e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2026; 18(3); 1207-1212

Original Research Article

Prevalence of Health Problems among Adolescents in a Suburban Government School of Durgapur, India: A Cross-Sectional Study

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Received: 01-12-2025 / Revised: 15-01-2026 / Accepted: 21-02-2026

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Conflict of interest: Nil

Abstract

Background: Adolescence is a critical developmental period marked by rapid physical, psychological, and social changes. Despite being considered a relatively healthy phase, adolescents are vulnerable to nutritional disorders, menstrual health problems, and lifestyle-related risk behaviors. This study was done to assess the prevalence of common health problems among adolescents studying in a suburban government higher secondary school in Malandighi, Durgapur, West Bengal.

Methods: A school-based cross-sectional study was conducted in March 2025 among 180 adolescents aged 15–17 years (100 boys and 80 girls). Data were collected using a pretested semi-structured questionnaire covering sociodemographic characteristics, general health complaints, menstrual problems, and risk behaviors. Anthropometric measurements were recorded to calculate Body Mass Index (BMI), and blood pressure was measured using standard procedures. Data were analyzed using descriptive statistics and expressed as frequencies and percentages.

Results: More than half (52.2%) of adolescents had normal BMI, while 41.1% were underweight and 6.7% were obese. Hypertension was observed in 1.7% of participants and was associated with overweight/obesity. Sleep disturbances (23.3%) and frequent headaches (20.0%) were the most common general health complaints. Among girls, 70.0% reported premenstrual symptoms and 60.0% reported dysmenorrhea, with 25.0% experiencing school absenteeism due to menstrual problems. Among boys, 12.0% reported smoking and 10.0% reported alcohol consumption.

Conclusion: A substantial proportion of adolescents in this suburban government school experienced nutritional problems, menstrual health issues, and emerging lifestyle-related risk behaviors. Strengthening school-based health screening and health education programs is essential to promote healthy adolescent development.

Keywords: Adolescents; Nutritional status; menstrual problems; Risk behaviors; School health; Hypertension.

DOI: 10.25258/ijcpr.18.3.193

Introduction

Adolescence represents a critical transitional phase between childhood and adulthood, characterized by rapid physical growth, sexual maturation, psychological development, and evolving social roles. The World Health Organization (WHO) defines adolescents as individuals aged 10–19 years, a group that constitutes a substantial proportion of the global population [1].

India alone is home to one of the largest adolescent populations in the world, accounting for nearly one-fifth of its total population, thereby making adolescent health a major public health priority [2].

Although adolescence is often perceived as a relatively healthy stage of life, it is during this period that many health-related behaviors are initiated or consolidated, which can significantly influence health outcomes in adulthood [3]. Nutritional problems such as undernutrition, overweight, and obesity commonly emerge during adolescence due to unhealthy dietary habits, physical inactivity, and changing lifestyles.

These nutritional imbalances are associated with early onset of non-communicable diseases such as hypertension and future cardiovascular disorders.

[4,5].Adolescent girls face additional health challenges related to menstruation, including dysmenorrhea and premenstrual symptoms, which can adversely affect school attendance, academic performance, and overall quality of life [6]. Despite their high prevalence, menstrual health problems often remain underreported due to sociocultural taboos, lack of awareness, and limited access to adolescent-friendly health services [7].

Risk-taking behaviors such as tobacco use and alcohol consumption frequently begin during adolescence, particularly among boys. These behaviors are influenced by peer pressure, family environment, media exposure, and socioeconomic factors [8]. Early initiation of smoking and alcohol use increases the risk of addiction and long-term health consequences, highlighting the need for early preventive interventions [9].

Schools provide an ideal setting for assessing adolescent health problems, as they allow access to a large and relatively stable population. School-based health studies play a crucial role in identifying prevalent health issues and risk behaviors at an early stage, thereby facilitating timely interventions and policy planning [10]. However, there is limited data focusing on adolescents studying in government schools in suburban areas, where socioeconomic and environmental factors may uniquely influence health outcomes.

The present study was therefore undertaken to assess the prevalence of common health problems among adolescents studying in a suburban government higher secondary school in Malandighi, Durgapur. The findings aim to provide insight into the nutritional status, menstrual health issues, and lifestyle-related risk behaviors among adolescents, thereby contributing evidence for strengthening school health programs and adolescent health services.

