Bangladesh Journal of Psychology

(ISSN 1022-7466)
Volume 25, December 2025, pp. 30-49
DOI: https://doi.org/10.3329/bjop.v25i1.83293
Received: 26.07.2025 Accepted: 25.12.2025

Anxiety and Mental Health among Secondary School Students in Dhaka City: Role of Socio-demographic Factors

Jannatul Ferdous[1*], and Muhammad Kamal Uddin[2]

Abstract

The objective of this study was to investigate the relationship of anxiety, mental wellbeing, and socio-demographic influences in adolescents. Data were collected from 499 high school students (12-17 years, 34.3 % male and 65.7 % female) of four Bangla-medium schools in Dhaka city using the Bangla version of the Beck Anxiety Inventory for Youth (BAI-Y), the Mental Health Continuum-Short Form (MHC-SF), and a demographic questionnaire during regular school hours. Correlation analysis demonstrated that anxiety was negatively associated with overall mental health and its emotional and social dimensions. Independent sample t-tests revealed that male students and those from joint families exhibited better wellbeing but higher anxiety. Similar patterns were observed among students involved in extracurricular activities or bearing additional familial responsibilities. One-way ANOVA indicated significant differences across class levels, with Class 10 students showing notably lower anxiety and wellbeing than their junior peers. Students perceived socioeconomic status showed small yet meaningful differences in their social and overall wellbeing. Multiple regression analyses showed that socio-demographic factors accounted for 10.3% of the variance in anxiety—predicted by gender, participation in extracurricular activities, and additional family responsibilities—and 7.8% of the variance in mental wellbeing, predicted by gender, family structure, perceived socio-economic status, and participation in extracurricular activities. Results highlight the need for school-based mental health programs that consider variations in grade level, gender, and familial responsibilities, as these factors significantly influence adolescents' anxiety and wellbeing, while considering the potential influence of additional factors on adolescent mental health.

Keywords: anxiety, mental health, socio-demographic factors, secondary school students

[1] Department of Psychology, Jagannath University, Dhaka
[2] Department of Psychology, University of Dhaka
[*] **Corresponding E-mail:** jannatul.psy.jnu@gmail.com

Introduction

Adolescence is a crucial period of development with rapid physical, emotional and social changes, making young people prone to mental health difficulties (Das & Sajib, 2022; Sawyer et al., 2012). Anxiety, a widespread concern during adolescence, frequently develops in the presence of academic stress, familial and social issues, relationship with peers, and dilemmas of self-identity (Costello et al. 2003; Patel et al. 2007). When left untreated, teen anxiety can interfere with every aspect of life - learning, relationships, and long-term mental health (Izadinia et al., 2010). Mental health can be defined not only in terms of absence of mental illness, but presence of positive psychological, emotional and social functioning (Keyes 2002). In this regard, Keyes (2002, 2005) has developed a broader framework, the Mental Health Continuum (MHC), which categorizes that individuals can be languishing (low mental health), moderately mentally healthy or flourishing (high mental health). The MHC posits that mental health and mental illness represent related yet separate continua (Keyes, 2005). It suggests that an adolescent might not hit the mark for one of the anxiety disorders but still have subclinical difficulties which chip away at overall functioning and mire an individual somewhere at the languishing end. Therefore, characterizing where adolescents fall in the spectrum of the MHC and how anxiety intertwines with their MHC status is critical for buttressing the development of resiliency-focused, school-based approaches to mental health that target distress and wellbeing.

Malak and Khalifeh (2017) found that among 800 students from 10 public schools in Jordan, 42.1% of students reported anxiety symptoms, suggesting that adolescent anxiety is a global public health concern. The prevalence of anxiety was investigated among 11,924 Canadian middle and secondary school students by Tramonte and Willms (2010), and they discovered girls showed higher levels of anxiety. One recent study (Alharbi et al., 2019) with 1,245 Saudi Arabian high school students, aged 13–19, found that 36.5% reported no anxiety, followed by 34.1% with mild anxiety, 19.5% showed moderate anxiety, and 9.8% showed severe anxiety among whom females had higher rates of anxiety than males. A cross-sectional study with 146 school students in Jamshedpur, India found that 11% of high school students with a high level of anxiety, significantly higher among girls (Bakhla et al., 2013). A further investigation with 460 Indian high school students, aged 13 to17 years, indicated that 20.1% of the boys and 17.9% of the girls manifested with high level anxiety, with the Bengali-medium students and middle-income families reporting more anxiety (Deb et al., 2010).

Although there is increasing interest in mental health of adolescents all over the world, several recent studies in Bangladeshi school setting have emphasized the rising issue of adolescent mental health. For instance, in a cross-sectional study among 563 students of secondary schools in Dhaka city, aged 13–18 years, 18.1% had moderate to severe anxiety symptoms (Islam et al., 2021). Anjum et al. (2022) reported that 20.1% out of 2,313 adolescent students from nine high schools in Dhaka city had moderate to severe anxiety with females having considerably higher anxiety. Age, grade, parental education, family size and living in urban/rural areas emerged as significant predictors of

anxiety, as well as lifestyle factors such as infrequent physical activity, high screen time, sleep dissatisfaction and underweight body image. Khan and Khan (2020) revealed that 4.7% of 2,989 Bangladeshi adolescents suffered from anxiety, with a higher rate among female adolescents than males. Feeling of loneliness, being bullied by peers, and exposure to physical violence were reported as significant psychosocial risk factors, while poor parent–child communication and inadequate peer support had appeared as crucial socio-environmental determinants. A more recent study by Karim et al. (2025) with 260 high school students in a rural district of southern Bangladesh claimed that 22.3% of adolescents experienced moderate to acute levels of anxiety symptoms. Being female, insufficient and poor quality of sleep, overuse of social media, and unsatisfactory academic performance were stated as noteworthy predictors of intensified anxiety.

