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RESEARCH ARTICLE

PERCEPTION OF ADOLESCENTS AND YOUNG WOMEN (15-21 YEARS) REGARDING CAESAREAN SECTION DELIVERIES: A CROSS-SECTIONAL STUDY IN DISTRICT U. S. NAGAR, UTTARAKHAND

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Abstract

Background: -Increasing rates of Caesarean section deliveries in India raise concern about the factors influencing childbirth method decisions, with the increasing rate of Caesarean section (C-section) deliveries in India. As adolescent girls and young women will be future mothers and primarily will be responsible for decision-making, their awareness and perceptions regarding C-section deliveries are vital for developing structured reproductive health education and maternal health programs. However, limited research has explored their understanding and attitudes toward C-sections.

Methods: -A descriptive cross-sectional study was conducted among 200 adolescent girls and young women from different districts of Uttarakhand, India, using an online structured questionnaire. The information collected from this survey included socio-demographic characteristics, awareness and perceptions regarding C-section deliveries, concerns related to C-sections, and factors influencing their decision on the mode of delivery. Data was analyzed descriptively. Responses were summarized using frequencies and thematic interpretation for open-ended questions.

Results: -Most of the participants were aged 15–18 years (77.5%), unmarried, and primarily students (86%). Majorly, the respondents (32%) reported neutral perceptions toward C-section deliveries, and 30.5% showed somewhat positive perceptions. A majority (72%) were uncertain about the safety of C-sections compared to vaginal delivery. The most common concerns related to C-section were surgical risks (68%) and cost (59%). The vaginal delivery for future childbirth was chosen by Half of the respondents (50%), while 32% specified no preference. The most influential factor in decision-making was identified as medical advice (68%) and family opinions (64%).

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Conclusion: -Adolescent girls and young women showed limited awareness and neutral perceptions toward C-section deliveries. These findings highlight the need for structured reproductive health education and community-based awareness programs for adolescent girls and young women to support them in the future to make informed decisions related to childbirth methods.

Introduction: -

Childbirth is a natural physiological process; however, there are situations where surgical intervention, C-section, is needed to save the life of the mother and/or baby. The C-section delivery trends in India have shown a significant increase, which exceeds the World Health Organization's recommended limits for C-sections. While deciding on a C-section, medical necessity plays a crucial role. Other than medical necessity, socio-cultural perceptions, community beliefs, and awareness levels also influence the choice of the childbirth method.

Despite the increasing rate of C-section deliveries globally and in India, most of the research was conducted for pregnant women or women who have already experienced childbirth. There are very few studies that have explored the awareness and perceptions of adolescent girls and young women, who will be the future population of mothers and decision-makers for childbirth methods.

Adolescents are the individuals between the ages of 10 and 19 and their physical, mental, emotional, and social well-being lays the foundation for adult health in the upcoming future. If we prepare the adolescents for developmental changes and educate and support them for establishing healthy behavioral patterns, including diet, physical activity, and sexual and reproductive health, they will be prepared to take informed decisions in their upcoming lives and can be prevented from long term health risks. Further, their perceptions and knowledge about reproductive health including childbirth methods are shaped early, mainly through family, community, education systems, and social interactions. However, the level of understanding regarding medical procedures such as C-section among adolescents remains inadequately explored in the Indian context.

Existing literature also highlights that misconceptions and inadequate knowledge about childbirth interventions may contribute to fear, stigma, or unrealistic expectations regarding delivery methods. Early awareness and education about childbirth options could therefore play a significant role in shaping informed decision-making later in life.

In this context, there is a need to assess the awareness, perceptions, and concerns regarding C-section deliveries among adolescent girls and young women. It is important to understand their awareness and attitudes toward C-section deliveries to develop effective reproductive health education and community-based interventions.

Objectives of the study

1. To assess the level of awareness and perception toward C-section deliveries among adolescent girls and young women.
2. To explore the influence of community and family on opinions related to childbirth methods.
3. To understand their preferences for future delivery and factors influencing their decision-making.

Methods: Study Design and Setting: -

A descriptive cross-sectional study was conducted using an online structured questionnaire.

The study included 200 adolescent girls and young women, where participants were reached using a non-probability convenience sampling approach through an online questionnaire (Google Form). They were informed about the study, its purpose, and their willingness to complete the survey.

This method was selected due to its feasibility in reaching adolescent girls and young women across multiple districts within a limited time frame. This method gave a chance for the inclusion of participants from different educational and social backgrounds and provided initial insights into awareness and perceptions regarding C-section among young women. The study was conducted in accordance with the principles of voluntary participation, confidentiality, and anonymity. Participants were informed about the objectives of the study, and electronic informed consent was obtained before participation. No personal identifiers were collected, and all responses were analyzed in aggregate form to ensure privacy.