Material and Methods

The present school-based cross-sectional study was conducted over a period of two weeks in March 2025 at a Government Higher Secondary School located in Malandighi, sub urbal area of Durgapur, West Bengal. The study aimed to assess the prevalence of common health problems among adolescents, with special emphasis on nutritional disorders, cardiovascular risk factors, menstrual health issues, lifestyle-related risk behaviors, and other self-reported morbidities. Students studying in classes 9th, 10th, and 11th were included in the study. A total of 180 adolescents aged 15–17 years participated, comprising 100 boys and 80 girls. Students who were present during the study period and willing to participate were enrolled after obtaining informed consent. Prior permission was obtained from the school authorities before commencement of the study.

Data were collected through face-to-face interviews using a pretested semi-structured questionnaire. The questionnaire included information on sociodemographic profile, dietary habits, personal hygiene practices, physical activity patterns, sleep habits, and lifestyle-related risk behaviors such as tobacco smoking and alcohol consumption. Information regarding common health complaints including headache, visual problems, recurrent abdominal pain, respiratory symptoms, skin problems, dental problems, and sleep disturbances was also recorded. Female students were additionally assessed for menstrual health problems, including dysmenorrhea, premenstrual symptoms, menstrual irregularities, and school absenteeism related to menstruation.

Anthropometric measurements were recorded using standardized methodology as recommended by the World Health Organization. Height and weight were measured using calibrated instruments, and Body Mass Index (BMI) was calculated using the formula BMI = weight (kg)/height (m^2). Based on BMI values, students were categorized as underweight, normal, or overweight/obese according to age-appropriate criteria to assess nutritional status.

Blood pressure was measured using an automated digital sphygmomanometer after the participant had rested for at least five minutes in a seated position. Two readings were taken and the average was recorded. Blood pressure status was classified as normal, pre-hypertensive, or hypertensive according to standard age-specific guidelines. The collected data were compiled, coded, and entered into Microsoft Excel and analysis was done in SPSS software version 20.0. Descriptive statistical methods were applied, and results were expressed in terms of frequencies and percentages. Confidentiality of the participants was strictly maintained throughout the study.

Results

A total of 180 adolescents aged 15–17 years were included in the study. As shown in table 1, 100 (55.6%) of them were boys and 80 (44.4%) were girls. The majority of students were aged 16 years (37.8%), followed by 15 years (32.2%) and 17 years (30.0%). There was no statistically significant association between age and sex distribution ($p = 0.70$).

Table 1: Distribution of Study Participants by Age and Sex (n = 180)

Age (years)	Boys (n=100)	Girls (n=80)	Total (n=180)	Percentage (%)	p-value
15	30	28	58	32.2	0.70
16	38	30	68	37.8	
17	32	22	54	30.0	
Total	**100**	**80**	**180**	**100**	

Table 2 shows the nutritional status of study participants. Based on BMI classification, more than half of the adolescents (52.2%) had normal nutritional status.

However, a substantial proportion (41.1%) were underweight, while 6.7% were categorized as obese. Obesity was slightly more common among boys (8%) compared to girls (5%), though this difference was not statistically significant (p = 0.81). The high prevalence of undernutrition remains a concern in this suburban government school population.

Table 2: Nutritional Status of Adolescents Based on BMI (n = 180)

BMI Category	Boys (n=100)	Girls (n=80)	Total (n=180)	Percentage (%)	p-value
Underweight	40	34	74	41.1	0.81
Normal	52	42	94	52.2	
Obese	8	4	12	6.7	
Total	**100**	**80**	**180**	**100**	

Blood Pressure Status of adolescents can be seen in Figure 1.

The majority of students (96.1%) had normal blood pressure readings. Pre-hypertension was observed in 2.2% of adolescents, while 1.7% were classified as hypertensive. Hypertension was slightly more prevalent among boys; however, the difference between sexes was not statistically significant (p = 0.73). Notably, all hypertensive adolescents belonged to the overweight/obese BMI category, indicating a possible association between increased BMI and elevated blood pressure.

