Journal of Midwifery and Nursing, 7 (2) (2025) pp. 309-316

Published by: IOCSCIENCE

Journal of Midwifery and Nursing

Journal homepage: www.iocscience.org/ejournal/index.php/JMN

Preparing health promotion behavior among adolescents at selected upazila in Bangladesh

Md. Tarequl Islam[1], Tumpa Gharami[2], Halima Akter[3]

[1]Department of General Surgery, General Hospital Barishal, Barishal-8200, Bangladesh

[2,3]Department of Graduate Nursing, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka-100, Bangladesh

ARTICLE INFO

Article history:

Received Jan 28, 2025
Revised Feb 17, 2025
Accepted May 28, 2025

Keywords:

Adolescents;
Behavior;
Bangladesh;
Promotion.

ABSTRACT

Background: Health promotion behaviors are essential in shaping lifelong health habits among adolescents. In Bangladesh, adolescents encounter various health challenges, yet limited research exists on their health-promoting behaviors. Aim: This study investigated the health promotion behaviors of adolescents in Bangladesh.Methods: A cross-sectional study was conducted among 103 adolescents aged 12–18 years in Bangladesh. Participants were recruited using a convenient sampling method. Data were collected using a structured questionnaire designed to assess health behaviors and analyzed using SPSS version 26. Both descriptive and inferential statistical methods were applied.Results: The mean age of the participants was 15.12 years (SD = 0.771). The findings revealed significant relationships between health promotion behaviors and several demographic factors: mothers' education level ($F = 4.264$, $p = 0.003$), fathers' education level ($F = 12.011$, $p = 0.000$), fathers' occupation ($F = 6.455$, $p = 0.002$), sources of health information ($F = 4.814$, $p = 0.004$), and family type ($t = 2.212$, $p = 0.029$). Conclusion: The study highlights significant associations between demographic characteristics and health promotion behaviors among adolescents in Bangladesh. To enhance these behaviors, interventions focusing on parental involvement, peer education, and better access to recreational facilities are recommended. Policymakers and health educators should prioritize these areas to improve health outcomes in this critical age group.

Corresponding Author:

Md. Tarequl Islam,
Department of General Surgery,
General Hospital Barishal,
144 Hospital Road, Kotwali Sadar, Barishal, 8200, Bangladesh
Email: tarequl009522@gmail.com

1. Introduction

Health-promoting behaviors are pivotal for enhancing overall well-being and fostering a proactive approach to disease prevention (Caron, Noel, Reed, Sibel, & Smith, 2024). These behaviors encompass a spectrum of activities, including maintaining a balanced diet, engaging in regular physical exercise, managing stress effectively, and avoiding harmful substances such as tobacco and alcohol (Wang, Ou, Chen, & Duan, 2009). By adopting these practices, individuals not only enhance their personal health outcomes but also contribute to broader public health goals, such as reducing the economic burden associated with preventable diseases (Mo & Winnie, 2010). Adolescence, as a transitional phase marked by rapid physical, emotional, and cognitive development, presents a unique window of opportunity to

instill health-promoting behaviors that can serve as a foundation for lifelong health and well-being (World Health Organization, 2020).

Adolescence is a critical period for establishing habits that influence long-term health outcomes (Raphael, 2013). The adoption of health-promoting behaviors during this stage is particularly vital for minimizing the risk of chronic illnesses, including heart disease, diabetes, and obesity. Regular physical activity, for example, is strongly recommended by the World Health Organization (WHO), which advocates for at least 60 minutes of moderate to vigorous exercise daily. Such activity not only improves physical fitness but also enhances cognitive function, emotional resilience, and social connectedness (World Health Organization, 2020). Despite these benefits, over 80% of adolescents globally fail to meet these physical activity guidelines, with marked disparities in participation based on gender, socioeconomic status, and geography (Centers for Disease Control and Prevention., 2021).

Dietary habits during adolescence also play a critical role in shaping long-term health (Hantira, Khalil, Saati, Ahmed, & Kassem, 2023). Unfortunately, many adolescents exhibit dietary patterns that deviate significantly from nutritional guidelines. High consumption of processed foods, sugary beverages, and snacks, coupled with inadequate intake of fruits and vegetables, has contributed to an increased prevalence of diet-related chronic conditions, including obesity and metabolic syndrome (Story et al., 2002). Insufficient health education and awareness can hinder individuals from adopting practices that could enhance their well-being (Glanz, Rimer, & Viswanath, 2008). Addressing these dietary shortcomings is essential for fostering healthier communities and reducing healthcare costs.

