GENDER MAINSTREAMING: A HEALTH SYSTEMS RESEARCH STUDY OF SCHOOL GIRLS AGED 13–18 YEARS IN WESTERN MAHARASHTRA

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ABSTRACT:

Background: Gender mainstreaming ensures that men's and women's experiences inform policies and programs, aiming for equitable benefits and the avoidance of perpetuated inequality. Adolescent girls in India often face social restrictions, undernutrition, early marriage, and limited health awareness. This study evaluated the knowledge, perceptions, and practices of school-going adolescent girls (ages 13–18) regarding gender-related issues, personal hygiene, and emotional stability in a semi-urban region of Western Maharashtra.

Methods: A cross-sectional Health Systems Research design was used over 12 months in five schools. A total of 1,024 eligible girls aged 13–18 years participated. A semi-structured questionnaire covered socio-demographics, BMI, menstrual hygiene practices, awareness of the legal age of marriage, and emotional stability. Anthropometric data were recorded. Descriptive and inferential statistics were conducted.

Results: Among 1,024 participants, 47.2% had a normal BMI, 43.7% were underweight, and 9.1% were overweight. About 74% used sanitary pads; however, 37% had no prior knowledge of menstruation before menarche. Sixty-nine percent knew the legal age of marriage (18 years), and 80% felt they should be financially or personally independent prior to marriage. Emotional stability was mostly "medium" (63.4%). Mothers were the primary source of information on puberty (83%) and menstruation (80%).

Conclusion: While the girls demonstrated relatively good awareness of menstrual hygiene and legal marriage norms, undernutrition and knowledge gaps about reproductive health remain challenges. Strengthening health education interventions, ensuring sanitary pad accessibility in schools, and embedding mental health support in curricula are recommended to advance meaningful gender mainstreaming and equality.

INTRODUCTION

Gender mainstreaming integrates women's and men's concerns into all aspects of policy-making, aiming for substantive equality [1]. In India, despite positive developments such as legislation on the minimum legal age of marriage and national programs targeting adolescent welfare, girls continue to encounter educational, economic, and social barriers that impede their full development [2]. These obstacles include nutritional deficiencies, inadequate reproductive health

knowledge, and limited opportunities for skill-building [3]. Adolescence is a formative period for establishing healthy behaviors, gaining life skills, and shaping future perspectives on family and society [4].

Societal and familial expectations commonly restrict the mobility and decision-making capabilities of adolescent girls, often leading to school dropout, early marriage, and suboptimal nutritional status. Such factors reinforce a cycle of marginalization that undermines girls' personal growth [5]. Empirical data show that in many low- and middle-income settings, adolescent girls have limited access to reproductive health information, which heightens risks of early pregnancy and associated health complications [6]. Empowering adolescent females through education, counseling, and supportive policies helps delay marriage, improve maternal outcomes, and enhance emotional stability [7].

The concept of emotional stability is critical during adolescence, a stage typified by rapid psychological and physiological changes. Poor emotional well-being may heighten vulnerability to stressors, including academic challenges, peer pressure, and restrictive social norms [8]. Furthermore, a supportive school environment that incorporates gender-sensitive curricula, life-skills education, and practical menstrual hygiene management can influence self-esteem and overall health outcomes among adolescent girls.

In Western Maharashtra, where urban and rural characteristics converge, numerous schoolgirls contend with overlapping constraints: resource limitations, entrenched sociocultural beliefs, and inconsistent exposure to modern health information channels. Evaluating the interplay between their knowledge of reproductive health, nutritional status, and attitudes toward autonomy provides insights into the effectiveness of existing health policies. It also illuminates gaps that may be bridged by enhanced school-based and community-driven interventions.

This cross-sectional study therefore aimed to analyze key components of gender mainstreaming among schoolgirls aged 13–18 in a semi-urban town of Western Maharashtra. Specifically, it explored their perceptions on personal and menstrual hygiene, knowledge of the legal age of marriage, and psychosocial well-being. Findings can inform policymakers, educators, and grassroots organizations to tailor programs that more effectively foster gender equality and create sustainable socio-educational environments.

MATERIALS AND METHODS

Study Design and Setting

A cross-sectional Health Systems Research (HSR) approach was adopted in a semi-urban setting of Western Maharashtra over a 12-month period. Five secondary and higher secondary schools were purposively selected based on enrollment sizes and willingness to participate.

Study Population

Eligible participants included all adolescent girls aged 13–18 years attending the selected schools during the data-collection period. Girls with severe physical or psychiatric conditions that precluded reliable participation were excluded. The total sample was 1,024.

