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Research Article

Awareness Regarding Pubertal Change and Reproductive Health Among Late Adolescent Girls in Urban Slums of Jorhat, Assam

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ABSTRACT

Background: Adolescence is a critical phase marked by pubertal changes that shape reproductive health. Awareness and preparedness regarding these changes are essential, yet adolescents in urban slums face compounded challenges due to poverty, cultural taboos, and poor access to health education and services. Limited evidence exists from Northeast India, particularly Assam.
Objectives: To assess awareness regarding pubertal changes, reproductive health knowledge, beliefs, and treatment-seeking behaviour among late adolescent girls in urban slums of Jorhat, Assam.
Methods: A community-based cross-sectional study was conducted from January to June 2024 among 110 adolescent girls aged 16–19 years, selected through two-stage random sampling from two urban slums. Data were collected using a predesigned, pre-tested proforma and analysed using descriptive statistics and bivariate logistic regression.
Results: Awareness of physical changes like height (89.1%) and breast development (80%) was high, but only 9% had comprehensive knowledge of all changes. Mothers were the main information source (73.6%). Awareness of menstruation before menarche was reported by 57.3% and was significantly associated with sanitary pad use (OR: 8.3; 95% CI: 1.79–38.58). Knowledge of ovulation (25.6%), fertilization (29.2%), and family planning (40%) was limited. Misconceptions about contraception and menstrual taboos were common. About 16.3% reported RTI symptoms, 22.2% did not seek treatment.
Conclusion: Substantial gaps exist in awareness and reproductive health literacy among adolescent girls in Jorhat's urban slums. Early sensitization before menarche, school-based health education, maternal engagement, and strengthened adolescent-friendly services are critical to improve outcomes.

Keywords*: Adolescents, Pubertal changes, Reproductive health, Menstrual hygiene, Urban slums*

INTRODUCTION

Adolescence (10–19 years) represents a critical transition from childhood to adulthood, marked by rapid physical and psychosocial changes. Among these, pubertal changes such as menarche are important milestones shaping reproductive health and self-identity [1]. Awareness and proper management of these changes are essential to safeguard health, dignity, and education. Globally, menstrual health and reproductive well-being are recognized as human rights, yet millions of adolescent girls face barriers due to limited access to sanitary products, inadequate water, sanitation and hygiene (WASH) facilities, and entrenched cultural taboos [2,3]. Poor menstrual hygiene is associated with reproductive tract infections, absenteeism from school, lowered self-esteem, and psychosocial stress [4].

In India, adolescents form nearly one-fifth of the population, but girls continue to face disproportionate reproductive health challenges. NFHS-5 reported that about half of adolescent girls aged 15–19 years still rely on cloth for menstrual management [1]. Many of them experience menarche without prior knowledge, reflecting widespread misconceptions and lack of preparedness [2]. Cultural stigma and restrictive practices compound these issues, undermining health and psychosocial outcomes [5,6]. Socioeconomic status, education, and media exposure strongly influence menstrual hygiene practices, with persistent inequities across regions and communities [7,8]. Government initiatives such as the Menstrual Hygiene Scheme (2011) and Rashtriya Kishor Swasthya Karyakram (RKSK, 2014) aim to address these concerns, but marginalized groups—especially those in urban slums—remain underserved [9].
Urban slums represent a particularly vulnerable setting where poverty, overcrowding, lack of privacy, and inadequate sanitation worsen challenges of menstrual and reproductive health. Studies in Delhi, Jaipur, and Vishakhapatnam slums report poor awareness, reliance on family members for information, and persistent myths around menstruation [5,6,10]. Limited outreach of health workers and adolescent-friendly clinics, coupled with stigma, reduces access to information and services [9]. These barriers contribute to adverse reproductive health outcomes, infections, and educational disruptions [6, 8].

The situation in Northeast India, including Assam, is especially concerning. Despite overall improvements in hygienic use of menstrual material nationally, the Northeast continues to report lower utilization rates. NFHS-5 analysis revealed a 25-percentage point rural–urban gap in hygienic product use in Assam, one of the highest in the country [7]. Adolescents in the Northeastern states also had significantly lower odds of exclusive use of hygienic methods compared to their southern counterparts [8]. This reflects a combination of poverty, cultural taboos, weak adolescent health services, and limited exposure to health education. In Assam's urban slums, including Jorhat, compounded vulnerabilities of poverty, sanitation deficits, and lack of awareness further add to the disadvantage among adolescent girls. Despite this, there is limited research from the region focusing on pubertal change awareness and reproductive health.