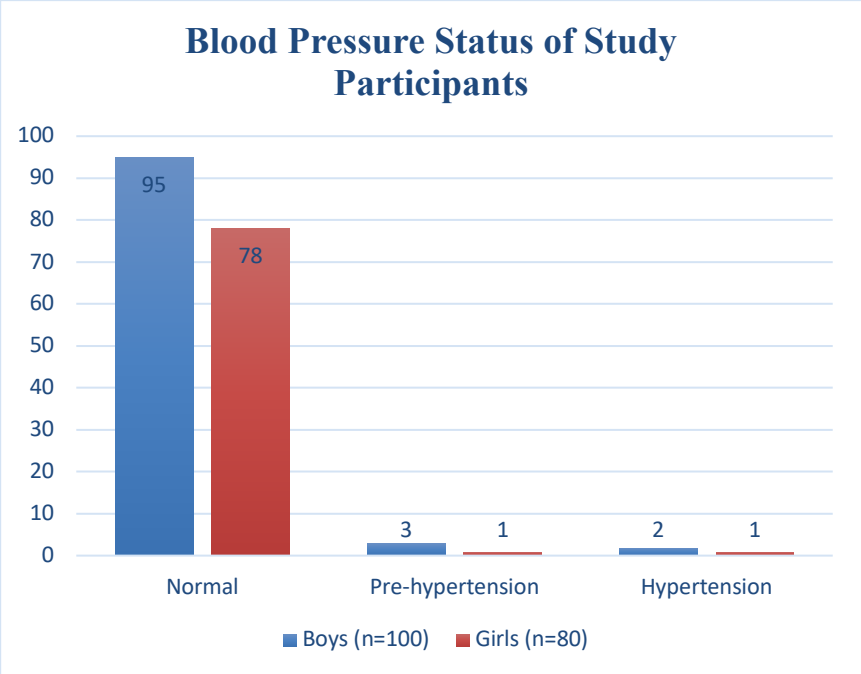

Figure 1: Blood Pressure Status of Study Participants (n = 180)

Table 3 shows the prevalence of general health problems among 180 adolescents, including 100 boys and 80 girls. Frequent headache was reported by 36 students (20.0%), with equal numbers among boys and girls, and the difference was not statistically significant (p = 0.47). Visual problems were observed in 22 adolescents (12.2%), including 12 boys and 10 girls, again without a significant gender difference (p = 0.89). Recurrent abdominal pain was reported by 28 students (15.6%), equally

distributed between boys and girls (p = 0.58). Respiratory symptoms were present in 18 adolescents (10.0%), with similar proportions among boys and girls (p = 0.96). Skin problems affected 26 students (14.4%), slightly more among boys, but the difference was not statistically significant (p = 0.85). Dental problems were reported by 30 adolescents (16.7%), with a marginally higher prevalence among boys; however, this difference was also not statistically significant (p = 0.91). Sleep disturbances emerged as the most common health complaint, affecting 42 students (23.3%), with comparable distribution between boys and girls (p = 0.88). Overall, none of the general health problems showed a statistically significant association with gender, indicating a similar distribution of morbidities among male and female adolescents in the study population.

Table 3: Prevalence of General Health Problems (n = 180)

Health Problem	Boys (n=100)	Girls (n=80)	Total	Percentage (%)	p-value
Frequent headache	18	18	36	20.0	0.47
Visual problems	12	10	22	12.2	0.89
Recurrent abdominal pain	14	14	28	15.6	0.58
Respiratory symptoms	10	8	18	10.0	0.96
Skin problems	15	11	26	14.4	0.85
Dental problems	18	12	30	16.7	0.91
Sleep disturbances	24	18	42	23.3	0.88

Table 4 presents the prevalence of menstrual problems among girls (n = 80) and lifestyle-related risk behaviors among boys (n = 100). Among the female adolescents, premenstrual symptoms were the most commonly reported complaint, affecting 56 girls (70.0%). Dysmenorrhea was reported by 48 girls (60.0%), indicating that painful menstruation is highly prevalent in this population. Menstrual irregularity was observed in 18 girls (22.5%). Additionally, 20 girls (25.0%) reported school absenteeism due to menstrual problems, suggesting a considerable impact of menstrual morbidity on academic attendance and daily activities. Regarding risk behaviors among boys, 12 (12.0%) reported cigarette smoking, while 10 (10.0%) reported alcohol consumption. Furthermore, 8 boys (8.0%) reported both smoking and alcohol use. These findings indicate early initiation of unhealthy lifestyle behaviors during adolescence, which may predispose them to long-term health consequences. Overall, the table highlights a substantial burden of menstrual health problems among girls and the presence of modifiable risk behaviors among boys, emphasizing the need for targeted school-based health education and preventive interventions.

