154$, $p>.05$). The whole model predicted 23.3% of the variance in the self-esteem score ($F_{3,99}=10.022$, $p<.001$).

Table 4. Summary of Hierarchical Multiple Regression Analysis of Self-Esteem by Age, Sex, and Narcissism.

	B	Std.Error	β	t	ΔR^2
Step – 1					.182***
Age	.726	.199	.337	3.644***	
Sex	2.008	.929	.200	2.161*	
Step – 2					
Age	.711	.194	.330	3.661***	.050**
Sex	1.542	.923	.154	1.671	
Narcissism	.397	.155	.230	2.552**	

***$p<.001$, **$p<.01$, *$p<.05$, B = unstandardized regression coefficient, Std.Error = unstadardized standard error, β = standardized regression coefficient, t = t-test value, ΔR^2 = change in coefficient of determination between steps.Male =1, Female (reference group)= 0.

Discussion

The purpose of the present study was to investigate the contributions of narcissism and various demographic variables on self-esteem of university students. And this is why different statistical analysis was applied using SPSS on the collected data file. Previous literatures helped to take objectives of this research. Its specific objectives were to examine relationships among assigned variables, to identify whether there are significant mean differences on self-esteem and narcissism according to sex, type of family and residence of the sample. Finally, it was designed to determine age, sex, and narcissism as the predictors of self-esteem respectively. And to do this, 103 participants were taken purposively as sample. Then self-esteem and narcissism along with personal information form questionnaires were administered on them.

Results (Table –3)revealed that there were significant differences between male and female both on self-esteem ($t = 2.84$, $p<.01$) and narcissism ($t = 2.14$, $p<.05$). Male studentsobtained higher score on these measures than female which are consistent with previous research findings (Malik, 2013; Arshad et al., 2015; Zeigler-Hill et al., 2008). It indicated that male participants valued themselves more than female. They showed more confidence and had better self-respect. They desire more power, leadership and a dominant interpersonal style than their counterparts. One of the most important reasons behind these results may be male-dominant socio-cultural context of Bangladesh.But there were not found significant differences on self-esteem and narcissistic personality according to types of family and residence.

Table – 2 evidenced that there was significant positive correlation between self-esteem and narcissism ($r = .286, p<.01$). That means the people who have more grandiose sense of self and feeling of entitlement tends to have high self-esteem. This findings is supported by previous studies (Gentile et al., 2013; Sakellaropoulo & Baldwin, 2007). In addition, self-esteem is significantly and positively correlated with age ($r = .380, p<.001$) and sex ($r = .272, p<.01$) of the participants. It indicated that self-esteem was high for older male participants. Besides, narcissistic personality is also positively correlated with sex ($r = .209, p<.05$). That is, male participants are more narcissistic as compared to female.

Results revealed that narcissism and age are significant predictors of self-esteem. Age and narcissism distinctly contributed 10.36% and 5% variance of self-esteem respectively. It referred that older narcissistic people tends to show more positive attitudes and beliefs toward themselves. This findings is in line with prior research(Jordan et al., 2003; Barry et al., 2007). This is happened because as people grow older, especially male, become self-dependent and get the right to contribute in decision making. And this is how they develop a sense noble, leadership authority, and entitlement. Finally, these showy characteristics act as their foundation of high self-esteem.

The present research is not beyond limitations. It has few specific drawbacks. First of all, it is conducted on a very small sample (n = 103). Participants were purposively chosen from only on public university of Bangladesh. Now the generalization of the findings is matter of criticism. Secondly, it has controlled only two major demographic variables such as age and sex of participants. So, it would better if the study had been conducted on a large sample and controlled other important variables such as socioeconomic status, faculty, and year of study. Finally, as the questionnaires were self-reported participants might not give their accurate response. Nevertheless, it is one of the rewarding efforts to investigate the effect of narcissistic personality on self-esteem.

References

Ahmed, O., & Hossain, M. A. (2018). *The Translated Bangla Version of Narcissistic Personality Inventory*. Department of Psychology: Univerity of Chittagong.

Andreassen, C. S., Pallesen, S., & Griffiths, M. D. (2017). The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey. *Addictive Behaviors, 64* (March), 287–293. https:// doi.org/10.1016/j.addbeh.2016.03.006

Arshad, M., Muhammad, S., & Mahmood, K. (2015). Self-Esteem & Academic Performance Among University students. *Journal of Education and Practice, 6* (1), 156–162.

Aryana, M. (2010). Relationship between self-esteem and academic achievement amongst pre-university students. *Journal of Applied Sciences.* https: //doi.org/ 10.3923/ jas.2010.2474.2477

Audu, A., & Jekwu, O. L. (2011). Self-Esteem and Academic Performance among Undergraduate Students in the University of Maiduguri: Implication for Counseling. *Baylor Business Review,* 29(2), 31–35. Retrieved from host.com/login. aspx?direct=true&db=bth&AN=60008689&site=ehost-live

Barry, C. T., Grafeman, S. J., Adler, K. K., & Pickard, J. D. (2007). The relations among narcissism, self-esteem, and delinquency in a sample of at-risk adolescents. *Journal of Adolescence.* https://doi.org/ 10.1016/j. adolescence.2006.12.003

Brockner, J. (1988). *Self-esteem at work: Research, theory, and practice.* Lexinton, MA: D.C.: Health & Co. Retrieved from http://psycnet.apa.org/psycinfo/1988-98001-000

Brown, R. P., & Zeigler-Hill, V. (2004). Narcissism and the non-equivalence of self-esteem measures: A matter of dominance? *Journal of Research in Personality,* 38(6), 585– 592. https://doi.org/10.1016/j.jrp.2003.11.002

Carroll, L. (1987). A study of narcissism, affiliation, intimacy, and power motives among students in business administration. *Psychological Reports.* https://doi.org/ 10.1177/03058298050330031401

Dogan, T., Totan, T., & Sapmaz, F. (2013). The Role Of Self-esteem, Psychological Well-being, Emotional Self-efficacy, And Affect Balance On Happiness: A Path Model. *European Scientific Journal,* 9(20), 31–42.

Feldman, S. S., Elliot, G. R., & Harter, S. (1990). *Self and identity development.* Cambridge: Harbard Universtiy Press.

Foster, J. D., & Campbell, W. K. (2007). Are there such things as "Narcissists" in social psychology? A taxomtric analysis of the Narcissistic Personality Inventory. *Personality and Individual Differences,* 43(6), 1321–1332.

Gentile, B., Miller, J. D., Hoffman, B. J., Reidy, D. E., Zeichner, A., & Keith Campbell, W. (2013). A test of two brief measures of grandiose narcissism: The narcissistic personality inventory-13 and the narcissistic personality inventory-16. *Psychological Assessment,* 25(4), 1120–1136. https://doi.org/10.1037/a0033192

Jain, S., & Dixit, M. P. (2014). Self Esteem: A Gender Based Comparison and the Causal Factors Reducing It among Indian Youth. *International Journal of Humanities and Social Science Invention ISSN,* 3(4), 2319–7722.

Jordan, C. H., Spencer, S. J., Zanna, M. P., Hoshino-Browne, E., & Correll, J. (2003). Secure and Defensive High Self-Esteem. *Journal of Personality and Social Psychology,* 85(5), 969–978. https://doi.org/10.1037/0022-3514.85.5.969

Kernberg, O. (1975). *Borderline Conditions and Pathological Narcissism.* New York: Jason Aronson.

Kling, K. C., Shibley Hyde, J., Showers, C. J., & Buswell, B. N. (1999). Gender differences in self-esteem: A meta-analysis. *Psychological Bulletin,* 125(4), 470–500.

Korman, A. K. (1970). Toward an hypothesis of work behavior. *Journal of Applied Psychology*. https://doi.org/10.1037/h0028656

Malik, S., & Khan, M. (2015). Impact of facebook addiction on narcissistic behavior and Self-Esteem among students. *Journal of the Pakistan Medical Association, 65*(3), 260–263.

Malik, S. S. (2013). Gender differences in self-esteem and happiness among university students. *International Journal of Development and Sustainability.*

Quatman, T., & Watson, C. M. (2001). Gender differences in adolescent self-esteem: An exploration of domains. *Journal of Genetic Psychology.* https://doi.org/10.1080/00221320109597883

Raskin, R., Novacek, J., & Hogan, R. (1991). Narcissism, Self-Esteem, and Defensive Self-Enhancement. *Journal of Personality.* https://doi.org/10.1111/j.1467-6494.1991.tb00766.x

Rosenberg, M. (1965). *Society and the Adolescent self-Image*. Princeton: Princeton University Press.

Sakellaropoulo, M., & Baldwin, M. W. (2007). The Hidden Sides of Self-Esteem : Two Dimensions of Implicit Self-Esteem and their Relation to Narcissistic Reactions Table of Contents. *Journal of Experimental Social Psychology, 43*(6), 995–1001.

Thomaes, S., Bushman, B. J., Stegge, H., & Olthof, T. (2008). Trumping shame by blasts of noise: Narcissism, self-esteem, shame, and aggression in young adolescents. *Child Development, 79*(6), 1792–1801. https://doi.org/10.1111/j.1467-8624.2008.01226.x

Uddin, M. K. (2017). *The Translated Bangla Version of Rogenberg Self-Esteem Scale.* Department of Psychology: University of Dhaka.

Watson, P. J., Little, T., & Sawrie, S. M. (1992). Measures of the Narcissistic Personality: Complexity of Relationships With Self-Esteem and Empathy. *Journal of Personality Disorders, 6*(4), 434–449.

Zeigler-Hill, V. (2006). Discrepancies between implicit and explicit self-esteem: Implications for narcissism and self-esteem instability. *Journal of Personality, 74*(1), 119–143. https://doi.org/10.1111/j.1467-6494.2005.00371.x

Zeigler-Hill, V., Clark, C. B., & Pickard, J. D. (2008). Narcissistic subtypes and contingent self-esteem: Do all narcissists base their self-esteem on the same domains? *Journal of Personality, 76*(4), 753–774. https://doi.org/10.1111/j.1467-6494.2008.00503.x

Bonding with Parents and Children's Well-Being: Resilience and Social Support In-between

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The aim of this study was to obtain better insight into the association between parental bonding and psychological well-being by testing the possible mediating roles of social support and resilience. A sample of 250 undergraduates and graduates from different departments of the University of Dhaka, Eden Mahila College, Home Economics College and United International University (UIU) were investigated by adopting a non-probability based sampling technique namely purposive-incidental. Data were collected using a questionnaire package comprised of Bangla translated versions of the Parental Bonding Instrument, Social Support Questionnaire, Resilience for Adult and WHO well- being index. The responses recorded from the participants were enlisted in very widely used software named — Statistical Package For Social Science (SPSS) version - 20 and were analyzed by computing correlation coefficient. The result shows that bonding of mother is positively correlated with well-being of children whereas bonding of father is negatively correlated with social support and resilience. On the other hand, social support is positively correlated with resilience and well-being of children and resilience of children is also positively correlated with children well-being. As the correlation of well-being with fatherly bonding was found non-significant, we couldn't conduct mediate analysis to find out the role of social support and resilience as mediating factors. In this article, I describe relation of parental bonding with children well-being, including how much resilience and social support affect well-being of children. We conclude with ideas for further research as well as have drawn explanations of the existing result.
Keywords: parental bonding, well-being, social support, resilience.

The concept of a 'bond' between a parent and a child is generally accepted despite the lack of a satisfactory definition of the concept (Bowlby, 1969 & Rutter, 1972). Theoretically, it might be proposed that parent-child Bonds would be broadly

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influenced by characteristics of the child (e.g. individual differences in attachment behavior), Characteristics of the parent or care-taking system (e.g. psychological and cultural influences) and by characteristics of the reciprocal, dynamic and evolving relationship between the child and the parent. While that reciprocal interrelationship has resisted definition it is probably fair to suggest that most research has examined the influence of single variables instead of attempting to identify the principle dimensions of bonding.

Findings from the studies reviewed, suggested by Gordon Parker, Hilary Tupling and L. B. Brown (1979) that the parental contribution to bonding may be influenced by two principal source variables. The first variable clearly appears to be a care dimension. The second variable does not appear to be so readily definable but suggests a dimension of psychological control over the child. Parker (1979) used factor analytic studies to conclude that parental behavior and attitude has two dimensions: care and protection. Cold, indifferent and rejecting parents who are over-protective have been found to be related to the development of depression (Parker, 1983).

Research indicates that parent-child relations have important influences on adolescents' well-being (Van Wel, Linssen, & Abma, 2000). Indeed, the influence of parents on adolescent's psychological well-being is sometimes found to bear more weight than that of peers (Field, Lang, Yando, & Bendell, 1995; Greenberg, Siegal, & Leitch, 1983; Rosenberg, 1979). In addition, the influence of parent-child relations in adolescence is not transitory; the affective quality of parent-child relationships in the teenage years has been shown to influence the long-term trajectory of offspring well-being into adulthood (Biller & Kimptom, 1997; Roberts & Bengtson, 1996). The vast majority of the psychological literature focuses on parent-child relationships early in children's development (Bowlby, 1985; Chodorow, 1978; Freud, 1938).