Sampling and Data Collection

A "duration-based" non-random sampling strategy ensured maximum coverage. Three rounds of visits to each school facilitated inclusion of absentees. Data were collected using a pilot-tested, semi-structured questionnaire administered in a confidential setting. Anthropometric measures (height, weight) were recorded with standardized instruments, and Body Mass Index (BMI) was interpreted using WHO age-specific references.

Study Tool

The questionnaire consisted of:

- **Socio-demographic details**: Age, family income, type of family.
- **Educational background**: Current grades, academic challenges.
- **Nutritional status**: BMI, categorized as underweight, normal, or overweight.
- **Menstrual hygiene practices**: Knowledge of menarche, sources of information, absorbent usage, disposal methods.
- **Legal awareness**: Knowledge of legal marriage age, opinions on best age for marriage, independence before marriage.
- **Psychosocial assessment**: Emotional stability scale (10 items, 5-point Likert).

Ethical Considerations

Institutional permissions were obtained from educational authorities. Confidentiality was ensured through anonymous coding. Written informed assent (and parental/guardian consent) was taken for all participants per ethical protocols.

Data Analysis

Data were entered and analyzed using descriptive statistics (frequency, percentage). Wherever relevant, bivariate tests (chi-square) were employed to assess associations (e.g., socio-demographic factors and awareness of legal norms). Regression methods were used selectively to explore predictors of emotional stability and knowledge indices. Results were synthesized to highlight major patterns related to gender mainstreaming measures.

RESULTS

Narrative overview: Among the 1,024 adolescent girls aged 13–18 years, 26% were 14-year-olds, followed closely by those aged 13 and 15. Most (81.6%) lived in urban areas. Nuclear families dominated (58.7%). Socioeconomic analysis revealed 42% in lower-middle class and 22.3% in middle class.

Nutritional profiles showed 47.2% with normal BMI, 43.7% underweight, and 9.1% overweight. About 63% had some prior knowledge of menstruation before menarche, with mothers as the primary source (80%). While 74% used sanitary pads, 37% had lacked pre-menarche awareness. On legal norms, 69% knew the legal marriage age of 18 years, and 80% believed in achieving independence beforehand. Emotional stability scores were mostly “medium” (63.4%), 28.2% “high,” and 8.4% “low.”

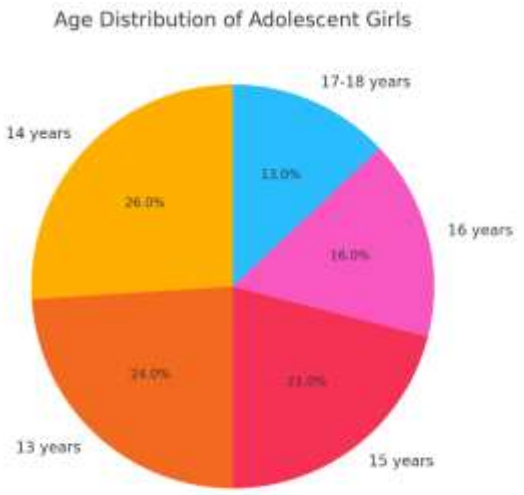
Table 1. Socioeconomic Status and BMI Distribution

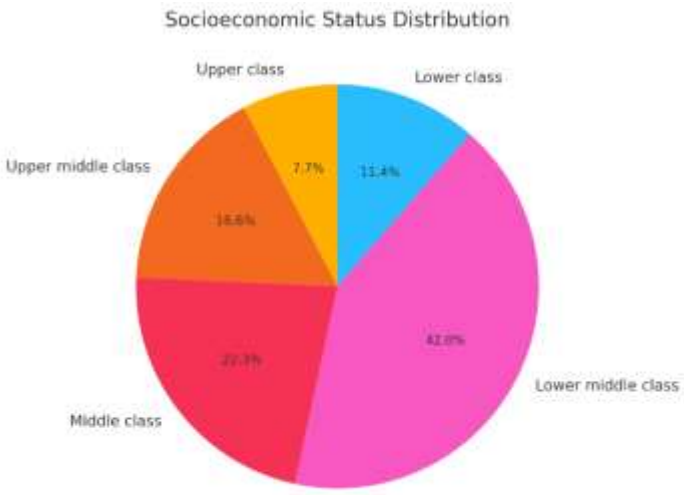
Characteristic	n=1024	Percentage (%)
Socioeconomic Status		
Upper class	79	7.7
Upper middle class	170	16.6
Middle class	228	22.3
Lower middle class	430	42.0
Lower class	117	11.4
BMI Category		
Underweight	448	43.7

Normal	483	47.2
Overweight	93	9.1

The pie charts below show:

1. Age Distribution of Adolescent Girls: This chart shows the percentage of girls within each age group, highlighting that 14-year-olds represent the largest group.
2. Socioeconomic Status Distribution: This chart details the socioeconomic status of the girls, with a significant portion falling within the lower-middle class.





