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## Prevalence and comorbidity of anxiety and depression in adolescents: A healthcare setting experience

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### Abstract

**Background:** Adolescence is a critical developmental phase from ages 10 to 19, influencing lifestyle behaviors with lasting health implications. The World Health Organization identifies youth health risk behaviors (HRBs) like physical inactivity and emotional disorders, particularly anxiety and depression, which affect academic performance and quality of life. Comorbidity is common, with significant overlaps between anxiety, depression, and post-traumatic stress disorder, highlighting the need for tailored interventions across diverse populations.

**Aim of the study:** The study aims to investigate the prevalence and comorbidity of anxiety and depression in adolescents.

**Methods:** This cross-sectional study was conducted at the Department of Psychiatry, International Medical College and Hospital, Tongi, Gazipur, Bangladesh. It targeted 12-19-year-old adolescents over one year, enrolling 150 participants. Married adolescents were excluded from the study. Data were collected using a structured, pre-tested interview schedule. Informed consent was obtained from parents and assent from minors. Statistical analyses were performed using SPSS (V-26.0), with significance set at  $P < 0.05$ .

**Result:** The mean age is 17.48 years, and there is an almost equal gender distribution. The mean BMI was 24.14. Socioeconomic status showed 42.55% upper class, 35.64% middle class, and 21.82% lower class. Most participants (83.27%) were from urban areas. Personal and family histories of mental illness were minimal. Anxiety and depression were prevalent, with 55.33% having anxiety and 44.67% having depression. Substance-related and addictive disorders were the most common comorbidity (36%), followed by bipolar disorders (22%). Associations between these comorbidities and anxiety/depression were significant.

**Conclusion:** The study found high prevalence and comorbidity of anxiety (55.33%) and depression (44.67%) in 150 adolescents. Substance-related disorders were the most common comorbidity (36%). These findings highlight the need for improved mental health services and early interventions to address the complexity of adolescent mental health.

**Keywords:** Prevalence, comorbidity, anxiety, depression and adolescents

### Introduction

Adolescence represents a critical transitional phase between childhood and adulthood, playing a pivotal role in shaping lifestyle behaviors that can have significant implications for both immediate and long-term physical and mental health outcomes [1]. The World Health Organization (WHO) classifies adolescents as individuals aged 10 to 19 years [2]. During this developmental stage, adolescents often face various pressures, including academic demands, life challenges, and social interactions, which can predispose them to engage in health risk behaviors (HRBs) [3]. According to the WHO, youth HRBs encompass actions that pose direct, indirect, or potential threats to adolescents' current or future health. These behaviors include physical inactivity, unintentional injuries, and risky or unsafe activities. Additionally, the WHO identifies emotional disorders, particularly anxiety and depression, as leading contributors to illness and disability among adolescents worldwide [4]. Research suggests that approximately 10% of adolescents meet the diagnostic criteria for an anxiety disorder, while the one-year prevalence of depression among this age group is estimated to be around 5.6% [5]. The impact of these mental health disorders is profound, significantly

hindering academic performance, social relationships, and overall quality of life. Alarming, one in seven adolescents suffers from a mental health condition that frequently remains unrecognized and untreated [6]. The implications of untreated anxiety and depression are profound; they not only affect immediate well-being but also increase the risk of long-term mental health issues, including suicidal ideation and behavior [7]. Several factors are associated with a heightened risk of anxiety disorders, including younger age, female gender, low educational attainment, parental absence or unemployment, elevated levels of depression, and specific personality traits such as neuroticism and conscientiousness [8]. Research indicates a notable comorbidity between anxiety disorders and other mental health conditions [7]. For instance, a study identified a significant overlap between anxiety disorders and major depressive disorder [9]. Leyfer et al. (2013) found that 63% of participants experienced comorbid anxiety or mood disorders, supporting the notion that these conditions may share common genetic, biological, and psychosocial vulnerabilities [10]. Additionally, other studies have highlighted the co-occurrence of post-traumatic stress disorder with both anxiety and depression [11]. Several studies have identified predictors of anxiety disorders, including maternal anxiety and the overall emotional health of parents [12]. Interestingly, parental behaviors may not always directly influence children's anxiety levels; rather, children may develop anxiety disorders by modelling their parents' anxious behaviors [13]. It is important to note that these influencing factors may differ across various populations. Prevalence studies in anxiety disorder, as well as its predicting factors and its comorbid disorders, are important in evaluating the course of the disease over time. Despite the rising prevalence and increasing awareness of adolescent anxiety and depression, there remain significant gaps in access to mental health care, particularly in low- and middle-income countries. Early identification and intervention are crucial to preventing long-term consequences and promoting healthy psychological development in adolescents. Therefore, this study aims to investigate the prevalence and comorbidity of anxiety and depression in adolescents, highlighting the need for improved mental health services and supportive environments for this vulnerable population.