Along with individual gender, a variety of socio-demographic and lifestyle factors have been found to play considerable role in forming adolescents' mental health across different cultural and national contexts. Though majority of the studies indicated that female adolescents show higher vulnerability towards anxiety and wellbeing outcomes (Tramonte & Willms, 2010; Bakhla et al., 2013; Alharbi et al., 2019; Anjum et al., 2022; Khan & Khan, 2020; Karim et al., 2025), some studies have also reported better mental health among female adolescents compared to males (Agarwal & Bahadur, 2023; Deb et al., 2010). However, no significant gender difference was reported by Shaheen and Shaheen (2016) for secondary school students' psychological wellbeing in India. Another two factors which are also crucial for mental health are family structure and socio-economic condition. Emotional adjustment of adolescents can be affected by their family structure, as adolescents from joint families hold greater social maturity, emotional stability, personal and interpersonal competency than those from nuclear families (Singh et al., 2014; Agarwal & Bahadur, 2023). On the other hand, extended or joint family systems can also contribute to stress with role overlaps, disharmony, loss of control and limited privacy (Fingerman, 2016). In a cohort study involving 2,111 participants aged 7 to 17 years, Reiss et al. (2019) found that lower socioeconomic status (SES) was significantly associated with higher levels of mental health problems in young people. Anjum et al. (2022) reported adolescents' class or grade level as a significant predictor of mental health as it is linked to academic pressure of students.

The growing culture of engaging in private tuition before or after classes has mixed effects on students and their families. While it can boost confidence, motivation, discipline, and provide emotional support, it may also increase academic stress, reduce family and leisure time, impose financial burdens, and promote unhealthy comparison, competition and peer-related pressure, potentially leading to mental health issues (Tabassum et al., 2014; Kim et al., 2022; Fan et al., 2025). Moreover, Mudunna et al., (2025) reported that participation in extracurricular activities such as joining debate club, science club, or photography club; engaging in music, dance, drama, or art and crafts classes; practicing yoga; or taking part in sports like football, cricket, basketball, or volleyball etc. can promote better mental health outcomes. However, intensive involvement or performance pressure

in such activities may also elevate anxiety, suggesting a complex interaction between role strain and the social support benefits these activities offer (Mudunna et al., 2025; Fredricks, 2012). On the other hand, bearing additional familial responsibilities such as cleaning, cooking, washing dishes, laundry, sweeping, grocery shopping, caring for siblings or elderly family members etc. may influence adolescents' mental health in both positive and negative ways. While moderate involvement in everyday household chores can boost mental wellbeing (Castillo-Miñaca et al., 2025), excessive caregiving responsibilities are connected to higher anxiety, depression, and poor academic performance (Armstrong-Carter et al., 2025).

While earlier Bangladeshi studies have observed the prevalence and correlates of adolescent anxiety, no study have integrated the MHC framework to examine how socio-demographic and lifestyle factors collectively shape both negative (anxiety) and positive (emotional, social, and psychological wellbeing) dimensions of adolescent mental health. Addressing this gap, the present study employs the MHC model to investigate how anxiety is interrelated to overall wellbeing among secondary school students in Dhaka City, considering gender, family structure, perceived socioeconomic status, class level, engagement in private tuition, extracurricular activities, and additional household responsibilities. Output from this study is expected to apprise the design and implementation of context-specific evidence-based interventions for the Bangladeshi adolescents.

Objectives of the study

The study aimed to: (i) examine correlations between anxiety and students' positions on the MHC; (ii) assess group differences in anxiety and mental health across gender, family structure, perceived socioeconomic status, class-level, private tuition, extracurricular activities, and additional familial responsibilities; and (iii) evaluate predictive power of the mentioned socio-demographic variables in explaining variations in students' anxiety level and mental health conditions.

Research Questions

The research questions of the study were: (i) What is the relationship between anxiety and adolescents' positions on the Mental Health Continuum (MHC)? (ii) Do anxiety and mental health significantly differ across gender, family structure, perceived socioeconomic status, class level, private tuition involvement, extracurricular participation, and additional familial responsibilities? and (iii) To what extent do these socio-demographic and lifestyle factors predict variations in anxiety and mental health among Bangladeshi adolescents?

Method

Ethical Considerations

Ethical approval for the present study was obtained as part of the doctoral research project titled "*Promoting Mental Health of Secondary School Teachers and Students Through Enhancing Their Emotional Intelligence in Dhaka City*", approved by the Ethical Review Committee of the Faculty of Biological Sciences, University of Dhaka (Ref. No. 217/Biol. Scs. & Date: August 30, 2023). Following approval from school authorities, the purpose and procedures of the study were explained to students in their classrooms in the presence of teachers. Parental or guardian consent forms were distributed to the students to take home, and only those who returned signed consent forms were eligible to participate. On the scheduled day of data collection, written assent was obtained from the students whose parents or guardians had provided consent. Both the parents/ guardians and students were informed that participation was voluntary, and their personal information would remain confidential. Participants were allowed to pause or discontinue participation at any point. For additional support to maintain wellbeing, up to two free support sessions were offered if required, along with a list of accessible mental health organizations for all.

Participants and Sampling

The study was conducted between April and June 2025 in four Bangla-medium schools of Dhaka city, with two schools from Dhaka North City and two from Dhaka South City. Schools were selected through convenience sampling based on their willingness to participate and availability of administrative approval. The preliminary sample comprised 506 students. After the first screening, the incomplete responses and extreme outliers were removed and the final sample comprised 499 students (34.3% male and 65.7% female, aged between 12 and 17 years) for whom we retained the data for analysis. Sample demographic characteristics are presented in Table 1. Age is reported as mean ± standard deviation.

Table 1
Demographic Characteristics of the Sample (N = 499)

Variable	Category	*n*	%
Gender	Male	171	34.3
	Female	328	65.7
Class level	Class 7	85	17.0
	Class 8	142	28.5
	Class 9	136	27.3
	Class 10	136	27.3
Family structure	Nuclear	328	65.7
	Joint	171	34.3

Variable	Category	*n*	%
Perceived socioeconomic status (SES)	Very Low	21	4.2
	Low	118	23.6
	Average	252	50.5
	High	98	19.6
	Very High	10	2
Private tuition	Yes	350	70.1
	No	149	29.9
Extracurricular activities	Yes	309	61.9
	No	190	38.1
Additional familial responsibilities	Yes	274	54.9
	No	225	45.1

Note. Age (years): Mean ± *SD* = 14.21 ± 1.26.

Procedure

Before data collection, permission was obtained from the school official. The students were selected using convenience sampling and participated on a voluntary basis with assurance of confidentiality. The questionnaires were filled out during normal school hours in classrooms under researchers' observation, and friendly atmosphere was preserved. All ethical guidelines for human subjects were duly followed.