Understanding when and how adolescent girls acquire knowledge related to puberty and reproductive health is crucial for enabling them to make informed and safe choices regarding their sexual and reproductive well-being. Against this background, the present study was undertaken to assess the awareness of late adolescent girls about pubertal changes, as well as their knowledge, beliefs, and treatment-seeking practices concerning reproductive health in the urban slums of Jorhat, Assam.

Methods

Study design and study setting

An observational cross- sectional study was carried out among the late adolescent girls in the age group of 16-19 years residing in the urban slums of Jorhat District, Assam from January to June 2024.

Sample size

Considering 50% exposure frequency,[11] an absolute precision of 10% and a nonresponse rate of 10%, the required sample size was calculated to be 110.

Sampling technique

The study participants were enrolled in the study by two stage sampling. In the first stage, a simple random sampling technique was adopted for selection of the slums. Considering that Jorhat district has five registered urban slums, two were selected by using random number table. Pujadubi and Dhakaipatty were the two selected slums. In the second stage, equal number of participants was selected from each selected slum by visiting every consecutive household. From each household one late adolescent girl was invited to the study. In case of refusal, the next household was surveyed. Data were collected till the required sample size was achieved. However, those who did not want to participate, not cooperating or guests visiting the slum at the time of data collection were excluded from the study.

Data collection procedure

Starting from one end of each selected slum, every consecutive house was visited and one late adolescent girl from each household if any, residing there and giving consent was interviewed. All the participants who were enrolled in the study were briefed about the purpose of the study. Written informed consent was obtained from all participants; in the case of those younger than 18 years, assent was obtained alongside parental consent. The participation was voluntary and confidentiality of information was ensured in order to encourage participation. All the questions were well explained to the participants and data were collected by personal interview using a pre designed, pre tested proforma.

The socio-economic status of the family was assessed by using the Modified Kuppuswamy's socio-economic status scale.[12] After the data collection, any queries relating to pubertal changes, menstruation and reproductive health that the participants may have had were answered.

Study tool

A proforma in local language was used. It was developed after considering previous studies and its applicability in our situation[1,11,13] It included information regarding their socio- demographic profile, knowledge regarding pubertal changes which included physical changes, secondary sexual and psychological changes, knowledge and belief regarding reproductive health and treatment seeking behaviour in relation to menstrual disorders and reproductive tract infections.

Ethical Considerations

Ethical clearance was obtained from the Institutional Ethics Committee of Jorhat Medical College.

Statistical analysis

Quantitative data was analysed using Microsoft excel. Descriptive statistics were used to analyse the frequencies and percentages of the dependent and independent variables. Bivariate logistic regression analysis was performed separately to examine the association of each independent variable with the use of sanitary pads. The results are presented as odds ratios (OR) with 95% confidence intervals (CI). A p-value of <0.05 was considered statistically significant

Results

Socio-Demographic Profile of Participants

A total of 110 late adolescent girls aged 16–19 years participated in the study. The mean age was 17.45 ± 0.82 years, with 36.4% aged 16–17 years, 32.7% aged 17–18 years, and 30.9% aged 18–19 years. The majority were Hindus (85.5%), while 14.6% were Muslims. Most girls were in high school (64.6%), followed by middle school (20%) and higher secondary school (2.7%); 3.6% were illiterate. At the time of survey, 72.7% attended school and 27.3% stayed at home.

Elder siblings were present in 76.4% of households. Most participants were unmarried (95.5%), while six (5.5%) were married, of whom three were pregnant. None reported previous abortion or infant death. More than half of the mothers (56.4%) were illiterate.

A majority lived in nuclear families (89.1%). Based on the Modified Kuppuswamy scale, 59.1% belonged to the upper-lower socioeconomic class, 32.7% to the lower-middle class, and none to the upper class.

Knowledge of Pubertal Changes

In the present study, awareness regarding pubertal changes was variable. While 71.8% knew the average age of menarche, recognition of specific physical changes differed. An increase in height (89.1%), breast development (80%), axillary/pubic hair growth (86.4%), and acne (80.9%) were commonly identified. Knowledge of weight gain (69.1%) and hip broadening (59.1%) was less frequent. Dermatological changes such as oily skin were reported by 78.2%. Psychosocial and behavioural changes were acknowledged by about three-fourths of respondents which included attraction towards the opposite sex (74.5%) and frequent arguments with family/friends (75.4%) (Table 1). However, only 9% demonstrated complete knowledge of all listed changes.

