

1 **Perception of Adolescents and Young Women (15-21 Years) Regarding Caesarean Section**  
2 **Deliveries: A Cross-Sectional Study in District U. S. Nagar, Uttarakhand**

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4  
5 **Abstract**

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7 **Background:**

8 Increasing rates of Caesarean section deliveries in India raise concern about the factors  
9 influencing childbirth method decisions, with the increasing rate of Caesarean section (C-  
10 section) deliveries in India.

11 As adolescent girls and young women will be future mothers and primarily will be  
12 responsible for decision-making, their awareness and perceptions regarding C-section  
13 deliveries are vital for developing structured reproductive health education and maternal  
14 health programs. However, limited research has explored their understanding and attitudes  
15 toward C-sections.

16  
17 **Methods:**

18 A descriptive cross-sectional study was conducted among 200 adolescent girls and young  
19 women from different districts of Uttarakhand, India, using an online structured  
20 questionnaire. The information collected from this survey included socio-demographic  
21 characteristics, awareness and perceptions regarding C-section deliveries, concerns related  
22 to C-sections, and factors influencing their decision on the mode of delivery.

23 Data was analyzed descriptively. Responses were summarized using frequencies and  
24 thematic interpretation for open-ended questions.

25  
26 **Results:**

27 Most of the participants were aged 15–18 years (77.5%), unmarried, and primarily students  
28 (86%). Majorly, the respondents (32%) reported neutral perceptions toward C-section  
29 deliveries, and 30.5% showed somewhat positive perceptions. A majority (72%) were  
30 uncertain about the safety of C-sections compared to vaginal delivery. The most common  
31 concerns related to C-section were surgical risks (68%) and cost (59%). The vaginal delivery  
32 for future childbirth was chosen by Half of the respondents (50%), while 32% specified no  
33 preference. The most influential factor in decision-making was identified as medical advice  
34 (68%) and family opinions (64%).

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36  
37 **Conclusion:**

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

43  
44 **Keywords:** Adolescent health, Caesarean section, reproductive health education

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47 **I. Introduction**

48 Childbirth is a natural physiological process; however, there are situations where surgical  
49 intervention, C-section, is needed to save the life of the mother and/or baby. The C-section  
50 delivery trends in India have shown a significant increase, which exceeds the World Health  
51 Organization's recommended limits for C-sections. While deciding on a C-section, medical  
52 necessity plays a crucial role. Other than medical necessity, socio-cultural perceptions,  
53 community beliefs, and awareness levels also influence the choice of the childbirth method.  
54

55 Despite the increasing rate of C-section deliveries globally and in India, most of the research  
56 was conducted for pregnant women or women who have already experienced childbirth.  
57 There are very few studies that have explored the awareness and perceptions of adolescent  
58 girls and young women, who will be the future population of mothers and decision-makers  
59 for childbirth methods.  
60

61 Their perceptions and knowledge about childbirth methods are shaped early, mainly  
62 through family, community, education systems, and social interactions. However, the level of  
63 understanding regarding medical procedures such as C-section among adolescents remains  
64 inadequately explored in the Indian context.  
65

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

70 In this context, there is a need to assess the awareness, perceptions, and concerns regarding  
71 C-section deliveries among adolescent girls and young women. It is important to understand  
72 their awareness and attitudes toward C-section deliveries to develop effective reproductive  
73 health education and community-based interventions.  
74

#### 75 **Objectives of the study**

- 76 1. To assess the level of awareness and perception toward C-section deliveries among  
77 adolescent girls and young women.
- 78 2. To explore the influence of community and family on opinions related to childbirth  
79 methods.
- 80 3. To understand their preferences for future delivery and factors influencing their decision-  
81 making.  
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#### 84 **II. Methods: Study Design and Setting**

85 A descriptive cross-sectional study was conducted using an online structured questionnaire.  
86

87 The study included 200 adolescent girls and young women, where participants were reached  
88 using a non-probability convenience sampling approach through an online questionnaire  
89 (Google Form). They were informed about the study, its purpose, and their willingness to  
90 complete the survey.  
91

92 This method was selected due to its feasibility in reaching adolescent girls and young women  
93 across multiple districts within a limited time frame. This method gave a chance for the

94 inclusion of participants from different educational and social backgrounds and provided  
 95 initial insights into awareness and perceptions regarding C-section among young women.