Baumrind (1967) has distinguished three parenting styles: authoritarian, overly permissive and authoritative. Authoritative styles are associated with social maturity and responsibility (Baumrind, 1971), and academic success in children (Steinberg, Elmen & Mounts, 1989). Controlling for ethnicity and SES these associations in children have held up (Dornbusch, Ritter, Leiderman, Roberts &: Fraleigh, 1987). Positive parent-child relationships were associated with resilient outcomes among children exposed to major life stressors (Gribble et al, 1993). Ciallimore and Kurdeck (1992) found a link between the father's authoritative parenting and adolescent depression, this association being a negative one.

Resilience particularly involves a stress-resistant attitude, related to the appraisal of oneself as able to cope with stressors (Karreman & Vingerhoets, 2012), whereas the value of social support can be explained as a resource for coping with stress. Therefore, resilience and social support are considered as supplementary factors in the stress apprising process, and expected to play a mediating role in the association between parental bonding and well-being of younger adults.

Social support is important for maintaining good physical and psychological health. Social support has been described as "support accessible to an individual through social ties to other individuals, groups, and the larger community (Lin, Simoeone, Ensel, & Kuo, 1979)." Researchers (e.g., Berscheid & Reis, 1998) stated that social support from others reduces (i.e., buffers) the potential debilitating effects of stress (buffering hypothesis). Other researchers reported that people benefit from social support not only in time of stress but also social support contributes to an individual's health independent of his or her stress (e.g., Stroebe & Stroebe, 1996). More specifically, perceived satisfaction with social support is more strongly related to well-being (Kafetsios & Sideridis, 2006).

Cohen and Wills (1985) proposed that social support is related to well-being because it offers positive emotions, a sense of self-worth, and predictability in life; it also functions as a stress buffer by reinforcing self-esteem, self-efficacy, and problem solving behaviors. They stated that though most of the studies on social support are correlational and therefore do not imply causal relationships, the evidence from studies using animal research, social-psychological analogue experiments and prospective surveys suggest that social support has positive effects on well-being .

Resilience, which is related to social support (Ozbay, Johnson, Dimoulas, Morgan III, Charney, & Southwick, 2007), is considered a personality construct referring to the capacity to moderate the negative effects of stressors and to promote positive adaptation (Wagnild & Young, 1993). Researches also showed that, resilience is positively related to well-being (Sagone & Caroli, 2014) and resilience as a personal characteristic is able to predict well-being (Souri & Hasanirad, 2011).

Studies generally show a positive relationship between social support and well-being in children and adolescents (for example, Malecki & Demaray, 2006 for a brief review about social support as a buffer to stress for students). But some studies have found trivial or even negative relationships. For instance, Berndt (1989) suggested that the friendships among children and adolescents can have negative aspects such as conflicts or competition that need to be examined. There is also evidence suggesting the association between social support and psychological

adjustment among pregnant teenage mothers could be trivial (Barrera, 1981). Borcherding, SmithBattle, and Schneider (2005) further stated that many methods used to measure teenage mothers' social support only focus on its benefits, rather than the potential difficulties and conflicts in their relationships, indicating that supportive relationships may not always be positive.

Objective of the study

Bangladesh is a patriarchal country though we are facing changes that woman are also participating in work places now. As, we all are facing a new growth despite of having the existing mentality, very little is known about how parental bonding is affecting children's well-being. Even since to date little is known about the possible mediating roles of resilience and social support in our country also, so the goal of the present study not only would be

1. To examine the extent to which parental bonding predict well-being but also

2. To explore whether resilience and social support each has any mediating role in the relationship between parental bonding and well-being of young adults.

Based on the literature reviewed, we hypothesize that (a) the better the parental bonding the higher well-being would be and (b) the perceived satisfaction with social support and resilience of young adults would mediate the relationship between parental bonding and well-being.

Method

Participants

The present study would include 250 young adults, balanced as evenly as possible by gender. We took 150 male and 100 female to conduct the study. They were selected employing non-probability based sampling technique namely purposive-incidental. We took participants from University Of Dhaka, Eden Mahila College, Home-Economics College and United International University (UIU). The age ranges of the students were between 20-25.

Measuring Instruments

The following measures would be used in the current study and they would be administered in the following sequences:
1. Parental Bonding Instrument (PBI)
2. Social Support Questionnaire-Short Form (SSQ)
3. Resilience Scale for Adult (RSA)

4. WHO-Five Well-Being Index

5. Personal Information Form (PIF)

Parental Bonding Instrument: Gordon Parker, Hilary Tupling and L.B Brown in 1979 developed parental bonding instrument. In this scale there are two dimensions called Care and Overprotection. The translated version was used in this study. The translation is done by Prokrity and Uddin (2017). In this scale there are 25 items including 12 care and 13 over protection. For example: "Talk to me with warm and friendly voice" and "was overprotective on me" The items each has 4 choices (very like, moderately like, moderately unlike, very like). The test-retest reliability is reported as .76 (care), .63 (protection). The split half reliability is reported as .88 (care); .74 (protection). The concurrent validity of the PBI has been reported as .78 (care) and .48 (protection). Studies suggested the PBI meets validity criteria both as a measure of perceived and of actual parenting style.

Social Support Questionnaire-Short Form (SSQ): Sarason, Sarason, Shearin, and Pierce's (1987) Social Support Questionnaire (SSQ) was used in the present study. The translated version is done by Prokrity and Uddin (2017). The short form of Social support questionnaire consists of 6 items. Each item is a question that solicits a two-part answer. Part-1 asked participants to list all the people that fit the description of the question, and part-2 asked participants to indicate how satisfied they were, in general, with these people. For the later, participants indicated on a six-point Likert-type scale ranging from very dissatisfied (1) to very satisfied (6). For example, who can you really count on to be dependable when you need help? Sarason et al., (1987) found internal consistency reliability between .90 and .93 for the scale, and demonstrated good scale validity (through relationships with other measures of support and with loneliness, depression and anxiety).

Resilience Scale for Adult: Friborg et al. (2003) developed this scale and the Bangla version was used for this study. The translation is done by Prokrity and Uddin (2017). The Resilience Scale For Adult contains 33 items and comprises five factors labeled (Friborg et al., 2003; Hjemdal et al., 2001) : personal competence ("I know if I continue, I will succeed"), Social Competence ("I can establish friendly relationship easily"), Family Cohesion ("Even in difficult situations, my family is optimistic"), Social Resources ("There is always someone who helps me when I'm in need") and Structured Style ("I sustain my daily rules even in difficult situations"). The internal consistency of all subscales of the RSA is satisfactorily high in terms of Cronbach's alpha. All subscales of the RSA were positively associated with each other, with correlation- coefficients ranging from 0.23 to 0.58. Research has indicated that this scale contains high convergent and criterion related validity (Jowkar, B., Friborg, O. & Hjemdal, O. 2010).

WHO-Five Well-Being Index: The 5-item World Health Organization Well-Being Index (1998) is a short and generic global rating scale measuring subjective well-being. The Bangla version of the WHO-5 was used in the present study. The translation is done by Prokrity and Uddin (2017). Participants were asked to indicate how well each of the five statements applies to him/her when considering the last two weeks. They responded to WHO-5 items on a 6-point Likert-type scale ranging from all of the time (5) to at no time (0). An example item of the WHO-5 index is "I have felt cheerful and in good spirits". Since its first publication in 1998, the WHO-5 has been translated into more than 30 languages and has been used in research studies all over the world. Recently a systematic review by Topp, Østergaard, Søndergaard, and Bech (2015) reported that the scale has adequate validity both as screening tool for depression and as an outcome measures.

The Personal Information Form (PIF): The PIF will elicit demographic, personal, and social information about respondent's gender, age, year of study, academic achievement, number of siblings, birth order, family size, parental education, parental occupation, family socio-economic status, religious affiliation, types of family etc.

Procedure

For conducting the study, data collection instruments were administrated. After finalizing the items, questionnaire was administered to the study samples individually. Respondents were given written instructions along with questionnaire, as well as they were also given verbal instructions so that they could better understand their task. All the respondents were assured that the information provided by them would be strictly confidential and would be used only for research purposes. Sometimes, it was required to clarify the meaning of some items. At first they have to fill up all demographical information's (Gender, Age, Educational background, Profession, Family's Monthly income, father's occupation, and mother's occupation etc.). There were 84 items in the 5 questionnaire and they expressed their opinion by putting tick (√) mark on the appropriate response boxes which were best expressions of their feelings. They were gifted a pen containing the logo of Department Of Psychology, University of Dhaka which also included the name of my supervisor. After collecting data, they were cordially thanked for their kind cooperation.

Result

To investigate how much parental bonding affects children well-being with the presence of social support and resilience correlation coefficient is computed and the result is shown in Table 1 below.

Table 1 depicts that bonding of mother is positively correlated with well-being of children (.29) whereas bonding of father is negatively correlated with social support (-.32), resilience (-.19) and well-being (-.08). On the other hand, social support is positively correlated with resilience (.29) and well-being (.22) of children and resilience of children is also positively correlated with children's well-being (.19).11

Table 1. Correlations between variables (N=250)

Variables	1	2	3	4
Pbim				
Pbif	.36**			
Ssq	.05	-.32**		
Rsa	-.03	-.19**	.29**	
Wbi	.29**	-.08	.22**	.19**

**. Correlation is significant at the $p < 0.01$ level (2-tailed).

Discussion

Parental bonding is one of the best predictors for children well-being in adolescent period because children tend to carry the particular mindset that was experienced in their adolescent period ahead in life. After reviewing the past literature, we became interested to investigate how much parental bonding actually affects children well-being with the presence of social support and resilience later in life. So we prepared a package of questionnaire based on which the responses would be collected. We conducted a pilot study on a sample of 40 participants fromUniversity of Dhaka. After conducting that some variables have been removed and some new variables have been added to have the best outcome.

On field study we selected 250 young adults from different Universities such as different department of University of Dhaka, Eden Mohila College, Home Economics College & United International University (UIU). We selected participants using non-probability sampling technique named purposive–incidental sampling. After collecting the responses the data were fed into SPSS version 20 and analyzed by computing reliability of those scales and correlation coefficient. The scales are reliable enough as there reliability ranges from .79 up to .94.

From Table 1 it is shown that the bonding of mother with children is very satisfactory which leads to significantly positive correlation with children well-being ($r = .29$). In Bangladeshi context, after birth a child spends most of the time with the mother only. For that reason, intimacy with their mother increases which creates a sense of security as well as a sense of emotional connectedness and care with their mother. According to Parker (1979), parental bonding influenced by care leads to better well-being of children and cold, indifferent and rejecting parents who are over-protective have been found to be related to the development of depression (Parker 1983). But our result indicates that, it is clearly either the affection or warmth that has predicted good well-being which is partially similar to Parker's findings.

Again, bonding of mother has no correlation with resilience ($r = -.03$). This might be due to the lacking of affection that happens after their adolescent period. At present children are more independent; lots of emotional conflicts are seen between children and their parents especially with the mother as sometimes overprotection is experienced during childhood. Overprotection leads to become vulnerable with situations more often.

Levy (1970) has suggested that overprotectiveness is principally revealed clinically by excessive contact and prevention of independent behavior. These factors lead to become less resilient and being vulnerable with situations. That's why the correlation is negative and to some extent this goes with Bangladeshi context. No Correlation is found with social support ($r = .05$) which indicates that motherly bonding is not associated with the perceived social support of children. But their responses are quite misleading as in social support questionnaire they have put their mothers name first in most of the cases. This might be due to the socially desired behavior that they tend to have for the fear of being socially rejected.

The bonding of father is quiet predictable which is negatively correlated with social support ($r = -.32$), resilience ($r = -.19$) and no correlation is found with well-being ($r = -.08$). Ciallimore and Kurdeck (1992) have found a link between the father's authoritative parenting and adolescent depression, this association being a negative one. This goes so well with our society for being a patriarchal one which eventually creates a gap with their children. Moreover, low income is associated with higher parenting stress (Pipp-Siegel, Sedey, & Yoshinaga-Itano, 2002), whereas being employed has been negatively associated (Jackson & Huang, 2000). This might be a noticing reason that being in stress; a father won't be able to have good bond with his children at all. On that note, the result goes well with our present condition as Bangladesh is a developing country.

Bonding with Parents and Children's Well-Being: Resilience and Social Support In-Between Social support contains a high correlation with resilience (r=.29) and with well-being (r=.22). Studies generally show a positive relationship between social support and well-being in children and adolescent (for example, Malecki & Demaray, 2006 gave a brief review about social support as a buffer to stress for students). This helps us to understand it better that whatever may happen in their adolescents period, their current situation is good enough as they have responded it based on their past two weeks according to the perceived support they are having now from their peers and near ones apart from their parent which is partially similar to the findings of Cohen and Wills (1985).