Table 1: Distribution of the study participants according to their knowledge about changes during puberty

Knowledge	Number	Percentage (%)
Knowledge regarding the age at menarche		
Present	79	71.8%
Absent	31	28.2%
Knowledge regarding the increase in height during puberty		
Present	98	89.09%
Absent	12	10.91%
Knowledge regarding the increase in weight during puberty		
Present	76	69.09%
Absent	34	30.91%
Knowledge about the broadening of hips at puberty		

Present	65	59.09%
Absent	45	40.91%
Knowledge about the appearance of facial acne		
Present	89	80.9%
Absent	21	19.1%
Knowledge about the facial skin becoming oily		
Present	86	78.18%
Absent	24	21.82%
Knowledge about the changes in breast size		
Present	88	80%
Absent	22	20%
Knowledge about the growth of axillary and pubic hair		
Present	95	86.36%
Absent	15	13.64%
Knowledge about attraction towards opposite sex		
Present	82	74.54%
Absent	28	25.45%
Knowledge about frequent arguments with family and friends at puberty		
Present	83	75.45%
Absent	27	24.54%
Total	**110**	**100%**

Regarding causes of puberty, only 18.1% correctly identified hormones as the underlying factor. Most considered puberty a natural phenomenon (57.2%), while others had no idea. Mothers were the most common source of information (73.6%), followed by peers (15.5%), relatives (6.4%), books (3.6%), and elder sisters (0.9%).

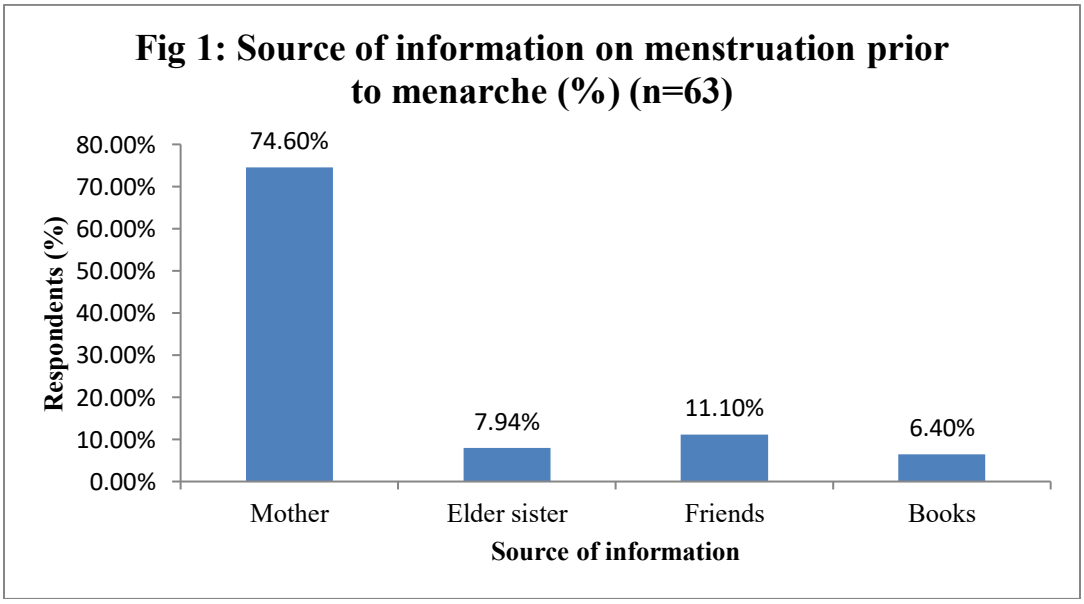
Knowledge of Reproductive Health

General Information

Knowledge about ovulation and fertilization was limited. Only 25.6% knew about ovulation and 29.2% about fertilization. Awareness of the legal age at marriage was better. 67.2% knew it was 18 years for females and 53.6% knew it was 21 years for males.