Measures

Beck Anxiety Inventory- Youth

The BAI-Y (Beck et. *a*l., 2005) is a 20-item self-report questionnaire designed to measure anxiety symptoms in individuals aged 7 to 18 years based on a 4-point Likert scale ranging from 0 (never) to 3 (always). Higher scores indicate severe levels of anxiety. The BAI-Y is one of the five measures included in Beck Youth Inventories–Second Edition (BYI-II) that has shown good psychometric quality. Internal consistency was good, with Cronbach's alpha of .86 to .91 for ages 7–10, .86 to .92 for ages 11–14, and .91 to .96 for ages 15–18. Test–retest reliability with a subsample of 105 youth and one week interval demonstrated correlation coefficients between .74 and .93. For the Bangla version (Uddin et al., 2011), satisfactory psychometric properties have been demonstrated with internal consistency coefficients that ranged between .85 for males and .88 for females. Test-retest reliability was .79 with a 10-day interval. The Cronbach's alpha of the BAI-Y was 0.96 for the present sample.

Mental Health Continuum -Short Form (MHC-SF)

The MHC-SF (Keyes et al., 2008) was used to assess students' position on the MHC. It is a 14-item self-report measure in which individuals rate their emotional (EWB), social (SWB) and psychological wellbeing (PWB), using a 6-point Likert type scale ranging from 0 (never) to 5 (every day). Subscale scores (EWB: 0–15; SWB: 0–25; PWB: 0–30) and a total wellbeing score (0–70) can be computed. Higher scores indicate better mental wellbeing. Internal consistency is good (α >.80). The MHC-SF Bangla (Hiramoni and Ahmed, 2022) has good psychometric properties and is a reliable (α = 0.80–0.86) and valid (*AVE* = 0.55–0.63) instrument to measure mental wellbeing in adolescents and adults in Bangladesh. For the present sample, Cronbach's alpha was .91 for the total scale and .87, .81, and .85 for the emotional, social, and psychological wellbeing subscales, respectively.

Personal Information Form

It was used to collect demographic information, including students' age, gender (male or female), class level, family structure (joint or nuclear), perceived socio-economic status, participation in private tuition, involvement in extracurricular activities, and additional familial responsibilities. For items on private tuition, extracurricular activities, and familial responsibilities, students provided dual response options (Yes or No). Perceived socioeconomic status (SES) was measured using a single subjective item: "How would you rate your family's socioeconomic position on a scale from 1 to 5, where 1 indicates very low and 5 indicates very high?" This item was projected to obtain students' self-perceived social and economic standing.

Results

Data analysis was carried out using IBM SPSS (Version 25). Outliers and incomplete data were excluded prior to the analysis. Normality of the study variables was assessed using skewness and kurtosis values, which were found to be within the acceptable range (–3 to +3; Kline, 2011), indicating approximate normal distribution. Descriptive statistics (mean, standard deviation, skewness, and kurtosis values) for all continuous study variables are presented in Table 2.

Table 2

Descriptive Statistics and Tests of Normality for Study Variables (N = 499)

Variable	Mean	Standard Deviation	Skewness	Kurtosis
Anxiety	32.69	15.67	0.30	–0.43
Emotional Wellbeing	9.65	4.09	–0.53	–0.77
Social Wellbeing	12.80	6.15	0.23	–0.64
Psychological Wellbeing	18.66	7.06	–0.24	–0.81
Overall Mental Health	41.12	14.91	–0.21	–0.55

Correlations among Anxiety and Mental Health Variables

Pearson product-moment correlation coefficients were computed to assess the relationships among anxiety and mental health (Table 3). Results indicated that anxiety was negatively correlated with overall mental health, (r = -.16, p < .001) and its two dimensions emotional (r = -.18, p < .001) and social wellbeing (r = -.19, p < .001). Strong, positive, and significant correlations were observed among overall wellbeing and its three dimensions. The strongest association was found between psychological wellbeing and overall wellbeing.

Table 3

Intercorrelations among Anxiety and Mental Health Variables (N = 499)

Variables	1	2	3	4	5
1. Anxiety	—				
2. Emotional Wellbeing	–.18**	—			
3. Social Wellbeing	–.19**	.51**	—		
4. Psychological Wellbeing	–.07	.64**	.64**	—	
5. Overall Wellbeing	–.16**	.79**	.85**	.91**	—

Note. **p < .01.

Group Differences in Anxiety and Mental Health by Gender and Family Structure

Independent sample t-tests were conducted to examine group differences in anxiety and mental health by gender and family structure (Table 4). Results revealed that male students reported significantly higher anxiety (M = 36.77, SD = 12.90) and overall wellbeing (M = 44.94, SD = 14.01), as well as higher emotional, social, and psychological wellbeing scores than female students, with small-to-moderate effect sizes (d = 0.31–0.42). Students from joint families scored significantly higher on anxiety (M = 35.33, SD = 15.35), overall wellbeing (M = 43.84, SD = 14.00), and its subdomains compared to students from nuclear families, with smaller effect sizes (d = 0.23–0.28).

Table 4

Group Differences in Study Variables by Gender and Family Structure (N = 499)

Variable	Group	Mean	*SD*	*t*	*p*	Cohen's *d*	95% CI (Lower-Upper)
Anxiety	Male	36.77	12.90	3.74	< .001	0.40	2.587 - 8.320
	Female	30.56	16.65				
	Joint	35.33	15.35	2.18	.048	0.23	.319 - 6.104
	Nuclear	31.70	15.74				

Variable	Group	Mean	*SD*	*t*	*p*	Cohen's *d*	95% CI (Lower-Upper)
Emotional Wellbeing	Male	10.76	3.77	4.45	< .001	0.42	.940 - 2.428
	Female	9.08	4.14				
	Joint	10.26	4.05	2.42	.016	0.23	.173 - 1.682
	Nuclear	9.34	4.08				
Social Wellbeing	Male	14.06	6.41	3.34	.001	0.31	.791 - 3.045
	Female	12.15	5.91				
	Joint	13.76	6.21	2.52	.012	0.24	.323 - 2.588
	Nuclear	12.30	6.06				
Psychological Wellbeing	Male	20.12	6.48	3.36	.001	0.32	.919 - 3.510
	Female	17.90	7.24				
	Joint	19.82	6.48	2.660	.008	0.25	.460 - 3.061
	Nuclear	18.06	7.28				
Overall Wellbeing	Male	44.94	14.01	4.20	< .001	0.40	3.098 - 8.535
	Female	39.13	15.00				
	Joint	43.84	14.00	2.97	.003	0.28	1.402 - 6.886
	Nuclear	39.70	15.20				

Note. SD = Standard Deviation. Cohen's *d* was computed for all t-tests. Sample sizes were: Gender – Male = 171, Female = 328; Family Structure – Joint = 171, Nuclear = 328. Degrees of freedom for all comparisons = 497.

