

A Study on Reproductive Health Awareness, Hygiene Practices, and Healthcare Autonomy Among Young Women in Deoghar District, Jharkhand

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Abstract

Background: Reproductive health knowledge is crucial for the well-being of young women transitioning into adulthood. College-going girls represent an important population for assessing awareness of reproductive health, menstrual hygiene, infertility, and health-related autonomy.

Objectives: To assess knowledge regarding reproductive health, personal hygiene, infertility-related factors and treatment among college-going girls in Deoghar District, Jharkhand, India, and to examine the association between demographic characteristics and knowledge of reproductive health and autonomy.

Materials and Methods: A mixed-method, comparative descriptive design was adopted among 154 college-going girls aged 17–28 years in Deoghar District. Data on demographic characteristics, reproductive health and hygiene awareness, infertility-related knowledge, and autonomy in healthcare decision-making were collected using a self-administered questionnaire. Descriptive statistics were used to summarize the findings, while chi-square tests assessed associations between selected variables, with statistical significance set at $p < 0.05$.

Results: Of the 154 participants, 53.89% were aged 20–22 years, 72.07% resided in rural areas, and 94.15% were Hindu. Most participants (82.46%) were unmarried, and 74.67% belonged to middle-income families. About 74.02% experienced menarche at 12–15 years, while 69.48% used disposable sanitary pads. Notably, 46.10% reported PCOS, endometriosis, or hirsutism. Parents were the primary decision-makers regarding healthcare and personal hygiene for 57.79% of participants. Overall, 45.40% demonstrated good knowledge of infertility-related factors, while 60% perceived stigma associated with discussing or seeking infertility care. Significant associations ($p < 0.05$) were observed for selected demographic and knowledge variables.

Conclusion: The findings highlight important gaps and social barriers in reproductive health and infertility awareness. Targeted educational and awareness programmes are needed to strengthen reproductive health knowledge, menstrual hygiene practices, infertility awareness, and autonomy among college-going girls.

Keywords: Reproductive health, Hygiene, Infertility, Social stigma, Autonomy, Healthcare awareness

Introduction

A state of total physical, mental, and social well-being—rather than just the absence of illness or infirmity—in all areas pertaining to the reproductive system and its operations and procedures is known as reproductive health. In order to make informed decisions about safe sexual behaviors, one must have a sufficient grasp of reproductive health. However, there is a lack of awareness on reproductive health among Indian adolescent females, which results in poor reproductive outcomes. An egalitarian society is largely dependent on reproductive health, which is essential to the social and economic advancement of a family, community, and country. The significance of raising socially conscious, healthy families of the desired size would be addressed by educating individuals, particularly those in the reproductive and marriageable age range, about birth control alternatives, prenatal care, postpartum care for mothers and children, etc. Women's empowerment and gender equality depend on reproductive health. In many industrialized and developing nations, women's sexual and reproductive rights are not fully upheld, and their reproductive health is in bad condition. For females to learn useful information about SRH issues, parent-adolescent communication is essential. The Government of India has taken significant steps towards improving national, regional and village-level sexual and reproductive health, including making substantial progress on maternal and newborn health key indicators. Today, there are more than 600 million adolescent girls in the world. According to literature, there are about 1.7 million young cohorts worldwide, with 86% of the young population living in poor nations [Mbugua and Karonjo, 2018]. According to a study from 2020, over 65% of this youthful population resides

in India [Nagarathna et al., 2020]. In addition to being especially at risk, women also lack understanding about reproductive health, human rights include the issue of reproductive health. In India, pregnancy problems, STDs, and reproductive malignancies are more common among women, especially those from low-income backgrounds (Manimekalai and Ranjithkumar, 2020). The primary cause of misery and, eventually, death is a lack of access to adequate reproductive care. Due to socioeconomic and cultural barriers, women are denied access to reproductive health care services. Because the female reproductive system is delicate and readily impacted by outside influences, maintaining good cleanliness is a crucial part of everyday care. By definition, hygiene is "the state and practices that help to maintain health and prevent the spread of diseases," according to the World Health Organization. Preventing illnesses and maintaining good health primarily through cleanliness practices is known as hygiene.

