



Original Article

## Perceptions of Pubertal Changes and Health-Seeking Behaviour Among Adolescents: A Comparative Study of Urban and Rural Areas

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### ABSTRACT

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**Introduction:** Adolescence is an important period of transition from childhood to adulthood and it is marked by physical, emotional, and interpersonal changes. India houses the world's largest adolescent population. Adolescent health awareness is a challenge due to multiple barriers and majority of the adolescents lack awareness about the physical and emotional changes they experience and are hesitant to seek healthcare support.

**Objectives:** To compare awareness of pubertal changes and health-seeking behaviour among adolescents in rural and urban areas of Ajmer district.

**Materials and Methods:** This cross-sectional study was conducted on 400 adolescents from urban and rural areas of Ajmer district between March and June 2023 after obtaining clearance from the institutional ethical committee. Data collection was done using a structured questionnaire.

**Results:** Urban adolescents had greater awareness of pubertal changes than their rural counterparts. Notable differences in acne (62.5% urban vs. 45.5% rural;  $p = 0.0006$ ), axillary/pubertal hair growth (69.5% urban vs. 41%;  $p < 0.00001$ ), and facial maturity (67% urban vs. 50.5% rural;  $p = 0.0008$ ) were observed. Awareness of height (86.5% urban vs. 85% rural) and weight gain (73.5% urban vs. 69.5% rural) was similar. Urban adolescents reported to be more comfortable with changes (79% urban vs. 63.5% rural;  $p = 0.0006$ ). Family (46.75%) and friends (41.25%) were the primary source of information. Healthcare utilisation was also higher in urban adolescents (28%) compared to rural (6%;  $p < 0.001$ ).

**Conclusion:** Urban adolescents had more knowledge regarding pubertal changes compared to those from rural areas. Both genders had to face significant barriers in accessing healthcare due to social stigma and lack of privacy. Strengthening adolescent-friendly health services and increasing awareness in rural areas may improve health outcomes for adolescents.

**Keywords:** Adolescence, Pubertal Changes, Urban, Rural, Health-seeking Behaviour.

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### INTRODUCTION

The United Nations has defined adolescence as the age group between 10-19 years and it is an important period of transition from childhood to adulthood. India has the world's largest adolescent population consisting 253 million adolescents which means that every fifth Indian citizens is an adolescent. According to UNFPA projections, India will continue to have one of the youngest populations globally until 2030. This large adolescent demographic is an important opportunity for encouraging a healthier and informed future generation by providing adequate and timely support and guidance.<sup>[1][2]</sup>

Puberty is the defining aspect of adolescence and involves significant changes in physical, cognitive, behavioural and psychosocial domains.<sup>[3]</sup> During this period of growth, adolescents experience various changes in their bodies, minds and interpersonal relationships and develop traits and capabilities to help them assume adult responsibilities. It is a vital time to shape their habits and practices and thus, strengthen the future of a country. In absence of proper guidance, these changes may lead to confusion, anxiety, and adversely impact their mental and physical well-being. Social stigma, limited sex education, and restricted access to adolescent-friendly health services in India contribute to a lack of awareness among adolescents about pubertal changes.<sup>[4][5]</sup>

In rural areas, hurdles to awareness are often more pronounced due to limited educational resources and societal stigma surrounding reproductive health issues.<sup>[6]</sup> Adolescents from villages may develop misconceptions or avoid seeking necessary healthcare and, in turn, can suffer from long-term reproductive and mental health complications. In contrast, urban adolescents may have better access to information via educational institutions and media. However, they also face privacy concerns and cultural stigma among other barriers.<sup>[7]</sup>

Health-seeking behaviour during adolescence is essential for addressing reproductive health needs, preventing diseases, and establishing lifelong healthy practices.<sup>[8]</sup> Evidence shows that adolescents without access to accurate information and services are at an increased risk of preventable health issues like infections, mental health disorders, and reproductive complications.<sup>[9]</sup> Globally, the promotion of healthy behaviours during adolescence is recognised as a critical strategy to reduce morbidity and mortality rates in this age group and ensure better health outcomes in adulthood.<sup>[10]</sup>

The aim of this study was to assess and compare the awareness and perceptions of pubertal changes among adolescents between rural and urban areas in Ajmer, Rajasthan and to examine the differences in their health-seeking behaviours.

## MATERIAL AND METHODS

This cross-sectional study was conducted from 1<sup>st</sup> March 2023 to 30<sup>th</sup> June 2023 in the urban and rural areas of Ajmer district. 200 participants each from urban and rural backgrounds were included in this study, making a total of 400 adolescents participants.

**Participants:** Adolescents from the selected areas were included based on their availability and willingness to participate. The inclusion criteria were adolescents aged 10-19 years residing in the study areas. Adolescents with known cognitive impairments or severe health conditions were excluded from the study.