Group Differences in Anxiety and Mental Health by Private Tuition, Extracurricular Activities, and Additional Family Responsibilities

To explore differences in study variables based on students' engagement in private tuition, participation in extracurricular activities and bearing additional familial responsibilities, a number of independent sample *t*-tests were carried out (see Table 5). No significant differences were observed in any research variable among students who got private tuition and those who did not. Students who participated in extracurricular activities reported significantly higher scores in overall wellbeing ($t(497) = 3.613$, $p < .001$, $d = 0.33$) and its three domains—emotional, social, and psychological wellbeing—than those who did not. Interestingly, these students also experienced higher levels of anxiety($t(497) = 5.685$, $p < .001$, $d = 0.52$) than their non-participating counterparts. Similarly, students with additional family responsibilities reported significantly higher anxiety ($t(497) = 4.835$, $p < .001$, $d = 0.44$) compared to those without such responsibilities, whereas they scored significantly higher in psychological ($t(497) = 2.95$, $p = .003$, $d = 0.27$) and overall wellbeing ($t(497) = 2.539$, $p = .011$, $d = 0.23$) than their counterparts without these responsibilities. No significant differences were found for emotional or social wellbeing.

Table 5

Group Differences in Study Variables by Private Tuition (PT), Extracurricular Activities (ECA) and Additional Familial Responsibilities (AFR) (N = 499)

Variable	*N* Yes (No)	*M* Yes (No)	*SD* Yes (No)	*t*	*p*	*d*	95% CI Lower (Upper)
Anxiety							
PT	350 (149)	33.17 (33.32)	15.99 (14.96)	-.092	.927	.01	-3.155 (2.873)
ECA	309 (190)	36.25 (28.28)	15.13 (15.31)	5.685	<.001	.52	5.212 (10.718)
AFR	274 (225)	36.22 (29.56)	14.98 (15.74)	4.835	<.001	.44	3.958 (9.376)
Emotional Wellbeing							
PT	350 (149)	9.61 (9.77)	4.02 (4.25)	-.398	.691	.04	-.946 (.627)
ECA	309 (190)	10.09 (8.95)	3.99 (4.16)	3.048	.002	.28	.405 (1.875)
AFR	274 (225)	9.97 (9.27)	4.09 (4.07)	1.918	.056	.17	-.017 (1.425)
Social Wellbeing							
PT	350 (149)	12.61 (13.25)	6.14 (6.15)	-1.055	.292	.10	-1.815 (.547)
ECA	309 (190)	13.34 (11.93)	6.17 (6.02)	2.499	.013	.23	.301 (2.515)
AFR	274 (225)	13.18 (12.35)	6.19 (6.08)	1.492	.136	.13	-.261 (1.909)
Psychological Wellbeing							
PT	350 (149)	18.36 (19.38)	6.87 (7.47)	-1.477	.140	.14	-2.374 (.337)
ECA	309 (190)	19.56 (17.20)	6.77 (7.30)	3.670	<.001	.34	1.097 (3.623)
AFR	274 (225)	19.50 (17.64)	7.15 (6.83)	2.950	.003	.27	.621 (3.099)
Overall Wellbeing							
PT	350 (149)	40.58 (42.39)	14.59 (15.63)	-1.243	.215	.12	-4.677 (1.053)
ECA	309 (190)	42.99 (38.08)	14.24 (15.51)	3.613	<.001	.33	2.239 (7.577)
AFR	274 (225)	42.65 (39.26)	14.88 (14.78)	2.539	.011	.23	.766 (6.010)

Note. *M* = Mean, *SD* = Standard Deviation. Cohen's *d* was computed for all *t*-tests. Degrees of freedom for all comparisons = 497.

Class-Level Differences in Anxiety and Mental Health

Descriptive statistics and ANOVA results for study variables by class level are presented in Table 6. Significant differences were observed across class levels for all variables. Anxiety differed substantially, with Class 10 reporting notably lower anxiety scores ($M = 18.20$, $SD = 9.31$) compared to other classes (Class 7: $M = 39.80$, $SD = 14.50$; Class 8: $M = 40.23$, $SD = 14.39$; Class 9: $M = 36.79$, $SD = 12.35$), $F(3, 495) = 89.83$, $p < .001$, $\eta^2 = .35$, indicating a large effect (Cohen, 1988). Similarly, emotional, social, psychological and overall wellbeing differed significantly across classes ($\eta^2 = .09$, .05, .14, and .12, respectively), representing medium to large effects.

Table 6

Descriptive Statistics and ANOVA Results for Study Variables by Class Level (N = 499)

Variable	Class 7 (n = 85) M (SD)	Class 8 (n = 142) M (SD)	Class 9 (n = 136) M (SD)	Class 10 (n = 136) M (SD)	F (3, 495)	η^2
Anxiety	39.80 (14.50)	40.23 (14.39)	36.79 (12.35)	18.20 (9.31)	89.83***	.35
EWB	10.26 (4.09)	10.06 (4.07)	10.79 (3.40)	7.71 (4.12)	16.27***	.09
SWB	12.61 (5.84)	13.68 (6.43)	14.19 (6.37)	10.63 (5.18)	9.45***	.05
PWB	19.79 (7.01)	20.29 (6.42)	20.51 (6.48)	14.41 (6.57)	26.21***	.14
OWB	42.66 (14.27)	44.03 (14.12)	45.49 (13.68)	32.74 (14.07)	22.99***	.12

Note. ***p < .001, M = Mean, SD = Standard Deviation, EWB = Emotional Wellbeing; SWB = Social Wellbeing; PWB = Psychological Wellbeing; OWB = Overall Wellbeing; η^2 = effect size.