Appropriate hygiene is essential for reproductive organ health since it helps avoid irritation, infections, and other issues. In addition to providing physical comfort, good menstrual hygiene also guards against infections, supports reproductive health, and enhances self-esteem and self-assurance. Due to a variety of reasons, including cultural traditions, economic position, personal preferences, and resource availability, women have created a wide range of personal techniques to deal with this time. Serious health hazards associated with poor menstrual hygiene include urinary tract and reproductive infections, which can lead to infertility and birth difficulties in the future. Due to social taboos around sexual and reproductive health (SRH), women frequently choose not to seek medical care. Every year, about 8 lakh teenage girls give birth in low- and middle-income nations. Their mental and physical health suffers as a result of their risk-taking behaviors brought on by their ignorance about SRH. They lack the ability to respond quickly to these events since they were not taught how to handle a variety of important life circumstances in high school. In order to enable people to make decisions and adopt a healthy sexual and reproductive lifestyle, a thorough SRH and life skills education is required [Parida, 2021].

Over the past few years, there has been a growing awareness in our nation of the significance of educating teenage girls about their reproductive health. It is crucial to incorporate reproductive health knowledge into current sexual and reproductive health initiatives. An educational strategy that is both pertinent and considerate of the current sexual and reproductive health needs and concerns of various groups is reproductive health awareness. Since health and education are interdependent, the school method has been found to be effective in a number of cases for any behavior-oriented education. Adolescent girls gain understanding through school health education, which equips them to take charge of their own health and safeguard themselves against potential risks to their reproductive health. Ensuring women's autonomy in healthcare decision-making is crucial for promoting overall improvements in sexual and reproductive health in India, where gender-based privileges that uphold male dominance, kinship structures, and other cultural factors undermine women's autonomy in reproductive healthcare decisions [Gaikwad, 2023, Idris et al, 2023]. The gender and power theory can help explain the potential relationship between women's autonomy in healthcare decision-making and their access to reproductive healthcare services [Connell, 2014]. In addition to providing vital insights for evidence-based policymaking and customized policy interventions to improve women's health in India, this comprehensive assessment is anticipated to add to the body of knowledge already available on reproductive healthcare decision making [Tayal et al., 2024].

Materials and methods

A comparative descriptive design and a mixed strategy were employed for this investigation. College-bound girls in Jharkhand's Deoghar area participated in the study. 154 girls between the ages of 17 and 28 took part in the study. A self-administered knowledge questionnaire was used to gather data. The goal of the research was explained to the participants. Every participant gave their informational consent.

Research variable

Five sections comprised the research variables: the first contained the basic demographic data variables: age, marital status, religion, residence, education, college year, and monthly income; the second contained information about reproductive health and hygiene; the third contained information about women's autonomy regarding healthcare;

the fourth contained information about social outlook regarding fertility; and the fifth contained information about participants' awareness of infertility.

Objectives

1. To assess reproductive health and personal hygiene awareness among college-going girls in Deoghar District, Jharkhand.
2. To assess knowledge regarding infertility, its contributing factors, and available treatment options among the participants.
3. To examine healthcare autonomy and the association of selected demographic characteristics with reproductive health, infertility knowledge, and autonomy.

Sampling Criteria

Inclusive criteria

- Girls between the age of 17-28 years.
- Those who had attained menarche.
- Those who were willing to participate in the study.
- Those who read and understand English and Hindi language.

Exclusive criteria

- Girls who were ill at the time of study.
- Those who were not willing to participate in the study.

Statistical analysis

To provide a thorough picture of the data, descriptive statistics were computed, including percentages and numerical values. Chi-square tests were performed for categorical variables, including age, gender, marital status, degree, field of study, and college year, in order to assess the significance of relationships. With a significance level of 0.05, the p-values were calculated to ascertain the statistical significance of the relationships that were found.