Mental health constitutes another vital dimension of adolescent well-being, deeply interconnected with physical health and social functioning (World Health Organization, 2024). Adolescents often navigate unique stressors such as academic pressures, peer relationships, and identity formation challenges (Orben, Tomova, & Blakemore, 2020). Engaging in mental health-promoting activities, including mindfulness practices, seeking social support, and participating in stress management programs, is essential for fostering emotional resilience and reducing the prevalence of mental health conditions like anxiety and depression (American Psychological Association, 2021). Despite the recognized importance of mental health, many adolescents face significant barriers in accessing appropriate resources. Limited availability of mental health services, cultural stigmas, and a lack of awareness about mental health practices exacerbate the crisis in this age group (Patton et al., 2016). A multifaceted approach that integrates education, community-based interventions, and healthcare reforms is essential for addressing these challenges effectively.

In Bangladesh, the promotion of health-promoting behaviors among adolescents holds particular significance, given the socio-economic and cultural dynamics. Adolescents form a substantial proportion of the population (Ministry of Woman and Child Affairs, 2020), and their health behaviors have profound implications for the nation's overall public health trajectory. However, research indicates that many Bangladeshi adolescents exhibit low levels of engagement in activities such as physical exercise, balanced nutrition, and preventive healthcare practices (Pokharel & Bajracharya, 2024). Barriers to adopting health-promoting behaviors in Bangladesh include limited access to recreational facilities, insufficient health education, economic constraints, and deeply entrenched cultural norms (Islam, 2014). For instance, girls often face additional barriers to physical activity due to societal expectations and safety concerns, further widening the gender gap in health outcomes (Sallis, Owen, & Fisher, 2015). Similarly, dietary choices among adolescents are often influenced by economic limitations, which restrict access to diverse and nutritious foods.

This study aimed to examine the level of engagement in health-promoting behaviors among adolescents in Bangladesh, including physical activity, dietary habits, and mental health practices. In addition, it tried to identify the key barriers preventing adolescents from adopting and maintaining these behaviors. Moreover, this study assessed the role of social, economic, and cultural factors in shaping adolescent health behaviors. Lastly. It proposed effective intervention strategies to enhance health-promoting behaviors among Bangladeshi adolescents.

It is expected that the findings will reveal a low engagement in health-promoting behaviors among adolescents, with significant variations based on gender, socioeconomic status, and

geographical location. The study anticipates identifying key structural and socio-cultural barriers to adopting healthy practices. Furthermore, the research is expected to highlight the importance of targeted interventions, including school-based health education, community awareness programs, and policy initiatives aimed at improving adolescent health outcomes in Bangladesh.

2. Methods

A descriptive cross-sectional study design was conducted from April 2024 to September 2024 to assess health-promoting behaviors among adolescents in a selected Upazila in Bangladesh. The study targeted secondary school students, specifically those attending Mahmudjan Model Maddhyamik Bidyaloy in Muladi, Barishal, as its accessible population. Out of a total of 778 students, 103 participants were conveniently selected based on inclusion criteria: students aged 12–16 years, currently enrolled in the school, and available during the interview. The sample size was calculated using G*Power 3.1.9.2, adhering to a significance level (α) of 0.05, an expected power of 0.80 (1-β), and an effect size of 0.30, resulting in an initial sample size of 82. To account for a 20% attrition rate, the final sample size was adjusted to 103.

Data were collected using a structured questionnaire that included two parts: a socio-demographic questionnaire and the Adolescent Health Promotion Scale (AHPS). The socio-demographic questionnaire contained 15 items capturing students' personal information, including age, sex, parental education and employment status, and family income. The AHPS, comprising 34 items across six subscales—nutrition, social support, health responsibility, life appreciation, exercise, and stress management—measured health-promoting behaviors using a five-point Likert scale (1 = never to 5 = always) (Chen, Wang, Yang, & Liou, 2003). A higher mean score indicated a higher level of health-promoting behaviors. Content validity was confirmed by three experts at Bangabandhu Sheikh Mujib Medical University. The instrument, originally in English, was translated into Bengali for accessibility and cultural relevance.

Data collection followed ethical guidelines, obtaining approval from the Institutional Review Board (IRB) of Sher-e-Bangla Medical College, Barishal. Permissions were secured from the school, and informed consent was obtained from participants and their guardians. A self-reported process was employed, ensuring voluntary participation and confidentiality. Participants were informed about the study's objectives, benefits, and their rights to withdraw without explanation. Data were analyzed using SPSS v.26, employing descriptive statistics (e.g., frequency, percentage, mean, and standard deviation) and inferential statistics (one-way ANOVA, Pearson correlation, and t-tests) to evaluate health-promoting behaviors. Statistical significance was set at a p-value < 0.05.