**Data Collection:** Data collection was done using a structured questionnaire which was designed to assess awareness of pubertal changes and health-seeking behaviour. The questionnaire had sections on demographic information, awareness of physical and emotional changes during puberty, sources of information, health-seeking preferences, and barriers faced in accessing healthcare.

**Definitions of Variables:** “Awareness” was defined as the recognition and understanding of physical and emotional changes associated with puberty. “Health-seeking behaviour” referred to the actions taken by adolescents to seek advice or treatment for issues related to puberty and reproductive health.

**Ethical Considerations:** The study protocol was approved by the Institutional Ethics Committee of J.L.N. Medical College, Ajmer. Informed consent was obtained from all participants and consent was also obtained from guardians of participants under 18 years of age.

**Data Analysis:** Data was analysed using SPSS version 26.0. Descriptive statistics were used to summarise demographic characteristics and responses related to awareness and health-seeking behaviour. The chi-square test was applied to compare the differences between urban and rural groups, with a significance level set at  $p < 0.05$ .

## RESULTS

**TABLE 1 – Awareness of Pubertal Changes Among Adolescents in Urban and Rural Areas of Ajmer District**

VARIABLES	URBAN			RURAL			TOTAL (N=400)	$\chi^2$	p-value
	BOYS (N=100)	GIRLS (N=100)	TOTAL (N=200)	BOYS (N=100)	GIRLS (N=100)	TOTAL (N=200)			
	n	n	n (%)	n	n	n (%)			
Gain in height	79	94	173 (86.5)	84	86	170 (85)	343 (85.75)	0.1841	0.667
Gain in weight	77	70	147 (73.5)	71	68	139 (69.5)	286 (71.50)	0.7852	0.375
Acne	56	69	125 (62.5)	38	53	91 (45.5)	216 (54.00)	<b>11.634</b>	<b>0.0006</b>
Growth of axillary and pubic hair	73	66	139 (69.5)	39	43	82 (41)	221 (55.25)	<b>32.85</b>	<b>0.00001</b>
Facial maturity	68	66	134 (67)	44	57	101 (50.5)	235 (58.75)	<b>11.234</b>	<b>0.0008</b>

<b>Development of body contours</b>	67	61	128 (64)	53	58	111 (55.5)	239 (59.75)	3.0042	0.0830
<b>Irritable/ low moods</b>	47	71	118 (59)	32	54	86 (43)	204 (51.00)	<b>10.244</b>	<b>0.0013</b>

Urban adolescents had higher awareness of most pubertal changes compared to their rural counterparts. Awareness of physical changes like height and weight gain was similar between groups, with 86.5% of urban and 85% of rural adolescents recognizing height changes ( $p = 0.667$ ), and 73.5% of urban and 69.5% of rural adolescents noting weight changes ( $p = 0.375$ ). Significant differences were observed for acne, with 62.5% of urban adolescents aware of this change compared to 45.5% in rural areas ( $p = 0.0006$ ). Awareness of the growth of axillary and pubic hair was also markedly higher in urban adolescents (69.5%) than in rural adolescents (41%;  $p < 0.00001$ ). Similar trends were observed for facial maturity, reported by 67% of urban adolescents compared to 50.5% in rural areas ( $p = 0.0008$ ). Awareness of body contour development was slightly higher among urban adolescents (64%) than rural adolescents (55.5%), though this difference was not statistically significant ( $p = 0.083$ ). Emotional changes, such as irritable or low moods, were recognized by 59% of urban adolescents, significantly more than the 43% in rural areas ( $p = 0.0013$ ).

**TABLE 2 – Perceived Emotional Comfort and Worry Regarding Pubertal Changes Among Adolescents in Urban and Rural Areas of Ajmer District**

PERCEPTIONS	URBAN			RURAL			TOTAL
	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL	
	n	n	n (%)	n	n	n (%)	n (%)
<b>Comfortable</b>	86	72	158 (79.0)	79	48	127 (63.5)	285 (71.25)
<b>Worried</b>	14	28	42 (21.0)	21	52	73 (36.5)	115 (28.75)
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>200 (100)</b>	<b>100</b>	<b>100</b>	<b>200 (100)</b>	<b>400 (100)</b>
$\chi^2 = 11.7285$ $p\text{-value} = 0.0006$							