Results

The distribution of the study participants' sociodemographic attributes is shown in Table 1. Out of the 154 participants, 53.89% (83/154) of the girls are between the ages of 20 and 22, 40.90% (63/154) are between the ages of 17 and 19, 3.80% are between the ages of 23 and 25, and 1.29% are beyond the age of 26. Seventy-two percent of the population lived in rural areas, and 145 (94.15%) of the participants were Hindu. The individuals' marital status is divided between the single (82.46%) and married (17.53%) groups. According to the family income status, 25.32% of the girls originate from low-income families, while 74.67% of the girls come from middle-class families. This demographic snapshot provides valuable insights into the composition of the surveyed population, allowing for a more nuanced understanding of the factors under consideration in the study.

A thorough summary of the educational and academic backgrounds of the respondents is given by the participant background data, which is displayed in Table 1. The majority of girls (57.79%) have the highest degree was bachelor's among those surveyed, followed by students pursuing bachelor's degrees (23.37%), master's degrees (3.24%), diplomas (2.59%), and high school diplomas (12.98%) while the biggest representation in the first year (35.06%). The distribution is reasonably equitable when taking college years into account. There is a clear diversity in the fields of study: 71.42% are in the arts, 13.63% are in science, 5.19% are in commerce, 1.94 percent are in engineering, and 7.79 percent are in management. This thorough analysis of participant backgrounds sheds light on the diverse educational backgrounds and areas of expertise of the group polled, offering important background information for analyzing replies and deriving conclusions about the research study.

Table 1. Demographic data of the participants

	Demographic Data	Number (N) %
A	Age (yrs.)	
	17-19	63 (40.90%)
	20-22	83 (53.89%)
	23-25	6 (3.98%)
	26-28	2(1.29%)
B	Marital status	
	Single	127 (82.46%)
	married	27 (17.53%)
C	Religion	
	Hindu	145 (94.15%)
	Muslim	5 (3.24%)
	Not prefer to say	4 (2.59%)
D	Habitual residence for the past five years	
	Rural	111 (72.07%)
	Urban	43 (27.92%)
E	Household wealth Quintin (Income)	
	Poor	39 925.32%)
	Middle	115 (74.67%)
F	Highest education	
	High School	20 (12.98%)
	Diploma	4 (2.59%)
	Bachelor's	89 (57.79%)
	master's	5(3.24%)
	Pursuing Bachelor's	32 (23.37%)
G	College Year	
	First year	54 (35.06%)

	Second Year	39 (25.32%)
	Third Year	42 (27.27%)
	Fourth Year	19 (12.33%)
H	Field of the study	
	Arts	110 (71.42%)
	Science	21 (13.63%)
	Management	12 (7.79%)
	Commerce	8 (5.19%)
	Engineering	3 (1.94%)

NOTE: The data (N= 154 participants) has been represented as N = Total number of participants who selected the aforementioned option among all the choices available; % = N/Total number of participants selected for the study. Table 2 presents information on participants' attitudes, knowledge, and confidence about reproductive health and personal hygiene awareness, two important facets of wellbeing. 74.02% of the female's hadmenarche between the ages of 12 and 15, 24.02% between the ages of 10 and 12, and just 1.94% between the ages of 10 and 15. According to data on how they maintain their personal hygiene, 69.48% of girls use disposable sanitary pads during their menstrual cycle, 12.33% use reusable pads, and only 9.09% use cloth towels. Additionally, 40.90% of girls say they maintain their personal hygiene occasionally, 22.72% say they do so frequently, and 29.87% say they do so. Though 7.79% of girls never seek out information on their personal hygiene, a large ($p<0.01$) portion of females actively seek information about their reproductive health, with 57.79% reporting that they do so occasionally and 36.36% reporting that they do it frequently.