3. Results and Discussion

Table 1.
Socio-demographic profile of the participants (N=103)

Variables	Categories	n	%	Mean±SD
Age (14 to 16 years)				15.12±.771
Gender	Boy	60	58.3%	
	Girl	42	40.8%	
Class	Nine	68	66%	
	Ten	35	34%	
Staying with	Both parents	99	96.1%	
	Single parents	1	1%	
	Grandparents	2	1.9%	
	Relatives	1	1%	
Religion	Muslim	101	98.1%	
	Non-Muslim	2	1.9%	
Mothers' Education Level	Primary	77	74.8%	
	Secondary	14	13.6%	
	Higher Secondary	2	1.9%	

Variables	Categories	n	%	Mean±SD
	Bachelor Degree	6	5.8%	
	Master degree	4	3.9%	
Mothers' Occupation	Service holder	8	7.8%	
	Worker	6	5.8%	
	Housewife	89	86.4%	
	Primary	74	71.8%	
	Secondary	13	12.6%	
	Higher	4	3.9%	
Fathers' Education Level	Secondary			
	Bachelor degree	8	7.8%	
	Master degree	4	3.9	
	Service Holder	12	11.7%	
Fathers' Occupation	Worker	86	83.5%	
	Businessman	5	4.9%	
Monthly income (10000 to 100000) BDT*				30582±14319.549
Family type	Nuclear	94	91.3%	
	Joint	9	8.7%	
Residential Area	Rural	85	82.5%	
	Urban	18	17.5%	
Number of sibling(2 to 5) person				2.76±.822
Number of family member (3 to 7) person				4.82±.926
Sources of information	TV	5	4.9%	
	Internet	87	84.5%	
	Social media	6	5.8%	
	Newspaper Book	5	4.9%	

**BDT= Bangladeshi Taka*
Source: Authors own data

In the Table 1, the socio-demographic profile of the study participants reveals that the majority were aged between 14 and 16 years, with a mean age of 15.12 years (SD = 0.771). Among the participants, 58.3% were boys, and 40.8% were girls. Most students were in grade nine (66%), and nearly all (96.1%) resided with both parents. The predominant religion was Islam, with 98.1% identifying as Muslim. Mothers of the participants were primarily housewives (86.4%), with most having only a primary education (74.8%). Fathers were mainly workers (83.5%), with a significant portion having a primary education (71.8%). The average monthly family income was BDT 30,582 (SD = 14,319.549). In terms of family structure, 91.3% of the participants came from nuclear families, while the remaining 8.7% belonged to joint families. The majority lived in rural areas (82.5%), with an average of 2.76 siblings (SD = 0.822) and a family size of 4.82 members (SD = 0.926). Television and traditional print media were less prominent as sources of health information, with only 4.9% relying on each. In contrast, internet usage was overwhelmingly dominant, reported by 84.5% of participants as their primary source of information, followed by social media (5.8%).

Table 2.
Mean of subscales of health promotion behavior among adolescents

Subscales	Mean±SD
Mean of Nutrition	4.265±.287

Mean of Social support	3.9±.441
Mean of Health responsibility	3.91±309
Mean of appreciation for life	4.004±.314
Mean of Physical exercise	3.947±.535
Mean of Stress management	4.082±.395
Total Mean	136.55±7.335
Mean of total mean	4.016±.216

Source: Authors own data

The analysis of the subscales of health-promoting behaviors among adolescents in the Table 2 reveals varying levels of engagement across different domains. The highest mean score was observed for nutrition (4.265 ± 0.287), indicating that participants prioritized healthy eating habits. Stress management also showed a relatively high mean score (4.082 ± 0.395), suggesting effective coping mechanisms among the adolescents. Appreciation for life (4.004 ± 0.314) and physical exercise (3.947 ± 0.535) reflected moderate engagement, highlighting areas where consistent improvement could be encouraged. Social support (3.9 ± 0.441) and health responsibility (3.91 ± 0.309) were also moderately rated, underscoring the importance of fostering a supportive environment and personal accountability for health. The total mean score for health-promoting behaviors was 136.55 ± 7.335, with a mean of the total mean at 4.016 ± 0.216, indicating an overall positive inclination towards health promotion.

Table 3.
Demonstration of relationship between socio-demographic characteristics and health promotion behavior among the participants (N=103).

