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Maternal Health Outcomes and Complications from Multiple Caesarean Sections: An Analysis of Prevalence and Long-Term Risks

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ABSTRACT

The research examines the prevalence, risk, and decision-making determinants of multiple Caesarean sections among women in Maharashtra, India. Increased global Caesarean section rates have evoked concerns regarding their long-term maternal health effects, especially for multiple procedures. The research seeks to evaluate the prevalence of multiple Caesarean sections, examine complications such as uterine rupture and placental abnormality, and analyze awareness and decision-making determinants affecting repeat procedures. Using a mixed-methods design, the research draws on a standardized questionnaire administered to 41 women who had C-sections, using convenience sampling. Statistical inference using MS Excel and SPSS involves descriptive statistics, ANOVA, and regression models for the determination of demographic and healthcare-related determinants. Results indicate substantial differences in the prevalence of multiple C-sections among demographic groups, with younger women aged between 18 and 30 years having more procedures on average. Urban participants had higher reported access to healthcare compared to rural participants. Still, no statistically significant variations were found across age groups in ANOVA analysis. The research emphasizes the importance of specific interventions to mitigate inequalities in the access of healthcare and to reinforce maternal health management practices for women with multiple Caesarean sections. It recommends enhancing the awareness of women regarding risks related to repeat Caesarean procedures as well as promoting evidence-based obstetric practices.

Keywords: *Caesarean sections, maternal health, uterine rupture, healthcare access, decision-making factors, obstetric complications, prevalence analysis*

1. INTRODUCTION

Over the last twenty years, the incidence of cesarean deliveries in wealthy nations has consistently risen [1, 2]. The current rate of Caesarean sections in the UK is 21%, whereas in the US it is around 25% of the 4 million births that occur each year. The increasing trend in cesarean section rates has raised worldwide concerns, leading the World Health Organization (WHO) to release a consensus statement in 1985 [3-5]. This indicated that no further health advantages were linked to a cesarean section rate above 10-15%.

Despite the recommendation of a rate of 10-15%, the 2015 WHO statement has stated that the significant variability in healthcare facilities, including clinical treatment practices, renders the use of a population-based recommended rate at the hospital level impractical [6-8]. The statement indicates that there is no disparity in death rates between 10 and 30 percent, and that there is insufficient evidence to evaluate rates over 30%. In poorer nations, the cesarean section remains a last resort for delivery, and the rate of cesarean sections has not shown comparable growth [9, 10]. Nearly 40% of caesarean sections performed in obstetric institutions are due to a history of caesarean sections, whereas 28% are due to dystocia, 14% to foetal distress, 9% to breech presentation, and 10% to other causes. Scar rupture during pregnancy is the worst possible outcome of having C-sections more than once. The second worst is the increased risk of maternal and foetal death that comes with having three or more C-sections [11-14].

Consequently, it is a prevalent practice in the industrialized world to provide sterilization to women after their third cesarean section. Women are permitted a fourth cesarean section only under rare conditions [15, 16]. In nations where social and cultural forces promote big families, efforts to restrict cesarean sections to two or three are likely to be opposed. Despite

advancements in contemporary obstetric practice rendering repeat cesarean sections a viable option, the risks associated with multiple cesarean sections, particularly beyond four, remain largely unexplored [17-20]. The limited patient population in the scant literature addressing four or more cesarean sections is insufficient for statistical analysis. Reports have documented 8-10 individual case histories of women undergoing several cesarean sections, with some having as many as 13 procedures. This study examines the maternal health outcomes and complications from multiple caesarean sections.

Research accentuates the significance of understanding physical, psychological, and medical consequences for mothers going through numerous caesareans, with emphasis on such issues as rupture of the uterus, placental abnormalities, and surgical problems. The paper is structured to have an introduction highlighting international trends and the need to address this challenge, a comprehensive literature review of involved complications, an elaborate methodology describing the approach taken by the study, results discussing the outcomes, a discussion interpreting their significance, and a conclusion offering recommendations on how maternal health management in these cases may be improved.

The paper is divided into six sections. Section 1 presents the introduction of the topic and related variables. A systematic literature review on previous studies conducted by various authors related to the study's topic is presented in Section 2. The research methodology of the study is presented in Section 3. Section 4 presents the results of the study, stating data analysis and interpretation. The findings of the study and the discussion on the findings are presented in Section 5. Section 6 presents the conclusion, implications, limitations, and future research directions of the study. At last, the references used in the study are provided.