There is variation in the distribution of prior information regarding reproductive health awareness and infertility treatment; 42.20% of students respond that they are aware about reproductive health and about infertility treatments, whereas 38.96% don not know this infertility. The degree of confidence in the veracity of reproductive health information varies as well; 17.53% of respondents said they were not confident, 27.92% said they were somewhat confident, and 31.16% said they were indifferent about their level of confidence. Family (31.81%) and the internet (29.87%) are the most popular information-seeking sources, demonstrating the importance of social networks and online platforms in spreading knowledge about reproductive health. Data about prior knowledge of contraceptive methods indicates that 56.49% of females have prior knowledge of these methods. This thorough data highlights areas for focused awareness campaigns and education by revealing how participants interact with and trust information about reproductive health. Of the 154 girls, 71 (46.10%) have been diagnosed with PCOS, Hirsutism, or endometriosis (Table 2). According to the results of the autonomy study, which are displayed in Table 3, the majority of the girls—89, or 57.79 percent—usually consult their parents when making decisions about their personal hygiene or healthcare, while 51, or 33.11 percent, make these decisions on their own. Only 14 girls, or 9.09 percent, are entirely dependent on their parents for health-related decisions.

Table 2: Reproductive health and personal hygiene awareness among the participants.

A	Hygiene Awareness	Number (N)%
	What was your age at your menarche (first period)?	

	> 10 Years	3 (1.94%)
	10-12 years	37 (24.02%)
	12-15 years	114 (74.02%)
	What were all the materials you used to catch/absorb your menstruation?	
	Cloth/towel	14 (9.09%)
	Disposable sanitary pad	107 (69.48%)
	Period underwear	9 (5.84%)
	Reusable sanitary pad	19 (12.33%)
	Other	5 (3.24%)
	Do you maintain your personal hygiene during your menstrual cycle?	
	Very often	35 (22.72%)
	Sometimes	63 (40.90%)
	Yes	46 (29.87%)
	Never	6 (3.89%)
	Not sure	4 (2.59%)
	Do you seek information regarding your personal hygiene?	
	Often	56 (36.36%)
	never	12 (7.79%)
	Sometimes	89 (57.79%)
B	Reproductive Health Awareness	
	Do you seek information regarding your reproductive health?	
	Very often	56 (36.36%)
	Never	12 (7.79%)
	Sometimes	89 (57.79%)

		*(p<0.01)
	Do you have previous knowledge about reproductive health and infertility treatment?	
	Yes	65 (42.2%)
	No	60 (38.96%)
	Not Sure	29 (18.83%)
	How confident are you in the accuracy of the reproductive health information you came across?	
	Very Confident	36 (23.37%)
	Somewhat confident	43 (27.92%)
	Neutral	48 (31.16%)
	Not confident	27 (17.53%)
	Where do you usually seek information about reproductive health and fertility?	
	Friends	17 (11.03%)
	Family	49 (31.81%)
	Internet	46 (29.87%)
	Health Professionals	25 (16.23%)
	Others	12 (7.79%)
	Do you have any previous knowledge about contraceptive methods?	
	Yes	87 (56.49 %)
	No	67 (43.50%)
	Do you ever diagnose with PCOS/Endometriosis/ hirsutism (Excessive body hair on parts of the body where hair is normally absent or minimal)?	
	Yes	71 (46.10%)
	NO	83

	(53.24%)
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NOTE: The data (N= 154 participants) has been represented as N = Total number of participants who selected the aforementioned option among all the choices available; % = N/Total number of participants selected for the study. The social perspective data, which is displayed in Table 3, offers important information about how individuals view and feel about reproductive health in the larger social environment. There is societal pressure related to the ability to procreate, according to a significant majority of respondents (40.20% strongly agree), and another 46.75% agree. The ubiquity of societal expectations surrounding fertility is highlighted by the fact that just a small percentage, 12.90%, are neither in agreement nor disagreement with this idea. 10.30% are unclear, and a sizable majority (60%) think that talking about or getting treatment for infertility has a stigma. Participants show a range of confidence levels when evaluating their knowledge of infertility-influencing factors and conception techniques, with 40.20% rating their knowledge as very excellent and 20.10% as bad. This information emphasizes how crucial it is to comprehend how society views and stigmatizes reproductive health, promote more candid discussions, and fill in knowledge gaps in order to create a community that is both supportive and knowledgeable.