Menstruation and Menstrual Hygiene

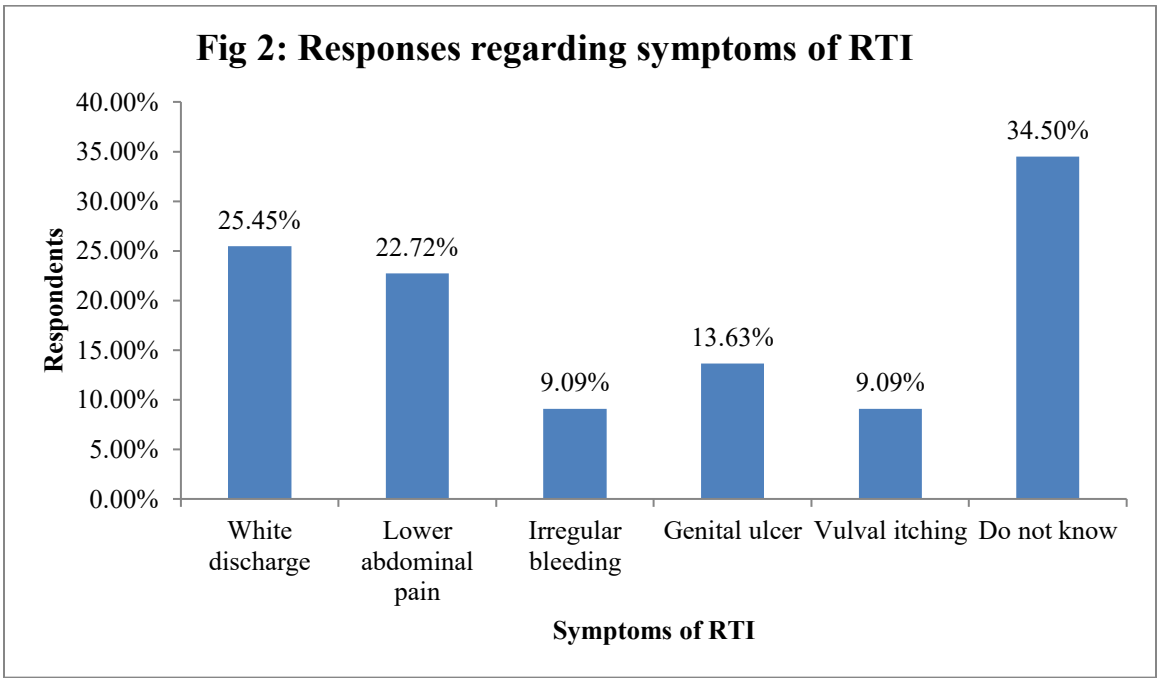
More than half (57.3%) had heard about menstruation before menarche, most commonly from mothers (74.6%) (Fig 1). Knowledge of the organ responsible for menstruation was poor; only 9% correctly identified the uterus, while others attributed it to the stomach (6.5%) or kidney (0.9%) while others had no idea about it.

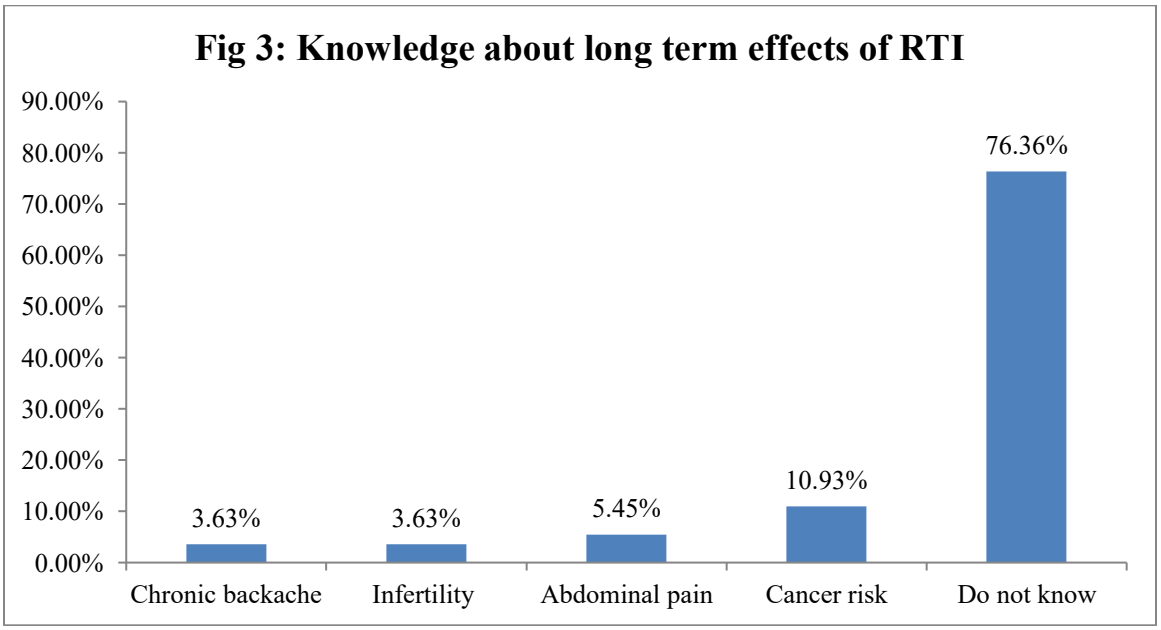


Most (85.4%) knew that sanitary pads should be used and practiced it; however14.6% still preferred cloth. All participants were aware that pads/cloths must be changed daily. Among cloth users (n=16), 75% believed reuse was possible; 62.5% of them reported drying in sunlight, while 37.5% dried in shade.