Variables	Categories	Mean±SD	t/f/r	p
Age (14- 16) years			-.085	.396
Gender	Boy	136.17±7.305	-.685	.495
	Girl	137.2±7.511		
Class	Nine	137.14±7.915	1.189	.238
	Ten	135.46±6.050		
Staying with	Both parents	136.45±7.364	.768	.514
	Single parents	134		
	Grandparents	144±7.071		
	Relatives	134		
Religion	Muslim	136.85±6.896	1.235	.432
	Non-muslim	122±16.971		
Mothers' Education Level	Primary	137.10±4.833[a]	4.264	.003
	Secondary	132.07±9.934[b]		e> a> d> c
	Higher Secondary	130±.000[c]		
	Bachelor Degree	133.5±17.073[d]		
	Master degree	146.25±8.18[e]		
Mothers' Occupation	Service holder	136.38±14.774	1.448	.240
	Worker	131.67±7.118		
	Housewife	136.91±6.329		
Fathers' Education Level	Primary	137.26±5.051[a]	12.011	.000
	Secondary	130.08±10.275[b]		e>a>c>e>d
	Higher Secondary	134.5±3.317[c]		
	Bachelor degree	131.88±8.306[d]		
	Master degree	152.75±4.856[e]		
Fathers' Occupation	Service holder	140.58±12.824[a]	6.455	.002
	Worker	136.38±5.508[b]		a>b>c
	Businessman	127.20±11.367[c]		
Monthly income (10000 to 100000) BDT			.031	.757
Family type	Nuclear	136.91±6.801[a]	2.212	.029
	Joint	131.33±11.068[b]		a>b
Residential Area	Rural	136.23±6.453	-.702	.491

Variables	Categories	Mean±SD	t/f/r	p
	Urban	138.06±10.619		
Number of sibling (2 to 5 person)			-.166	.097
Number of family member (3 to 7 person)			-.119	.238
Sources of information	TV	141.4±6.768[a]	4.814	.004
	Internet	136.68±5.987[b]		a>d>b>c
	Social media	126.83±4.792[c]		
	Newspaper Book	138.6±19.047[d]		

Source: Authors own data

In the Table 3, the relationship between socio-demographic characteristics and health-promoting behaviors among the participants demonstrated several significant associations. Notably, maternal and paternal education levels were strongly linked to health promotion behaviors. Adolescents whose mothers had a master's degree exhibited the highest mean score (146.25 ± 8.18), followed by those with primary-educated mothers (137.10 ± 4.833), indicating a potential influence of maternal education on adolescents' health awareness and behaviors (p = .003). Similarly, paternal education showed a pronounced impact, with the highest mean scores observed for fathers with master's degrees (152.75 ± 4.856), significantly higher than for other education levels (p = .000). Paternal occupation was also significantly associated with health promotion behaviors (p = .002). Adolescents with fathers in service-related roles demonstrated the highest mean score (140.58 ± 12.824), followed by those whose fathers were workers (136.38 ± 5.508) and businessmen (127.20 ± 11.367). Family type further influenced health behaviors, with nuclear families (136.91 ± 6.801) scoring higher than joint families (131.33 ± 11.068, p = .029). Sources of information were another critical factor influencing health behaviors (p = .004). Participants who relied on television scored the highest (141.4 ± 6.768), followed by those using newspapers or books (138.6 ± 19.047). Adolescents using the internet had moderate scores (136.68 ± 5.987), while those dependent on social media had the lowest scores (126.83 ± 4.792). Conversely, other variables, including gender, class, residential area, and monthly income, showed no statistically significant relationship with health promotion behaviors.

This study employed a descriptive cross-sectional design to investigate health promotion behaviors among adolescents in a selected school within an Upazila in Bangladesh. This chapter outlines the socio-demographic characteristics of the participants, their health promotion behavior scores, and the relationship between these socio-demographic factors and health promotion behaviors.

Socio-Demographic Profile

The socio-demographic characteristics of the participants reveal important insights into their backgrounds. The mean age of the participants was 15.12 years (SD = 0.771), with an age range of 14 to 16 years. A majority of the participants were boys (58.3%), which is inconsistent with the findings of (Torres et al., 2022) where the majority of participants were female (61.7%) with a mean age of 16.73 years (SD = 1.02). Similarly, the present study's findings differ from (Koirala, Lopchan, & Bajracharya, 2020), where the mean age was 14.84 years (SD = 0.75) and the male proportion was 51.7%. Moreover, 91.3% of participants in this study belonged to nuclear families, which is significantly higher than the 56.2% reported by (Ghimire, Aryal, & Upadhyay, 2024)These variations highlight the influence of cultural and geographical factors on adolescent demographics.