Table 3. Social outlook and autonomy of the participants

Who usually makes decisions regarding your healthcare or personal hygiene?	Number (N)%
Parents	14 (9.09%)
Self	51 (33.11%)
Yourself and parents	89 (57.79%)
Do you believe it is not perceived well by society if someone is not able to reproduce?	
Strongly agree	62 (40.20%)
Agree	72 (46.75%)
Neither agree or disagree	20 (12.90%)
In your opinion, is there a stigma associated with discussing or seeking help for infertility?	
Yes	60(38.9%)
No	78(50.60%)
Not Sure	16 (10.30%)
How would you rate your knowledge about the factors in influencing infertility and methods to conceive?	
Poor	31 (20.10%)
Neutral	61 (39.60%)

Good	62 (40.20%)
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NOTE: The data (N= 154 participants) has been represented as N = Total number of participants who selected the aforementioned option among all the choices available; % = N/Total number of participants selected for the study. Participants' perceptions and levels of knowledge vary, as evidenced by the infertile awareness data in Table 4. Sixty two participants (40.45%) were aware of infertility and had high understanding of the variables that contribute to it, and 14.28% who were nonaligned. Remarkably, when asked to list the causes of infertility, participants showed varying degrees of awareness, despite the fact that 80.5% of participants believe infertility can be treated. Important elements Age, smoking, heavy drinking, drug use, poor diet, thyroid problems, diabetes, problems with the reproductive organs, prior surgeries, tight undergarments, and radiation from cell phones The lifestyle choices of 70 (45.45%) females who breastfeed are widely acknowledged. However, 52 (33.76%) of the participants reported having AIDS or masturbating while using birth control pills, whereas the remaining 32 (20.77%) people agreed with all of the criteria. This range of answers highlights the necessity of focused education to raise public knowledge of the causes and therapies of infertility and promote knowledgeable viewpoints on this important reproductive health concern. The key indicators of reproductive health awareness, infertility knowledge, menstrual hygiene practices, and healthcare autonomy are summarized in Figure 1.

Table 4. Infertility awareness among the participants **Number (N)**

Do you know about infertility?	
Yes	62 (40.45%)
No	70 (45.45%)
Not sure	22 (14.28%)
Do you think infertility can be treated?	
Yes	124 (80.50%)
No	13 (8.44%)
Not sure	19 (12.30%)
Are you aware of factors that can contribute to infertility?	
Yes	70 (45.40%)
NO	60 (38.90%)
May be	23 (14.90%)
Can you enlist all factors that can contribute to infertility by selecting from the below options?	

Age; Smoking excessive alcohol consumption, drug use; Poor diet; Medical conditions. conditions like diabetes, thyroid disorders etc; Reproductive organ issues; Previous surgeries; Tight Underwear's; Cell phone radiation; Breastfeeding	70 (45.45%)
Sexually transmitted infections (STIs) like AIDS, Birth control pill use; Masturbations	52 (33.76%)
All of above	32 (20.77%)

NOTE: The data (N= 154 participants) has been represented as N = Total number of participants who selected the aforementioned option among all the choices available; % = N/Total number of participants selected for the study.

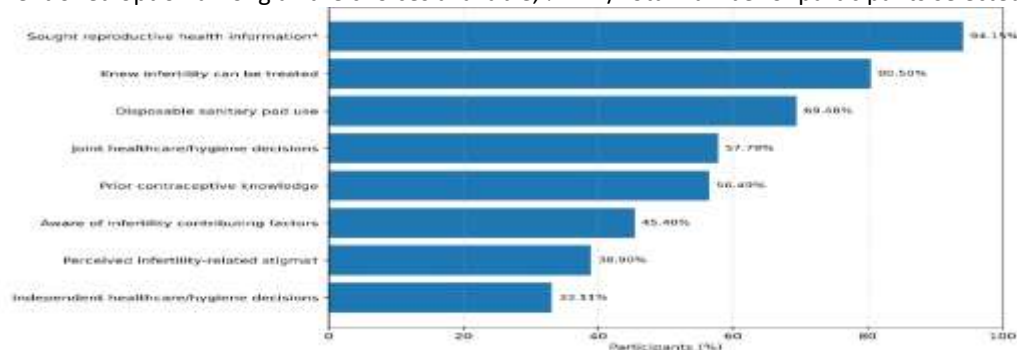


Figure 1. Key reproductive health, infertility awareness, and healthcare autonomy indicators among college-going girls in Deoghar District, Jharkhand (N = 154).