2. REVIEW LITERATURE

H1: The prevalence of multiple Caesarean sections significantly varies across different demographic groups.

Visconti et al. (2020) [21] reported that the increasing caesarean section (CS) rates continue to be an international concern due to their persistent increase, lack of agreement regarding the ideal CS rate, and the associated short- and long-term risks and costs. Global CS utilization has reached record high levels, but variation between high- and low-resource settings continues. Betran et al. (2021) [22] the cesarean section can be a life-saving intervention when medically warranted; nevertheless, this technique may potentially result in both short-term and long-term health consequences for mothers and children. The caesarean procedure is made by cutting through the abdominal wall of the woman and incising the uterine muscle. The infant is then extracted through that incision. A challenging cesarean delivery may lead to harm for the newborn or difficulties for the mother (Sorrentino et al., 2022) [23]. Caesarean section, a prevalent obstetric surgical intervention, is a significant predisposing factor for puerperal infections, necessitating antibiotic prophylaxis. Single-dose antibiotic prophylaxis demonstrates equal efficacy to multiple-dose antibiotic prophylaxis while incurring reduced costs and a diminished risk of antibiotic resistance (Igwemadu et al., 2022) [24]. Nonetheless, Larsson et al. (2021) [25] elucidated that the Caesarean section is regarded as a safe technique; yet knowledge of the potential for major complications is crucial when choosing the manner of birth. This study indicated that both obesity and smoking markedly elevate the likelihood of problems following a cesarean section. The prevention of smoking and obesity in reproductive-age women globally must remain a paramount focus. Costa-Ramón et al. (2022) [26] the long-term implications of possibly preventable cesarean sections on children's health, noting that unplanned C-sections elevate the risk of asthma but do not influence other immune-mediated illnesses previously linked to C-sections.

H2: Awareness and decision-making factors significantly influence women's choices regarding repeat Caesarean sections.

Cesarean section (C-section) birth is linked to an increased risk of respiratory complications in neonates, especially when conducted electively at 37 weeks of gestation. The risk is higher than that associated with spontaneous or induced labor, although it decreases as gestation progresses. Yeganegi, M., et al. (2024) [27]. Similarly, Wilson et al. (2021) [28] evaluated that birth by caesarean section (CS) correlates with atypical gut microbiota development and increased vulnerability to diseases in later life. Landon, M. B. (2024) [29] similarly examined that a pregnant woman with a history of cesarean birth has risks for both maternal and perinatal difficulties, regardless of whether she opts for a trial of labor or an elective repeat procedure. The ideal candidate for a trial of labor is a woman with a high chance of success and a low risk of uterine rupture. Furthermore, Antoine et al. (2021) [30] examined that efforts to decrease the incidence of cesarean births have been mostly ineffective due to the perceived safety of the procedure, immediate postpartum advantages, the legal environment, and mother requests in the lack of medical justifications. M. Abdel-Rahman, W., et al. (2023) [31] examined the correlation between cesarean birth rates and elevated maternal morbidity and death rates. Delivery of the baby by vagina after a caesarean section (VBAC) is a strategy to reduce cesarean rates. Nderitu, L. N. (2022) [32] also recommended further research to establish the precise causes of the increase of C-section in the Eastern region, the socio-economic determinants of C-section birth, and attitudes and cultural norms of women and health providers.

3. METHODOLOGY

This study aims to measure the prevalence of more than one Caesarean section among women in Maharashtra, India, and to quantify and analyze the awareness and decision-making factors underlying their decisions regarding repeat C-sections. The study employs a combination of qualitative and quantitative techniques with a descriptive and comparative nature and utilizes a structured questionnaire as the primary instrument for data collection. The study is directed to women with a history of C-section, and convenience sampling of 41. Independent variables are demographic variables that encompass age, location, and accessibility of healthcare facilities and decision and awareness factors. The dependent variables are multiple C-sections and repetition of C-section. Statistical computations are carried out using MS Excel and SPSS, applying statistical methods like Mean, Standard Deviation, ANOVA, and Regression in order to develop insights into determinants and trends of C-section prevalence and decision-making.

