ORIGINAL ARTICLE https://doi.org/10.3329/jmcwh.v22i1.86883

FACTORS INFLUENCING THE PSYCHOLOGICAL WELLBEING OF ADOLESCENT GIRLS IN COASTAL BANGLADESH: A CROSS-SECTIONAL STUDY

Rubayath Sarmin[1], Rahnuma Raihan Shuchi[2], Khadiza Akter[3], Zahra Mustafiz Antora[2], Trifa Obayed[3], Mohammad Nurunnabi[4*]

OPEN ACCESS

Reviewed by

Monowar Ahmad Tarafdar
Diabetic Association Medical College Bangladesh

Fouzia Ibrahim
Saic College of Medical Science and Technology, Dhaka, Bangladesh.

*** Corespondence:**
Mohammad Nurunnabi
Email: nur.somch@gmail.com,
orcid id: https://orcid.org/0000-0001-9472-9369

Received: 04.01.2026.
Accepted: 20.01.2026
Published: January 2026

Cite this article:
Sarmin R, Shuchi RR, Akter K, Antora ZM, Obayed T, Nurunnabi M.Factors influencing the Psychological Wellbeing of Adolescent Girls in Coastal Bangladesh: A Cross-Sectional Study. J Med Coll Women Hosp.2026; 22(1): 1377-148.

ABSTRACT

Background: Psychological wellbeing during adolescence is influenced by socio-demographic, menstrual, and environmental factors. Adolescents in coastal regions of Bangladesh are frequently exposed to natural disasters, which may further affect their wellbeing. **Aim:** This study aimed to assess the factors influencing psychological wellbeing among adolescent girls in a coastal district of Bangladesh. **Materials and Method:** A descriptive cross-sectional study was conducted from January to December 2023 among 307 adolescent girls (classes 9–12) from three secondary schools and one college in Jhalokathi district, Bangladesh. Data were collected using a pre-tested semi-structured questionnaire, including socio-demographic information, menstrual history, and Ryff's 42-item Psychological Well-Being Scale. **Results:** Most participants were aged 14–15 years (57.7%) and practiced Islam (85.3%). The majority had secondary education or below (82.1%) and lived in nuclear families (86.3%). Floods were the most commonly experienced disaster (85.3%), with most adolescents staying at home (87.0%). Mean psychological wellbeing scores were highest for self-acceptance (29.9±4.8) and lowest for purpose in life (25.8±5.4). Menstrual characteristics and symptoms were prevalent, with 73.0% reporting regular cycles and 79.2% experiencing abdominal pain. Regular menstrual cycles and absence of fatigue were significantly associated with higher autonomy (p=0.019, p=0.003). Younger age, staying at home during disasters, sanitary pad use, and certain menstrual symptoms were linked to higher environmental mastery and personal growth. Positive relations and self-acceptance were significantly influenced by menstrual regularity, menstrual flow, and family income (p<0.05). **Conclusion:** Psychological wellbeing among adolescent girls in coastal Bangladesh is influenced by age, menstrual characteristics, menstrual hygiene practices, socio-economic status, and disaster exposure.

Keywords: Adolescent girls, Psychological wellbeing, Ryff scale, Coastal Bangladesh, Menstrual health, Natural disasters, Bangladesh.

INTRODUCTION

Adolescence, the transitional period between childhood and adulthood, is a pivotal stage for establishing physical, emotional, and social wellbeing[1,2]. During this phase, individuals experience rapid biological changes alongside evolving social roles, which profoundly influence their psychological health and future life outcomes.

1 Department of Maternal and Child Health, National Institute of Preventive and Social Medicine, Dhaka, Bangladesh.
2 Department of Population Dynamics, National Institute of Preventive and Social Medicine, Dhaka, Bangladesh.
3 Department of Maternal and Child Health, National Institute of Preventive and Social Medicine, Dhaka, Bangladesh.
4* Department of Community Medicine and Public Health, Sylhet Women's Medical College, Sylhet 3100, Bangladesh. Email: nur.somch@gmail.com,
Orcid id: https://orcid.org/0000-0001-9472-9369 **[Address of Correspondence]**

Globally, mental health conditions contribute significantly to the disease burden among young people: an estimated one in seven adolescents aged 10–19 years experiences a mental disorder, accounting for a substantial portion of morbidity in this population group[1,3]. The World Health Organization (WHO) emphasizes that adolescence is a critical window for intervention, as mental health challenges during this period can impact education, relationships, and overall development if left unaddressed [1,4].