Health Promotion Behavior Scale

The overall mean score of health promotion behavior among the participants was 136.55 (SD = 7.335). This is notably higher compared to the findings of (Ghimire et al., 2024) who reported an overall mean of 68.12 (SD = 8.847). Similarly, (Koirala et al., 2020)found a total mean score of 78.95 (SD = 12.20). In contrast, the study by (Swaminathan, Boratne, Patil, & Sankaran, 2020) reported a higher mean score of 147.78 (SD = 20.59) for adolescent health promotion behavior. These discrepancies may be attributed to differences in study populations, cultural contexts, and the instruments used to measure health promotion behavior. The present study's findings suggest that adolescents in the current context exhibit a moderate to high level of engagement in health-promoting behaviors.

Relationship Between Socio-Demographic Profile and Health Promotion Behavior

The relationship between socio-demographic characteristics and health promotion behavior highlights several significant associations. Maternal education level was significantly associated with health promotion behavior ($F = 4.264$, $p = 0.003$), supporting findings by prior studies (Ghimire et al., 2024; Pokharel & Bajracharya, 2024), who also reported significant associations. However, these findings contrast with studies by (Khadka, Sharma, & Gautam, 2020; Koirala et al., 2020) , which found no significant association.

A highly significant relationship was also observed between paternal education level and health promotion behavior ($F = 12.011$, $p = 0.000$), consistent with the findings of (Pokharel & Bajracharya, 2024). However, this contrasts with studies by (Ghimire et al., 2024; Khadka et al., 2020; Koirala et al., 2020), which found no such association. Similarly, paternal occupation showed a significant relationship with health promotion behavior ($F = 6.455$, $p = 0.002$), aligning with previous findings by (Pokharel & Bajracharya, 2024) though inconsistent with other studies that reported no significant association (Ghimire et al., 2024; Khadka et al., 2020; Koirala et al., 2020).

Family type was another significant factor influencing health promotion behavior ($t = 2.212$, $p = 0.029$), with nuclear families showing higher scores. This finding diverges from studies by (Ghimire et al., 2024; Khadka et al., 2020; Koirala et al., 2020), which reported no significant associations. Additionally, a significant relationship was found between sources of information and health promotion behavior ($F = 4.814$, $p = 0.004$). This aligns with (Koirala et al., 2020) who demonstrated significant associations between health promotion behavior and sources such as teachers, family members, newspapers, and the internet.

Overall, these findings emphasize the importance of parental education, family structure, and information sources in shaping adolescents' health promotion behaviors. The observed discrepancies with other studies underscore the need for further research to explore contextual factors and validate these associations across different populations.

4. Conclusion

This study explored health promotion behaviors among adolescents in a selected school in an Upazila in Bangladesh using a descriptive cross-sectional design. The findings revealed that the majority of the participants were boys, with a mean age of 15.12 years, and most belonged to nuclear families. The overall mean score for health promotion behaviors was 136.55, indicating a moderate level of engagement in health-promoting activities.

Significant relationships were observed between certain socio-demographic characteristics and health promotion behaviors. Notably, mothers' and fathers' education levels, fathers' occupations, family type, and sources of information showed statistically significant associations with adolescents' health promotion behaviors. These findings underscore the influence of parental education and occupation, family structure, and accessible information sources on adolescents' health practices.

The study contributes valuable insights into the socio-demographic factors affecting adolescent health behaviors in the Bangladeshi context. It highlights the need for targeted interventions to enhance health promotion behaviors, particularly through parental education and diverse, reliable information channels. Further research is recommended to explore these relationships in broader and more diverse populations, ensuring the development of inclusive strategies to improve adolescent health outcomes; however, several limitations should be acknowledged. The study's findings may have limited generalizability as data were collected from a single school, which may not fully represent the diverse socio-economic and cultural backgrounds of adolescents across Bangladesh. Additionally, the cross-sectional design restricts the ability to establish causal relationships between socio-demographic factors and health-promoting behaviors. The reliance on self-reported data introduces the potential for recall and social desirability biases, which may affect the accuracy of responses. Furthermore, the sample consisted predominantly of boys, limiting the understanding of gender-specific differences in health behaviors. The study also did not consider other influential factors such as household income, peer influence, or school environment, which may play a crucial role in shaping adolescent health behaviors. Lastly, while the study identified sources of health-related information as significant, it did

not assess the quality or accuracy of the information received by adolescents. Future research should address these limitations by incorporating larger, more diverse samples, using longitudinal approaches, and integrating qualitative insights to better understand the complexities of adolescent health behaviors.

Acknowledgement

The administration and staff of Mahmudjan Model Maddhyamik Bidyaloy in Muladi, Barishal, Rajdhani Nursing College, Barishal, and Universal Nursing College, Dhaka are greatly appreciated by the authors for their friendly assistance in getting this study finished on schedule.

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