BMI Categories: This bar chart shows the distribution of BMI categories among adolescent girls, with most being either underweight or at a normal BMI.

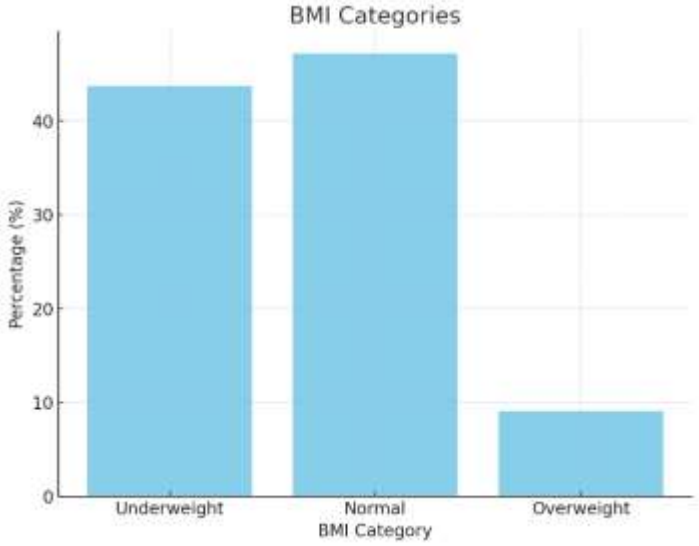


Table 2. Awareness of Marriage Age and Perspectives

Variable	Frequency (%)
Knows legal age of marriage (18 years)	706 (69.0)
Does not know	318 (31.0)
Prefers marrying after higher education	564 (55.1)
Prefers marrying post–high school	176 (17.2)
No idea / "Don't know"	234 (22.9)
Prefers below 18 years	22 (2.1)
Believes one should be independent pre-marriage	818 (80.0)

Awareness of Legal Marriage Age and Perspectives: This illustrates the girls' awareness of the legal age for marriage and their preferences regarding education and independence before marriage.