Reproductive Tract Infections (RTI), Sexually transmitted infections (STI) and HIV/AIDS

One-third (34.5%) had no knowledge of the symptoms of RTI. White discharge (25.5%) and abdominal pain (22.7%) were the most frequently cited symptoms (fig 2). Long-term effects of RTI were poorly recognized; 76.4% had no knowledge, while few associated it with cancer risk (10.93%), chronic abdominal pain (5.45%) or infertility (3.6%) (fig 3). Poor perineal hygiene was identified as a risk factor by 39.1%.





Awareness of STI was very low. 78.2% had no knowledge, and only 24.5% knew STIs could spread to a spouse. In contrast, 61.8% had heard of HIV/AIDS. Among them, 30% knew of blood transmission, 13.6% of sexual transmission and 6.4% of sharing of injections. Only 61.8% responded to prevention methods; among these,

knowledge varied namely condom use (10.9%), monogamy (10%), safe blood transfusion (12.7%) and sterile injections (16.4%). Mothers (37.3%), teachers (21.8%), and media (14.5%) were key information sources.

Family Planning Methods

Only 40% had heard of family planning methods. Among these, oral contraceptive pills (53%), condoms (26%), and Cu-T (7.2%) were more frequently mentioned. Knowledge of emergency contraception was limited. 20.9% knew of E-pills and 8.2% of Cu-T. Less than half knew the ideal family size (48.2%) and recommended birth spacing (49.1%). Only 20% were aware that contraceptive use helps maintain spacing of pregnancies (Table 2).

Table 2: Distribution of study participants according to their knowledge of family planning methods

Heard of family planning methods	**Number (%)**
Yes	44(40%)
No	37(33.6%)
No response	29(26.4%)
Knowledge about different family planning methods	
Condom	29 (26%)
Copper T	8 (7.20%)
Oral pills	58 (53%)
Tubectomy	4 (3.6%)
Vasectomy	2 (1.8%)
No response	9 (8.4%)
Knowledge on emergency contraceptive methods	
E- Pill	23(20.91%)
Cu T	9(8.2%)
Do not know	78(70.9%)
Knowledge of ideal family size	
Knows	53(48.2%)
Do not know	57(51.8%)
Knowledge of importance of birth spacing	
Know	54(49.1%)
Does not know	56(50.9%)
Contraception can maintain gap between children	
Know	22(20%)
Does not know	88(80%)
Total	**110 (100%)**

Pregnancy and Childbirth

Knowledge about pregnancy and childbirth was mixed. About 63.6% identified missed periods as the first sign of pregnancy and almost all (95.5%) knew the importance of antenatal care. However, only 20% correctly identified the uterus as the site of foetal development. A large majority (90%) recognized hospital as the safest place for delivery. Awareness of breastfeeding initiation within one hour was 57.3%, while 90% acknowledged the need for postnatal checkups (Table 3).

Table 3: **Knowledge of study participants regarding pregnancy & child birth**

Knowledge on first sign of pregnancy	Number	Percentage (%)
Know	70	63.6%
Do not know	40	36.4%
Knowledge on regular antenatal checkup during pregnancy		
Yes	105	95.46%

No	5	4.54%
Knowledge of the respondents that Baby develops in uterus		
Know	22	20%
Does not know	88	80%
Knowledge on ideal place for safe delivery		
Hospital	99	90%
Home	11	10%
Knowledge regarding time of initiation of breastfeeding		
Know	63	57.27%
Does not know	47	42.73%
Postnatal checkup essential after birth		
Yes	99	90%
No	11	10%
Total	110	100%

Beliefs Regarding Reproductive Health

Most participants (89.1%) supported school-based sex education. Of those opposing, 83% cited discomfort and 17% felt it unnecessary. Beliefs regarding child's sex attribution varied; 21.8% considered husband responsible, 12.7% considered wife, 35.5% both, while 30% did not know. A majority (60%) believed long-term contraceptive use leads to infertility, and 61.8% did not believe condoms protect against STDs/AIDS. Menstrual taboos were common. 80% believed in abstaining from household work, 50.9% in using a separate bed, while 73.6% felt girls should attend school during menstruation (Table 4).