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97 **Data Collection Tool**

98 A pre-designed semi-structured questionnaire was used to collect information on:

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- 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.

**Statistical Analysis**

Data was analyzed descriptively. Responses were summarized using frequencies and thematic interpretation for open-ended questions.

III. **Results:**

- Socio-demographic Characteristics of 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

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Table 1. Socio-demographic Characteristics of Participants (N = 200)

- 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

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

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118 • Concerns and Factors Influencing Childbirth Preferences (Multiple Responses)

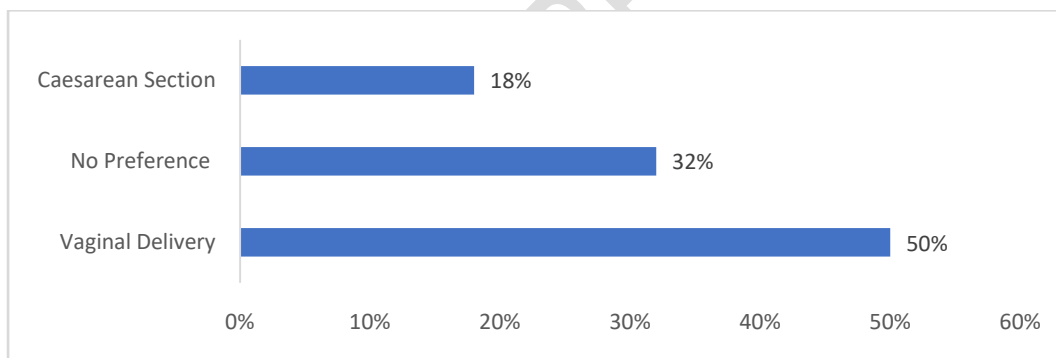
Variable	Response	Frequency (n)	Percentage (%)
<b>Concerns related to C-section</b>	Surgical risks	136	68
	Cost	118	59
	Impact on future pregnancies	82	41
	Longer recovery time	73	36.5
	Social stigma	64	32
<b>Preferred mode of delivery in future</b>	Vaginal delivery	100	50
	C-section	36	18
	No preference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

119 Table 3. Concerns and Factors Influencing Childbirth Preferences (Multiple Responses)

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121 • Preferred Mode of Delivery for Future:

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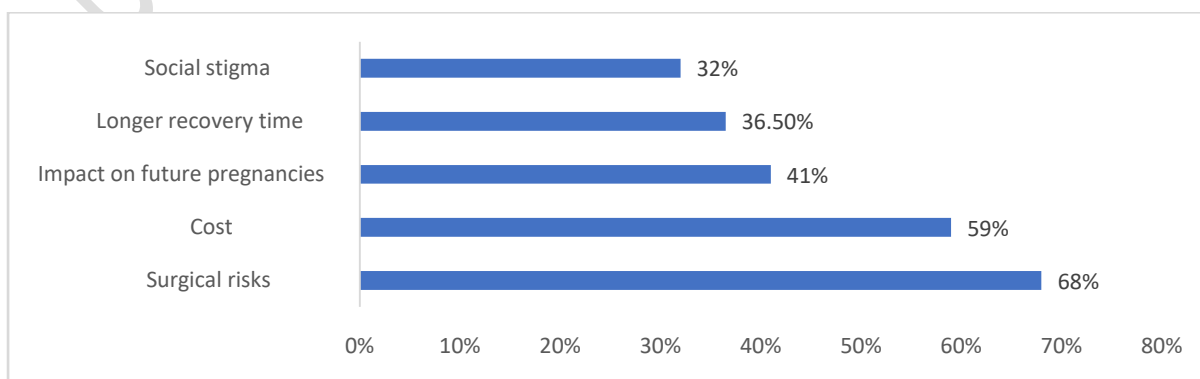
123