Data Collection Tool: -

A structured questionnaire was developed following a review of relevant literature on Caesarean section awareness, perceptions, and childbirth preferences. The questionnaire was designed to collect information on:

- Socio-demographic characteristics
- Awareness and familiarity with C-section deliveries
- Community and family perceptions
- Concerns related to C-sections
- Preferences regarding future mode of delivery

The questionnaire included both multiple choice and open-ended questions. The questionnaire was administered electronically using Google Forms.

Statistical Analysis: -

Descriptive statistics were used to summarize the study findings. Frequencies, percentages, and 95% confidence intervals (CI) were calculated for key variables. Goodness-of-fit Chi-square tests were performed to determine whether the observed distribution of responses differed significantly from an equal distribution across categories. Statistical significance was considered at $p < 0.05$.

Results: -**Table 1. Socio-demographic Characteristics of Study Participants (N = 200)**

Variable	Category	Frequency (n)	Percentage (%)
Age group (years)	15–18	155	77.5
	19–24	45	22.5
Marital status	Unmarried	200	100
	Married	0	0
Occupation	Student	172	86
	Working	28	14
Earning status	Not earning	154	77
	Earning	46	23

Table 2. Awareness and Perceptions Regarding C-section Deliveries (N = 200)

Variable	Category	Frequency (n)	Percentage (%)
Overall perception toward C-section	Neutral	64	32
	Somewhat positive	61	30.5
	Somewhat negative	40	20
	Very negative	24	12
	Very positive	11	5.5
Perception of safety compared to vaginal delivery	Positive	46	23
	Negative	10	5
	Uncertain	144	72
Discussion about childbirth methods	Yes	118	59
	No / Not sure	82	41
Discussion in school or college	Yes	64	32
	No / Not sure	136	68

Table 3. Concerns Regarding Caesarean Section Deliveries and Future Childbirth Preferences (N = 200)Multiple Responses)

Variable	Response	Frequency (n)	Percentage (%)
Concerns related to C-section	Surgical risks	136	68
	Cost	118	59
	Impact on future pregnancies	82	41
	Longer recovery time	73	36.5
	Social stigma	64	32
Preferred mode of delivery in future	Vaginal delivery	100	50
	C-section	36	18
	No preference	64	32
Factors influencing decision-making	Medical advice	136	68
	Family opinion	128	64
	Personal research	72	36
	Cultural beliefs	54	27