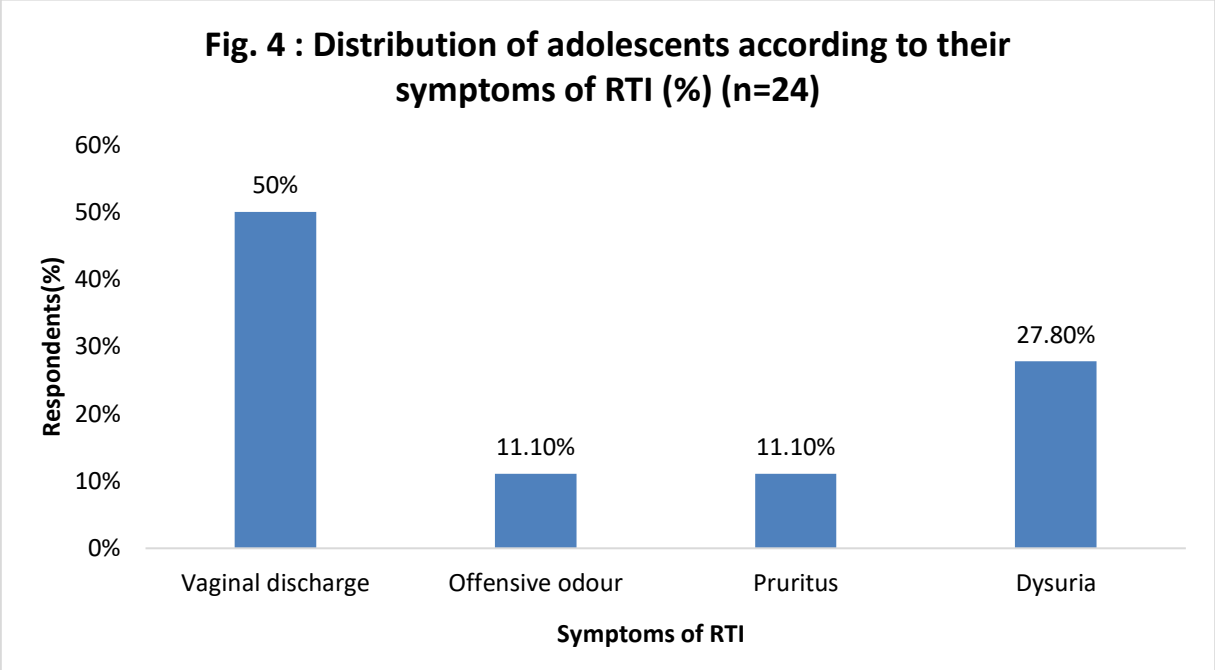
Table 4: Belief of late adolescent girls regarding reproductive health:

Whether sex education should be given in school	Number	Percentage (%)
Yes	98	89.1%
No	12	10.9%
Total	110	100%
Person responsible for sex of child		
Husband	24	21.8%
Wife	14	12.7%
Both	39	35.5%
Do not know	33	30%
Whether long time usage of contraception leads to infertility		
Yes	66	60%
No	13	11.8%
Do not know	31	28.2%
Whether condom provides protection against STD/AIDS		
Yes	42	38.2%
Do not know	68	61.8%
Whether they should abstain from household work during menstrual period		

Yes	88	80%
No	22	20%
Whether they should use separate bed during menstruation		
Yes	56	50.9%
No	47	42.7%
Do not know	7	6.4%
Whether they should attend school during menstruation		
Yes	81	73.6%
No	29	26.4%
Total	**110**	**!00%**

Treatment-Seeking Behaviour

Past history of RTI was reported by 18 (16.3%) participants. Among them, symptoms included vaginal discharge (50%), dysuria (27.8%), pruritus (11.1%) and offensive odour (11.1%) (Fig 4). Regarding treatment, 38.8% consulted a general practitioner, 22.4% a specialist, 11.1% used home remedies, 5.5% approached an Anganwadi worker for counselling while 22.2% did not seek treatment.