Table 7 presents the pairwise comparisons of anxiety and wellbeing across class levels. Results indicated that Class 10 students scored significantly lower than students in Classes 7–9 on all variables. Specifically, anxiety levels were substantially lower in Class 10 (mean differences = 18.596–22.034, p < .05), while emotional, social, and psychological wellbeing, as well as overall wellbeing, were also significantly reduced (mean differences ranging from 2.357 to 12.750, p < .05). These findings suggest that Class 10 students experience notably lower anxiety and wellbeing compared to their junior peers, highlighting a pronounced decline across all aspects of mental health in the final year students.

Table 7

Pairwise Comparisons Between Class Groups for Study Variables (N = 499)

Dependent Variable	(I) Class	(J) Class	Mean Difference (I–J)	SE
Anxiety	7	10	21.601*	1.75
	8	10	22.034*	1.52
	9	10	18.596*	1.53
Emotional Wellbeing	7	10	2.553*	0.54
	8	10	2.357*	0.47
	9	10	3.088*	0.48
Social Wellbeing	8	10	3.051*	0.72
	9	10	3.566*	0.73
Psychological Wellbeing	7	10	5.376*	0.91
	8	10	5.877*	0.79
	9	10	6.096*	0.80

Dependent Variable	(*I*) Class	(*J*) Class	Mean Difference (*I–J*)	*SE*
Overall Wellbeing	7	10	9.916*	1.94
	8	10	11.286*	1.68
	9	10	12.750*	1.70

Note. SE = Standard Error; *$p < .05$. Only significant pairwise comparisons are reported.

Differences in Anxiety and Mental Health by Perceived Socio-economic Status

One-way ANOVA was conducted to observe differences in study variables across students perceived socioeconomic condition (Table 8). No significant differences were found for anxiety, emotional or psychological wellbeing. Significant group differences were found only for social ($F(4, 494) = 2.90$, $p < .05$, $\eta^2 = .023$) and overall wellbeing ($F(4, 494) = 3.24$, $p < .01$, $\eta^2 = .026$), indicating small but meaningful effect sizes.

Table 8

Descriptive Statistics and ANOVA Results for Study Variables by Socio-Economic Status

Variable	Very Low (n = 21) M (SD)	Low (n = 118) M (SD)	Average (n = 252) M (SD)	High (n = 98) M (SD)	Very High (n = 10) M (SD)	F (4, 494)	η^2
Anxiety	33.00 (14.99)	32.55 (14.97)	33.49 (15.57)	33.77 (17.16)	29.20 (14.54)	0.267	.002
EWB	9.43 (3.83)	10.58 (3.56)	9.44 (4.15)	9.20 (4.43)	8.90 (4.68)	2.08	.017
SWB	12.05 (7.07)	14.30 (6.19)	12.55 (6.21)	12.13 (5.44)	9.70 (6.15)	2.90*	.023
PWB	17.76 (7.75)	20.17 (6.83)	18.36 (6.98)	18.17 (7.34)	15.20 (5.69)	2.29	.018
OWB	39.24 (16.59)	45.04 (14.37)	40.35 (14.82)	39.51 (14.99)	33.80 (12.14)	3.24**	.026

Note. *$p < .05$, **$p < .05$. *M* = Mean, *SD* = Standard Deviation, EWB = Emotional Wellbeing; SWB = Social Wellbeing; PWB = Psychological Wellbeing; OWB = Overall Wellbeing; η^2 = effect size.

Table 9 presents the significant pairwise comparisons for overall wellbeing, where differences were observed between Low vs. Average and Low vs. High SES groups. Although, the overall ANOVA for social wellbeing was significant, post-hoc comparisons using Tukey's HSD test did not reach significance, likely due to small effect size and unequal group sizes.

Table 9

Post Hoc Comparisons Between Socio-Economic Status Groups for Study Variables (N = 499)

Dependent Variable	(*I*) SES	(*J*) SES	Mean Difference (*I–J*)	*SE*
Overall Wellbeing	Low	Average	4.689*	1.65
	Low	High	5.532*	2.02

Note. SE = Standard Error. * p <.05. *Only significant pairwise comparisons are reported.*

Predictors of Students' Anxiety and Mental Health: Multiple Regression Analyses

Multiple linear regression analyses were conducted to examine the extent to which socio-demographic factors predicted adolescents' anxiety and overall mental health. All predictors were entered simultaneously in the regression models. Categorical variables were dummy coded with the first category as reference. Model diagnostics indicated no violations of assumptions, with VIF values below 1.1 and Durbin–Watson statistics within the acceptable range. The regression model for anxiety was significant, $F(6, 492) = 9.45$, $p < .001$, explaining 10.3% of the variance (Adjusted $R^2 = .092$), while the model for overall mental health was also significant, $F(6, 492) = 6.92$, $p < .001$, accounting for 7.8% of the variance (Adjusted $R^2 = .067$). The results are presented in Table 10.

Table 10

Model Summary and Fit Indices for Multiple Regression Predicting Anxiety and Mental Health (MH) (N = 499)

Model	R	R^2	Adjusted R^2	SE	Durbin-Watson	F	df (Regression, Residual)	*p*
Anxiety	.321	.103	.092	14.93	1.41	9.45	6, 492	< .001
MH	.279	.078	.067	14.41	1.92	6.92	6, 492	< .001

Note. Predictors: Gender, Family structure, SES, Private tuition, Extracurricular activities, Additional family responsibilities. The model was statistically significant, indicating that predictors collectively explain a significant portion of variance in anxiety and mental health.

For anxiety, significant positive predictors included gender (male; $\beta = .10$, $p = .023$), participation in extracurricular activities ($\beta = .20$, $p < .001$), and extra family responsibilities ($\beta = .15$, $p = .001$). Family structure, socio-economic status, and private tuition were not significant predictors of anxiety in the present sample. For mental health, significant predictors were gender (male; $\beta = .14$, $p = .002$), family structure (joint; $\beta = .09$, $p = .044$), socio-economic status ($\beta = -.10$, $p = .017$), and participation in extracurricular activities ($\beta = .12$, $p = .006$), whereas private tuition and extra family responsibilities were non-significant (see Table 11).