### Methodology & Materials

This cross-sectional study was conducted to investigate the prevalence and comorbidity of anxiety and depression in adolescents. It took place at the Department of Psychiatry in International Medical College and Hospital Tongi, Gazipur, Bangladesh, targeting adolescents between the ages of 12 and 19. The data was collected over one year from [10/10/23] to [10/10/24]. During the study period, 150 adolescents were enrolled and analyzed to find the prevalence of anxiety and depression. The study operated within the psychiatric consultations under a healthcare setting.

### Inclusion criteria

- Adolescents aged 12 to 19 years.
- Currently enrolled in school.
- Capable of providing informed consent.

### Exclusion criteria

- Married adolescents.
- Individuals were unable to communicate.

A structured interview schedule, developed based on a comprehensive review of the literature and expert opinions, was pre-tested and finalized for data collection. The schedule was designed to gather socio-demographic information and other relevant factors associated with anxiety disorders. Informed consent was obtained from parents, and assent was gathered from minor participants. Adolescents diagnosed with anxiety disorders were further assessed for functional impairment.

### Data analysis

All statistical analyses were performed using the statistical package for the social science (SPSS, V-26.0) program. All data were presented in a suitable table or graph according to their affinity. Categorical parameters compared by Chi-Square test. The significance of the results, as determined by a value of  $P < 0.05$ , was considered to be statistically significant.

### Result

A total of 150 adolescents participated in the study, with a mean age of 17.48 years ( $SD \pm 1.26$ ). Almost equal to half of the study population were male and female. The mean Body Mass Index (BMI) of the participants was 24.14 ( $SD \pm 3.12$ ). Regarding socioeconomic status, 234(42.55%) participants belonged to the upper class, 196(35.64%) to the middle class, and 120(21.82%) to the lower class. The majority of the participants resided in urban areas (83.27%), with only 16.73% from rural backgrounds (Table 1). Personal and family histories of mental illness were minimal; only 5 participants (0.91%) reported a personal history of mental illness, while 9 participants (1.64%) had a family history. The presence of chronic illness was also low, with only 8 participants (1.45%) reporting such conditions (Table 1). The prevalence of anxiety and depression among the participants was significant, with 83(55.33%) individuals diagnosed with anxiety disorders and 67(44.67%) individuals diagnosed with depressive disorders (Figure 1). As shown in Table 2, the most prevalent comorbidity was substance-related and addictive disorders, affecting 54(36.00%) participants. Other common comorbidities included bipolar and related disorders of 22.00%. The association between comorbid psychiatric conditions and the prevalence of anxiety and depressive disorders is shown in Table 3. The presence of substance-related and addictive disorders was significantly associated with both anxiety (40.96%) and depressive disorders (29.85%). Bipolar and related disorders were also frequently observed in both anxiety (18.07%) and depressive disorder groups (26.87%), though the association did not reach statistical significance ( $p=0.72$ ). Obsessive-compulsive disorder affected 10.84% of those with anxiety and 17.91% of those with depression, though this association was not statistically significant ( $p=0.38$ ). Trauma and stressor-related disorders were also more prevalent among those with depressive disorders (20.90%) compared to anxiety disorders (18.07%), though the difference was not statistically significant ( $p=0.65$ ). No significant association was found between neurodevelopmental disorders, somatic symptom disorders, sleep-wake disorders, and schizophrenia spectrum with either anxiety or depressive disorders (Table 3).

**Table 1:** Demographic profile of the study sample (N=150)

Variable	Frequency (n)	Percentage (%)
<b>Age range (in years)</b>		
10-14	83	35.33
15-19	67	30.67
Mean±SD	17.48 + 1.26	
<b>Gender</b>		
Male	74	49.33
Female	76	50.67
<b>BMI</b>		
Mean±SD	24.14 + 3.12	
<b>Socioeconomic Status</b>		
Upper class	64	42.67
Middle	53	35.33
Lower	33	22
<b>Residential area</b>		
Urban	125	83.33
Rural	25	16.67
<b>Personal H/O of any mental illness</b>		
Yes	2	1.33
No	148	98.67
<b>Family diagnosis of any mental illness</b>		
Yes	2	1.33
No	148	98.67
<b>Personal H/O of any chronic illness</b>		
Yes	2	1.33
No	148	98.67