124 Figure 1: Preferred mode of delivery among respondents

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126 • Concerns Related to C-section Deliveries (Multiple Responses) Concerns Related to C-  
127 Section Deliveries:

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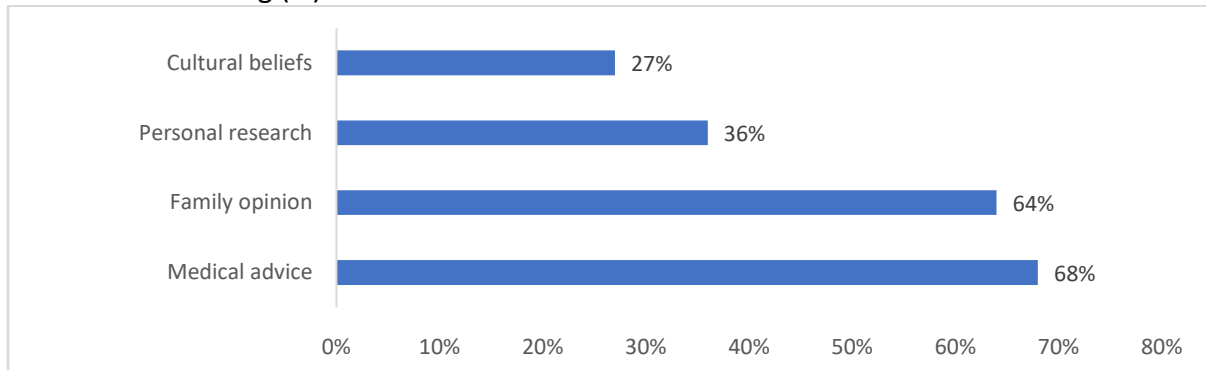


129

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

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- 133 • Factors Influencing Childbirth Decision-Making (Multiple Responses) Factors Influencing  
134 Decision-Making (%)



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

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#### 139 IV. Discussion

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

145

146 In this study, a large proportion of respondents (72%) showed uncertainty regarding the  
147 safety of C-section deliveries compared with vaginal delivery, suggesting limited  
148 understanding of C-section and its indications. Similar findings have been reported in  
149 previous studies where young women displayed inadequate knowledge about childbirth  
150 interventions and relied largely on informal sources such as family members and community  
151 discussions rather than structured health education platforms.<sup>10</sup> These observations  
152 recommend that awareness regarding childbirth methods among adolescents remains  
153 largely limited and unstructured.

154

155 The most commonly reported concerns related to C-section deliveries in the present study  
156 were surgical risks (68%) and cost (59%). These findings are similar with earlier studies  
157 conducted in India that reported women frequently associate C-section deliveries with  
158 increased financial burden, longer recovery periods, and higher perceived risk of  
159 complications.<sup>7</sup> Such perceptions can influence preferences for future childbirth even before  
160 getting pregnant, underline the importance of structured reproductive health education at  
161 an early stage.

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163 Half of the respondents in the present study expressed a preference for vaginal delivery in  
164 future childbirth, while nearly one-third reported no clear preference regarding mode of  
165 delivery. Similar preferences were seen in studies among women of reproductive age, where  
166 vaginal delivery is generally preferred when there is no medical indication for C-section.<sup>8</sup>  
167 This suggests that adolescents may not yet have comprehensive knowledge regarding  
168 delivery methods, their baseline preferences already shifted toward vaginal childbirth unless

169 there is medical need or advice.