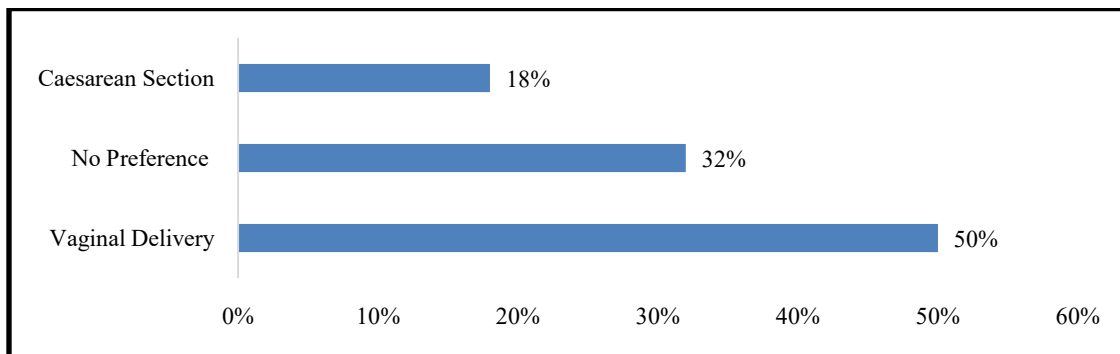


Figure 1: Preferred mode of delivery among respondents

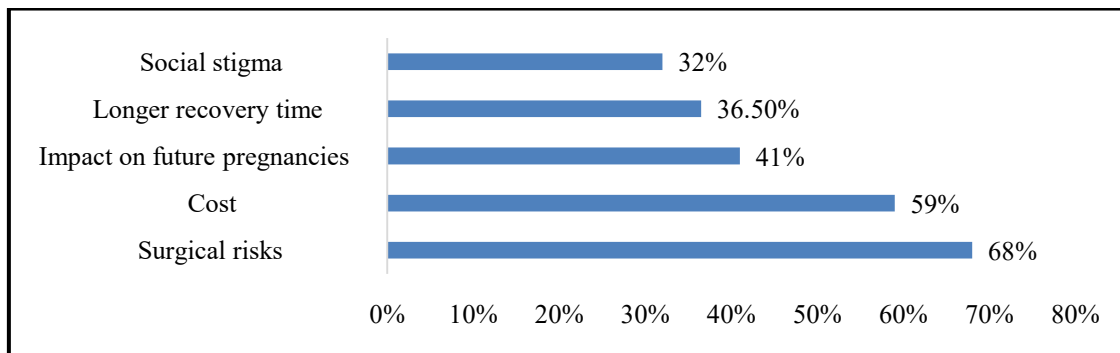


Figure 2. Concerns Related to C-section Deliveries (Multiple Responses) Concerns Related to C- Section Deliveries (%)

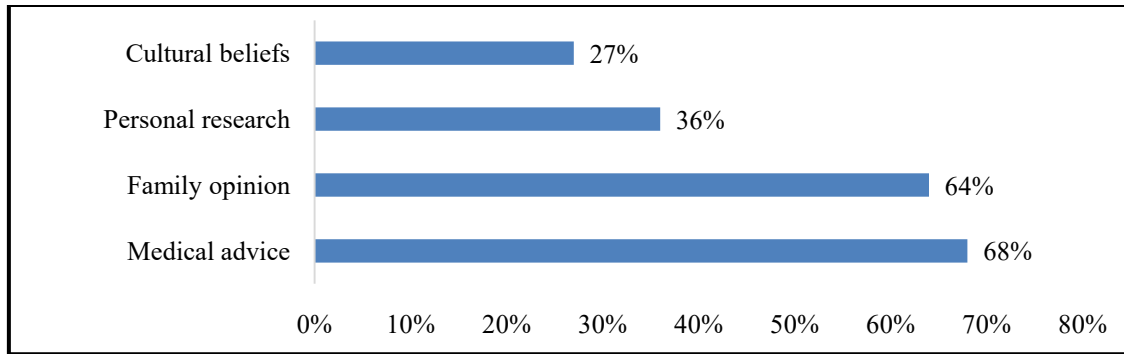


Figure 3. Factors influencing decision-making regarding childbirth methods among respondents

Statistical Findings: -

The distribution of overall perceptions regarding Caesarean section deliveries differed significantly across response categories ($\chi^2 = 69.55$, $df = 4$, $p < 0.001$). Neutral perceptions (32%) and somewhat positive perceptions (30.5%) were more frequently reported than very positive (5.5%) or very negative perceptions (5%). This indicates that respondents generally held neutral to moderately positive views toward Caesarean section deliveries.

Many of the respondents were uncertain about the safety of Caesarean section deliveries compared with vaginal delivery (72%; 95% CI: 65.8%–78.2%). The distribution of responses regarding perceived safety was significantly different across categories ($\chi^2 = 149.17$, $df = 2$, $p < 0.001$), indicating that uncertainty predominated among participants.

Regarding future delivery preferences, vaginal delivery was preferred by 50% of respondents (95% CI: 43.1%–56.9%), whereas 32% reported no preference and 18% preferred Caesarean section. The distribution of preferences was significantly different across categories ($\chi^2 = 31.36$, $df = 2$, $p < 0.001$).

Among concerns related to Caesarean section deliveries, surgical risks (68%; 95% CI: 61.5%–74.5%) and cost (59%; 95% CI: 52.2%–65.8%) were the most frequently reported concerns. Medical advice (68%; 95% CI: 61.5%–74.5%) and family opinions (64%; 95% CI: 57.4%–70.6%) were identified as the most influential factors affecting future childbirth decision-making.

Table 4. Variables with Percentages and 95% Confidence Intervals

Variable	Percentage (%)	95% CI
Uncertain about safety of C-section	72	65.8–78.2
Vaginal delivery preference	50	43.1–56.9
Surgical risks concern	68	61.5–74.5
Cost concern	59	52.2–65.8
Medical advice influence	68	61.5–74.5
Family opinion influence	64	57.4–70.6

Discussion: -

The present study assessed the awareness, perceptions, and concerns regarding C-section deliveries among adolescent girls and young women in Uttarakhand, India. The findings highlight critical gaps in reproductive health knowledge within this population group and need for early interventions in school and colleges focusing on adolescent girls and young women before their reproductive years.