Table 4: Prevalence of Menstrual Problems and Risk Behaviors

Health Problem / Risk Behavior	Number	Percentage (%)
Menstrual Problems (Girls, n=80)		
Dysmenorrhea	48	60.0
Premenstrual symptoms	56	70.0
Menstrual irregularity	18	22.5
School absenteeism due to menstruation	20	25.0
Risk Behaviors (Boys, n=100)		
Smoking	12	12.0
Alcohol consumption	10	10.0
Both smoking and alcohol	8	8.0

Discussion:

The present study assessed the prevalence of common health problems among adolescents studying in a suburban government school in Malandighi, Durgapur and revealed a considerable burden of nutritional disorders, general morbidities, menstrual problems, and emerging lifestyle-related risk behaviors.

A substantial proportion of adolescents (41.1%) were underweight, while 6.7% were obese. This dual burden of malnutrition reflects the ongoing nutritional transition observed in many parts of India. Similar findings have been reported from different regions of the country, where undernutrition continues to coexist with increasing overweight and obesity among adolescents [11,12]. Studies from urban and semi-urban settings have highlighted that dietary imbalance, irregular meal patterns, and reduced physical activity contribute significantly to both extremes of malnutrition [13]. The presence of obesity, though relatively low in our study, is clinically important as adolescent adiposity is strongly associated with adult metabolic syndrome and cardiovascular risk [14].The prevalence of hypertension (1.7%) and

pre-hypertension (2.2%) in the present study is comparable to other Indian school-based studies, which report rising trends of elevated blood pressure among adolescents [15]. Importantly, all hypertensive students in our study belonged to the overweight/obese category, supporting evidence that excess body weight is a major determinant of elevated blood pressure in youth [16]. Early identification of such cardiovascular risk factors is crucial, as blood pressure levels during adolescence tend to track into adulthood and increase long-term morbidity [17].Sleep disturbances (23.3%) and frequent headaches (20.0%) were among the most commonly reported health complaints. Similar patterns have been observed in school-based studies where academic stress, excessive screen exposure, and irregular sleep schedules were identified as contributing factors [18]. Recurrent abdominal pain and psychosomatic symptoms are also frequently reported in adolescents and are often linked to emotional stress and lifestyle factors rather than organic pathology [19]. The absence of significant gender differences in general morbidities in our study aligns with findings from other Indian adolescent health surveys [20].

Menstrual health problems were highly prevalent among girls, with 70% reporting premenstrual symptoms and 60% experiencing dysmenorrhea. Comparable prevalence rates have been documented in community-based studies across India, where dysmenorrhea affects more than half of adolescent girls [21,22]. Menstrual irregularity (22.5%) and school absenteeism (25%) observed in our study are consistent with evidence suggesting that menstrual morbidity significantly interferes with academic performance and quality of life [23]. Limited awareness, sociocultural taboos, and inadequate menstrual hygiene management facilities in schools further exacerbate these challenges [24].Regarding lifestyle-related risk behaviors, 12% of boys reported smoking and 10% reported alcohol consumption. These findings are comparable to national data indicating early initiation of tobacco and alcohol use during mid-adolescence [25]. Peer influence, media exposure, and family environment have been identified as key determinants of substance use among adolescents [26]. Early experimentation with tobacco and alcohol increases the likelihood of long-term addiction and non-communicable diseases, reinforcing the importance of preventive school-based interventions [27].

Overall, the findings of the present study underscore that adolescence is a critical period marked by nutritional vulnerability, reproductive health challenges, psychosomatic complaints, and risk-taking behaviors. Strengthening comprehensive school health programs, periodic screening, menstrual health education, and life-skills training may help in early identification and management of these problems. Community and school-level strategies should focus on preventive health promotion to ensure healthy transition from adolescence to adulthood.

Conclusion

The present study demonstrates that adolescents in a suburban government school in Malandighi, Durgapur face multiple health challenges during this critical stage of development. While most students had normal nutritional status, a high prevalence of underweight and the presence of obesity with associated elevated blood pressure indicate a dual burden of malnutrition. Common health complaints such as sleep disturbances and headaches were frequently reported. Menstrual problems were highly prevalent among girls and contributed to school absenteeism, whereas a notable proportion of boys reported early initiation of smoking and alcohol use. These findings highlight the need for strengthened school health programs, regular screening, menstrual health education, and preventive interventions targeting lifestyle-related risk behaviors to promote healthy adolescent development.

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