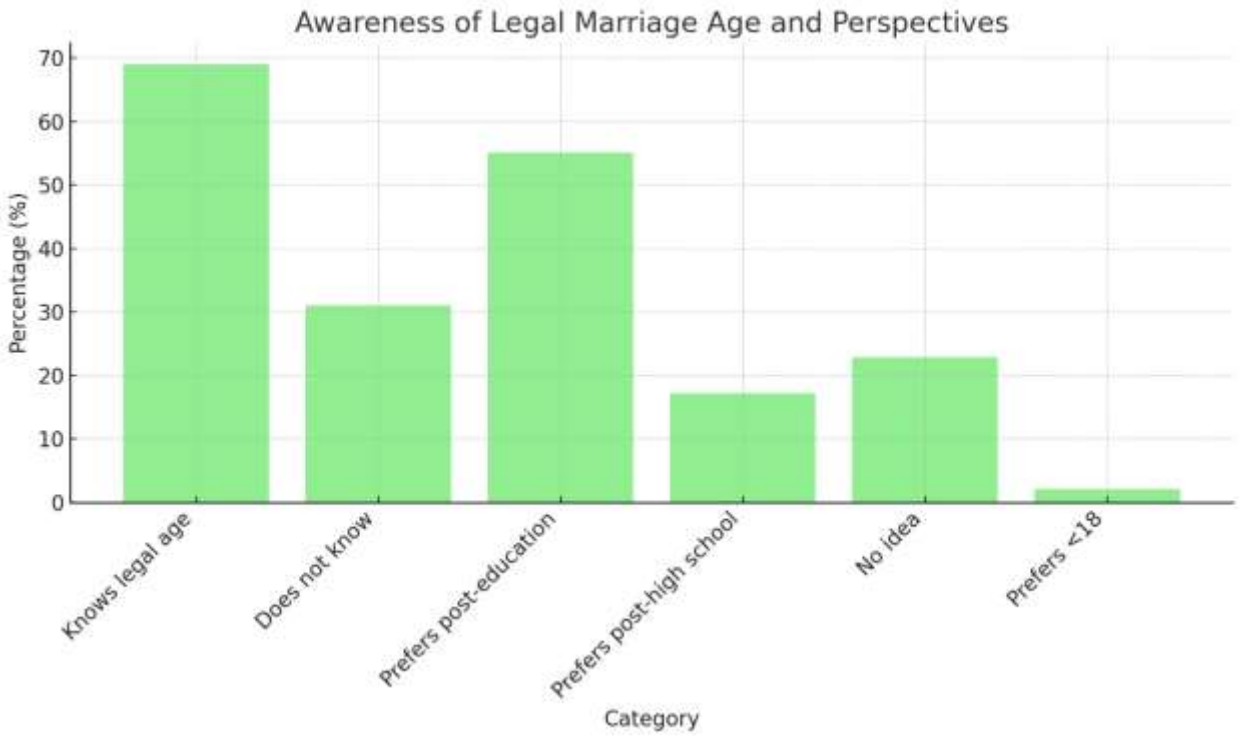


Table 3. Menstrual Hygiene Practices

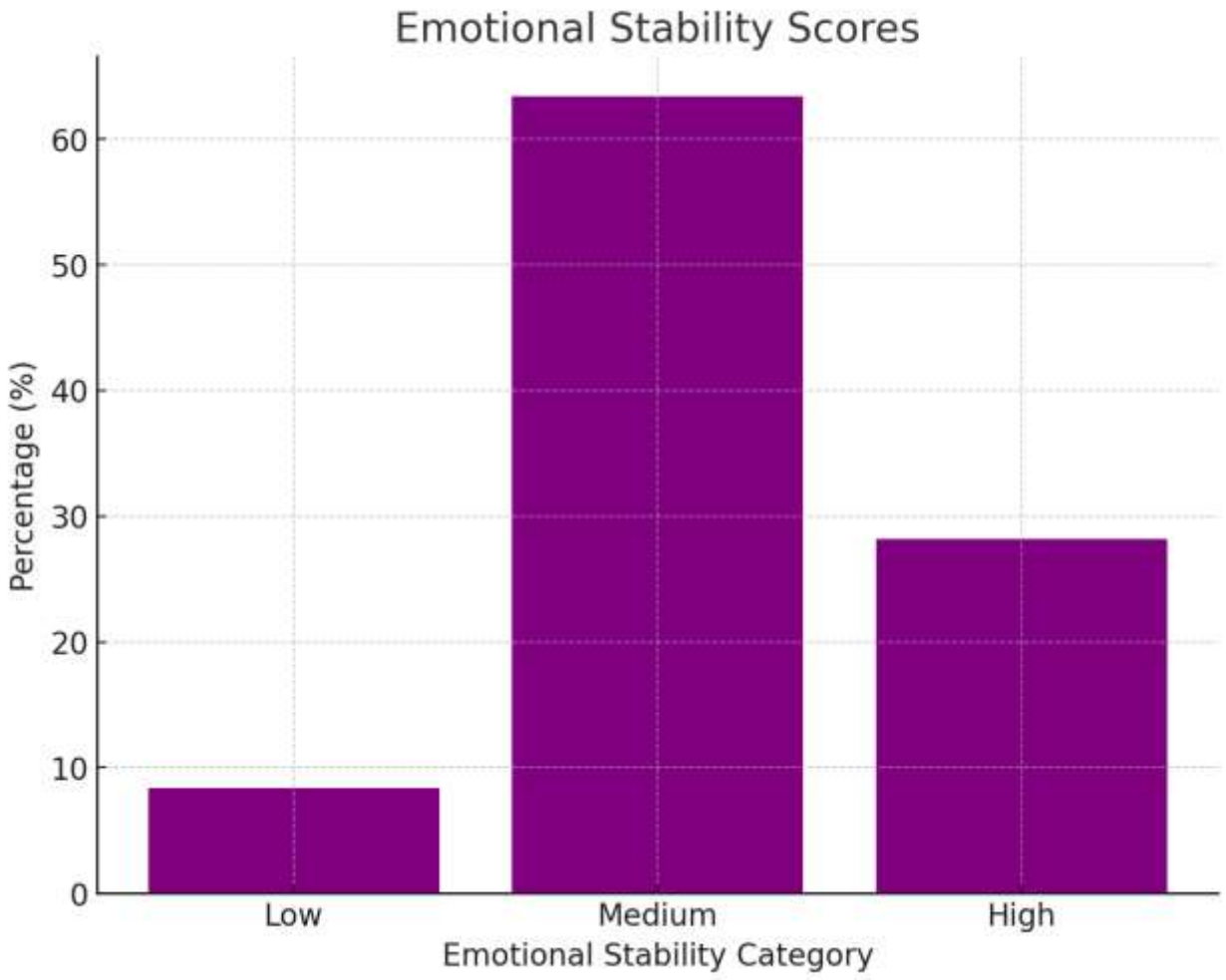
Practice	**Frequency (%)**
Absorbent Used	
Sanitary Pads	760 (74.2)
Cloth	140 (13.7)
Not yet started menstruation	124 (12.1)
Disposal Method	
Wrap and discard in dustbin	484 (47.3)
Directly in dustbin	239 (23.3)
Wash and reuse (cloth)	140 (13.7)
Burning	37 (3.6)