Discussion

A family's, community's, and country's social and economic progress depends on reproductive health, which is also essential to an egalitarian society. Women's empowerment and gender equality depend on reproductive health. The results of the current data set study were intended to evaluate college students' knowledge of personal hygiene and reproductive health in the Deoghar area of Jharkhand, India. College students who lack awareness of hygiene and reproductive health care are less likely to utilize the reproductive healthcare resources that are already available to them [Kene et al., 2023]. Numerous studies indicate that people in their reproductive years are becoming more vulnerable to issues related to low reproductive health knowledge. According to reports, studies conducted in Kenya, China, India, Turkey, and other nations have assessed and highlighted the fact that various sociodemographic profiles have a significant lack of knowledge regarding reproductive health, and that college students make up the majority of those who contribute [Mbugua and Karonjo, 2018; Ege et al., 2011; Zhao et al., 2023; Zhang et al., 2010; Radhakrishnan, 2017]. In line with Dutta et al., 2024, our investigation revealed a positive significant ($p < 0.05$) association between age, reproductive health knowledge and infertility. Regarding understanding of reproductive health and hygiene issues, respondents with greater age had greater knowledge.

A study on the assessment of adolescents' reproductive health knowledge content (Shipra and Namita, 2018; Thabab and Ahmed, 2008) found that female adolescents in Meghalaya had average knowledge of puberty, sexual diseases, and family planning, followed by menstruation. According to their findings, those in older age groups were more likely to have been exposed to information about reproductive health and, consequently, had better understanding. Information about age at menarche showed by Bhan et al. (2004), Singh et al. (2006), Juyal et al. (2012), and Ray et al. (2011), the age at first menstruation is between 12.8 and 13.1 years, in present study majority of students

(74.02%) of the girls are in the age group of 12-15 years at their menarche. Parents serve as the first educators of the young population when it comes to educating girls about reproductive health and hygiene maintenance, greatly impacting the development of teenagers' views and behaviors about sexuality [Shenwai, et al., 2022]. Parents and siblings are the least used knowledge sources for reproductive health, according to numerous research, while young adults typically look to peers, social media, and untrustworthy sources for information [Deshmukh and Chaniana, 2020]. These typically result in inaccurate information exchange between the reproductive groups, which raises the prevalence of high-risk sexual practices and increases the risk of STIs and infertility. Teenagers' usage of social media platforms like Facebook, YouTube, Instagram, WhatsApp, Twitter, and others has increased dramatically in recent years. Despite its advantages, social media has also led to risks including online sexual harassment and cyberbullying. In the current study, 46 (29.87%) of the girls utilize social media and the internet to get information on their health and hygiene, while 49 (31.81%) talk to their family members. According to the findings regarding women's autonomy in relation to their health, the majority of the girls—89, or 57.79 percent— usually consult their parents when making decisions about their personal hygiene or healthcare, while 51, or 33.11 percent, make their own decisions. Only 14 girls, or 9.09 percent, are entirely dependent on their parents for health-related decisions. Women are subjected to more social pressure than men, and infertility is a social phenomenon. Women who are infertile must deal with various forms of stigma from both the public and their families, which leads to sadness, degeneration, and self-stigma. The stigma associated with infertility might negatively impact an infertile woman's quality of life by causing significant mental strain and psychological load [Xie et al., 2023]. A considerable majority of participants in our study (60%) believe that there is a stigma associated with discussing or getting help for infertility, and 46.75% believe that society does not see it favorably if someone is unable to procreate and faces societal and personal stigma. According to the study, one strategy employed by infertile women to cope with any kind of shame is social disengagement or social isolation [Jansen and Saint, 2015, Taebi et al., 2021].