Resilience is also a predictor that is successful in predicting well-being. The correlation is found significantly positive (r=.19). Resilient children are capable enough to lift them from the worse situations. Literature review shows that, resilience is positively related to well-being (Sagone & Caroli, 2014) as well as resilience as a personal characteristic is able to predict well- being (Souri & Hasanirad, 2011) .

The correlation of well-being with parental bonding (mother), resilience and social support indicates that the mental condition of the selected participants is very well. That to some extent supports our hypothesis that parental bonding (mother) will predict good well-being. But the correlation of bonding of father with resilience and social support are found significantly negative and we found no correlation of fatherly bonding with well-being. For that reason we could not do further analysis named mediate analysis to find out the mediating role of social support and resilience between the relationship of parental bonding and children's well-being. But social support and resilience individually predict good well-being. This might be due to, the participant did not understand the questionnaire better or they have just filled up the questionnaire in hurry to finish them up.

Bonding with Parents and Children's Well-Being: Resilience and Social Support In-Between Moreover, when they were asked to fill up the parental bonding questionnaire according to their adolescence period, they were seemed uncomfortable recalling their past. Their reactions were like they have forgotten lots of things. They might have filled them up thinking of their present condition for which we did not have the desired outcome.

It was noticed that among 250 participants their current well-being condition is good according to their responses which indicates that whatever their bond with

their parent was might have improved now as most of the responses of social support includes their parents, mother specially. Wendy J. Travis and Terri Combs-Orme (Sept 2007) have said that some mothers are able to overcome poor bonds with their own caregivers to develop good adaptive functioning in adulthood and provide good parenting to their own children .

It is important for future studies to also use other forms of data collection, such as interviews, expert judgments, or experiments. Therefore, no conclusions can be drawn regardin the causality or temporal order of the variables. In order to solve these causes and effect issues, longitudinal research is needed. Large amount of sample are needed to generalize the result and sampling selection should be altered.

Some methodological considerations have to be taken into account. A limitation of the design was that parental bonding, social support questionnaire, were measured by self-report instruments, which may have caused some bias. Another point of concern is the representativeness of the sample studied. The response rate was moderate, which makes it possible that selection has occurred. Unfortunately, because of anonymity, it was not possible to obtain information on eventual differences between persons who participated and persons who did not. Apart from all, sample size is small which cannot be generalized and the sampling technique is much more convenient.

References

Bowlby, J. (1969). *Attachment and loss*: Vol. 1, Attachment (2nd Eds.). New York: Basic Books (Original work published 1969).

Field, Tiffany, et al. "Adolescents' intimacy with parents and friends." *Adolescence* 30.117 (1995): 133.

Greenberg, Mark T., Judith M. Siegel, and Cynthia J. Leitch. "The nature and importance of attachment relationships to parents and peers during adolescence." *Journal of youth and adolescence* 12.5 (1983): 373-386.

Jowkar, B., Friborg, O. & Hjemdal, O. (2010). Cross-cultural validation of the Resilience Scale For adults in Iran. *Scandinavian Journal of Psychology, 51,* 418–425.

Kafetsios, K., & Sideridis, G. D. (2006). Attachment, social support and well-being in young and older adults. *Journal of Health Psychology,* 11(6), 863-875.

Karreman, A., &Vingerhoets, Ad. J. J. M. (2012). Attachment and well-being: The mediating role of emotion regulation and resilience. Personality and Individual Differences, 53, 821-826.

Levy, D. M. (1970). The concept of maternal overprotection. *Parenthood*, 387-409.

Lin, N., Simoeone, R. S., Ensel, W. M., & Kuo, W. (1979). Social support, stressful life events, and illness: A model and an empirical test. *Journal of Health and Social Behavior*, 20, 108-119.

Lindzey G, editors. *The Handbook of Social Psychology* (4th Eds.), 2, 193-281. Boston MA: McGraw-Hill.

McFarlane, A. H., Bellissimo, A., & Norman, G. R. (1995). Family Structure, Family Functioning and Adolescent Well☐Being: the Transcendent Influence of Parental

Style. *Journal of Child Psychology and Psychiatry*, 36(5), 847-864.

Malecki, C. K., & Demaray, M. K. (2006). Social support as a buffer in the relationship between socioeconomic status and academic performance. *School Psychology Quarterly*, 21(4), 375.

Ozbay, F., Johnson, D. C., Dimoulas, E., Morgan III, C. A., Charney, D., & Southwick, S. (2007*). Social support and resilience to stress. Psychiatry* (Edgmont), 4(5), 35-40.

Parker, G., Tupling, H., & Brown, L. B. (1979). A parental bonding instrument. *Psychology and Psychotherapy: Theory, Research and Practice*, 52(1), 1-10.

Parker, Gordon. *Parental overprotection: A risk factor in psychosocial development*. New York: Grune & Stratton, 1983.

Po Sen Chu, Dona ld A. Saucier, and Eric Hafner (2010) *Kansas State University.Journal of Social and clinical psychology*, Vol. 29, No. 6, pp. 624-645.

Pipp-Siegel, S., Sedey, A. L., & Yoshinaga-Itano, C. (2002). *Journal of Deaf Studies and Deaf Education*, 7, 1-17.

Rutter, Michael. "Maternal deprivation, 1972-1978: New findings, new concepts, new approaches." *Child development* (1979): 283-305.

Sagone, E., & Caroli, M. E. D. (2014). Relationship between psychological well-being and resilience in middle and late adolescence. Procedia – *Social and Behavioral Sciences*, 141, 881-887.Procedia – *Social and Behavioral Sciences*, 30, 1541-1544.

Sarason, I. G., Sarason, B. R., Shearin, E. N., & Pierce, G. R. (1987). A brief measure of social support: Practical and theoretical implications. *Journal of Social and Personal Relationships*, 4, 497-510.

Souri, H., & Hasanirad, T. (2011). Relationship between resilience, optimism and psychological well-being in students of medicine.

Stroebe, W, & Stroebe, M. (1996).*The social psychology of social support*. In: E. T. Higgins & A. W. Kruglanski (Eds.), *Handbook of Basic Principles*, 597-621. New York: Guilford.

80

Tomas K. Rosenberg. "Parental bonding and depressive disorders in adolescents." *Journal of Child Psychology and Psychiatry* 30.3 (1989): 417-429.

opp, C. W., Østergaard, S. D., Søndergaard, S., & Bech, P. (2015). The WHO-5 well-being index: A systematic review of the literature; *Psychotherapy and Psychosomatics, 84,* 167-176.

gnild, G. M. & Young, H.M. (1993). Development and psychometric evaluation of resilience scale. *Journal of Nursing Measurement,* 1(2), 165-178.

O (Five) well-being index (1998). Psychiatric Research Unit, *WHO collaborating center* or Mental health, Fredrickson General Hospital, DK-3400 Hilliard. World Health rganization (1999). *The World Health Report 1999.*

W.J.&Combs-Orme (Sept 2007): and Terri Combs-Orme. *Social Work Research 31.3* 35(15).

Role of Self-esteem and Study Habit on Academic Achievement of University Students

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The present study investigated the role of self-esteem and study habit on academic achievement as there were contradictions about the role of these both factors on academic achievement. The Rosenberg Self-esteem Scale (Rosenberg, 1979) and the Study Habits Questionnaire (Thomas, Omotoke, & Ademola, 2016) along with personal information form were administered on a multistage sample of 128 students of University of Chittagong in Bangladesh. Students' honors final year results were considered as their academic achievement. The results of Pearson's product moment correlations showed that both self-esteem and study habit were positively correlated with academic achievement. On the other hand, partial correlation analysis showed that only study habit was significantly correlated with academic achievement. Furthermore, the mediation analysis indicated that self-esteem had no direct significant effect on academic achievement but study habit influenced the academic achievement. In conclusion, the study findings also suggested that mean differences in self-esteem by gender boys had higher self-esteem than girls.

Keywords: self-esteem, study habit, academic achievement, gender

Academic achievement is used as a standard to the quality of education which is one of the prime indicators to evaluate the education (Chapman & Adams, 2002). It is the degree of academic learning outcomes by students that indicates the extent to which one has accomplished the desired goals those are the focus of activities in instructional environments. It is used to measure the stated goals of students, teachers, or institutions. It is not only indicator to the effectiveness of the program but also a major determinant for the future of students and a nation also. Academic achievement covers wide range of educational outcomes, so definition depends on the indicators which are used to measure it. All criteria of academic achievement

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represent the intellectual capacity of a person. A common criterion for academic achievement is performance on educational achievement tests or grades. This performance or grade is generally used to determine how well one is able to assimilate, retain, recall, and communicate one's knowledge that has learnt (Audu, Jekwu, & Pur, 2016). Academic achievement has become a phenomenon of interest to all because excellent grade of students is always expected. Over the years, psychologists, researchers, teachers, administrators have tried to reveal the non-cognitive factors those influence students' academic achievement. The non-cognitive factors are included self-esteem of the students, their study habit etc.

The self-esteem, one of the influential factors those have effect on students' academic achievement, has received increasing attention in education research in present days (Aryana, 2010). It can be referred as one's subjective judgment of competency regarding one's self-worth. It is a set of attitudes and beliefs through which we positively or negatively evaluate ourselves. On a long term, such evaluation may influence the development of cognitive and affective traits (Anastasi & Urbina, 1997). It is internal belief that every person possesses to make of his ability to face, understand, and solve challenges of life to achieve happiness which is the sum of self-confidence and self-concept. In academic level, self-esteem can be defined as evaluative appraisal of experience of being capable to meet academic challenges (Olanrewaju & Joseph, 2014). It is a student's view about how he compares his academic ability with other students. Past studies suggested significant relationship between students' self-esteem and their academic achievement (Aryana, 2010; Colquhoun & Bourne, 2012; Das, & Pattanaik, 2013; Diseth, Meland, & Breidablik, 2014; Olanrewaju & Joseph, 2014; Arshad, Zaidi, & Mahmood, 2015; Audu et al., 2016). In their study Alves-Martins, Peixoto, Gouveia-Pereira, Amaral, and Pedro (2010) found significant differences between the successful and unsuccessful seventh grade students' self-esteem. They also found that students with low levels of academic achievement attribute less importance to school-related areas and reveal less favorable attitudes towards school. Giofrè, Borella, and Mammarella (2017) found that self-esteem mediated by intelligence to influence the academic achievement. However, very few studies have conducted to examine the direct effect of self-esteem while controlling other variables (Giofrè et al., 2017). Some studies suggested self-esteem not significantly influences academic achievement (Demo & Parker, 1987; Baumeister, Campbell, Krueger, & Vohs, 2003). Studies also suggested gender differences in self-esteem as boys have higher self-esteem (Brutsaert, 1990; Kling, Hyde, Showers, & Bruswell, 1999; Quatman & Watson, 2001, Diseth et al., 2014; Arshad et al., 2015).

Study habit is a skill that facilitates students' learning. It is one of the most important topics in the educational research (Sherafat & Murthy, 2016).It is the learning tendencies to which students engage in regular acts of studying. It can be defined as the ways and manners students plan their private academic reading outside lecture hours for mastering a particular subject or topic. It is the students' way of study whether systematic, efficient, or inefficient. Every student has a study habit that might be either proper or good study habit or improper or bad study habit in terms of obtaining good grades. Study habit can be assessing through inventories, reports, examinations, rating scales etc. Past studies suggested significant relationship between study habit academic achievement (Ch, 2006; Crede & Kuncel, 2008; Oluwatimilehin & Owoyele, 2012; Kumari & Chamundeswari, 2015; Siahi & Maiyo, 2015; Sherafat & Murthy, 2016; Thomas, Omotoke, & Ademola, 2016). Poor time management approach to studying and increase usage of the surface learning strategies associated with poor academic performance (Bickerdike, O'Deasmhunaigh, O'Flynn,& O'Tuathaigh, 2016). However, some studies also indicated that study habit had no significant correlation with academic achievement (Nouhi, Shakoori, & Nakhei, 2008; Lawrence, 2014). Chilca (2017) found no significant relationship between self-esteem and academic achievement but no study habit significantly influenced academic achievement.

The quality of education, in present education system, is most commonly uttered topic in the table of discussion in our country. Every year though a large number of students have passed in public examinations, but quality of education is always questionable to the experts. Specially, it gets much attention for discussion during admission tests in public universities for enrolling in higher studies. As ensuring quality of education at all levels is one of the prime missions of the Vision 2021 of the present government of Bangladesh, we must have to develop some innovative strategies for improving the quality of education in our country. From students' side there must also be some important steps which will form the basis for improvement in their academic achievement. Their needs, requirements, capabilities, and their studying pattern ignored most of the time as they are forced to learn the study materials by same method by same person in same environment. For guardians and teachers, it is not only important to recognize diversities in students, but also it is expected that they will value their self-concept, self-esteem and study habit. Our educational institutions along with guardians, and policy makers should take into account the basic human differences in their studying, thinking about oneself etc. As existing literature suggested contradictory findings related to role of self-esteem and study habit on academic achievement and a very few studies investigated whether the self-esteem directly or indirectly influenced

academic achievement, in the present study we tried to investigate the role of self-esteem and study habit on the Bangladeshi university students' academic achievement. The main objective of our present study was to investigate the relationship among self-esteem, study habit, and academic achievement.