Psychological wellbeing is a broader construct than the absence of mental illness; it encompasses positive functioning across multiple dimensions of life, including autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. These dimensions, articulated in Ryff's multidimensional model, reflect an individual's capacity to navigate life challenges, maintain meaningful relationships, and pursue personal goals; factors essential for resilience and long-term health[5].Psychological wellbeing during adolescence is associated with adaptive coping, academic success, and reduced risk of behavioural problems, highlighting its importance beyond clinical measures of mental health [6].

In low- and middle-income countries, including Bangladesh, adolescents face a complex interplay of socio-economic stressors and environmental risks that can compromise psychological wellbeing. Studies among school-aged youth in Bangladesh indicate high prevalence of emotional and behavioral problems linked to demographic and psychosocial factors, with girls often showing greater vulnerability to stress and depressive symptoms[7,8]. Evidence also points to the detrimental effects of traumatic exposures, particularly natural disasters on the mental health of children and adolescents. Bangladesh is among the countries most vulnerable to climate-related hazards such as floods, cyclones, and coastal erosion, with recurrent disasters disrupting lives, livelihoods, and communities [9,10]. Systematic reviews of post-disaster studies in Bangladesh show elevated levels of depression, anxiety, stress, post-traumatic stress disorder, and other psychological distress in affected populations, underscoring the pervasive impact of environmental adversity on mental health [9].

Qualitative research among adolescents exposed to flooding in Bangladesh reports high prevalence of psychological distress, including depressive symptoms and post-traumatic stress, particularly among girls, suggesting gendered vulnerabilities in disaster contexts[11]. Such findings align with global evidence that environmental stressors exacerbate mental health challenges among youth and can undermine developmental trajectories during adolescence[12]. Despite these insights, limited research has examined how socio-demographic factors, disaster exposure, and biological experiences such as menstrual health intersect to influence comprehensive psychological wellbeing among adolescent girls in coastal settings of Bangladesh.

Menstrual health is a crucial component of adolescent girls' reproductive health, may also intersect with psychological wellbeing. Menarche and menstrual-related symptoms can affect daily functioning, self-esteem, and social participation, particularly in contexts where menstrual hygiene resources are limited and stigma persists[13]. However, the relationship between menstrual health characteristics and multidimensional psychological wellbeing remains under-explored in disaster-prone low-resource settings such as coastal Bangladesh.

Understanding the determinants of psychological wellbeing in this population is crucial for informing adolescent health policies and interventions that are responsive to contextual influences, including environmental adversity, socio-

economic constraints, and gender-specific health needs. This study aims to address these gaps by investigating the factors influencing psychological wellbeing among adolescent girls in a coastal district of Bangladesh, using Ryff's multidimensional framework as a comprehensive measure of wellbeing.

METHODS AND MATERIALS

Study design and setting

A descriptive cross-sectional study was conducted from January to December 2023 to determine the factors influencing the psychological wellbeing among adolescent girls studying in classes 9 to 12 in a coastal district of Bangladesh. The study was carried out in three secondary schools named Horochandro Government Girls' High School, Sugandha Pouro Adarsha Girls' High School, and Jebunnesa Girls' High School and one college named Jhalokathi Government College, all located in Sadar Upazila of Jhalokathi district, Bangladesh.

Study population and sampling methods

The study population comprised adolescent girls enrolled in classes 9 to 12 in the selected institutions. Girls who were willing to participate were included, while those with diagnosed psychological illness or unwilling to participate were excluded. Study sites were selected purposively, and participants were recruited using convenience sampling.

The sample size was calculated using the formula $n=z^2pq/d^2$, assuming a prevalence of psychological well-being of 64%, a 95% confidence level, and a 5% margin of error. After adding 10% for potential non-response[14], the estimated sample size was 389. Due to time and logistical constraints, a total of 307 respondents were ultimately included in the analysis.