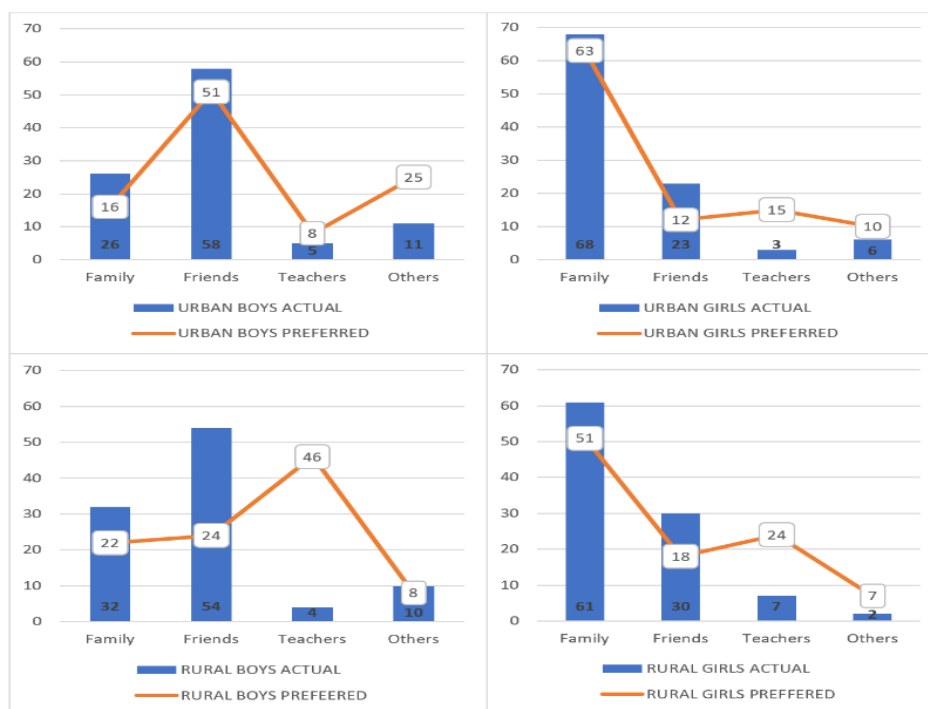
Urban adolescents reported significantly greater emotional comfort regarding pubertal changes compared to their rural counterparts (79% vs. 63.5%,  $p = 0.0006$ ). Boys in both urban and rural settings were more likely to feel comfortable with these changes (86% urban, 79% rural) than girls (72% urban, 48% rural). Worry about pubertal changes was reported to be higher among rural adolescents (36.5%) compared to urban adolescents (21%). Rural girls expressed the highest levels of worry, with 52% reporting concern, compared to 28% of urban girls.

**TABLE 3: Distribution of Adolescents by Sources of Information on Pubertal Changes**

SOURCE OF INFORMATION REGARDING PUBERTAL CHANGES	URBAN			RURAL			TOTAL (N=400)
	BOYS (N=100)	GIRLS (N=100)	TOTAL (N=200)	BOYS (N=100)	GIRLS (N=100)	TOTAL (N=200)	
	n	n	n (%)	n	n	n (%)	n (%)
<b>Family</b>	26	68	94 (47)	32	61	93 (46.5)	<b>187 (46.75)</b>
<b>Friends</b>	58	23	81 (40.5)	54	30	84 (42)	<b>165 (41.25)</b>
<b>Teachers</b>	5	3	8 (4)	4	7	11 (5.5)	<b>19 (4.75)</b>
<b>Others</b>	11	6	17 (8.5)	10	2	12 (6)	<b>29 (7.24)</b>

Family was the primary source of information for both the groups, with 47% of urban adolescents and 46.5% of rural adolescents relying on their family members. Friends also played a significant role with 40.5% of urban adolescents and

42% of rural adolescents citing them as sources. Friends were the major source of information for boys with 58% urban boys and 54% rural boys relying on their friends for information. Teachers did not play a major role in being the source of information in both urban (4%) and rural (5.5%) areas. Media and other sources such as books were used by 8.5% of urban adolescents and 6% of rural adolescents. Overall, family and friends emerged as the dominant sources, with minimal reliance on formal educational channels.



**FIGURE 1: Comparison of Actual and Preferred Sources of Information Regarding Pubertal Changes Among Urban and Rural Adolescents**

Figure 1 depicts the differences between actual and preferred sources of information on pubertal changes among adolescents in urban and rural areas, disaggregated by gender. Among urban boys, 58% cited friends as their actual source of information but only 51% preferred them. Family (26%) others (11%) were cited as actual sources, but a preference for other sources including internet and media saw a demand of about 25%. Urban girls predominantly relied on family as their actual source (68%) and only 63% preferred it. While 23% of urban girls relied on friends, only 12% preferred them, with other sources (15%) being a more preferred alternative.

In rural boys, friends were the most commonly cited actual source (54%), but their preference was slightly lower (46%). Family (32%) and others/media (8%) were less utilized but saw a preference increase to 24% for media. Among rural girls, family dominated as the actual source (61%), but a smaller proportion preferred it (51%). Friends accounted for 30% of actual sources but were less preferred, while others accounted for a minimal proportion (7%).