The specific objectives of the present study were –

(i)   to investigate whether self-esteem and study habit directly or indirectly influenced academic achievement;
(ii) to find out mean differences between male and female students regarding self-esteem, study habit, and academic achievement;
(iii) to find out mean differences between residential and non-residential students regarding self-esteem, study habit, and academic achievement.

Method

Participants

The population of the present study was the university students of Bangladesh. From this population, 128 Chittagong University students from arts, social science, and business studies faculty were selected as a sample following multi-stages sampling technique. At first stage, among 38 public universities in Bangladesh the Chittagong University was selected on the basis of convenience. In next stage, among 8 faculties, 3 faculties (Arts Faculty, Social Science Faculty, and Business Studies Faculty) were selected randomly. From these selected faculties, respondents were selected through a criterion that was respondents must have their last year academic results. For that criterion, we excluded 1st year students. In this stage, 128 respondents were selected purposively. Their age *mean* was 23.58 years with *standard deviation* 1.84 years and monthly family income *mean* was BDT42718.69 with *standard deviation* BDT54627.52. Respondents' distribution in gender, year, residence type, family type by their corresponding faculty is presented in Table 1.

Measures

The translated Bangla version (Uddin, 2017) of the Rosenberg Self-esteem Scale (RSES; Rosenberg, 1979) and the translated Bangla version (Ahmed & Hossain, 2017) of the Study Habit Questionnaire (SHQ; Thomas et al., 2016) were used to collect information about self-esteem and study habit. The RSES is 10 items measure that measures global self-worth by measuring both positive and negative feelings about the self. All items are answered using a 4-point Likert type scale (0 = strongly disagree to 3 = strongly agree). Among 10 items, five positively worded and five

Table 1. Respondents' distribution in gender, year, residence type, family type by their corresponding faculty

Faculty	Gender		Year			Residence			Family Type	
	Male	Female	2nd	3rd	4th ers	Mast dent	Resi resident	Non-Single	Joint	
Arts	39	33	0	20	52	0	17	55	61	11
BBA	13	7	13	0	0	7	9	11	17	3
SS	22	14	0	0	0	36	9	27	30	6
Total	74	54	13	20	52	43	35	93	108	20

negatively worded. The scale ranges from 0-30. Scores between 15 and 25 are within normal range; scores below 15 suggest low self-esteem. Higher values represent higher level of self-esteem. The *Cronbach's Alpha reliability coefficient* in the present study was 0.803. The SHQ contained 12 items with a four-point Likert-type scale of Strongly Agree (4), Agree (3), Disagree (2) and Strongly Disagree (1). Higher score in SHQ indicated good study habit of respondents. The *Cronbach's Alpha reliability coefficient* of SHQ in original study was .81 and in the present study was .83.Students' last year results were taken as their academic results.

Procedure

The aforesaid measures were administered on the study sample in classroom settings. They were informed about the purpose and importance of the study and necessary rapport was established with them. Respondents were given written instructions along with the questionnaire. They were asked to read the items of the questionnaire very carefully and also instructed to express their opinion by putting tick (√) mark on the appropriate response boxes those were best expression of their feelings. They were also requested not to omit any item in the questionnaire and also told that there was no right or wrong answer. They were assured that the information collected from them would be strictly confidential and would be used for only research purposes. After completing their task, they were thanked for their cordial cooperation.

Results

The collected data were analyzed by descriptive statistics in order to know the mean and *standard deviation* of respondents in self-esteem, study habit, and academic achievement. The obtained results of the analysis were presented in the following way.

As shown in the Table 2, self-esteem mean was 18.77 with standard deviation 5.63, study habit mean was 27.73 with standard deviation 6.29, and academic achievement mean was 3.17 with standard deviation .33.

Table 2. Mean and standard deviation of respondents' self-esteem, study habit, and academic achievement

Variables	Mean	Standard Deviation
Self-esteem	18.77	5.63
Study Habit	27.73	6.29
Academic Achievement	3.17	0.33

Again, for investigating the relationship among self-esteem, study habit and academic achievement, the data were subjected to the '*Pearson's Product Moment Correlation Co-efficient*'. The results were presented in the following table.

Table 3. Correlation matrix of self-esteem, study habit and academic achievement

Variables	Self-esteem	Study Habit
Study Habit	0.403**	
Academic Achievement	0.201*	0.271**

*$p < .05$, **$p < .01$

Table 3 showed that self-esteem was significantly correlated with study habit ($r = .403$, $p < .01$), and academic achievement ($r = .201$, $p < .05$). It also showed that study habit was significantly correlated with academic achievement ($r = .271$, $p < .01$).

Furthermore, *partial correlation coefficient* was calculated for investigating the independent effect of self-esteem and study habit on academic achievement, which was presented as follows:

Table 4 revealed that the *partial correlation* between self-esteem and academic achievement controlling study habit was not significantly correlated with academic achievement ($r = .104$). But, partial correlation between study habit and academic

Table 4. Partial correlation coefficient among self-esteem, study habit, and academic achievement

Controlling variable	Independent and dependent variable	Correlation coefficient
Study habit	Self-esteem and academic achievement	.104
Self-esteem	Study habit and academic achievement	.212**

**$p < .01$

achievement controlling self-esteem indicated that study habit was significantly correlated with academic achievement (r= .212, p <.01).

Was it possible to test whether self-esteem was mediated by study habit or not? To answer this question, mediation analysis was administered through regression analysis and the obtained result was presented in following table.

Table 5. Mediation analysis results of self-esteem (SE), study habit (SH), and academic achievement (AA)

Model	D. V.	I. V.	Unstandardized Coefficient		Standardized Coefficient	t-value
			B	SE	β	
1	SH	SE	.450	.091	.403	4.939**
2	AA	SE	.120	.005	.201	2.303*
3	AA	SE	.006	.005	.110	1.172
		SH	.012	.005	.227	2.423**

*p<0.05, **p<0.01

As shown in the Table 5, the first model revealed that self-esteem (independent variable) significantly influenced the study habit (mediator variable) ($β$=.403, p<.001), the second model indicated that self-esteem (independent variable) significantly influenced the academic achievement (dependent variable) ($β$=.201, p<.05) and the third model showed that academic achievement was not significantly influenced by self-esteem, but study habit significantly influenced the academic achievement ($β$=.227, p<.01).Results of the mediation analysis presented through a triangular model which was presented in the following figure.

Findings shown in the Figure 1 revealed that direct effect of self-esteem on academic achievement was not significant. But effect of study habit on academic
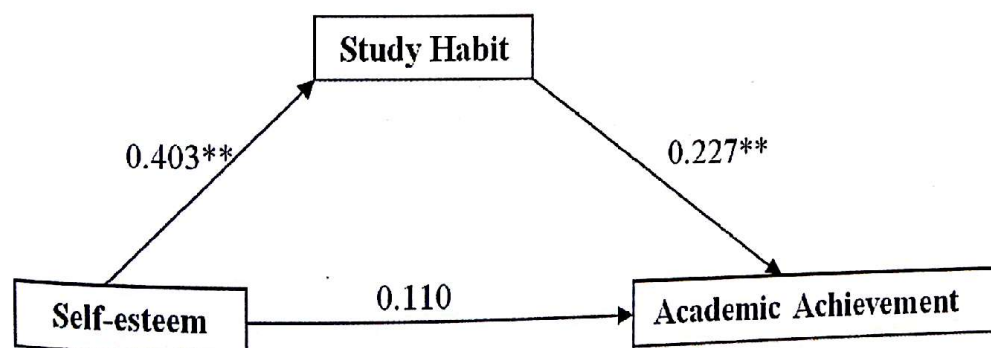
**p<.01

Figure 1. Model summary of the effect of self-esteem and study habit on academic achievement

achievement was significant. This suggested that self-esteem fully mediated by study habit to influence the academic achievement.

Table 6. Mean differences in self-esteem, study habit, and academic achievement by gender

Variables	Male			Female			df	t-value
	n	M	SD	n	M	SD		
Self-esteem	74	19.82	5.69	54	17.33	5.27	126	2.523*
Study Habit	74	27.88	6.23	54	27.52	6.40	126	.319
Academic Achievement	74	3.13	.36	54	3.22	.28	126	-1.340

*p<.05

On the other hand, the 'independent sample t-test' was administered to see the differences between male and female students in self-esteem, study habit and academic achievement. Obtained results were as follows:

Table 6 showed that the differences between male and female regarding self-esteem were found to be significant (t-value=-2.523, p<.05), but not for study habit and academic achievement.

Further again, the differences between residential and non-residential students regarding self-esteem, study habit, and academic achievement were found by administering 'independent sample t-test' which were shown in the following table.

Table 7. Mean differences in self-esteem, study habit, and academic achievement by residence

ariables	Residential			Non-residential			df	t-value
	n	M	SD	n	M	SD		
Self-esteem	36	19.19	7.33	92	18.61	4.85	126	.528
Study Habit	36	28.53	7.28	92	27.41	5.87	126	.196
Academic Achievement	36	3.13	.44	92	3.18	.27	126	.039

As shown in the Table 7, no significant differences between residential and non-residential students regarding self-esteem, study habit and academic achievement were found.

Discussion

The present study was conducted to investigate the relationship among self-esteem, study habit, and academic achievement of university students and also investigated whether directly or indirectly self-esteem and study habit influenced

on academic achievement. The correlation metrics from Table 3 indicated that both self-esteem and study habit significantly correlated with academic achievement. The finding that stated significant correlation between self-esteem and academic achievement was consistent with some previous studies (Aryana, 2010; Colquhoun & Bourne, 2012; Das & Pattanaik, 2013; Diseth et al., 2014; Olanrewaju & Joseph, 2014; Priyadharshini & Relton, 2014; Arshad et al., 2015; Audu et al., 2016). Past findings also consistent with the finding that indicated significant correlation between study habit and academic achievement was also consistent with some previous studies (Ch, 2006; Crede & Kuncel, 2008; Oluwatimilehin & Owoyele, 2012; Kumari & Chamundeswari, 2015; Siahi & Maiyo, 2015; Sherafat & Murthy, 2016; Thomas et al., 2016). In their study, Bickerdike et al.(2016) recommended that effort management and organized studying should be promoted to optimize academic performance. They suggested to control other factors that lead to poor study habit i.e. excessive use of social networking in order facilitate academic achievement.

However, partial correlations from Table4 indicated that self-esteem was not significantly correlated with academic achievement while controlling the effect of study habit. But, study habit was significantly correlated with academic achievement while controlling self-esteem. Findings from Table 5 revealed that self-esteem had no direct effect on the academic achievement and it was mediated by study habit. A mediator variable causes the mediation in the independent and dependent variables. A variable may be said to function as a mediator variable to the extent that it accounts for the relation between the predictor and the criterion variable. It explains how external physical events affect the internal psychological significance (Baron & Kenny, 1986). According Baron and Kenny (1986), "a variable function as a mediator when it meets the following conditions: (i) variations in levels of the independent variable significantly account for variations in the presumed mediator, (ii) variations in the mediator significantly account for variations in the dependent variable, and (iii) a previously significant relation between the independent and dependent variables is no longer significant". Results from Table 5 and Figure 1 indicated that self-esteem was only accounted for significant variation in study habit, but not in academic achievement. Study habit was accounted for variation in academic achievement. These findings suggested that self-esteem had indirect effect on academic achievement and this indirect effect was mediated by student's study habit. This finding was fully supported by past studies (Spinath, Spinath, Harlaar, & Polmin, 2006 as cited in Giofrè et al., 2017; Chilca, 2017; Giofrè et al., 2017).

Findings from Table 6 indicated significant gender differences in self-esteem where boys had higher self-esteem than girls. This finding is consistent with some

previous findings (Brutsaert, 1990; Kling, Hyde, Showers, & Bruswell, 1999; Quatman & Watson, 2001, Diseth et al., 2014; Arshad et al., 2015). Gender differences in self-esteem are issues of contradiction among researchers. In their study, Colquhoun and Bourne (2012) found that girls had more self-esteem than boys. However, some studies found no gender differences in self-esteem (Aryana, 2010; Audu et al., 2016). One cause of the present findings is due to culture that is independent status that boys of university level have than girls. This status makes boys more social and strong than girls.

The present study findings may help to achieve higher grade in examinations through intervening self-esteem and study habit of students. The findings may also help to improve students' quality of education. Beyond these, the present study has some limitations, especially, the participants were not selected from wide geographical areas of the country and they were selected from only one public university. So, further studies will be needed to explore the role of self-esteem and study habit on academic achievement.

References

Ahmed, O., & Hossain, M. A. (2017). *The Translated Bangla Version of the Study Habits Questionnaire.* Department of Psychology, University of Chittagong, Chittagong, Bangladesh.