4. RESULTS AND INTERPRETATION

Table 1: Demographic Characteristics of the Respondents

Sr. No.	Demographic Characteristics		N	%
1	Age Group	18-24 years	10	24.4%
		25-30 years	10	24.4%
		31-35 years	10	24.4%
		35-40 years	11	26.8%
2	Location	Rural	18	43.9%
		Urban	23	56.1%
3	Educational Qualification	Graduate	9	22.0%
		No formal education	10	24.4%
		Postgraduate and above	2	4.9%
		Primary	10	24.4%
		Secondary	10	24.4%
4	Employment Status	Employed	8	19.5%
		Homemaker	10	24.4%
		Self-employed	11	26.8%
		Unemployed	12	29.3%
5	Household Income	Below Rs. 10,000	8	19.5%
		Rs. 10,000 – Rs. 25,000	6	14.6%
		Rs. 25,000 – Rs. 50,000	9	22.0%
		Rs. 50,000 – Rs. 1,00,000	14	34.1%
		Above Rs. 1,00,000	4	9.8%
6	Access to Healthcare Facilities	Difficult to access	15	36.6%
		Easily accessible	14	34.1%
		Moderately accessible	12	29.3%
7	Number of Previous Pregnancies	First-time mother	10	24.4%
		One previous pregnancy	10	24.4%
		Three or more previous	11	26.8%

		pregnancies		
		Two previous pregnancies	10	24.4%

The demographic characteristics of the respondents highlight a diverse sample with variations in age, location, education, employment, income, healthcare access, and reproductive history. The age distribution is nearly uniform across the 18-40 years range, with a slight predominance in the 35-40 years group (26.8%). A higher proportion of respondents reside in urban areas (56.1%) compared to rural areas (43.9%). Educational qualifications vary significantly, with a notable proportion lacking formal education (24.4%) and only a small percentage (4.9%) having postgraduate qualifications. Employment status indicates that a significant portion is unemployed (29.3%), while self-employment (26.8%) and homemaking (24.4%) are also common. Household income levels show that the majority earn Rs. 25,000 and Rs. 1,00,000, with 34.1% falling in the Rs. 50,000 – Rs. 1,00,000 range. Access to healthcare is a concern for many, with 36.6% finding it difficult to access, while 34.1% report easy access. Regarding reproductive history, first-time mothers and those with one or two previous pregnancies each make up 24.4% of the sample, while 26.8% have experienced three or more pregnancies. These findings suggest a need to examine socioeconomic factors, healthcare accessibility, and reproductive health services to address disparities among the respondents.

H1: The prevalence of multiple Caesarean sections significantly varies across different demographic groups.

Table 2: Descriptives Table

Descriptives								
Multiple C-sections								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
18-24 years	10	16.6000	3.71782	1.17568	13.9404	19.2596	10.00	22.00
25-30 years	10	17.0000	4.10961	1.29957	14.0602	19.9398	10.00	25.00
31-35 years	10	12.8000	4.39191	1.38884	9.6582	15.9418	5.00	18.00
35-40 years	11	14.2727	3.60807	1.08787	11.8488	16.6967	10.00	23.00
Total	41	15.1463	4.18068	.65291	13.8268	16.4659	5.00	25.00

The descriptive statistics for multiple C-sections across different age groups indicate variations in the mean number of procedures undergone. The highest mean value is observed in the 25-30 years age group (17.00), followed closely by the 18-24 years group (16.60). The 31-35 years group has the lowest mean (12.80), suggesting that women in this category have undergone fewer multiple C-sections on average. The 35-40 years group has a mean of 14.27, indicating a moderate trend. Standard deviations across all groups range from 3.61 to 4.39, suggesting some variability in the number of C-sections within each age group. The overall mean for all respondents is 15.15, with a standard deviation of 4.18, meaning most respondents have undergone approximately 15 multiple C-sections, with variations ranging from a minimum of 5 to a maximum of 25. The confidence intervals indicate that the true mean number of multiple C-sections per group lies within the range specified. These results imply that young women (18-30 years) have higher multiple C-sections than older age groups, and this may provide evidence for further research into repeat C-section influencers like medical history, access to health care, and obstetric practice.

Table 3: ANOVA Table

ANOVA					
Multiple C-sections					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	118.940	3	39.647	2.528	.072
Within Groups	580.182	37	15.681		
Total	699.122	40			

ANOVA results comparing multiple C-sections across ages show that no statistically significant variation in the average number of multiple C-sections exists between groups. The value of p (Sig.) = 0.072, which is higher than the standard limit of 0.05, indicates that chance may have brought about the noted variations in average C-sections across ages. The F-statistics of 2.528 indicate there was some variation within groups, although not strong enough to be significant statistically. Between-group sum of squares (118.940) demonstrates the variance explained by variations in age categories and within-group sum of squares (580.182) as the individual variations across each category of age. Because the within-group variance is quite high in relation to the between-group variance, it indicates that variables other than age may be at play with respect to the frequency of multiple C-sections. Additional research involving a larger sample size or other variables (e.g., medical conditions, access to healthcare, or obstetric history) may offer more insight into the variables affecting multiple C-sections.