Table 11
Regression Coefficients Predicting Anxiety and Mental Health

Predictor	Anxiety						Mental Health					
	B	*SE*	*β*	*t*	*p*	*VIF*	*B*	*SE*	*β*	*t*	*P*	*VIF*
Constant	23.91	2.88	—	8.29	< .001	—	42.07	2.78	—	15.11	< .001	—
Gender (Male=1)	3.34	1.46	.101	2.29	.023	1.08	4.47	1.41	.142	3.17	.002	1.08
Class Level	1.58	1.44	.048	1.10	.273	1.04	2.80	1.39	.089	2.02	.044	1.04
FS (Joint=1)	0.29	0.82	.015	0.35	.725	1.01	-1.89	0.79	-.104	-2.41	.017	1.01
SES	0.22	1.47	.006	0.15	.883	1.01	-1.53	1.41	-.047	-1.08	.280	1.01
PT	6.49	1.41	.201	4.60	< .001	1.05	3.77	1.36	.123	2.77	.006	1.05
ECA	4.77	1.39	.151	3.43	.001	1.07	1.49	1.34	.050	1.11	.269	1.07
AFR	23.91	2.88	—	8.29	< .001	—	42.07	2.78	—	15.11	< .001	—

Note. *B* = Unstandardized Coefficient; *SE* = Standard Error; *β* = Standardized Coefficient. PT = Private Tuition, FS = Family Structure, ECA = Extracurricular Activities, AFR = Additional Family Responsibilities. *VIF* < 1.1 indicates no multicollinearity.

Discussion

The present study investigated a number of variables affecting adolescent mental health and anxiety in the secondary schools of Dhaka city. Correlational findings (Table 3) revealed that students with higher anxiety levels reported worse mental wellbeing, especially in the emotional and social domain, allying with previous studies (Izadinia et al., 2010). School-going adolescents are more vulnerable to psychological difficulties. Endless pressures like maintaining appearance, achieving good grades, and dealing with peer relationships can expand worry among students, affect their ability of regulating emotions, handling stress, and engaging in healthy social interactions (Tramonte & Willms, 2010). Additionally, strong positive intercorrelations among the three dimensions of wellbeing and overall mental health underlines the interconnected nature of mental health components.

This study found remarkable gender differences (Table 4). Male students showed significantly higher anxiety along with better mental health across emotional, social, and psychological domains compared to females. Although maximum studies report higher anxiety among females (Anjum et al., 2022; Alharbi et al., 2019; Bakhla et al., 2013), some prior studies support the current findings (Agarwal & Bahadur, 2023; Deb et al., 2010). In the socio-cultural context of Bangladesh, boys often go through heightened expectations and pressures regarding academic achievement, future career responsibilities, and family duties, while being discouraged from openly expressing emotional vulnerability (Streatfield et al., 2023). Cultural expectations around gender roles and support, as well as social desirability bias, may influence how boys answer questions on wellbeing. Table

4 also showed that adolescent students, coming from joint family environment, reported higher anxiety, but better emotional, social and psychological wellbeing with small-to-moderate effect sizes compared to those from nuclear family settings. Prior studies show that extended family contexts can pose stress as well as provide social-emotional protection (Fingerman, 2016). As adolescents living in joint families are frequently under crowdedness, lack of privacy, family pressure, overloaded roles and interpersonal conflict, they may experience higher anxiety. In contrast, sources of emotional support and bonding within such homes can potentially enhance mental health as adolescents from joint families hold greater social maturity, emotional stability, personal and interpersonal competency than those from nuclear families (Singh et al., 2014; Agarwal & Bahadur, 2023).

No significant difference was found for anxiety or mental health outcomes among students who receive private tutoring compared to those who did not receive such tutoring (Table 5). Since tutoring primarily focuses on academics, other factors like individual coping strategies, the school environment, and family support may be more important in determining mental wellbeing. In addition, participation in extracurricular activities (Table 5) was associated with better mental health but higher anxiety. While extracurricular involvement is beneficial for adolescents' personal growth, social interaction, and a feeling of accomplishment, excessive involvement or poor balance can lead to increase stress, burnout and reduced wellbeing due to additional responsibilities, performance pressure, and time management challenges, especially when academic demands are high (Fredricks, 2012; Mudunna et al., 2025). Findings also revealed that students with additional family duties reported considerably higher levels of anxiety, but better psychological wellbeing and overall mental health compared to students who did not have such commitments. These outcomes suggest that while added responsibilities might lead to stress, they can also foster resilience, maturity, and a sense of purpose (Castillo-Miñaca et al., 2025; Armstrong-Carter et al., 2025).

Significant variations with medium to large effects across class levels in all mental health outcomes were revealed in Table 6. The findings that Class 10 students reported lower anxiety, but also lower wellbeing compared to their junior peers (Table 7) make psychological sense within the academic and socio-cultural context of Bangladesh. Students of class 10 may face intense study load, long study hours, and higher self, parental and societal expectations as examinees of the upcoming public examination (SSC), which may lead them to suppress emotional expression, reduce engagement in enjoyable activities or become numbed by chronic stress, ultimately manifesting as lower reported anxiety but poorer wellbeing (Deb et al., 2015; Salmela-Aro & Upadyaya, 2014 Gross & John, 2003). Continuous academic pressure can desensitize physiological and emotional reactivity (Compas et al., 2017). Moreover, adolescents often experience transitional challenges like uncertainty about future education and career paths, which may diminish their wellbeing (Guo, 2025). However, these factors suggest that final-year students may not experience less stress, rather show signs of emotional suppression and fatigue that reduce their overall sense of wellbeing.

Table 8 demonstrates that perceived socioeconomic status had an impact on social and overall wellbeing. Mean scores revealed that students who perceived themselves as having a Low or Average background reported comparatively higher levels of social and overall well-being than those in the Very Low and High groups. Interestingly, individuals who rated themselves as having a Very High position showed the lowest mean scores on both social and overall wellbeing. This pattern supports evidence that income inequality and perceived social distance can affect wellbeing (Pickett & Wilkinson, 2015). Adolescents may feel more socially connected, who place themselves in the middle range (Low to Average). In contrast, those who perceive themselves at extremes Very Low or Very High) showed comparatively poor social or overall wellbeing, probably due to struggling with limited resources, social stigma or self-doubt at the lower end, and to experiencing greater social isolation, performance pressure, or reduced peer acceptance at the higher end.