Menstrual Hygiene Practices: It details the types of absorbents used and disposal methods, highlighting the predominant use of sanitary pads and the common practice of wrapping and discarding in dustbins.

Table 4. Emotional Stability Scores

Score Category	Frequency (%)
Low (10–21)	86 (8.4)
Medium (22–34)	649 (63.4)
High (35–50)	289 (28.2)

Emotional Stability Scores: This bar chart displays the emotional stability levels, with most girls scoring in the medium range.



DISCUSSION

The results indicate that while there is progress in various aspects of gender mainstreaming among adolescent girls in Western Maharashtra, critical gaps remain. Nearly half the participants were underweight, reflecting enduring nutritional inadequacies among adolescent girls in many parts of India [9,10]. Without targeted nutritional education, supplementation, and monitoring, undernutrition risks perpetuating into adulthood.

Menstrual hygiene management showed overall improvement, as 74% used sanitary pads, which aligns with upward trends in other Indian studies [11]. Nonetheless, around one-third lacked pre-menarche education, reinforcing prior findings that many adolescent girls are unprepared when menstruation commences [12]. Maternal guidance was pivotal, indicating the effectiveness of mother-centric interventions or peer-led outreach to improve menstrual awareness [13,14].

Legal awareness regarding the minimum age for marriage (69%) suggests encouraging progress; still, a subset was unaware of this fundamental right [15]. Early marriage is known to curtail educational attainment and adversely impact reproductive health outcomes. Thus, continuous advocacy via school-based education and family-level engagement remains vital [16,17]. Encouragingly, 80% of participants supported achieving independence—whether financial, educational, or personal—before marriage, reflective of evolving attitudes that favor gender equality [18].

Emotional stability was largely moderate to high, potentially illustrating resilience or supportive school/family environments [19]. However, the 8.4% with low emotional stability underscores the importance of in-school psychosocial support, such as life-skills training and professional counseling [20]. Similar studies highlight the correlation between robust emotional support systems and reduced rates of dropout, anxiety, and depression among adolescents [21].

Given these findings, a multi-pronged strategy is recommended for sustained progress. Schools should integrate gender-focused curricula, emphasize reproductive and mental health, and promote knowledge about legal rights. Community-based platforms and self-help groups can facilitate open dialogue among parents, teachers, and adolescents to address stigma around menstruation and early marriage [22]. Equally, government schemes must strengthen the link between education and nutrition, ensuring midday meals or supplementation target adolescent girls beyond primary school [23].

In summary, adolescent girls in this region are receptive to improved hygiene behaviors and legal empowerment. Yet to achieve comprehensive gender mainstreaming, stakeholders must consistently invest in educational enrichment, mental health support, and family engagement. Broader structural changes—like enhanced female-centric health programs and policies that safeguard adolescent rights—are integral to building an equitable future [24,25].

CONCLUSION

This Health Systems Research highlights a generally positive trend among adolescent girls in Western Maharashtra concerning menstrual hygiene, legal awareness of the marriage age, and the desire for independence before marriage. However, major challenges persist: almost half are underweight, and a significant fraction remain underinformed about menstruation, underscoring the need for more robust adolescent health education. Strengthened school-based interventions, parental involvement, and ongoing policy efforts must reinforce nutrition, mental well-being, and awareness of legal rights. Such a multifaceted approach is crucial to fostering genuine gender mainstreaming and safeguarding the overall development of adolescent girls.