Alves-Martins, M., Peixoto, F., Gouveia-Pereira, M., Amaral, V., & Pedro, I. (2010). Self-esteem and Academic Achievement among Adolescents. *Educational Psychology, 22*(1), 51-62. doi: 10.1080/014434410120101242

Anastasi, A., & Urbina, S. (1997). *Psychological Testing* (7th edition). Singapore: Pearson Prentice Hall.

Arshad, M., Zaidi, S. M., & Mahmood, K. (2015). Self-esteem & academic performance among University students. *Journal of Education and Practice, 6* (1), 156-162. Retrieved from http://www.iiste.org/Journals/index.php/JEP/index

Aryana, M. (2010). Relationship between Self-esteem and Academic Achievement amongst Pre-University Students. *Journal of Applied Sciences, 10*(20), 2474-2477. doi: 10.3923/jas.2010.2474.2477

Audu, A., Jekwu, O. L., & Pur, H. J. (2016). Self-Esteem and Academic Performance among Undergraduate Students in the University of Maiduguri: Implication for Counseling. *International Journal of Operational Research in Management, Social Sciences & Education, 2*(1), 93 – 104.

Baron, R. M., & Kenny, D. A. (1886). The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.

Baumeister, R. F., Campbell, J. D., Krueger, J. I., & Vohs, K. D. (2003). Does High Self-esteem cause better Performance, Interpersonal Success, Happiness, or Healthier Lifestyles? *Psychological Science in the Public Interest, 4,* 1–44. doi:10.1111/1529-1006.01431

Bickerdike, A., O'Deasmhunaigh, C., O'Flynn, S., & O'Tuathaigh, C. M. P. (2016). Learning Strategies, Study Habits and Social Networking Activity of Undergraduate Medical Students. *International Journal of Medical Education, 7,* 230-236. doi:10.5116/ijme.576f.d074

Brutsaert, H. (1990). Changing Sources of Self-esteem among Girls and Boys in Secondary Schools. *Urban Education, 24* (4), 432–436. doi: 10.1177/00420 85990024004006

Ch, A. H. (2006). Effect of Guidance Services on Study Attitudes, Study Habits and Academic Achievement of Secondary School Students. *Bulletin of Education & Research, 28*(1), 35-45.

Chapman, D., & Adams, D. (2002). *The quality of Education: Dimension and Strategies.* Education in Developing Area. Vol.-5. Asian Development Bank, Manila, Philippines, & Comparative Education Research Centre, The University of Hong Kong, Hong Kong.

Chilca, L. (2017). Self-Esteem, Study Habits and Academic Performance among University Students. *Propósitos y Representaciones, 5*(1), 71-127. doi:10.20511/pyr2017.v5n1.145

Colquhoun, L.K., & Bourne, P.A. (2012). Self-Esteem and Academic Performance of 4th Graders in two Elementary Schools in Kingston and St. Andrew, Jamaica. *Asian Journal of Business Management, 4*(1), 36-57.

Crede, M., & Kuncel, N. R. (2008). Study Habits, Skills, and Attitudes: The Third Pillar Supporting Collegiate Academic Performance. *Perspectives on Psychological Science, 3*(6), 425-453. doi: 10.1111%2Fj.1745-6924.2008.00089.x

Das, P. P. P., & Pattanaik, P. (2013). Self-Esteem, Locus of Control and Academic Achievement among Adolescents. *International Journal of Scientific Research in Recent Sciences, 1*(1), 1-5.

Demo, D. H., & Parker, K. D. (1987). Academic Achievement and Self-esteem among Black and White College Students. *Journal of Social Psychology, 127,* 345-355. doi: 10.1080/0022454 5.1987.9713714

Diseth, Å., Meland, E., & Breidablik, H. J. (2014). Self-beliefs among Students: Grade level and Gender Differences in Self-esteem, Self-efficacy and Implicit Theories of Intelligence. *Learning and Individual Differences, 35,* 1–8. doi:10.1016/j.lindif.2014.06.003

Giofrè, D., Borella, E., & Mammarella, I. C. (2017). The Relationship between Intelligence, Working Memory, Academic Self-esteem, and Academic Achievement. *Journal of Cognitive Psychology, 29*(6), 731 – 747. doi:10.1080/ 20445911.2017.1310110

Kling, K. C., Hyde, J. S., Showers, C. J., & Bruswell, B. N. (1999). Gender Differences in Self-esteem: A Meta-analysis. *Psychological Bulletin, 123,* 470–500. doi:

Kumari, R. S., & Chamundeswari, S. (2015). Achievemnt Motivation, Study Habit, and Academic Achievement of Students at the Secondary Level. *International Journal of Emerging Research in Management & Technology, 4*(10), 7-13.

Lawrence, A. S. A. (2014). Relationship between Study Habits and Academic Achievement of Higher Secondary School Students. *Indian Journal of Applied Research, 4*(6), 143-145.

Nouhi, E., Shakoori, A., & Nakhei, N. (2008). Study Habits and Skills, and Academic Achievement of Students in Kerman University of Medical Sciences. *Journal of Medicine Education, 12*(3), 77-80.

Olanrewaju, M. K., & Joseph, O. B. (2014). Academic Efficacy and Self-Esteem as Predictors of Academic Achievement among School Going Adolescents in Itesiwaju Local Government Area of Oyo State, Nigeria. *Journal of Education and Practice, 22*(5), 169-175.

Oluwatimilehin, J. T. B., & Owoyele, J. W. (2012). Study Habit and Academic Achievement in Core Subjects among Junior Secondary School Students in Ondo State, Nigeria. *Bulgarian Journal of Science and Education Policy, 6*(1), 155-169.

Priyadharshini, J. J., & Relton, A. (2014). Self-esteem and Academic Performance of Freshmen at Karunya University. *Journal of Humanities and Social Science, 19*(4), 21-26.

Quatman, T., & Watson, C. M. (2001). Gender Differences in Adolescent Self-esteem: An Exploration of Domains. *Journal of Genetic Psychology, 162*(1), 93–117. doi: 10.1080/00221320109597883

Rosenberg, M. (1979). *Conceiving the self.* New York: Basic Books.

Sherafat, R., & Murthy, C. G. V. (2016). A Study of Study Habit and Academic Achievement among Secondary and Senior Secondary School Students of Mysore City. *The International Journal of Indian Psychology, 3*(2), 161-170.

Siahi, E. A., & Maiyo, J. K. (2015). Study of the Relationship between Study Habits and Academic Achievement of Students: A case of Spicer Higher Secondary School, India. *International Journal of Educational Administration and Policy Studies, 7*(7), 134-141.

Thomas, O. A., Omotoke, O. O., & Ademola, O. K. (2016). Assessment of Social Media Utilization and Study Habit of Students of Tertiary Institutions in Katsina State. *Journal of Education and Practice, 7*(3), 178 -188.

Uddin, M. K. (2017). *The Translated Bangla Version of the Rosenberg Self-esteem Scale.* Department of Psychology, University of Dhaka, Dhaka, Bangladesh.

Strengths and Challenges of ADOS-2 in Assessing Children with Autism Spectrum Disorder

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Zaidul Kabir[4], Ishrat Mannan[5], and Naila Zaman Khan[6]

In recent years, an alarming number of the children came to Dhaka Shishu Hospital for the Diagnosis of Autism Spectrum Disorder (ASD). The present study explored the strengths and challenges of ADOS-2 as a tool for the assessment of children with ASD. Age range of the children was 2 to 4 years and most of them were residing in Dhaka city. ASD was diagnosed using DSM-5 and ICD-10. A total of 27 purposively selected children were assessed in the child development center at Dhaka Shishu Hospital by the Autism Diagnostic Observation Schedule (ADOS-2). Module 1 of ADOS-2 examined Social Affect (communication and reciprocal social interaction) and Restricted and Repetitive Behaviour. The result divulged that ADOS-2 performed better in diagnosing Social Affect and Restricted and Repetitive Behaviour which is essential for ASD diagnosis. Further, among the participants, who were detected as ASD by DSM-5 and ICD-10, 11.10% children were negated by ADOS-2 for having ASD.

Keywords: ADOS-2, Autism Spectrum Disorder

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder which refers to a range of conditions characterized by the deficits in social communication and social interaction ability, and the presence of restrictive and repetitive patterns of behavior. The signs of ASD develop during early childhood and it typically persists for a person's whole life (DSM-V, 2013). The term "Spectrum" in ASD denotes that the symptoms that affect each person can vary ranging from mild to moderate. So the treatment and intervention plan for the affected children would be different on the level of symptoms they have. Being a rapidly growing non-communicable disease the prevalence rate of children with ASD has risen to 1 out of every 68 or 1.5% of 8-year-old children in the United States (CDC, 2016). The survey of autism

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and neurodevelopmental disorders (2013) reported that almost one-fifth of all children in Bangladesh have been suffering from problems associated with developmental deficits and the prevalence rate of neurodevelopmental disabilities (NDD) is 71 per 1000 children, which delineates a great challenge to the country to ensure optimum development.

Early detection of children with ASD is important in the sense that the quick we diagnose the children the immediate they can access to the support and health care facilities they need. Moreover, early diagnosis of children with ASD would maximize the potential benefit of early and appropriate home-based and community-based interventions and would reduce the financial burden of the families as well as the government. Detecting of ASD is not easy as there is no blood test or brain scan or any other medical tests to diagnose the disorder. Instead, a comprehensive psychological and behavioral evaluation by qualified professionals (i.e., child psychologists, nurses, social workers, teachers etc.) is conducted to identify the children with ASD. Jeste and Geschwind (2014) opined that ASD, a heterogeneous group of neurodevelopmental disorders, diagnosis is a task of substantial challenges to professionals and researchers. Several ways are involved for developmental screening and comprehensive diagnostic evaluation of ASD. A short test is carried out during the developmental screening where the professionals are interested to ask to the parents or primary care givers about some questions and observe how the child speaks, behaves, or moves during play. If the child shows any signs of problem, a comprehensive evaluation is referred. Comprehensive diagnostic evaluation, on the other hand, is the second step to identify the children with ASD. Ideally this evaluation involves looking at children's behavior and development, a parent interview, and administering standardized cognitive and developmental assessment tools. The observational assessment, performed by experienced professionals, includes child's current functioning in the context where social-communicative response and peer group interaction or play can be viewed (Huerta & Lord, 2012). Then the important part of diagnosis is the administration of assessment test because of its high value in determining correctly the children with ASD. There are many diagnostic guidelines for ASD such as, DSM-V, ICD-10, M-Chat, which are being used in the centers in Bangladesh. Only few instruments that can confirm the diagnosis are available, for example, ADOS-2.

One thing is important to note that the multi-leveled comprehensive diagnosis procedure is completed by the professionals from multidisciplinary background. The term "Multidisciplinary" is used in the sense that the diagnostic procedure should be covered in multiple areas of functioning of the children with ASD (Lord & Bishop, 2010).

Diagnostic and Statistical Manual for Mental Disorders, Fifth Edition (DSM-V), produced by the American Psychiatric Association in 2013, describes the signs and symptoms of ASD and narrates how many of these symptoms must be showed
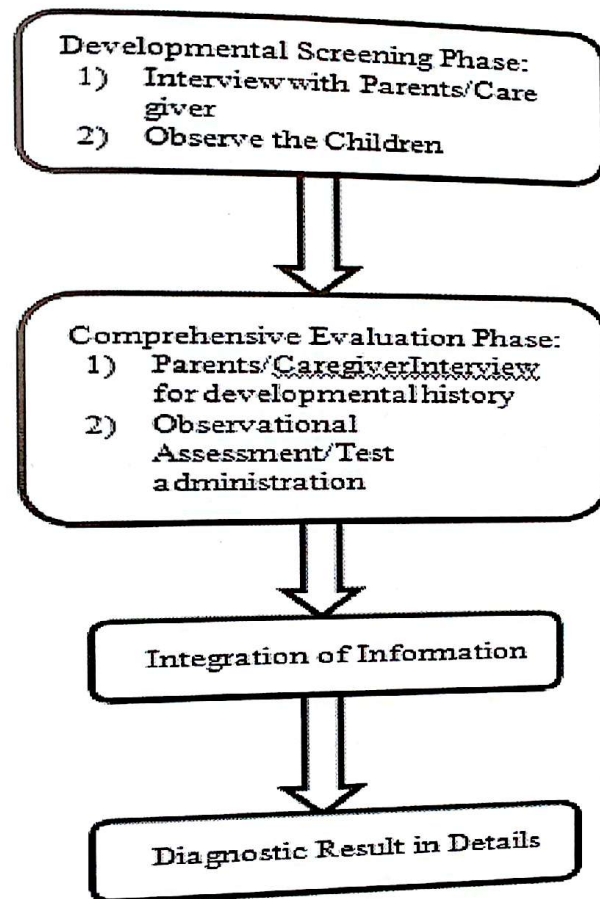
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┌─────────────────────────────────────┐
│ Developmental Screening Phase:      │
│   1)  Interview with Parents/Care   │
│       giver                         │
│   2)  Observe the Children          │
└─────────────────────────────────────┘
                   │
                   ▼
┌─────────────────────────────────────┐
│ Comprehensive Evaluation Phase:     │
│   1)  Parents/CaregiverInterview    │
│       for developmental history     │
│   2)  Observational                 │
│       Assessment/Test               │
│       administration                │
└─────────────────────────────────────┘
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┌─────────────────────────────────────┐
│      Integration of Information     │
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│   Diagnostic Result in Details      │
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Figure 1: Conceptual framework of ASD diagnosis

to diagnose of ASD. DSM-5 introduces a single diagnosis of ASD in lieu of different subtypes mentioned in DSM-IV. ASD is diagnosed by professionals on the basis of deficits in two areas – social communication, and restrictive, repetitive behavior or interests. Children with ASD must have problems in both areas and the symptoms persist from early childhood.