**Fig 1:** Prevalence of psychiatric disorders

**Table 2:** Comorbidity of participants with anxiety and depressive disorders

Comorbid diagnosis	Frequency (n)	Percentage (%)
Obsessive compulsive disorder	21	14.00
Substance-related and addictive disorders	54	36.00
Bipolar and related disorders	33	22.00
Trauma and stressor-related disorders	29	19.33
Schizophrenia spectrum and other psychotic disorders	9	6.00
Somatic symptom and related disorders	9	6.00
Sleep-wake disorders	6	4.00
Neurodevelopmental disorders	4	2.67
Obsessive-compulsive and related disorders	4	2.67

**Table 3:** Association of comorbidities with anxiety and depression disorders

Variable	Anxiety (N=83)		Depressive (N=67)		Total	p value
	n	%	n	%		
Obsessive compulsive disorder	9	10.84	12	17.91	21	0.72
Substance-related and addictive disorders	34	40.96	20	29.85	54	0.031
Bipolar and related disorders	15	18.07	18	26.87	33	0.65
Trauma and stressor-related disorders	15	18.07	14	20.90	29	0.55

Schizophrenia spectrum and other psychotic disorders	3	3.61	6	8.96	9	0.91
Somatic symptom and related disorders	4	4.82	5	7.46	9	0.39
Sleep-wake disorders	3	3.61	3	4.48	6	0.45
Neurodevelopmental disorders	2	2.41	2	2.99	4	0.24
Obsessive-compulsive and related disorders	2	2.41	2	2.99	4	0.39

## Discussion

This study aimed to assess the prevalence and comorbidity of anxiety and depression among adolescents in a healthcare hospital, with a focus on sociodemographic factors and associated comorbidities. A total of 150 adolescents were analyzed, uncovering a complex relationship between various factors contributing to mental health challenges. Our study revealed that 50.67% of girls and 49.33% of boys experienced anxiety and depression, a gender distribution consistent with previous research showing that adolescent females are more likely to report these symptoms compared to males [14]. The mean age of participants was 17.48 years, with the largest group (35.33%) falling within the 10-14-year age range, suggesting that early adolescence is a critical period for the onset of mental health disorders. This finding aligns with other studies indicating that mental health issues often emerge during this developmental stage [14, 15]. Socioeconomic status was skewed towards the lower socioeconomic classes, with 22.00% of participants coming from the lowest income bracket, a factor known to correlate with higher rates of mental health disorders [16]. The majority of participants (83.33%) were from urban areas (Table 1), emphasizing the need for targeted mental health interventions in these settings, where stressors may be more concentrated [15, 17]. The study also highlighted the high prevalence of comorbid conditions, particularly between anxiety, depression, and substance use disorders, a trend that mirrors international literature [18]. This high level of comorbidity may be because of overlapping symptomatology between depressive and anxiety disorders [19]. Our findings suggest that in this psychiatric setting, anxiety disorders are rarely diagnosed in the absence of another psychiatric disorder. Our study also revealed significant rates of comorbidity, particularly with substance-related and addictive disorders (36.00%), which is alarming given the implications for treatment and recovery. Other comorbidities, such as obsessive-compulsive disorder (10.84% for anxiety and 17.91% for depression) and bipolar disorder (18.07% for anxiety and 26.87% for depression), exhibited no significant differences between groups. These trends indicate that both anxiety and depressive disorders often coexist with other psychiatric conditions, emphasizing the complexity of mental health issues in adolescents and the necessity for comprehensive assessment and treatment [20]. Our study also found a small proportion of adolescents with trauma- and stressor-related disorders (18.07% in anxiety and 20.90% in depression). The absence of a statistically significant difference ( $p=0.65$ ) suggests that while these conditions are frequently co-occurring, the levels of trauma exposure may not differentiate significantly between the two disorders, consistent with findings from other study [21].

**Limitations of the study:** The study on the prevalence and comorbidity of anxiety and depression in adolescents has several limitations; its cross-sectional design precludes establishing causality between observed factors and mental health outcomes. The reliance on self-reported data for psychiatric diagnoses and histories can introduce bias and

inaccuracies. Additionally, the lack of longitudinal follow-up limits understanding of the long-term impacts and progression of these disorders.

## Conclusion and Recommendations

The study revealed significant prevalence and comorbidity of anxiety and depression among 150 adolescents, with 55.33% diagnosed with anxiety and 44.67% with depression. Substance-related and addictive disorders were the most common comorbidity, affecting 36% of participants. These comorbidities were significantly associated with both anxiety and depression, highlighting the complexity of adolescent mental health. The findings underscore the urgent need for improved mental health services and early intervention to address the intertwined nature of these conditions and their impact on adolescents' overall well-being.

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