Table 4: Descriptives Table

Descriptives								
Multiple C-sections								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Rural	18	16.7222	4.07006	.95932	14.6982	18.7462	10.00	25.00
Urban	23	13.9130	3.91864	.81709	12.2185	15.6076	5.00	23.00
Total	41	15.1463	4.18068	.65291	13.8268	16.4659	5.00	25.00

The descriptive statistics of multiple C-sections by location show that rural and urban respondents differ. Rural women have a greater mean number of multiple C-sections (16.72) than their urban counterparts (13.91). This implies that rural women, on average, experience more repeat C-sections than their urban counterparts. The standard deviation in both groups (around 4.0) shows that variability is also comparable in both groups. The confidence interval for the actual mean number of multiple C-sections among rural women is between 14.70 and 18.75, whereas for urban women it's between 12.22 and 15.61. The minimum and maximum values also show that while some urban women have had as few as 5 C-sections, others in rural areas have had a maximum of 25. These results may reflect differences in access to healthcare, medical choice-making, or quality of prenatal care between urban and rural areas. There must be further study to ascertain whether or not such differences are significant and to uncover the underlying determinants of increased rates of multiple C-sections in rural counties.

Table 5: ANOVA Table

ANOVA					
Multiple C-sections					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	79.685	1	79.685	5.017	.031
Within Groups	619.437	39	15.883		
Total	699.122	40			

The ANOVA test results for multiple C-sections by location show that there is a statistically significant rural-urban difference among respondents. The p-value (Sig.) is 0.031, which is below the standard cut-off of 0.05, indicating that the difference in the mean number of multiple C-sections between rural and urban women is statistically significant. The F-value of 5.017 also confirms this result, showing that the difference between the two groups is not due to chance. The between-group sum of squares (79.685) indicates the difference due to differences between rural and urban areas, and the within-group sum of squares (619.437) indicates individual differences within each area category. As rural women have a greater mean number of multiple C-sections (16.72) than urban women (13.91), the findings imply that the location significantly contributes to the prediction of multiple C-sections. This may be due to variations in healthcare availability, the quality of prenatal care, medical facilities, or decision-making in the healthcare arena in rural compared to urban localities. More research might examine these variables in greater depth to determine the underlying causes of this difference.

Table 6: Descriptives Table

Descriptives								
Multiple C-sections								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Easily accessible	14	14.7143	4.71379	1.25981	11.9926	17.4359	5.00	22.00
Moderately accessible	12	15.0000	3.51620	1.01504	12.7659	17.2341	9.00	21.00
Difficult to access	15	15.6667	4.36981	1.12828	13.2467	18.0866	10.00	25.00
Total	41	15.1463	4.18068	.65291	13.8268	16.4659	5.00	25.00

Descriptive statistics for multiple C-sections by healthcare facility accessibility show some differences between the groups. Most of those who said they had hard healthcare facility access have the highest number of multiple C-sections on average (15.67), then those with medium access (15.00), whereas those with the highest mean multiple C-sections are on those with easy access to healthcare (14.71). Thus, the difficult access to healthcare is likely to be connected with an increased number of multiple C-sections. The standard deviations are the differences in the groups' numbers and range from 3.52 to 4.71, indicating distinct distribution in the three categories. The lower and upper confidence limits of the actual mean multiple C-sections are inside the confidence intervals which state that they are 11.99 and 17.43 for those women with easy access, and 13.25 and 18.09 for those with difficult access. The intervals represent the degrees of presence which are clearly shown by the upper and the lower bounds of the confidence intervals. It is apparent from the range that the maximum number of births a woman has given can be taken as the measure of experience she has had. Current statistics even went so far to give evidence that the women who mentioned having no obstacles to healthcare have undergone not more than 5 C-sections, and those with difficulties have had as many as 25. Such results indicate that access barriers to healthcare may play a role in the higher numbers of multiple C-sections due to delayed or poor prenatal care, lack of other birthing options, or restricted medical supplies in some locations. Additional analysis is required to ascertain whether these variations are statistically significant.