International Classification of Diseases, tenth revision (ICD-10) is another commonly used diagnostic manual released by WHO in 2016. It presents autism in different categories, such as childhood autism, atypical autism, Asperger syndrome (ICD-10, 2016). In the ICD-10, the pervasive developmental disorder heading includes the autism profiles defined as "A group of disorders characterized by qualitative abnormalities in reciprocal social interactions and in patterns of communication, and by a restricted, stereotyped, repetitive repertoire of interests

and activities. These qualitative abnormalities are a pervasive feature of the individual's functioning in all situations"

One of the most popular instruments for diagnosis of ASD is Autism Diagnostic Observation Schedule, (ADOS, Lord et al., 1999), which is often regarded as a "gold standard" in ASD diagnosis (Falkmer et al., 2013). It is a semi-structured and standardized measure of language, social interaction, repetitive and restricted patterns of behavior, and play/imagination published by Western Psychological Services (Lord et al., 1999). ADOS-2 is an updated and expanded version of ADOS (Lord et al., 2012 a, b) for the use of clinical and research settings. It takes approximately 40 to 60 minutes to administer and the whole procedure is conducted by the professionals from psychology or medicine background. Individuals of different chronological ages are assessed by five modules at different developmental levels. The newly introduced toddler module is designed for the children aged 12-30 months with limited expressive language. The ADOS-2 exceeds the previous one by incorporating revised algorithms for greater sensitivity and specificity (Chojnicka & Pisula, 2017). In this way ADOS-2 increased its value significantly in early diagnosis of ASD. In addition, ADOS and ADOS-2 have a good psychometric qualities (Lord et al., 2012a,b). Both possess good Interrater and test-retest reliability along with strong validity which confirms its capacity in differentiating individuals with ASD from other clinical group (e.g., Mazefsky & Oswald, 2006).

It is understood that with the increase of the number of children with ASD, the demand of early and appropriate diagnosis is focused, especially in Bangladesh. It is the crying need to select the correct diagnostic procedure among the regularly

Table 1. Guideline for Selecting ADOS-2 Modules

Expressive Language level	Chronological Age range	ADOS-2 module
Phrase Speech Up to	12 to 30 months	Toddler
Fluent Speech	31 months and older	1
Fluent Speech	Any age	2
	Child/ Adolescent/ Adult	3
Fluent Speech	Older/ Adolescent/ Adult	4

used detecting guidelines or tools in Bangladesh. We know that ADOS-2, currently used with other diagnostic procedure in Bangladesh, is the most popular instrument used in all over the world in detecting children with ASD. We know of no other study, however, that measures the strength and limitations of ADOS-2 in the context of Bangladesh. The present study, therefore, was initiated to examine the strengths

and faults of ADOS in determining children with ASD. If we can be able to fix the correct diagnosis procedure of ASD, it will be easy to prepare appropriate intervention plan for the treatment of children with ASD.

Method

Sample

A total of 27 children (78 % male and 22% female) with ASD participated in the present study. Age range of the children was 2 to 4 years. Among the children 2-3 years were 63% and the rest of the children were from 3-4 years (37%). Most of the children were residing in the Dhaka city and all the children possess the criteria of module 1 of ADOS-2. They came to Dhaka Shishu Hospital for the diagnosis of ASD with their parents. Most of them were from high income families (96%).

Measures

The following measurements were applied to all children.

Personal and demographic information: A personal and demographic information form was used to obtain data about age, gender, socioeconomic status, and monthly income of families.

Autism Diagnostic Observation Schedule-2 (ADOS-2): The Autism Diagnostic Observation Schedule, Second edition was used to diagnose the children with ASD. The ADOS-2 assesses autism on the basis of age, developmental level and communication skills. It comprises five modules including a toddler module which gives ranges of concern showing the extent to which a child exhibits behaviors related to ASD. On the other hand, Modules 1 to 4 result cutoff scores for autism spectrum classifications. Each module took 30 to 45 minutes to administer which is achieved through planned social occasions referred as "presses". The assessment is very detailed and includes a large range of verbal and non-verbal communication and language skills as well as behaviors. Every child was exposed one module of ADOS-2 depending upon mainly the expressive language level and secondly chronological age. Our children have speech abilities ranging from no speech up to simple phrases. Materials used with module 1 are described in Table 2.

From the module 1 the information of social affect (SA) and restricted and repetitive behavior (RRB) is measured. All the items of module 1 had very high interrater reliability with exact agreement of 91.5% (Lord, et al., 2012b). About the validity of the module 1, the SA and the RRB areas made significant independent contribution to the probability of diagnosis through logistic regression analyses (Lord, C. et al., 2012b).

Table 2. Materials used with module 1

Activities	Materials
1. Free play	Toys on the table: multiple pop-up toy, textured block, toy telephone, 4 pieces of yarn. Toys on the floor :music box, baby doll with eyes that open and shut, jack-in-the-box, vehicle(e.g., dump truck),8 letter blocks, medium sized ball, 2 pairs of the balls,2 identical cars, 2 pairs of small utensils, 2 pairs of small plates
2. Response to name administration	This activity may take place anytime during the ADOS-2
3. Response to joint attention	Remote-controlled toy animal or car
4. Bubble play	Bubble toy and bubble fluid
5. Anticipation of a routine with objects	Balloon, foam dart rocket, or other cause-and-effect toy (e.g., jack-in-the-box, multiple pop-up toy)
6. Responsive Social Smile	This activity may take place anytime during the ADOS-2 administration
7. Anticipation of social routine	Baby blanket
8. Functional and symbolic imitation	Toy car, toy frog that squeaks, toy cup, toy airplane, toy flower, plain cylindrical block/ rod
9. Birthday party	Baby doll(same one used in ' Free Play'), plate, fork or spoon, knife, cup, napkin, Play-Doh, 4 'candles', blanket
10. Snack	Small cup, water or juice, paper plate, napkins, two kinds of small cookies or crackers/pretzels in clear containers with lids that are difficult to open

International Classification of Diseases, tenth revision (ICD-10): The ICD-10 released by WHO is a manual that was used to diagnose the children with ASD. It has three (A, B, & C) broadcriteria to be childhood autism under the pervasive developmental disorders. In the 'A' category, for example, it is stated that "abnormal development is exhibited before the age of 3 years in at least one of the following criteria:

1. Receptive or expressive language as expressed in social communication;
2. The progress of selective social attachments or of reciprocal social

3. Functional or symbolic play."

In this way the 'B' category has three different subcategories and each possesses four different symptoms and the 'C' category falls in that clinical picture which is not attributable to the different types of pervasive developmental disorders.

Diagnostic and Statistical Manual for mental disorders, Fifth edition (DSM-V): This is a clinical guideline for mental disorders set by the American Psychiatric Association in 2013where the signs and symptoms of ASD are clearly stated. We mention here some of criteria for ASD diagnosis by DSM-5 as under:

- Deficits in using language to communicate with other people
- Deficiencies in social-emotional reciprocity
- Not responding to social interactions
- Failure in non-verbal communicative behavior
- Difficulties in making friends and in sharing imaginative play
- Signs of restrictive and repetitive behavior-
- Motor movements are repetitive or stereotyped
- Small changes yield extreme distress
- Thinking patterns are rigid
- Having very intense and focus interests
- Extremely active to sensory input and unusual interest in the environment having sensory aspects

A severity ranking – level 1, 2, and 3 is used to classify the children with ASD for giving them appropriate intervention.

Procedure

Standard data collection procedures were adopted in the study. The parents of the children were initially briefed of the purpose of the diagnosis. They were told about the confidentiality of the responses and a written consent was obtained from the every parent of the children. Trained and expert testers (including first author) administered the test and other manuals following the diagnosis guidelines. ICD-10, DSM-V and ADOS-2 were applied upon all children in the different schedules. At first, the parents filled-up the personal and demographic information sheet which was prepared on the basis of diagnosis purpose. In case of ICD-10 and DSM-V the parents were asked some questions in line with the symptoms and criterion mentioned in the manuals. Then ADOS-2 was administered on the children and raw scores were summed-up to obtain total score as well as cut-off scores.

Results

Results of the present study are presented in Table 3 to Table 5.

As shown in Table 1, it is seen that out of 27 participants all (100%) children are diagnosed with ASD using the DSM-V and ICD-10. On the other hand, if they are assessed by the ADOS-2, 24 children are diagnosed with ASD.

As shown in Table 2, the children with ASD was divided into the three autism category. Most of the participants' (74%) have fallen in the autism category.

Table 3. Comparison of ASD identification among DSM-V, ICD-10 and ADOS-2

	DSM-V		ICD-10		ADOS-2	
	Positive	Negative	Positive	Negative	Positive	Negative
Number (n)	27	0	27	0	24	3
Percentage (%)	100	0	100	0	88.9	11.10

As shown in Table 3, most of the children (55%) are in the moderate level and least of the children are in the high level of autism.

Table 4. Diagnostic cut-off scores of ADOS-2 for children with ASD

	Autism	Autism Spectrum	Non-spectrum
Number (n)	20	4	3
Percentage (%)	74.08	14.81	11.11

Table 5. Severity rating of ASD based on ADOS-2 diagnostic procedure

	High	Moderate	Low	Min
Number (n)	2	15	7	3
Percentage (%)	7.41	55.56	25.92	11.11

Discussion

The present study was designed to determine the strength and challenges of ADOS-2 compared to ICD-10, DSM-V. The study revealed that ADOS-2 is an effective diagnostic tool for the detailed and accurate assessment of ASD children. Among the 27 participants every participants were diagnosed with ASD by the use of ICD-10 and DSM-V. Surprisingly when these children were assessed by ADOS-2, 24 children were diagnosed with ASD and 3 children were negative for ASD. It is very crucial matter that some of the children, from the result, did not have ASD

according to ADOS-2 whereas they were assessed as ASD as per the guideline of ICD-10 and DSM-V. This is the important strength of ADOS-2 that it is more specific to identify the ASD children accurately and extensively. Further the ADOS-2 also revealed the status of diagnostic cut-off scores in which 74.08% of the participants fall in autism criteria and 14.81% were reported in the autism spectrum category. In addition the severity level of ASD was determined by ADOS-2 which is another scale of judgment. The children with ASD were rated on four level of severity which reported that more than half of the children (55.56%) were suffering from moderate type of ASD and the least of the participants (7.41%) belonged to high level of ASD. It can be analytically concluded that we could not understand the severity status of the children with ASD by either the ICD-10 or the DSM-V.

On the basis of the descriptive result of the present study ADOS-2 is most effective tool with some limitations. The ADOS-2 is not standardized for the sample of Bangladesh which raises the question of reliability. It also needs an expert tester to administer the scale on children. ADOS-2 is very costly to purchase which limited its availability in the ASD diagnostic centers. These are the limitations of using ADOS-2 in Bangladesh. With the increase of the number of children with ASD, the demand of accurate diagnosis of ASD is underscored for treatment planning and intervention. In this case, we suggest administering ADOS-2 on the children who are in the suspicion for ASD. Then the intervention plan will be accurate for the treatment.

References

American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders-5*, Fifth Edition, Arlington, VA: American Psychiatric Association

Center for Disease Control and Prevention (CDC). (2016). *Autism and Developmental Disabilities Monitoring Network.* CDC, GA 30333, retrieved from www.cdc.gov/autism

Chojnicka, I., & Pisula, E. (2017). Adaptation and Validation of the ADOS-2, Polish Version. *Front Psychol, 8*, 1916. doi: 10.3389/fpsyg.2017.01916

Falkmer, T., Anderson, K., Falkmer, M., & Horlin, C. H. (2013). Diagnostic Procedures in Autism Spectrum Disorders: A Systematic Literature Review. *Eur. Child Adolesc Psychiatry, 22*, 329-340. doi: 10.1007/s00787-013-0375-0

Huerta, M., & Lord, C. (2012). Diagnostic Evaluation of Autism Spectrum Disorders. *Pediatr Clin North Am, 59*(1), 103-111.