170

171 Another important finding of this study was that medical advice (68%) and family opinion  
172 (64%) were the most influential factors affecting decision-making related to childbirth  
173 methods. Previous research has similarly displayed that healthcare providers and family  
174 members play an pivotal role in making perceptions and decisions regarding delivery  
175 methods, particularly within South Asian sociocultural contexts where family involvement in  
176 maternal health decisions remains strong.<sup>10</sup> These findings suggested that both healthcare  
177 professionals and family play an important role for awareness generation related to  
178 childbirth options.

179

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

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#### 189 **V. Conclusion:**

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191 The study highlights that adolescent girls and young women have very limited knowledge  
192 about C-sections, and most of them were uncertain about C-section deliveries. The limited  
193 awareness is mostly superficial and gathered while having a discussion with someone or  
194 hearing it from someone in the community, rather than through formal education. The  
195 strong belief in medical advice opens an opportunity to include comprehensive reproductive  
196 health education in school and college curricula to empower adolescent girls and young  
197 women to make informed decisions in the future.

198

199 Community outreach programs specifically designed for young people to address the myths  
200 and misconceptions and help them understand their options when it comes to pregnancy  
201 and childbirth.

202

203 The present study highlights important gaps in awareness and understanding regarding C-  
204 section deliveries among adolescent girls and young women. However, most respondents  
205 had heard about C-sections, and many showed uncertainty regarding their safety, medical  
206 indications, and long-term implications. The findings also indicate that adolescents rely  
207 heavily on informal information sources such as family discussions and community  
208 narratives rather than structured educational platforms.

209

210 The strong influence of medical advice and family opinions in decision-making suggests that  
211 healthcare professionals and family members play an important role in perceptions  
212 making related to childbirth methods. These findings highlight the importance of  
213 intervention including comprehensive reproductive health education in school and college  
214 curricula to improve early awareness of maternal health and childbirth methods.

215 Community-based awareness programs targeting adolescents may also help addressing

216 misconceptions related to C-section deliveries and promote evidence-based understanding  
217 of childbirth options.

218

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

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

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## 230 VI. References

- 231 1. World Health Organization. WHO statement on caesarean section rates. Geneva:  
232 World Health Organization; 2015.
- 233 2. Betrán AP, Ye J, Moller AB, Souza JP, Zhang J. Trends and projections of caesarean  
234 section rates: global and regional estimates. *BMJ Glob Health*. 2021;6:e005671.
- 235 3. Mishra US, Ramanathan M. Delivery-related complications and determinants of  
236 caesarean section rates in India. *Health Policy Plan*. 2002;17(1):90–98.
- 237 4. International Institute for Population Sciences (IIPS), ICF. National Family Health  
238 Survey (NFHS-5), 2019–21: India. Mumbai: IIPS; 2021.
- 239 5. Otu TM, Agbana RD, Naidoo K. Perceptions of cesarean sections among postpartum  
240 women: a qualitative study. *Women*. 2024;4(1):73–85.
- 241 6. Shahid N, Rashid AM. Knowledge, fear and acceptance of spinal anesthesia among  
242 pregnant women undergoing cesarean section: a cross-sectional study. *BMC*  
243 *Anesthesiology*. 2024;24:408.
- 244 7. Gavvala NB, Samal J, Thomas MB. Perceptions of community on preference of  
245 cesarean section deliveries in Andhra Pradesh, India. *J Educ Health Promot*. 2025.
- 246 8. Nabawanuka B, Ngabirano T, Nankumbi J. Preference and determinants of delivery  
247 mode among pregnant women with previous cesarean scar. *BMC Pregnancy*  
248 *Childbirth*. 2025;25:127.
- 249 9. Reproductive Health Research Group. Effect of mobile health education on  
250 awareness and attitude toward delivery type among primiparous women.  
251 *Reproductive Health*. 2024.
- 252 10. Women and clinicians' views and preferences regarding mode of birth in India:  
253 qualitative findings from the MOLI trial. 2025.

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