In this study, a large proportion of respondents (72%) showed uncertainty regarding the safety of C-section deliveries compared with vaginal delivery, suggesting limited understanding of C-section and its indications. Similar findings have been reported in previous studies where young women displayed inadequate knowledge about childbirth interventions and relied largely on informal sources such as family members and community discussions rather than structured health education platforms.¹⁰ These observations recommend that awareness regarding childbirth methods among adolescents remains largely limited and unstructured. The most reported concerns related to C-section deliveries in the present study were surgical risks (68%) and cost (59%). These findings are similar with earlier studies conducted in India that reported women frequently associate C-section deliveries with increased financial burden, longer recovery periods, and higher perceived risk of complications.⁷ Such perceptions can influence preferences for future childbirth even before getting pregnant, underline the importance of structured reproductive health education at an early stage.

Half of the respondents in the present study expressed a preference for vaginal delivery in future childbirth, while nearly one-third reported no clear preference regarding mode of delivery. Similar preferences were seen in studies among women of reproductive age, where vaginal delivery is generally preferred when there is no medical indication for C-section.⁸ This suggests that adolescents may not yet have comprehensive knowledge regarding delivery methods, their baseline preferences already shifted toward vaginal childbirth unless there is medical need or advice. Another important finding of this study was that medical advice (68%) and family opinion (64%) were the most influential factors affecting decision-making related to childbirth methods. Previous research has similarly displayed that healthcare providers and family members play a pivotal role in making perceptions and decisions regarding delivery methods, particularly within South Asian sociocultural contexts where family involvement in maternal health decisions remains strong.¹⁰ These findings suggested that both healthcare professionals and family play an important role for awareness generation related to childbirth options.

Overall, the findings of this study suggest that adolescent girls and young women possess basic awareness but limited comprehensive understanding of C-section deliveries and their indications. Misconceptions and inadequate knowledge about childbirth interventions may contribute to uncertainty, fear, or unrealistic expectations regarding delivery methods.⁶ This presents an important opportunity for healthcare systems and educational institutions to introduce structured reproductive health education programs that can positively influence perceptions at an early stage and support informed decision-making in future maternal health choices.

Conclusion: -

The study highlights that adolescent girls and young women have very limited knowledge about C-sections, and most of them were uncertain about C-section deliveries. The limited awareness is mostly superficial and gathered while having a discussion with someone or hearing it from someone in the community, rather than through formal education. The strong belief in medical advice opens an opportunity to include comprehensive reproductive health education in school and college curricula to empower adolescent girls and young women to make informed decisions in the future. Community outreach programs specifically designed for young people to address the myths and misconceptions and help them understand their options when it comes to pregnancy and childbirth.

The present study highlights important gaps in awareness and understanding regarding C-section deliveries among adolescent girls and young women. However, most respondents had heard about C-sections, and many showed uncertainties regarding their safety, medical indications, and long-term implications. The findings also indicate that adolescents rely heavily on informal information sources such as family discussions and community narratives rather than structured educational platforms. The strong influence of medical advice and family opinions in decision-making suggests that healthcare professionals and family members play an important role in perceptions related to childbirth methods. These findings highlight the importance of intervention including comprehensive reproductive health education in school and college curricula to improve early awareness of maternal health and childbirth methods. Community-based awareness programs targeting adolescents may also help address misconceptions related to C-section deliveries and promote evidence-based understanding of childbirth options.

At the policy level, introducing maternal health awareness components for adolescent girls and young women within existing national programs such as Rashtriya Kishor Swasthya Karyakram (RKSK) and strengthening community engagement program under National Health Mission can strengthen early reproductive health preparedness among the target group. These strategies will be helpful to for the long-term efforts to improve maternal health in India.

Future research with larger and more representative samples is needed to further explore adolescents' perceptions and to inform policies aimed at improving reproductive health education and maternal health awareness.

Summary Points: -

- C-section delivery rates are increasing globally and in India that highlighted the need to understand awareness and perceptions about childbirth methods among adolescent girls and young women.
- Most of the participating adolescent girls and young women showed limited awareness and uncertainty about the safety and indications of C- section deliveries.
- Surgical risks and cost were the most reported concerns associated with C-section deliveries among the participants.
- Half of the participants responded with vaginal delivery as the preferred mode of childbirth, while one-third had no clear preference.
- Medical advice and family opinions were reported as the most influential factors that can affect future childbirth decision-making.
- The findings highlighted the demand for structured reproductive health education and awareness programs among the community that can target adolescents and young women.
- Also, integrating reproductive and maternal health education in school, college, and adolescent health programs can create awareness for reproductive health and prepare them for informed decision-making in the future.

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