Jeste, S. S., & Geschwind, D. H. (2014). Disentangling the heterogeneity of autism spectrum

Non-seizure Clinical Problems and their EEG Findings : An Electro-clinical Correlation

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The present study examined the prevalence of epilepsy or cerebral dysfunction among those presenting with non-epileptic clinical complains. The study was conducted on the 253 children with clinical complaints who were referred by the outdoor hospital of the Bangabandhu Sheikh Mujib Medical University for testing EEG. Majority of the children (44%) were greater than 5 years old. Epileptiform discharges and pattern of discharges were noted in EEGs which were conducted in Comfort Diagnostic Center. There should be a rational approach while referring a child for EEG testing with no overt complains of seizure. The results revealed that a significant electro-clinical correlation was found with normal in the majority, 19.4% definite epileptic form discharges and 0.8% non-specific dysfunction.

Keywords: non-seizure, clinical problems, EEG, electro-clinical correlation.

A large number of young children present with non-epileptic complaints, i.e., impairment in socialization-communication, behavioral, somatosensory and sleep related problems. They are referred for EEG (electroencephalography) at a very early age. The probable reason may be increased awareness among the parents and physician to rule out covert seizure or epilepsy. Past studies have shown that behavioral problem is a common association in children with epilepsy than any other chronic illness (McDermott, Mani, & Krishnaswami, 1995; Rutter, Graham, & Yule, 1970; Davies, Heyman, & Goodman, 2003). A recent meta-analysis of findings from 46 studies has compared behavioral problem in children with epilepsy with control, siblings and children with other chronic childhood conditions (Rodenburg et al., 2005a). Results indicated that attention problems, thought

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problems, and social problems tended to be specific to children with epilepsy, whereas problems with withdrawal, somatic complaints, anxiety/depression, delinquency, and aggression were similar to those found in either their healthy siblings or in children with other chronic physical conditions (Rodenburg et al., 2005a). In autistic children without severe mental deficiency, motor deficit, associated perinatal and medical disorder, or positive family history of epilepsy, epilepsy occurred in 6% and 8% in dysphasic nonautistic children (Tuchman, Rapin, & Shinnar, 1991). Sleep disturbance is also foundin children with epilepsy especially in cases of partial epilepsy (Tuchman & Rapin, 1997). Vomiting is a common manifestation of many organic and functional disorders and is a manifestation of benign childhood epilepsy with occipital spikes (de Weerd et al., 2004).

We know of no other study in Bangladesh, however, examines to find out covert seizure activities in children with speech delay, socialization and behavioral problems and sleep disturbance. It is also necessary to do EEG in all children with no clinical complains of seizure disorder. The present study, therefore, was initiated to identify prevalence of epilepsy or cerebral dysfunction among those presenting with non-epileptic clinical complaints.

Method

Sample

A total of 253 children participated in the present study. The children were referred by the outdoor hospital of Bangabandhu Sheikh Mujib Medical University for testing EEG because of their problems mentioned in the Table 2. Out of 253 participants, males were 171 (67.6%) and 82 (32.4%) were females and M:F ratio was 2:1.Majority of the children were >5 years (44%). Among the children 66.8% were born at hospital, 90.1% were full term deliveries and 70.4% had no perinatal asphyxia (Table 1).

Table 1. Patient demography

1. Age in years & No. (%)	1-3 98(38.7%)	4-5 44(17.4%)	>5 111(43.9%)	
2. Birth history: place & mode	Home 84(33.2%)	hospital 168(66.79%)	Normaldelivery 134(52.96%)	Cesarean section 119(47.03%)
3. Gestational age	Term 228(90.1%)	Pre-term 22(8.7%)	Post term 3(1.2%)	
4. Perinatal history	Immediate cry 178(70.4%)	Delayed cry 69 (27.2%)	uncertain 6 (2.4%)	

Measures

Electroencephalogram (EEG): It is a testing procedure by which the electrical activity in brain is measured. In the present study, EEGs were conducted in the Comfort Diagnostic Center upon the children participated in the study.

Procedures

We reviewed 253 electro-clinical data of the children referred for routine EEG at Comfort Diagnostic Center during January to May, 2012. Children having impairment in socialization and communication, behavioral problem (restlessness, hyperactivity, and aggressiveness), delayed speech or regression of speech, learning disability, sleep related problem, somato-sensory (abdominal pain, headache, vomiting, fainting attacks, visual problem) manifestation were included in the study. Age and sex distribution, birth history, perinatal events and h/o febrile seizure, drug and family history of neurological disorders were collected from laboratory registry. Evidence of epileptic form discharges and pattern of discharges were noted from EEG reports. Children with severe psychomotor delay, definite seizure disorder or epilepsy were excluded from the study. SPSS software was used for data entry and data analysis.

Results

Total 800 EEGs were performed during 5 months (January, 2012 to May, 2012) and 253 of them were fulfilled the study criteria. This was a descriptive type of study and presenting complains were grouped in speech-communication and behavioral problems, sleep related complains, somatosensory and fainting attacks.

As shown in Table 2 Majority of children (32.8%) presented with impairment in socialization, communication and behavior, speech related problem was in 17.7%,

Table 2. Clinical Complains: Reason for referral of EEG

No.	Problem	No. of children	Percentage (%)
1.	Socialization, communication & behavior	83	32.8
2.	Learning disability	21	8.3
3.	ADHD (attention deficit hyperactive disorder)	34	13.4
4.	Speech delay	45	17.7
5.	Sleep problem	18	7.1
6.	Somatosensory	33	13.04
7.	Vomiting	3	1.18
8.	Fainting & syncope	15	5.9
9.	Tic	1	0.4

ADHD (attention deficit hyperactive disorder) in 13.4%, somatosensory (unexplained localized pain, visual problem, headache) problem in 13.04%, fainting attack in 5.9%, sleep disorders (terror, walking, screaming in sleep) 7.1% and vomiting in 1.18%.

Table 3. EEG and electrical discharges

No.	EEG	No. of children	Percentage (%)
1.	Normal record	204	80.6
2.	Epileptiform discharges	49	19.4
3.	Temporo-parietal spikes	39	15.41
4.	Occipital	5	1.97
5.	Frontal	4	1.58

As per Table 3 after reviewing EEG reports majority (80.6%) had normal findings and 19.4% had epileptiform discharges. Epileptiform discharges are predominantly arising from temporo-parietal region (15.4%).

In Table 4 a significant electro-clinical correlation was found with normal in the majority, 19.4% definite epileptiform discharges and 0.8% non-specific dysfunction.

Table 4. Cross table: clinical complain vs EEG findings

Clinical Complains EEG Findings	Sp+ BH+Sl (%)	Somatose nsory (%)	Fainting (%)	Total (%)
NAD	157(77.7)	18 (78.3)	27(96.4)	202(79.8)
Epi dis	44(21.8)	5 (21.8)	0	49(19.4)
Non epi dysfunction	1 (0.5)	0	1 (3.6)	2 (0.8)
Total	202	23 (9.1)	28(11.1)	253

p value: 0.035
Abbreviation: sp=speech, BH=behavior, sl=sleep

Discussion

Behavioral problems are not always associated with seizure disorders. There might be a multifactorialetiology and among them epilepsy is well recognized. On the other hand increased rate of behavioral problem develops in a child before the first recognized with epilepsy (Hoie et al., 2005). Austin et al. (2001) found that behavioral problem starts 6 months before the first seizure. Epidemiological studies in the past have shown that behavioral problem is 4.8 times higher in children with epilepsy than children of normal population (Rutter, Graham, & Yule, 1970). It is

now well accepted that behavioral disorders and psychiatric problems are more in children with epilepsy (Rodenburg, 2005a; Panayiotopoulos, 1988; Caplan et al., 2005). Aicardi (1996) has commented that the epilepsy is a pervasive condition that includes both seizure and behavioral problems. This study has showed male predominance and this is consistent with a similar finding by Hoie et al. (2005). There is a higher rate of attention problem in children with epilepsy and Semrud-Clikeman and Wical (1999) have reported attention problem more in children with complex partial seizure. In addition, William and his colleagues found epilepsy can cause subtle attention problems. In this study, 13.4% children presented with ADHD but there is no evidence of seizure in them. We have found evidence of epilepsy in 21.8% speech and sleep related problems and behavior problems (Table 4). Epileptiform discharges from temporo-parietal region were noted in 15.4%. There was impairment in socialization and communication in 32.8%. Tuchman and Rapin (1997) have shown that minority of autistic children have epileptiform EEG. Half of the epileptiform discharges arise from centro-temporal region whether or not the child has seizure or regression. This study has found positive correlation between clinical complains and EEG findings. The major limitation of the study is that all the data was collected from lab registry and there is lack of facility for prolonged video EEG.

Conclusion

EEG has a very important role in the management of non-seizure clinical presentation. In children with behavior disorder and ADHD need prolonged EEG record including sleep. However, rational practice is mandatory.

References

Aicardi, J. (1996).Epilepsy as a non-paroxysmal disorder. *Acta Neuropediatr, 2*, 249–257.

Austin, J. K., Harezlak, J., Dunn, D. W., Huster, G. A., Rose, D. F., & Ambrosius, W. (2001). Behavior problem in children before first recognized seizure.*Pediatrics, 107*(1), 115-122. Retrieved fromhttp://pediatrics. aappublications. org/content/ 107/1/115.short

Caplan, R., Siddarth, P., Gurbani, S., Hanson, R., Sankar, R., & Shields, W. (2005). Depression and anxiety disorders in pediatric epilepsy. *Epilepsia, 46,*720–730. doi:10.1111/j.1528-1167.2005.43604.x

Davies, S., Heyman, I., & Goodman, R. (2003). A population survey of mental health problems in children with epilepsy. *Dev Med Child Neurol, 45,* 292–295.

De Haas, S., de Weerd, A., & Otto, A. (2004). Subjective sleep disturbance in partial epilepsy: A questionnaire based study on prevalence and impact on quality of life. *Epilepsia. 45*(11), 1397-1404.

DeWeerd, A., de Haas, S., Otte, A., Trenite, D.K., van Erp, G., & Cohen, A. (2004). Subjective sleep disturbance in patients with partial epilepsy: a questionnaire-based study on prevalence and impact on quality of life. *Epilepsia, 45*(11), 1397–1404. doi:10.1111/j.0013-9580.2004.46703.x

Hoie, B., Mykletun, A., Sommerfelt, K., Bjornaes, H., Skeidsvoll, H., & Waaler, P. E. (2005).Seizure-related factors and non-verbal intelligence in children with epilepsy.A population-based study from western Norway. *Seizure, 14,* 223–231.

McDermott, S., Mani, S., & Krishnaswami, S. (1995). A population-based analysis ofspecific behavior problems associated with childhood seizures. *J Epilepsy, 8,* 110–118. doi:10.1016/0896-6974(95)00019-A

Ott, D., Siddarth, P., Gurbani, S., Koh, S., Tournay, A., Shields, W. D., & Caplan, R. (2003). Behavioral disorders in pediatric epilepsy: unmet psychiatric need. *Epilepsia, 44,* 591–597. Retrieved from https://www. ncbi.nlm. nih.gov/ pubmed/12681010

Panayiotopoulos, C. P. (1988).Vomiting as an ictal manifestation of epileptic seizure and syndrome. *J Neurology Neurosurg Psychiatry, 51(11),* 1448-1451. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1032819/

Rodenburg, R., Meijer, A. M., Dekovic, M., & Aldenkamp, A. P. (2005a). Familyfactors and psychopathology in children with epilepsy: a literature review. *Epilepsy Behav,6,* 488–503.

Rutter, M., Graham, P., & Yule, W. (1970).A neuropsychiatric study in childhood. *ClinDev Med,* 35-36.

Semrud-Clikeman, M., & Wical, B. (1999).Components of attention in children with complex partial seizures with and without ADHD. *Epilepsia, 40,* 211–215. doi: 10.1111/j.1528-1157.1999.tb02077.x

Tuchman, R., & Rapin, I. (1997). Regression in Pervasive Developmental Disorders: Seizures and Epileptiform Electroencephalogram Correlates. *Pediatrics, 99,* 560-566. Retrieved from http://pediatrics.aappublications.org/

Tuchman, R., Rapin, I., & Shinnar, S. (1991). Autism and dysphasic children II: epilepsy. *Pediatrics, 88,*1219-1225.

Williams, J., Sharp, G., Lange, B., et al.(1996).The effects of seizure type, level of seizure control, and antiepileptic drugs on memory and attention skills in children with epilepsy. *DevNeuropsychol, 12,*241–253.

Relationship between Self-esteem and Aggression among university students

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Abstract

The present study was aimed at investigating the relationship between self-esteem and aggressive behavior of university students. A total of 240 students (120 males and 120 females) were randomly selected from different departments of Rajshahi University. Bengali versions (Illyas, 2003) of Rosenberg's (1965) Self-esteem Scale and the scale for measuring Aggressive Behavior (Rahman, 2003; originally developed by Buss and Perry, 1992) respectively were administered on the sample to collect information from the respondents. Data were analyzed by employing independent-sample t-test and Pearson's product moment correlation. The findings showed no difference between male and female students in terms of self-esteem and aggressive behavior. The findings also revealed a negative correlation ($r = -0.27$, $p<0.001$) between self-esteem and aggressive behavior of the students.