Data collection procedures

Data were collected through face-to-face interviews using a pre-tested semi-structured questionnaire. The questionnaire was developed based on an extensive literature review and aligned with the study objectives. It consisted of three sections: socio-demographic characteristics, Ryff's Psychological Well-Being Scale (42-item version)[15], and menstrual history and psychological well-being–related information.

Ryff's Psychological Well-Being Scale assesses six domains: autonomy, environmental mastery, personal growth, positive relations, purpose in life, and self-acceptance. Responses were recorded on a six-point Likert scale ranging from "strongly disagree" to "strongly agree." Negative items were reverse-scored, and higher scores indicated better psychological well-being.

Data analysis

Data were checked for completeness and consistency, coded, and analyzed by using IBM SPSS Statistics for Windows, Version 26.0 (IBM Corp., Armonk, NY). Descriptive statistics such as mean, standard deviation and percent were computed for continuous variables of the participants. Chi-square test and Fisher exact test were used to assess the significance of associations between two nominal variables, and a P-value of <0.05 at a 95% confidence interval was taken as significant.

Ethical considerations

Written informed consent was obtained from all participants, with voluntary participation and strict confidentiality ensured. Ethical approval was granted by the Institutional Review Board of the National Institute of Preventive and Social Medicine (NIPSOM), Bangladesh (Reference: NIPSOM/IRB/2023/06).

RESULTS

Table 1 shows majority were aged 14-15 years (57.7%) and practiced Islam (85.3%). Most had secondary education or below (82.1%). Parental education was fairly balanced, with about half of fathers

(50.2%) and mothers (54.4%) having secondary education or below. Most adolescents lived in nuclear families (86.3%). Fathers were mainly businessmen (39.4%) or service holders (29.1%), while the vast majority of mothers were homemakers (90.6%). Over half of the families (56.7%) had a monthly income below 20,000 Taka.

Table 2 shows the most commonly stated natural disaster was flood, experienced by 85.3% of respondents, followed by cyclone (9.4%) and coastal erosion (5.2%). During these natural disasters, the majority of adolescents (87.0%) stayed in their own houses, while a small proportion took shelter in cyclone centers (4.2%) or other safe places (8.8%).

Figure 1 presents the distribution of respondents according to their psychological wellbeing across six dimensions. The highest mean score was observed in self-acceptance (29.9±4.8), followed closely by autonomy (29.7±5.1) and positive relations (28.9±5.3). The lowest mean score was found in Purpose in Life (25.8±5.4).

Table 3 shows the age of menarche ranged from 10 to 15 years, with 53.7% experiencing menarche between 10–12 years and 46.3% between 13–15 years. The duration of menstrual bleeding was predominantly 3–5 days (89.9%). The majority reported medium menstrual flow (81.4%), while 14.3% experienced heavy flow and 4.2% scanty flow. Regarding cycle regularity, 73.0% had regular menstrual cycles, and 27.0% reported irregular cycles. Concerning menstrual hygiene, 75.9% used sanitary pads, whereas 24.1% used cloth pieces. Physical discomfort during menstruation was common, with abdominal pain reported by 79.2% of participants, excessive bleeding by 9.8%, breast heaviness by 2.6%, and other complaints by 16.6% (multiple responses allowed). Psychological symptoms were also prevalent during menstruation, with fatigue (37.8%) and mood swings (29.6%) being the most commonly reported. Other symptoms included depression (9.1%), difficulty in concentration (7.8%), irritability (7.5%), and various other symptoms (9.4%).

Table 4 interprets the regularity of the menstrual cycle was significantly associated with autonomy (p=0.019), with adolescents having regular cycles more likely to report high autonomy (53.6%) compared to those with irregular cycles (38.6%). Similarly, experiencing fatigue during menstruation was also significantly associated with autonomy (p=0.003), with adolescents who reported fatigue more likely to have low autonomy (61.2%) than those without fatigue (44.0%).