**TABLE 4: Distribution of Adolescents Based on Health-Seeking Behaviour for Pubertal Health Issues**

EVER SOUGHT HEALTHCARE FOR PUBERTAL OR REPRODUCTIVE HEALTH ISSUES	URBAN			RURAL			TOTAL
	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL	
	n	n	n (%)	n	n	n (%)	n (%)
YES	17	39	56 (28)	4	8	12 (6)	68 (17)
NO	83	61	144 (72)	96	92	188 (94)	332 (83)
TOTAL	100	100	200 (100)	100	100	200 (100)	400 (100)
$\chi^2 = 32.76, \text{dof} = 1$ $p\text{-value} = 1.04 \times 10^{-8}$							

Only 17% of adolescents sought healthcare for pubertal or reproductive health issues, with a significantly higher proportion of urban adolescents (28%) compared to rural adolescents (6%) ( $p = 1.04 \times 10^{-8}$ ). Among urban adolescents, 17% of boys and 39% of girls sought healthcare, highlighting a gender difference in health-seeking behaviour. Similarly, in rural areas,

only 4% of boys and 8% of girls reported seeking healthcare. Majority of the adolescents did not seek healthcare, with 72% of urban and 94% of rural adolescents avoiding health facilities. Rural boys exhibited the lowest health-seeking behaviour (4%), while urban girls showed the highest (39%).

## DISCUSSION

In the present study, it was observed that urban adolescents demonstrated greater awareness, particularly regarding acne, the growth of axillary and pubic hair, and emotional changes like irritability, while rural adolescents lagged behind. Studies have reported that urban adolescents benefit from better access to schools, peers, and media, while rural adolescents rely heavily on family and informal networks, which often perpetuate misinformation<sup>[11][12]</sup>. The lack of structured formal education about pubertal changes in rural areas contributes to this knowledge gap<sup>[13]</sup>. Emotional responses also varied, with urban adolescents reporting greater comfort with pubertal changes, while rural adolescents, especially girls, expressed higher levels of worry. Rural adolescents' discomfort can be attributed to cultural stigma and limited family communication, which hinder their ability to address changes openly. Community-based initiatives to normalize discussions about puberty are critical for reducing these emotional barriers.<sup>[9][14]</sup> Literature suggests that initiatives such as school-based programs and family engagement improve adolescents' comfort with pubertal changes and reduce stigma.<sup>[8][13]</sup>

Health-seeking behaviour was notably low among all adolescents, particularly in rural areas where only 6% sought healthcare for reproductive health issues compared to 28% in urban areas. Rural boys exhibited the lowest healthcare utilization at just 4%, reflecting barriers such as lack of privacy, social stigma, and limited access to adolescent-friendly health services.<sup>[15][16][17]</sup> Studies from South Asia confirm that these barriers are more pronounced in rural regions, preventing adolescents from seeking help even for significant health concerns.<sup>[12][14]</sup> Even in urban settings, healthcare utilization is hindered by judgmental attitudes from healthcare providers and insufficient adolescent-friendly facilities.<sup>[7][16]</sup>

## CONCLUSION

Adolescence is a time of immense change and growth, but for many adolescents, especially those in rural areas, it can also be a time of confusion and uncertainty. This study revealed that urban adolescents had a better understanding of pubertal changes compared to their rural peers, which can be attributed to better access to schools, media, and peer networks. However, even urban adolescents faced challenges, with both groups experiencing barriers that made it difficult to seek the needed healthcare. Rural adolescents, particularly boys, were the least likely to seek help, often held back by stigma, privacy concerns, and a lack of accessible, adolescent-friendly health services. Girls in rural areas also reported high levels of worry and discomfort, showing how deeply cultural and social norms shape their experiences. Addressing these issues is not just limited to providing information, it should also stress on creating an environment where adolescents feel supported, understood, and empowered to take charge of their health. By bridging these gaps, we can help adolescents navigate this critical stage with confidence and improve their overall well-being.

## RECOMMENDATIONS

To address the challenges identified, a multi-pronged approach is recommended. Teachers should be oriented and trained to discuss adolescent care topics within the framework of the course curriculum, enabling them to provide accurate and age-appropriate information. Peer groups should be formed at the local level, with trained peer leaders who can impart correct knowledge on reproductive health, as adolescents often turn to friends for guidance. Efforts must be undertaken to make clinics, health centres, and hospitals adolescent-friendly, ensuring privacy and accessibility to encourage utilization. Establishing adolescent clubs at schools, anganwadis, and village levels would provide safe spaces for adolescents to share concerns and learn about health issues. Schools should organize regular orientation programs by visiting doctors and establish linkages with health clinics to enhance the quality of information provided. Adolescent-friendly clinics at RHTC and UHTC are essential for providing confidential and comprehensive services, ensuring that adolescents receive the support they need.

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