Since there aren't many studies on reproductive health awareness, this study attempted to fill the knowledge vacuum. Our study supported other international research showing that the younger generation is especially ignorant about reproductive health and engages in risky sexual behavior, which is a major cause of STIs in India. Therefore, it is crucial to develop a strong awareness campaign to raise awareness of reproductive health and related issues that can cause infertility, control the rising rate of infertility in India, and enhance the general reproductive health of India's largest population group.

Limitations

This study has several limitations. First, its cross-sectional design captures reproductive health knowledge, hygiene practices, infertility awareness, and healthcare autonomy at a single point in time; therefore, causal relationships cannot be established. Second, the relatively small sample of 154 college-going girls from Deoghar District may limit the generalizability of the findings to young women in other geographical, educational, and socioeconomic settings. Third, data were collected using a self-administered questionnaire, which may be subject to recall, reporting, and social-desirability biases, particularly for sensitive reproductive health and infertility-related questions. In addition, the predominance of participants from rural areas,

Hindu backgrounds, and arts-related disciplines may have influenced the observed patterns. Finally, the study primarily assessed reported knowledge and perceptions rather than objectively verified reproductive health practices or clinical outcomes.

Future Research Directions

Future studies should employ larger, more diverse, and multi-centre samples covering different districts and states to improve the generalizability of findings. Longitudinal research could examine changes in reproductive health knowledge, hygiene practices, infertility awareness, and healthcare autonomy over time. Intervention-based studies should also evaluate the effectiveness of structured reproductive health education programmes delivered through colleges, healthcare professionals, parents, and digital platforms. Future research could further explore the influence of socioeconomic status, family communication, access to healthcare, cultural norms, and social stigma on

reproductive health decision-making. Qualitative studies may provide deeper insights into the experiences, barriers, and perceptions underlying reproductive health autonomy and infertility-related stigma among young women. These approaches could contribute to the development of evidence-based and context-specific reproductive health interventions.

Conclusion

This study provides important insights into reproductive health awareness, menstrual hygiene practices, infertility-related knowledge, social perceptions, and healthcare autonomy among college-going girls in Deoghar District, Jharkhand. Although a considerable proportion of participants reported awareness of reproductive health and infertility-related issues, important knowledge gaps and misconceptions remain. The findings also highlight the influence of parents in healthcare decision-making and the presence of perceived social pressure and stigma surrounding fertility and infertility. These findings indicate the need for comprehensive and age-appropriate reproductive health education that extends beyond basic hygiene to include infertility, contraception, reproductive disorders, healthcare-seeking behaviour, and informed decision-making. Given the observed gaps in knowledge and autonomy, strengthening reproductive health literacy among young women can contribute to more informed and healthier choices and potentially improve long-term reproductive health outcomes.

Deliverables/Recommendations

Based on the findings, the following measures are recommended:

1. Structured reproductive health education: Colleges should implement regular, evidence-based educational programmes covering menstruation, reproductive health, contraception, infertility, sexually transmitted infections, and reproductive disorders.
2. Menstrual hygiene awareness: Students should receive practical guidance on safe menstrual hygiene practices, appropriate menstrual products, hygiene maintenance, and safe disposal methods.
3. Infertility awareness programmes: Awareness sessions should address common and modifiable factors associated with infertility, available treatment options, and misconceptions surrounding fertility.
4. Reduction of social stigma: Colleges and healthcare institutions should create safe and confidential spaces where young women can discuss reproductive and infertility-related concerns without fear of judgement or stigma.
5. Strengthening healthcare autonomy: Educational interventions should encourage young women to participate actively in decisions concerning their own healthcare while promoting constructive communication with parents and healthcare professionals.
6. Digital and community-based interventions: Reliable reproductive health information should be disseminated through digital platforms, healthcare professionals, parents, educators, and community-based organisations to counter misinformation and improve access to trustworthy information.
7. Institutional and policy support: Governmental and non-governmental organisations should integrate reproductive health awareness into existing adolescent and young women's health programmes to promote informed healthcare-seeking behaviour and improve reproductive health outcomes.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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