Table 5 of the study examined factors influencing adolescents' environmental mastery and personal growth. Younger adolescents (14–15 years) reported significantly higher environmental mastery (55.4%) and personal growth (55.4%) compared to older adolescents (16–18 years) (p=0.017 and p=0.003, respectively). Adolescents who stayed in cyclone centers during natural disasters had lower environmental mastery (15.4%) and personal growth (15.4%) than those who stayed at home or other safe places (p=0.037 and p=0.019). Menstrual-related psychological symptoms, such as mood swings and depression, were significantly associated with lower environmental mastery (p=0.003 and p=0.020), while menstrual hygiene practices influenced personal growth, with sanitary pad users reporting higher scores than those using cloth pieces (p=0.021). Interestingly, adolescents experiencing breast heaviness during menstruation had higher personal growth (87.5%) compared to those without this symptom (p=0.024).

Table 6 of the study also examined factors influencing adolescents' positive relations and self-acceptance. Adolescents with regular menstrual cycles were more likely to report high positive relations (51.3%) compared to those with irregular cycles (36.1%) (p=0.025). For self-acceptance, monthly family income and the nature of menstrual blood flow were significant determinants. Adolescents from higher-income families (>40,000 Taka) had higher self-acceptance (62.5%) compared to those from lower-income families (p=0.038), and those with scanty menstrual flow reported higher self-acceptance (69.2%) than those with heavy flow (29.5%) (p=0.015).

Table 1: Socio-demographic characteristics of the adolescents (N=307)

Characteristics	Categories	Frequency (n)	Percent (%)
Age groups (in years)	14-15	177	57.7
	16-18	130	42.3
Religion	Islam	262	85.3
	Hinduism	45	14.7
Educational status	Secondary and below	252	82.1
	Higher secondary and above	55	17.9
Father's education	Secondary and below	154	50.2
	Higher secondary and above	153	49.8
Mother's education	Secondary and below	167	54.4
	Higher secondary and above	140	45.6
Types of family	Nuclear	265	86.3
	Joint	42	13.7
Father's occupation	Businessmen	121	39.4
	Service holders	89	29.1
	Day laborers	46	15.0
	Agricultural workers	29	9.4
	Others	22	7.2
Mother's occupation	Homemakers	278	90.6
	Service holders	29	9.4
Monthly family income (in Taka)	<20,000	174	56.7
	20,000-40,000	93	30.3
	>40,000	40	13.0

N=total number of participants

Table 2: Exposure to natural disasters and sheltering behavior of respondents (N=307)

Attributes	Categories	Frequency (n)	Percent (%)
Common natural disaster	Flood	262	85.3
	Cyclone	29	9.4
	Coastal erosion	16	5.2
Stay during the time of natural disaster	Own house	267	87.0
	Cyclone center	13	4.2
	Other (any safe place)	27	8.8

N=total number of participants

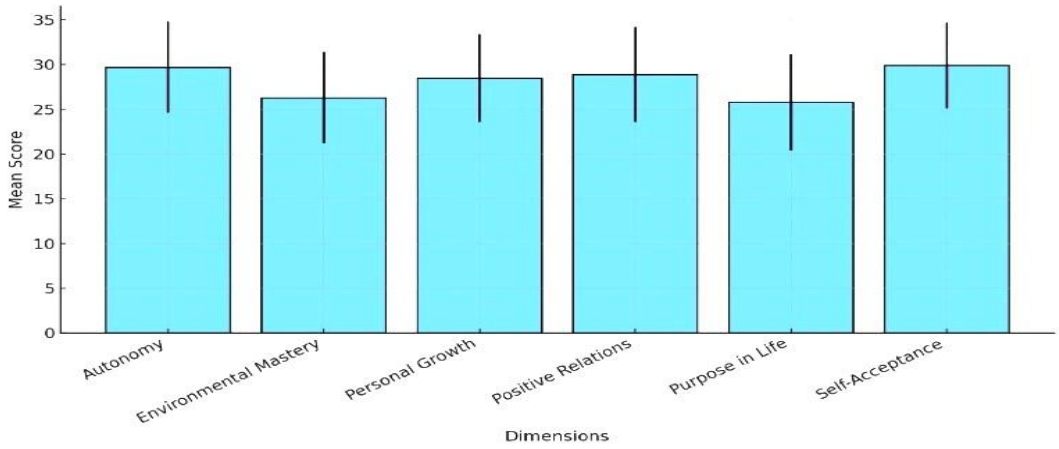

Figure 1: Distribution of the respondents according to their psychological wellbeing (N=307)