Menstrual problems were reported by 40% of participants, the most common being dysmenorrhoea (25%), menorrhagia (22.7%), irregular cycles (15.9%) and vaginal discharge (15.3%). Treatment was sought primarily from doctors other than gynaecologists (47.7%) or specialist (22.7%), while 13.6% relied on home remedies, 2.4% consulted an Anganwadi worker for advice regarding accessing treatment while 13.6% did not seek care.

Factors associated with using sanitary pads as absorbent material

Bivariate logistic regression analysis (Table 5) was performed to identify factors associated with the use of sanitary pad. Among the different socio-demographic and awareness-related factors examined, awareness of menstruation before menarche showed a statistically significant association with the use of sanitary pads. Girls who were aware of menstruation prior to its onset were more likely to use sanitary pads compared to those without such awareness (OR: 8.30; 95% CI: 1.79–38.58; p = 0.003). Other factors such as level of education, religion, current school attendance, and awareness about the organ responsible for menstruation did not demonstrate a significant association with

sanitary pad use. The finding underscores the critical role of early awareness before onset of menarche in shaping healthy menstrual practices.

Table 5: Factors associated with using sanitary pads as absorbent material among adolescent girls (n=110)

Variables	Total	Use sanitary pads	Don't use sanitary pads	OR	95%CI	*p*-value
Education						
High school and above	86	73	13	1.07	0.32-3.63	0.45
Up to Middle school	24	21	4	1 (ref)		
Religion						
Hindu	94	80	14	0.82	0.16-3.99	0.401
Muslim	16	14	2	1 (ref)		
Currently going to school						
Yes	92	79	13	1.22	0.31-4.79	0.390
No	18	15	3	1 (ref)		
Awareness about menstruation before menarche						
Present	53	51	2	8.30	1.787-38.578	0.0034*
Absent	57	43	14	1 (ref)		
Awareness about organ responsible for menstruation						
Present	10	9	1	1.714	0.203-14.484	0.310
Absent	100	84	16	1 (ref)		

*statistically significant, $p<0.05$

DISCUSSION:

Awareness of Pubertal Changes

Most participants identified visible physical transformations such as increased height (89.1%), breast development (80%), axillary and pubic hair growth (86.4%), and acne (80.9%). However, fewer recognized less conspicuous changes such as weight gain (69.1%) and hip broadening (59.1%). Notably, only 9% of respondents demonstrated comprehensive knowledge of all pubertal changes, highlighting the fragmented nature of adolescent awareness. Comparable findings were reported in Delhi, where fewer than 20% of adolescents demonstrated holistic understanding of puberty [1]. Panda et al. observed similar inconsistencies in Odisha, attributing them to a lack of structured health education and the cultural silence surrounding puberty [2]. Comparable findings were also observed in other studies [14,15].

Mothers were the primary source of information (73.6%), a trend also seen in studies from Jaipur [5] and Vishakhapatnam [6], reflecting the limited role of schools and health workers in disseminating accurate knowledge. Similar reliance on mothers was also reported from rural Assam [11], suggesting it to be the dominant mode of knowledge-sharing. While this highlights the importance of maternal influence in shaping adolescent health literacy, it also underscores the risk of perpetuating myths and incomplete information across generations. Strengthening the role of teachers, peer educators, and frontline health workers could help bridge these knowledge gaps and ensure more reliable guidance for adolescent girls.

Knowledge of Menstruation and Hygiene

Although 57.3% of participants had heard of menstruation before menarche, only 9% correctly identified the organ responsible for it. Such misconceptions mirror findings from studies in Delhi [1] and Jaipur [5]. While awareness and use of sanitary pads was high (85.4%), 14.6% still relied on cloth, echoing NFHS-5 data indicating persistent gaps in exclusive pad usage [3].

Awareness prior to menarche was strongly associated with pad use (OR 8.3), reaffirming earlier evidence that timely education promotes hygienic practices [8]. This suggests that timely education and sensitization by parents,

teachers, or community health workers may positively influence menstrual hygiene behaviors. In contrast, variables such as education status and religion did not significantly impact sanitary pad use, which indicates that knowledge and preparedness may play a stronger role than socio-demographic characteristics. These findings align with existing evidence from other studies, which consistently highlight early awareness as a key determinant of menstrual hygiene management [16-21].

Despite improvements in some urban areas, Northeast India continues to lag in menstrual hygiene outcomes. Chakraborty et al. documented rural–urban gap in Assam, one of the highest nationally [7]. Roy et al. reported that Northeastern adolescents had lower odds of using hygienic methods compared to their southern counterparts [8]. Evidence from rural Dibrugarh further confirmed reliance on unhygienic absorbents [11]. These findings highlight the compounded vulnerabilities of adolescents residing in urban slums, where poverty, poor sanitation, and overcrowding exacerbate barriers.