Table 9 presents the significant pairwise comparisons for overall wellbeing, where differences were observed between Low vs. Average and Low vs. High SES groups. Though the overall ANOVA for social wellbeing was significant, the pairwise post-hoc comparisons did not reveal any significant differences due to several factors (Morse, 2023). First, the effect size for SWB was very small ($\eta^2 = .023$), indicating that the degree of the differences between SES groups were minimal. Second, the SES groups had unequal and very small sample sizes (e.g., Very Low: $n = 21$, Very High: $n = 10$), which can affect the statistical power of the post-hoc tests and may lead to less precise estimates of group means and increased variability, making it harder to detect significant differences. Third, running multiple pairwise comparisons increase the risk of Type I errors, and post-hoc adjustments to control this error can make it more challenging to detect pairwise statistically significant differences. Future research with larger and more balanced sample sizes may provide clearer insights into the impact of SES on wellbeing dimensions.

Multiple regression analyses showed that key socio-demographic factors explained 10.3% of the variance in students' anxiety and 7.8% in their mental wellbeing. Among the predictors, students' gender, participation in extracurricular activities, and additional family responsibilities significantly predicted anxiety levels. In contrast, students' gender, family structure, socio-economic status, and participation in extracurricular activities were significant predictors of mental wellbeing, while the remaining variables were non-significant. These results emphasize how essential the social and familial contexts of students are in shaping their emotional outcomes.

Although the study sheds light on important factors that influence school students' mental health, its cross-sectional design and dependence on self-reports limit the ability to draw conclusions about causality. Future research should adopt longitudinal design, and context-specific qualitative or mixed-method approaches to deepen understanding of adolescent mental health.

Funding

The present study is an ongoing segment of doctoral research that is supported by a grant from the Science and Technology Fellowship Trust (No. 39.09.0000.000.99 .11.23-96) awarded to Jannatul Ferdous.

References

Alharbi, R., Alsuhaibani, K., Almarshad, A., & Alyahya, A. (2019). Depression and anxiety among high school students at Qassim Region. *Journal of Family Medicine and Primary Care, 8*(2), 504–510. https://doi.org/10.4103/jfmpc.jfmpc_383_18

Agarwal, A., & Bahadur, A. (2023). Role of family structure on mental health of adolescents: A comparative study. *International Journal of Indian Psychology, 11*(2), 1571–1578. https://doi.org/10.25215/1102.165

Anjum, A., Hossain, S., Hasan, M. T., Uddin, M. E., & Sikder, M. T. (2022). Anxiety among urban, semi-urban and rural school adolescents in Dhaka, Bangladesh: Investigating prevalence and associated factors. *PLOS ONE, 17*(1), e0262716. https://doi.org/10.1371/journal.pone.0262716

Armstrong-Carter, E., Siskowski, C., Cornish, N. R., & Olson, E. (2025). Adolescents' caregiving for family: Associations with mental health and academic performance. *Journal of research on adolescence: the official journal of the Society for Research on Adolescence, 35*(3), e70045. https://doi.org/10.1111/jora.70045

Bakhla, A. K., Sinha, P., Sharan, R., Binay, Y., Verma, V., & Chaudhury, S. (2013). Anxiety in school students: Role of parenting and gender. *Industrial Psychiatry Journal, 22*(2), 131–137. https://doi.org/10.4103/0972-6748.132927

Beck, J.S., Beck, A.T., Jolly, J.B., & Steer, R.A. (2005). *Beck Youth Inventories Second Edition for Children and Adolescents manual.* San Antonio, TX: Psychological Corp.

Castillo-Miñaca, M. E., Mendoza-Gordillo, M. J., Ruilova, M., Yáñez-Sepúlveda, R., Gutiérrez-Espinoza, H., Olivares-Arancibia, J., Andrade, S., Ochoa-Avilés, A., Tárraga-López, P. J., & López-Gil, J. F. (2025). Is Involvement in Food Tasks Associated with Psychosocial Health in Adolescents? The EHDLA Study. *Nutrients, 17*(14), 2273. https://doi.org/10.3390/nu17142273

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences (2nd ed.).* Lawrence Erlbaum Associates.

Compas, B. E., Jaser, S. S., Bettis, A. H., Watson, K. H., Gruhn, M. A., Dunbar, J. P., Williams, E., & Thigpen, J. C. (2017). Coping, emotion regulation, and psychopathology in childhood and adolescence: A meta-analysis and narrative review. *Psychological Bulletin, 143*(9), 939-991. https://doi.org/10.1037/bul0000110

Costello, E. J., Mustillo, S., Erkanli, A., Keeler, G., & Angold, A. (2003). Prevalence and development of psychiatric disorders in childhood and adolescence. *Archives of General Psychiatry*, *60*(8), 837–844. https://doi.org/10.1001/archpsyc.60.8.837

Das, A., & Sajib, M. W. H. (2022). Proportion of mental health problems in adolescents in Bangladesh. *Bangladesh Journal of Psychiatry*, *36*(1), 1–5. https://doi.org/10.3329/bjpsy.v36i1.72232

Deb, S., Chatterjee, P., & Walsh, K. (2010). Anxiety among high school students in India: Comparisons across gender, school type, social strata & perceptions of quality time with parents. *Australian Journal of Educational and Developmental Psychology*, *10*, 18–31.

Deb, S., Strodl, E., & Sun, J. (2015). Academic stress, parental pressure, anxiety and mental health among Indian high school students. *International Journal of Psychology and Behavioral Sciences, 5*(1), 26–34. https://doi.org/10.5923/j.ijpbs.20150501.04

Fan, L., Zhang, Z., & Li, X. (2025). The influence of after-school tutoring on the mental health of middle school students: A mediating effect test based on sleep deprivation and academic performance. *PLOS ONE, 20*(4), e0321048. https://doi.org/10.1371/journal.pone.0321048

Fingerman, K. L. (2016). *Extended family and mental health*. In H. Friedman (Ed.), Encyclopedia of mental health (2nd ed., Vol. 2, pp. 120–125). Elsevier. https://doi.org/10.1016/B978-0-12-397045-9.00133-7

Fredricks J. A. (2012). Extracurricular participation and academic outcomes: testing the over-scheduling hypothesis. *Journal of Youth and Adolescence*, *41*(3), 295–306. https://doi.org/10.1007/s10964-011-9704-0

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*(2), 348–362. https://doi.org/10.1037/0022-3514.85.2.348

Guo, L. (2025). Navigating the future: Factors influencing adolescents' career expectation uncertainty in a dynamic world. *Career Development Quarterly, 73*(1), 1–17. https://doi.org/10.1002/cdq.12372

Hiramoni, F. A., & Ahmed, O. (2022). Reliability and validity assessment of the Mental Health Continuum–Short Form for Bangladeshi adults. *Heliyon, 8*(1), e08814. https://doi.org/10.1016/j.heliyon.2022.e08814

Islam, M. S., Rahman, M. E., Moonajilin, M. S., & van Os, J. (2021). Prevalence of depression, anxiety and associated factors among school-going adolescents in Bangladesh: Findings from a cross-sectional study. *PLOS ONE*, *16*(4), e0247898.