Table 3: Menstrual history and psychological wellbeing of the respondents (N=307)

Characteristics	Categories	Frequency (n)	Percent (%)
Age of menarche (in years)	10-12	165	53.7
	13-15	142	46.3
Duration of menstrual bleeding (in days)	<3	13	4.2
	3-5	276	89.9
	>5	18	5.9
Nature of menstrual blood flow	Heavy	44	14.3
	Medium	250	81.4
	Scanty	13	4.2
Regularity of menstrual cycle	Regular	224	73.0
	Irregular	83	27.0
Protective materials used during menstruation	Sanitary pad	233	75.9
	Cloth pieces	74	24.1
Experiences of physical discomfort during menstruation	Abdominal pain	243	79.2
	Excessive bleeding	30	9.8
	Breast heaviness	8	2.6
	Others	51	16.6
			*Multiple responses
Experiences of psychological symptoms during menstruation	Fatigue	116	37.8
	Mood swing	91	29.6
	Depression	28	9.1
	Difficulty in concentration	24	7.8
	Irritability	23	7.5
	Others	29	9.4
			*Multiple responses

N=total number of participants

Table 4: Factors influencing respondents' autonomy (N=307)

Factors	Categories	n	Autonomy		χ^2 value	*p*-value
			Low	High		
			x(%)	x(%)		
Age groups (in years)	14-15	177	83(46.9)	94(53.1)	2.162	0.141
	16-18	130	72(55.4)	58(44.6)		
Educational status	Secondary & below	252	128 (50.8)	124 (49.2)	0.041	0.840
	Higher secondary & above	55	27 (49.1)	28 (50.9)		
Father's education	Secondary & below	154	78 (50.6)	76 (49.4)	0.003	0.954
	Higher secondary & above	153	77 (50.3)	76 (49.7)		
Mother's education	Secondary & below	167	84 (50.3)	83 (49.7)	0.001	0.977
	Higher secondary & above	140	71 (50.7)	69 (49.3)		
Types of family	Nuclear	265	134 (50.6)	131 (49.4)	0.009	0.925
	Joint	42	21 (50.0)	21 (50.0)		
Monthly family income (in Taka)	<20,000	174	95(54.6)	79(45.4)	2.843	0.241
	20,000-40,000	93	41(44.1)	52(55.9)		
	>40,000	40	19(47.5)	21(52.5)		
Age of menarche (in years)	10-12	165	83 (50.3)	82 (49.7)	0.006	0.939
	13-15	142	72 (50.7)	70 (49.3)		
Nature of menstrual blood flow	Heavy	44	22 (50.0)	22 (50.0)	0.011	0.995
	Medium	250	126 (50.4)	124 (49.6)		
	Scanty	13	7 (53.8)	6 (46.2)		
Regularity of menstrual cycle	Regular	224	104(46.4)	120(53.6)	5.463	**0.019***
	Irregular	83	51(61.4)	32(38.6)		
Fatigue during menstruation	Yes	116	71(61.2)	45(38.8)	8.569	**0.003***
	No	191	84(44.0)	107(56.0)		

Chi-squaretest done, $p<0.05$ is considered as statistically significant value.N=total number of participants;n=number of participants in each catagory according to different characteristics;x=participants in each autonomy level

Table 5: Factors influencing respondents' environmental mastery, and personal growth (N=307)

Factors	Categories	n	Environmental mastery		χ^2 value	*p*-value
			Low	High		
			x(%)	x(%)		
Age groups (in years)	14-15	177	79(44.6)	98(55.4)	5.734	**0.017***
	16-18	130	76(58.5)	54(41.5)		
Stay during the time of natural disaster	Own house	267	132(49.4)	135(50.6)	6.569	**0.037***
	Cyclone center	13	11(84.6)	2(15.4)		