Knowledge of Reproductive Health and Family Planning

Awareness of the reproductive processes was limited, with only 25.6% recognizing ovulation and 29.2% being aware of fertilization. These findings echo broader evidence of misconceptions regarding reproductive physiology in adolescent population [2,13]. Although knowledge of the legal age at marriage was comparatively higher, only 40% had heard of family planning methods, with oral contraceptives most frequently cited. Similar findings have been documented in Odisha [2] and among Bangladeshi slum populations [10]. Such knowledge gaps constrain adolescents' capacity to make informed decisions on reproductive health, increasing vulnerability to early marriage, unintended pregnancies, and associated morbidities.

Awareness of RTIs, STIs, and HIV/AIDS

Awareness of reproductive tract infections (RTIs) was poor; only one-third recognized symptoms, and very few understood long-term complications such as infertility or malignancy. Similar gaps in knowledge have been reported in Dhaka slums [10]. Knowledge of sexually transmitted infections (STIs) was also low (21.8%), although HIV/AIDS awareness was relatively better (61.8%), reflecting the reach of national campaigns. However, only 38% of participants recognized condom use as a measure for STI prevention, indicating persistent misconceptions. A community-based study from rural Telangana similarly found that a large majority of adolescent girls were unaware that condoms prevent STDs, despite having a high level of awareness of HIV/AID [22]. This underscores that while mass campaigns enhance awareness, they may not adequately address deeper gaps in knowledge and attitudes, highlighting the need for stronger school- and community-based health education.

Awareness of pregnancy and childbirth

The present study shows mixed knowledge about pregnancy and childbirth. While most participants recognized missed periods as the first sign of pregnancy (63.6%) and acknowledged the importance of antenatal (95.5%) and postnatal care (90%), only 20% correctly identified the uterus as the site of foetal development. Encouragingly, the majority (90%) viewed hospital delivery as safest, but awareness of early breastfeeding initiation remained modest (57.3%). Similar gaps in knowledge and practice have been reported in other Indian studies, where breastfeeding initiation within one hour is often delayed despite high institutional delivery rates [23,24]. Limited understanding of the physiology of pregnancy has also been observed in another study among adolescents and young women, reflecting persistent educational deficits [25]. These findings suggest that though existing health education programs emphasize on service utilization, there is a need to address deeper conceptual understanding through strengthening of school and community-based education.

Beliefs and Social Norms

Cultural taboos and restrictive practices were observed in this study. Many participants reported restrictions on household work (80%) and use of separate bedding (50.9%) during menstruation. Similar practices have been observed in Rajasthan [5], Odisha [2], and Assam [11]. On a positive note, 89% supported school-based sex education, demonstrating receptivity to structured learning. This openness highlights the potential for interventions targeting adolescents which requires broader engagement of parents, teachers, and community leaders to create an enabling environment.

Treatment-Seeking Behaviour

Among participants with RTI symptoms, 61.2% sought care from general practitioners and specialists, while 22.2% did not seek treatment. Comparable patterns of care-seeking have been documented in Indian and Bangladeshi slum contexts [6,10]. Menstrual disorders such as dysmenorrhea and menorrhagia were common, yet reliance on home remedies still remains. These findings reflect that factors such as stigma, lack of privacy and limited awareness may

discourage timely professional care. In a study of adolescent girls in Bihar and Uttar Pradesh, only about one-third of those with gynecological morbidities sought formal treatment. Many perceived their symptoms as not serious enough to consult a health provider or hesitated due to shame or limited access, especially in rural settings [26]. These findings suggest that strengthening of adolescent-friendly health services and integrating counselling within community platforms, in alignment with RKSK, are pressing priorities [7].

Conclusion

This study demonstrates that while awareness of certain pubertal changes and aspects of menstrual hygiene is moderately high, major gaps persist in reproductive health knowledge, contraceptive awareness, and treatment-seeking behaviours among late adolescent girls in Jorhat's urban slums. These findings highlight the urgent need of a culturally sensitive and adolescent-centred health interventions. Empowering mothers and peers with accurate information, integrating comprehensive curricula within schools, and expanding adolescent-friendly health services are pivotal strategies to safeguard adolescent well-being.

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DECLARATIONS

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Conflict of interest*:* The authors declare that they have no conflict of interest

Ethical approval*:* Ethical clearance was obtained from the Institutional Ethical Review committee

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