REFERENCES

1. Bhan, G., Surie, N., Sharma, S., & Saggurti, N. (2020). Addressing gender norms to improve adolescent health: Evidence from India. *Journal of Adolescent Health, 66*(1), 12–19.
2. Chandra-Mouli, V., Plesons, M., & Barua, A. (2019). Establishing multi-component interventions for adolescent sexual and reproductive health: Challenges and opportunities. *Global Health Action, 12*(1), 1573051.
3. Das, J. K., Salam, R. A., Thornburg, K. L., Prentice, A. M., Campisi, S., & Bhutta, Z. A. (2017). Nutrition in adolescents: Physiology, metabolism, and nutritional needs. *Annals of the New York Academy of Sciences, 1393*(1), 21–33.
4. Dick, B., & Ferguson, J. (2015). Health for the world's adolescents: A second chance in the second decade. *Journal of Adolescent Health, 56*(1), 3–6.
5. Gilson, L., & Kielmann, K. (2017). Understanding the nature of health policy and systems research and its relevance for strengthening health systems. *Health Research Policy and Systems, 15*(1), 2–9.
6. Haque, S. E., Rahman, M., Itsuko, K., Mutahara, M., Sakisaka, K., & Matsuyama, A. (2014). The effect of a school-based educational intervention on menstrual health: An RCT among adolescent girls in Bangladesh. *BMJ Open, 4*(7), e004607.
7. Jejeebhoy, S. J., & Santhya, K. G. (2018). Preventing early marriage in India: Challenges and strategies for change. *Reproductive Health, 15*(6), 71–79.
8. Kassebaum, N. J., Bertozzi-Villa, A., Coggeshall, M. S., & Lozano, R. (2014). Global, regional, and national levels and causes of maternal mortality. *The Lancet, 384*(9947), 980–1004.
9. Kotecha, P. V., Baxi, R. K., & Mazumdar, V. S. (2009). Reproductive health awareness among rural school going adolescents of Vadodara district. *Indian Journal of Sexual and Reproductive Health, 30*(2), 94–99.
10. Kumar, S., & Singh, A. (2013). Trends and determinants of unmet need for family planning in Bihar (India): Evidence from NFHS. *Journal of Biosocial Science, 45*(4), 461–477.
11. Liu, L., Li, M., & Yang, Y. (2021). Improving knowledge and practice of menstrual hygiene through peer education among adolescents in low-resource settings. *BMC Public Health, 21*(1), 200.
12. Malleshappa, K., Krishna, S., & Nandini, C. (2011). Knowledge and attitude about reproductive health among rural adolescent girls. *Biomedical Research, 22*(3), 305–310.
13. Ministry of Health and Family Welfare (MoHFW). (2018). *Rashtriya Kishor Swasthya Karyakram: Operational Framework*. Government of India Press.
14. NITI Aayog. (2020). *SDG India Index & Dashboard 2019–20: Partnerships in the Decade of Action*. Government of India.
15. Patton, G. C., Sawyer, S. M., Santelli, J. S., & Ross, D. A. (2016). Our future: A Lancet commission on adolescent health and wellbeing. *The Lancet, 387*(10036), 2423–2478.
16. Planning Commission of India. (2011). *High-level expert group report on universal health coverage for India*. Government of India.
17. Ram, U., Mohanty, S. A., & Singh, A. (2010). Youth in India: Situation and needs. *Population Council Monograph*, 10, 1–72.

18. Sarkar, I., Dobe, M., Dasgupta, A., & Basu, R. (2017). Determinants of menstrual hygiene among school going adolescent girls in a rural area. *Journal of Family Medicine and Primary Care, 6*(3), 583–589.
19. Seth, R., & Bose, V. (2018). Mental health promotion in schools: An Indian perspective. *Indian Journal of Pediatrics, 85*(2), 101–107.
20. Sharma, A., & Sharma, R. (2018). Internet addiction and psychological wellbeing among college students: A cross sectional study from Central India. *Journal of Family Medicine and Primary Care, 7*(1), 147–151.
21. Singh, A., & Kumar, S. (2017). Awareness of legal and social issues related to reproductive health among adolescent girls in rural Varanasi. *Indian Journal of Public Health, 61*(1), 26–32.
22. UNICEF. (2019). *Adolescent development and participation toolkit*. UNICEF Publications.
23. UNESCO. (2018). *International technical guidance on sexuality education: An evidence-informed approach*. United Nations Educational, Scientific and Cultural Organization.
24. United Nations Development Programme (UNDP). (2018). *Gender equality strategy: Empowering girls worldwide*. UNDP Publications.
25. World Health Organization. (2021). *Guidelines on school health services: Strengthening collaboration between health and education sectors*. WHO Press.