Factors	Categories	n	Environmental mastery		χ2 value	*p*-value
			Low	High		
			x(%)	x(%)		
	Any safe place	27	12(44.4)	15(55.6)		
Age of menarche (in years)	10-12	165	91(55.2)	74(44.8)	3.103	0.078
	13-15	142	64(45.1)	78(54.9)		
Mood swing during menstruation	Yes	91	58(63.7)	33(36.3)	9.080	**0.003***
	No	216	97(44.9)	119(55.1)		
Depression during menstruation	Yes	28	20(71.4)	8(28.6)	5.404	**0.020***
	No	279	135(48.4)	144(51.6)		
			Personal growth			
			Low	**High**		
Age groups (in years)	14-15	177	79(44.6)	98(55.4)	8.580	**0.003***
	16-18	130	80(61.5)	50(38.5)		
Stay during the time of natural disaster	Own house	267	138(51.7)	129(48.3)	7.965	**0.019***
	Cyclone center	13	11(84.6)	2(15.4)		
	Any safe place	27	10(37.0)	17(63.0)		
Protective materials used during menstruation	Sanitary pad	233	112(48.1)	121(51.9)	5.366	**0.021***
	Cloth pieces	74	47(63.5)	27(36.5)		
Breast heaviness during menstrual cycle	Yes	8	1(12.5)	7(87.5)	5.079	**0.024***
	No	299	158(52.8)	141(47.2)		

Chi-squaretest done, $p<0.05$ is considered as statistically significant value.N=total number of participants;n=number of participants in each catagory according to different characteristics;x=participants in each environmental mastery level

Table 6: Factors influencing respondents' positive relations and self-acceptance (N=307)

Factors	Categories	n	Positive relations		χ2 value	*p*-value
			Low	High		
Age groups (in years)	14-15	177	87(49.2)	90(50.8)	2.193	0.139
	16-18	130	75(57.7)	55(42.3)		
Regularity of menstrual cycle	Regular	224	109 (48.7)	115 (51.3)	5.021	**0.025***
	Irregular	83	53 (63.9)	30 (36.1)		
			Self-acceptance			
			Low	**High**		
Monthly family income (in Taka)	<20,000	174	90(51.7)	84(48.3)	6.527	**0.038***
	20,000-40,000	93	57(61.3)	36(38.7)		
	>40,000	40	15(37.5)	25(62.5)		
Nature of menstrual blood flow	Heavy	44	31(70.5)	13(29.5)	8.435	**0.015***
	Medium	250	127(50.8)	123(49.2)		
	Scanty	13	4(30.8)	9(69.2)		

Chi-squaretest done, $p<0.05$ is considered as statistically significant value.N=total number of participants;n=number of participants in each catagory according to different characteristics;

DISCUSSION

This study examined psychological wellbeing among adolescent girls in a coastal district of Bangladesh and identified key socio-demographic, environmental, and menstrual factors influencing wellbeing. The majorities of participants were aged 14-15 years and lived in nuclear families with moderate parental education and low-to-middle family income. These findings are consistent with previous studies in South Asia reporting that early adolescents from nuclear families are a predominant school-going population and that socio-economic status influences adolescent development [7,16,17].

Exposure to natural disasters was high, with floods affecting 85.3% of participants. Most adolescents stayed at home during disasters, which may reflect limited access to cyclone shelters or family support. Studies in Bangladesh and the Asia-Pacific region similarly highlight the high prevalence of disaster exposure among adolescents and its potential negative impact on mental health [11,18,19].

In terms of psychological wellbeing, self-acceptance, autonomy, and positive relations scored highest, while purpose in life was lowest. Comparable studies using Ryff's scale in adolescents indicate that self-acceptance often remains relatively high, whereas long-term goal orientation and purpose in life are more vulnerable to environmental stressors [6].

Menstrual characteristics significantly influenced wellbeing. Regular cycles were associated with higher autonomy and positive relations, whereas menstrual symptoms such as fatigue and mood swings were linked to lower environmental mastery and personal growth. Sanitary pad use correlated with higher personal growth, and higher family income was associated with greater self-acceptance. These results align with prior research showing that menstrual health, hygiene practices, and socio-economic conditions are critical determinants of adolescent psychological outcomes [8,13,20-22].

Younger adolescents demonstrated higher environmental mastery and personal growth than older participants, suggesting that developmental stage may modulate resilience in response to stressors, consistent with findings from similar school-based studies[23-25]. The study highlights that adolescent wellbeing in coastal Bangladesh is shaped by interplay of biological, socio-economic, and environmental factors, reinforcing the need for integrated interventions addressing menstrual health, disaster preparedness, and psychosocial support.