Izadinia, N., Amiri, M., Ghorban Jahromi, R., & Hamidi, S. (2010). A study of relationship between suicidal ideas, depression, anxiety, resiliency, daily stresses and mental health among Tehran university students. *Procedia - Social and Behavioral Sciences*, *5*, 1615–1619. https://doi.org/10.1016/j.sbspro.2010.07.335

Karim, M. R., Haque, M., Choudhury, S. S., Kabir, R., Khan, S., Munni, M. N., Karim, A. M. M. N., & Khan, M. A. S. (2025). Anxiety and its associated factors among high school adolescents in a rural area of Bangladesh. *Journal of child and adolescent mental health,* 1–16. https://doi.org/10.2989/17280583.2025.2547887

Keyes, C. L. M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior*, *43*(2), 207–222. https://doi.org/10.2307/3090197

Keyes, C. L. M. (2005). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology*, *73*(3), 539–548. https://doi.org/10.1037/0022-006X.73.3.539

Keyes, C. L., Wissing, M., Potgieter, J. P., Temane, M., Kruger, A., & van Rooy, S. (2008). Evaluation of the mental health continuum-short form (MHC-SF) in setswana-speaking South Africans. *Clinical Psychology & Psychotherapy*, *15*(3), 181–192. https://doi.org/10.1002/cpp.572

Khan, M. M. A., & Khan, M. N. (2020). Effects of psychosocial and socio-environmental factors on anxiety disorder among adolescents in Bangladesh. *Brain and behavior, 10*(12), e01899. https://doi.org/10.1002/brb3.1899

Kim, T., Jang, H., & Kim, J. (2022). Peers' private tutoring and adolescent depressive symptoms: Quasi-experimental evidence from secondary schools in South Korea. *Journal of Adolescent Health, 70*(4), 658–665. https://doi.org/10.1016/j.jadohealth.2021.10.040

Kline, R.B. (2011). *Principles and practice of structural equation modeling* (5th ed., pp. 3-427). New York: The Guilford Press.

Malak, M. Z., & Khalifeh, A. H. (2017). Anxiety and depression among school students in Jordan: Prevalence, risk factors, and predictors. *Perspectives in Psychiatric Care*, *53*(4), 258–265. https://doi.org/10.1111/ppc.12229

Morse, D. (2023). Re: What to do if the ANOVA results show significance but post hoc comparisons do not show any significant pairwise differences? [Online forum post]. ResearchGate. https://url-shortener.me/7Y5A

Mudunna, C., Weerasinghe, M., Tran, T., Antoniades, J., Romero, L., Chandradasa, M., & Fisher, J. (2025). Nature, prevalence and determinants of mental health problems experienced by adolescents in South Asia: A systematic review. *The Lancet Regional Health – Southeast Asia, 33,* 100532. https://doi.org/10.1016/j.lansea.2025.100532

Patel, V., Flisher, A. J., Hetrick, S., & McGorry, P. (2007). Mental health of young people: A global public-health challenge. *The Lancet*, *369*(9569), 1302–1313. https://doi.org/10.1016/S0140-6736(07)60368-7

Pickett, K. E., & Wilkinson, R. G. (2015). Income inequality and health: A causal review. *Social Science & Medicine, 128,* 316–326. https://doi.org/10.1016/j.socscimed.2014.12.031

Reiss, F., Meyrose, A.-K., Otto, C., Lampert, T., Klasen, F., & Ravens-Sieberer, U. (2019). Socioeconomic status, stressful life situations and mental health problems in children and adolescents: Results of the German BELLA cohort-study. *PLoS ONE*, *14*(3), e0213700. https://doi.org/10.1371/journal.pone.0213700

Salmela-Aro, K., & Upadyaya, K. (2014). School burnout and engagement in the context of demands-resources model. *The British journal of educational psychology, 84*(Pt 1), 137–151. https://doi.org/10.1111/bjep.12018

Sawyer, S. M., Afifi, R. A., Bearinger, L. H., Blakemore, S. J., Dick, B., Ezeh, A. C., & Patton, G. C. (2012). Adolescence: A foundation for future health. *The Lancet*, *379*(9826), 1630–1640. https://doi.org/10.1016/S0140-6736(12)60072-5

Singh, R., Pant, K., & Laitonjam, V. (2014). Impact analysis: Family structure on social and emotional maturity of adolescents. *The Anthropologist, 17*(2), 359–365. https://doi.org/10.1080/09720073.2014.11891445

Shaheen, S., & Shaheen, H. (2016). Emotional intelligence in relation to psychological well-being among students. *The International Journal of Indian Psychology, 3*(4), 115. https://doi.org/10.25215/0304.115

Streatfield, A. J., Rahman, M. M., Khan, S., Haider, M. M., Rahman, M., Nahar, Q., & Jamil, K. (2023). What shapes attitudes on gender roles among adolescents in Bangladesh. *Frontiers in Public Health, 11,* 1121858. https://doi.org/10.3389/fpubh.2023.1121858

Tabassum, N., Taherani, A., Tabassum, H., & Afzal, T. (2014). Social and psychological impacts of private tuition on students and their families in Pakistan. *Grassroots, XLVIII*(1), 17–28.

Tramonte, L., & Willms, D. (2010). The Prevalence of Anxiety Among Middle and Secondary School Students in Canada. *Canadian Journal of Public Health, 101*, S19–S22. http://www.jstor.org/stable/41995369

Uddin, M. K., Huque, A., & Shimul, A. M. (2011). Adaptation of the Beck Youth Inventories of Emotional and Social Impairment for use in Bangladesh. *The Dhaka University Journal of Psychology, 35,* 65–80.