Key words: Self-esteem, Aggressive behavior

Social psychologists usually include only those actions under aggression which are intended to harm another. Thus, accidentally hurting someone else is not aggression. Within the domain of intentional actions, two types of aggressions can be distinguished. One type, often called impulsive or emotional aggression, includes actions in which the aim of the act is to cause harm to its victim. The other type, called instrumental aggression, includes intentional actions that harm another but that are aimed at something other than harming the victim. Aggression can simply be referred to as hurtful behavior, as any action that is intended to hurt others (Sears et al.,1988).

Self-esteem is a term used in psychology to reflect a person's overall emotional evaluation of his or her own worth. It also refers to an individual's sense of his or

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her value or worth, or the extent to which a person values, approves or appreciates, prizes, or likes him or herself (Blascovich & Tomaka, 1991). It is regarded as a favorable or unfavorable attitude towards the self (Rosenberg, 1965) and is generally considered as the evaluative component of self-concept, a broader representation of the self that includes cognitive and behavioral aspects as well as evaluative or affective ones (Blascovich et al., 1991; Baumeister, 1993; Rogers, 1951). Studies suggest that low self-esteem is a source of aggression. Analysis of a variety of aggressive and violent act have focused on perpetrators with low-self esteem, for example, low-self esteem is a common characteristics among violent youth gangs (Anderson, 1994), bullies (O' Moore & Krirkham, 2001) and late adolescents who perceive themselves as having aggressive tendencies (Black & Black, 1988). A study on the personality characteristics of bullies (O' Moore & Krirkham, 2001), confirmed that adolescents who bully have lower self-esteem than those who do not.

Different hypotheses exist as to why low self-esteem may be correlated with Aggression. For instance, one theory suggests that low self-esteem may lead to violence because a limited source of self-esteem available to the person, thus low-self esteem may turn to aggression as an alternative source (Papps & O'Carroll, 1988). A related view is that low self-esteem lead the people actively dominate or aggress on others in an attempt to raise their self-esteem (Torch, 1993). Though most researchers assume a correlation between self esteem and aggression, but empirical evidence directly showing an association between low self-esteem and aggression is not as conclusive as has been claimed (Baumeister, Smart and Boden 1996, Baumeister, Bushman & Campbell 2000). Furthermore, researchers note that low self esteem is associated with risk-taking avoidance, self- protectiveness and lack of confidence (Bumeister, Tice, and Hutton, 1989). Research conducted on peer aggression among woman has been based on the assumption that because women rarely display physical or overt aggression, aggressive behavior is, therefore, a male phenomenon (Bass, 1961; Bjorkquist, 1994). Several studies have asserted that males are more physically aggressive then females (Bjorkqvist, 1994; Lagerspitz and Kaukiainen, 1992; Crick and Pose, 2000). Low self- esteem individuals may faun to aggression as a way to bolster their global self-concept (Blakemore and Blakemore,1998; Papps & O'Carroll, 1998). Another view explaining the relationship between aggression and low-self esteem is the belief that low self-esteem leads some individuals to engage in risk taking behavior (Long, 1990). Researchers have noted that youth who are viewed as aggressive by teachers and peers engage in aggressive behavior to boost their self-esteem (Lochman & Dodge, 1994). In another study, it was found that females tend to engage more in

relational aggression, but males tend to engage more in physical aggression (Crick, 1995; Lanctot *et al.*, 2003). Donnellam, Trzesniewski, Robins and et al (2005) in their study found a robust relation between low self-esteem and externalizing problems such as aggression, antisocial behavior and delinquency.

Begum (1997) in her study on sex differences and aggressive behavior in children, parents and teachers found that 2.2% of boys and 1.5% of girls according to mothers, and 2.6% of boys and 1.6% of girls according to teachers have aggressive behavior in the clinical range. Rahman and Nahar (2013) in their study found that regardless of gender boys expressed more aggression than girls.

The present study was conducted with following objectives in mind:

To measure the relationship between aggression and self esteem.

To measure the difference between male and female students in terms of aggression and self-esteem.

It was hypothesized that significant differences would be found between male and female students in terms of self-esteem and aggression. Furthermore, there will have a negative correlation between self-esteem and aggression.

Method

Sample

The sample consisted of 240 university students (120 males and 120 females). They were selected from different disciplines of Rajshahi University. The age range of the respondents was from 21to 25 years.

Measuring Instruments

Following instruments were administered for collecting data from the respondents.

Personal Information Form (PIF): Personal information questionnaire was used to collect data about age, sex, educational qualification, monthly income, parents' educational level and occupation, marital status, place of residence etc.

Aggression scale: The Bengali version of Measure of Aggressive Behavior (Rahman, 2003) originally developed by Buss and Perry (1992) was used for data collection. It contains 25 items and was divided into 5 dimensions such as physical aggression (five items), verbal aggression (nine items), hostile aggression (five items), anger aggression (three items) and indirect aggression (three items). Each item was rated through 5 alternatives ranging from totally true to totally false, with a rating point ranging from 5 to 1. The highest possible score is 125 and the lowest

score is 25. Respondents scored 75 or above were regarded as Aggressive. Coefficient alpha and test-retest reliability for the scale were found to have .89 and .80 respectively.

Rosenberg Self-esteem Scale (Rosenberg, 1965): This scale was originally developed to measure adolescent's feeling of self-worth or self-acceptance. Adapted Bangla version (Ilyas, 2003) of the scale was used to measure self-esteem of the respondents. The scale contains 10 items in a 4-point Likert-type format. The items are rated on a four-point response format (strongly agree, agree, disagree, strongly disagree). The raw score of the scale ranges from 10-40; with higher score representing higher self-esteem. Five items estimated positive feelings whereas the rest of five items measures negative feelings about the self. Test-retest reliability coefficients of the original scale ranged from 0.82 to 0.88, and Cronbach's Alpha for various samples ranged from 0.77 to 0.88 (Blascovich et al., 1991). Significant correlation between English and Bangla versions (r=0.87, p<0.0005) indicated translation reliability of the Bangla version (Ilyas, 2003). Satisfactory level of Cronbach's Alpha (α=0.87) coefficient of the Bangla version further indicated internal consistency of the scale (Ilyas, 2003).

Procedure

Data were collected personally from the respondents following individual to individual approach procedure. After having voluntary consent, they were served with the questionnaires to indicate their feelings towards all the items of the two scales. After completion of their task, the questionnaires were then collected and tabulation and analysis of data were done by employing appropriate statistical procedures.

Results

The results obtained after analyzing the data are presented in tables 1 and 2. All statistical analyses were carried out using the statistical program SPSS, version 11.5.

The result shows no difference between male (=75.83) and female (= 74.62) students (t = .90, df = 238, P<0.05) in terms of aggression and self-esteem [male (=

Table 1. t-ratios between the male and female students in terms of aggression and self-esteem

Variables	Respondents	N	Mean	SD	df	t	Sig
Aggression	Male	120	75.83	9.55		0.90	NS
	Female	120	74.62	11.18			NS
Self-esteem	Male	120	23.87	4.56	238	1.55	
	Female	120	23.02	3.98			

23.87) and Female (= 23.02), t = 1.55, df,= 238, P <0.05].

The result in table (02) shows that aggression and self-esteem are negatively related to each other.

Table 2. Correlation between Self-esteem and Aggression scores obtained by the students

Variables	Coefficient of correlation (r)	Significance level
Aggression self-esteem	-.27*	p<o.oo1

Discussion

The result obtained through analysis of data did not support the hypothesis that significant difference would be found between male and female students in terms of aggression. Table 01 showed that male students expressed slightly higher (= 75.83) aggression than female (= 74.62) students, but the difference was not statistically significant. This result is consistent with study conducted by Begum (1997) who found that 2.2% of boys and 1.5% of girls according to mothers, and 2.6% of boys and 1.6% of girls according to teachers have aggressive behavior in the clinical range. Study by Rahman and Nahar (2013) also found that regardless of gender boys expressed more aggression than girls. The difference between male and female students in terms of self-esteem was also not found significant [male (= 23.87) and female (= 23.02), t = 1.55]. This result was in line with the findings obtained from the study by King and colleagues (1999) who found an insignificant difference between male and female in terms of self-esteem.

The findings supported that aggression and self-esteem are negatively correlated (r = -.27, p<o.oo1). It revealed that the respondent with high self-esteem will have lower aggression level and vice versa.

The result is also consistent with the findings of earlier researchers (Baum ester, Bushman, and Campbell, 2000; Bushman and Baumeister, 1998; Dostoevsky, 2010; Walker and Bright, 2009) who noted that people with high self esteem was less likely to be aggressive, while people with low self-esteem were found to express more aggressive behavior.

Considering the limitations of the present study future research would benefit from repeated assessments of self-esteem and aggression on a reasonably large sample.

Future research should incorporate other associated variables with self-esteem and aggression for answering the unsolved problems of the present study. If future

research provides that age, education level and other relevant variables influence self-esteem and aggression this knowledge might provide the basis for effective interventions.

References

Andreu, J. Manuel, Takehiro Fujihara, Takaya Kohyama, and J. Martin Ramirez. 1998. Justification of Interpersonal Aggression in Japanese, American, and Spanish Students. *Aggressive Behavior 25*: 185-195. 7 Dec. 2006.

Baumeister, R. F. (1998). The Self. In: D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The Handbook of Social Psychology* (Vol. 1, 4th ed., pp. 680-740). New York: McGraw-Hill.

Baumeister, R. F.(1993). Self-esteem: The puzzle of low self-regard. New York: Plenum.

Baumeister, R. F. and Boden, J. M.(1998). Aggression and the self: High self-esteem, low self-control, and ego threat. In: R. Geen and E. Donnerstein (Eds.), *Human Aggression: Theories, Research, and Implications for Social Policy* (pp. 111-137).San Diego, CA: Academic.

Blascovich, J., & Tomako,j.(1991). Measures of self-esteem.

Bowdle, Brian F., Dov Cohen, Richerd E. Nisbett and Norbert Schwarz. (1996). Insult, Aggression, and the Southern Culture of Honor: An Experimental. *Journal of Personality and Social Psychology* 70: 945-960. 7 Dec. 2006.

Begum, Roquia. (1997). Sex Differences in Aggressive Behavior in children: Parents and Teachers' reports. *The Bangladesh Journal of Psychology,* Vol.16,p.81-90.

Bushman, B. J. and Baumeister, R. F. (1998). Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: Does self-love or self-hate lead to violence? *Journal of Personality and Social Psychology, 75,* 219-229.

Buss, A. H. and Perry, M. P. (1992). The aggression questionnaire. *Journal of Personality and Social Psychology, 63,* 452-459.Crick, N. R. 1995. Relational aggression: The role of intent attributions, feelings of distress, and provocation type.*Development and Psychopathology, 7,* 313-322.

Donnellam, M.B. Trzesniewski,K.H, Robins,R. W. Moffitt and Caspi (2005). Low self-esteem is related to aggression, antisocial behavior, and delinquency.*Psychological Science.* vol.16-number4.

Keeley, L. H. 1996. *War Before Civilization: The Myth of the Peaceful Savage.* New York: Oxford University Press.

Kirkpatrick, L. A., Waugh, C. E., Valencia, A. and Webster, G. D. 2002. The functional domain specificity of self-esteem and the differential prediction of aggression. *Journal of Personality and Social Psychology, 82,* 756-767.

Ilyas, Q. S. M. (2003). *Bengali translation of Rosenberg's self-esteem scale.* Unpublished Manuscript, Department of Psychology, University of Dhaka.

O'Moore, M., & Krirkham, C. (2001).Self-esteem and its relationship to bullying behavior. *Aggressive behavior,* 27, 269-283.

Papps, B.P., & O'Carroll, R.E (1998). Extremes of self-esteem and narcissism and the experience and expression of anger and aggression. *Aggressive behavior, 24,421-438.*

Rahman, A. K. M. R. (2003). *Psycho-social factors in aggressive behaviour in males and females in Bangladesh*: Rajshahi University.

Rahman, A. K. M. R., & Huq, M. M. (2005). Aggression in adolescent boys and girls as related to socio-economic status and residential background. *Journal of Life and Earth Science, 1,* 5-9.

Rahman, A. K. M. R (2009). Cultural differences in aggression: A case study in Bangladesh. *Journal of Life and Earth Science,vol-3-4; 43-46.*

Rahman, M.S. & L. Nahar (2013). Aggression in boys and girls as related to their academic achivement and residential background. Copy right@2013 SciRes.459.

Rosenberg, M. 1965. *Society and the Adolescent Self-image.* Princeton, NJ: Princeton University Press.http:// www.answers.com/topic/self-esteem.

Sabini, J.(1992).Social Psychology, w.w Norton & Company, Ltd (1st edi),10 coptic street, London WCIA IPU. page no. 473.

Sears, David. O(1988). Social Psychology, Prentice-Hall International, Inc,(6th edi),London, page no.286.