CONCLUSION

The study demonstrates that psychological wellbeing among adolescent girls in coastal Bangladesh is influenced by a combination of socio-demographic factors, menstrual characteristics, and exposure to natural disasters. Regular menstrual cycles, good menstrual hygiene, younger age, and higher family income were associated with higher scores across multiple dimensions of wellbeing, including autonomy, environmental mastery, personal growth, positive relations, and self-acceptance. Conversely, menstrual-related symptoms, irregular cycles, and disaster exposure were linked to lower wellbeing, particularly in environmental mastery and purpose in life. These findings highlight the multifactorial nature of adolescent psychological wellbeing and the vulnerability of girls in disaster-prone coastal regions.

RECOMMENDATIONS

To enhance psychological wellbeing among adolescent girls in coastal Bangladesh, school- and community-based programs should be implemented to promote menstrual health education and ensure access to sanitary products. Psychosocial support and resilience-building interventions are essential, particularly for those exposed to natural disasters. Mental health awareness and wellbeing promotion should be integrated into secondary school curricula, while family and community engagement should be encouraged to support adolescents' emotional and psychological development. Further longitudinal research is recommended to explore causal relationships and inform targeted interventions for this vulnerable population.

AUTHORS' CONTRIBUTION

Concepts, methods and literature reviews: Sarmin R; Data collection: Sarmin R; Statistical analysis: Sarmin R, and Nurunnabi M; Draft manuscript: Sarmin R, Shuchi RR, Akter K, Antora ZM, Obayed T, Nurunnabi M. All the authors work and approved the final manuscript.

ACKNOWLEDGEMENTS

We thank the study team and participants for their contribution of the study.

FINANCIAL DISCLOSURE

The author(s) received no specific funding for this work.

CONFLICT OF INTEREST

There is no conflict of interest.

REFERENCES

1. Adolescent health [Internet]. Geneva: WHO; 2025. Available from: https://www.who.int/health-topics/adolescent-health. [(Accessed on July 12, 2025)]

2. Nurunnabi M, Akash MMF, Khan FA, Begum A. Constraints in Implementing Adolescent Friendly Health Services in Bangladesh: Health System Aspects from the Service Providers. J Armed Forces Med Coll. 2025;21(2):59-66. doi: 10.3329/jafmc.v21i2.84083

3. Mental health statistics: one in seven adolescents experiences mental disorders [Internet]. New York: UNICEF; 2025. Available from: https://data.unicef.org/topic/child-health/mental-health[(Accessed on July 12, 2025)]

4. Nurunnabi M, Tarafdar MA, Begum A, Jahan S, Islam AFMR. Adolescent Suicide and Suicidal Behavior: A Review. ZH Shikder Women's Med Coll J. 2021;3(2):38-42.doi: 10.47648/zhswmcj.2021.v0302.08

5. Ryff CD, Keyes CLM. The structure of psychological well-being revisited. J Pers Soc Psychol. 1995;69(4):719–27.

6. Viejo C, Gomez-Lopez M, Ortega-Ruiz R. Adolescents' Psychological Well-Being: A Multidimensional Measure. Int J Environ Res Public Health. 2018;15(10):2325. doi: 10.3390/ijerph15102325.

7. Al-Mamun F, Islam J, Muhit M, Mamun MA. Prevalence of emotional and behavioral problems among adolescents in Bangladesh. Soc Psychiatry Psychiatr Epidemiol. 2024;59(12):2215-2225. doi: 10.1007/s00127-024-02673-7.

8. Rezvi MR, Bulbul Tonmoy MS, Khan B. The mental health of adolescents following the COVID-19 pandemic in Bangladesh. Asian J Psychiatr. 2022;78:103309. doi: 10.1016/j.ajp.2022.103309

9. Karim MZ, Al-Mamun M, Eva MA, Ali MH, Kalam A, Uzzal NI,et al. Understanding mental health challenges and associated risk factors of post-natural disasters in Bangladesh: a systematic review. Front. Psychol. 2024;15:1466722. doi: 10.3389/fpsyg.2024.1466722

10. Absar TU, Nurunnabi M, Haque MA, Begum A. Long Acting Reversible Contraceptive Practices among Mothers in Coastal Areas of Bangladesh. JChittagong Med Coll Teachers' Assoc. 2025;36(1):164-170.doi: 10.3329/jcmcta.v36i1.86217

11. Siddik MA, Munmun MS, Ahmed Z, Nabil K, Mubin N. Climate change, natural disasters, and mental health of adolescents: A qualitative study from Bangladesh. Int J Psychol Stud. 2024;10(2):61-70. doi: 10.36922/ijps.0339

12. Youth Risk Behavior Surveillance: United States, 2023. Atlanta: CDC; 2023.Available from:https://www.cdc.gov/mmwr/volumes/73/su/pdfs/su7304-H.pdf [(Accessed on July 12, 2025)]

13. Palattiyil G, Limon MT, Mowla SM, Kadery RM, Mitra DK, Rahman H, et al. Sexual and reproductive health needs, knowledge, access, and barriers to services among Rohingya adolescent refugee girls in Cox's Bazar, Bangladesh. Soc Sci. 2025;14(9):532. doi:10.3390/socsci14090532.

14. Asadi M, Fathi K. Predicting psychological wellbeing from mindfulness and resiliency among adolescents. Preventive Counseling. 2020;1(1):13-22.

15. Ryff CD. Psychological well-being revisited: Advances in the science and practice of eudaimonia. Psychother Psychosom. 2013;83(1):10-28. doi: 10.1159/000353263

16. Anjum A, Hossain S, Hasan MT, Christopher E, Uddin ME, Sikder MT. Stress symptoms and associated factors among adolescents in Dhaka, Bangladesh: findings from a cross-sectional study. BMC psychiatry. 2022;22(1):807. doi: 10.1186/s12888-022-04340-0.

17. Anjum A, Hossain S, Hasan MT, Uddin ME, Sikder MT. Anxiety among urban, semi-urban and rural school adolescents in Dhaka, Bangladesh: Investigating prevalence and associated factors. PLoS One. 2022;17(1):e0262716. doi: 10.1371/journal.pone.0262716

18. Hossain A, Alam MJ, Haque MR. Effects of riverbank erosion on mental health of the affected people in Bangladesh. Plos one. 2021;16(7):e0254782. doi: 10.1371/journal.pone.0254782

19. Arobi S, Naher J, Soron TR. Impact of river bank erosion on mental health and coping capacity in Bangladesh. Glob. Psychiatry Arch.

2019;2(02):195-200. doi: 10.2478/gp-2019-0011

20. Hasan M, Hassan MN, Mita MH, Zahara FT, Hasib M. Menstrual hygiene practices and school absenteeism among adolescent girls in Bangladesh: a cross-sectional study. Popul. Med. 2021;3(March):1-8. doi: 10.18332/popmed/133641

21. Sinharoy SS, Chery L, Patrick M, Conrad A, Ramaswamy A, Stephen A, et al. Prevalence of heavy menstrual bleeding and associations with physical health and wellbeing in low-income and middle-income countries: a multinational cross-sectional study. Lancet Glob Health. 2023;11(11):e1775-84.doi: 10.1016/S2214-109X(23)00416-3

22. Akter M, Sujan MS, Uddin MR, Kundu LR. Menstrual irregularity and mental health problems among Bangladeshi adolescent girls: Prevalence and associated factors of mental health problems and menstrual irregularity among Bangladeshi adolescent girls. Health Prospect. 2024;23(3):18-25.doi:10.3126/hprospect.v2023i3.61168

23. Ustundag A. The mediating effect of adolescents' emotional regulation strategies on their psychological resilience. Psychology in the Schools. 2024;61(12):4569-88. doi: 10.1002/pits.23300

24. Zammuner VL. Adolescents' coping strategies influence their psychosocial well-being. Curr. J. Appl. Sci. Technol.. 2019;36(3):1-7. doi: 10.9734/cjast/2019/v36i330232

25. Al-Amer R, Dwekat E, Ali A, Abuzied Y, Alzahrani NS, Alhowaymel FM, et al. Prevalence of stress and types of coping strategies among adolescents (14-18 years) in collectivist communities. J. Pediatr. Nurs. 2024;77:e290-7. doi: 10.1016/j.pedn.2024.04.043