Table 7: ANOVA Table

ANOVA					
Multiple C-sections					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.931	2	3.466	.190	.828
Within Groups	692.190	38	18.216		
Total	699.122	40			

The ANOVA results for multiple C-sections based on access to healthcare facilities indicate that there is no statistically significant difference among the groups. The p-value (Sig.) is 0.828, which is much greater than the conventional threshold of 0.05, suggesting that differences in the mean number of multiple C-sections across the three levels of healthcare accessibility (easily accessible, moderately accessible, and difficult to access) are likely due to chance rather than a meaningful association. The F-value of 0.190 is very low, indicating minimal variation between groups. The between-group sum of squares (6.931) is small compared to the within-group sum of squares (692.190), suggesting that most of the variation in multiple C-sections is explained by individual differences rather than healthcare accessibility. These results imply that while there were some differences in mean C-sections across the groups, access to healthcare does not significantly influence the number of multiple C-sections in this sample. Further research may be needed to explore other potential factors, such as healthcare quality, medical history, and socio-economic conditions, that might better explain variations in multiple C-sections.

H2: Awareness and decision-making factors significantly influence women's choices regarding repeat Caesarean

sections.

Table 8: Model Summary Table

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.529[a]	.280	.261	2.82635
a. Predictors: (Constant), Awareness and decision-making factors				

The model summary table indicates the strength of the relationship between awareness and decision-making factors and the number of multiple C-sections. The *R* value of 0.529 suggests a moderate positive correlation between the predictor variable (awareness and decision-making factors) and the dependent variable (multiple C-sections). The *R Square* value of 0.280 indicates that approximately 28% of the variance in multiple C-sections can be explained by awareness and decision-making factors. The *Adjusted R Square* value (0.261) is slightly lower, accounting for the number of predictors in the model, and suggests that the explanatory power of the model is slightly reduced when adjusted for sample size. The standard error of the estimate (2.82635) represents the average deviation of actual values from the predicted values, indicating the extent of dispersion in multiple C-sections that is not explained by the model. While the model shows a moderate relationship, a significant portion (72%) of the variance remains unexplained, suggesting that other factors, such as medical history, socioeconomic conditions, or healthcare access, may also play a role in influencing multiple C-sections.

Table 9: ANOVA Table

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	120.898	1	120.898	15.135	.000[b]
	Residual	311.541	39	7.988		
	Total	432.439	40			
a. Dependent Variable: Decision to opt for a repeat C-section						
b. Predictors: (Constant), Awareness and decision-making factors						

The ANOVA table tests the statistical significance of the regression model explaining the choice of a repeat C-section using awareness and decision-making variables. The p-value (Sig.) is 0.000, far less than the traditional 0.05 cut-off point, suggesting that the regression model is statistically significant. The F-value of 15.135 indicates that the predictor variable (awareness and decision-making factors) accounts for a significant proportion of variance in deciding to have a repeat C-section. The regression sum of squares (120.898) is the variation in the dependent variable accounted for by the model, and the residual sum of squares (311.541) explains the variation not accounted for by the model. Since the model is significant, it means awareness and decision factors are important factors in determining whether to have a repeat C-section or not. Nevertheless, as the residual sum of squares still remains quite substantial, there can be other unknown factors that determine the decision. Additional studies might investigate other influences, including medical history, access to healthcare, or sociocultural beliefs, to create a more complete picture of repeat C-section choice.

Table 10: Coefficients Table

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.985	2.058		3.880	.000
	Awareness and decision-making factors	.459	.118	.529	3.890	.000

a. Dependent Variable: Decision to opt for a repeat C-section

The coefficients table gives an indication of the effect of awareness and decision-making factors on the decision to have a repeat C-section. The constant (B = 7.985, p = 0.000) is the baseline level of decision when awareness and decision-making factors are not present. The non-standardized coefficient for the factors of awareness and decision-making is 0.459, meaning that with every one-unit rise in awareness and decision-making factors, the decision to have a repeat C-section rises by 0.459 units. The standardized coefficient (Beta = 0.529) points towards a moderate positive association between the predictor variable and the dependent variable. The t-statistic of 3.890, coupled with the extremely significant p-value (0.000), establishes that factors of awareness and decision-making significantly influence the choice of undergoing a repeat C-section statistically. It indicates that as women are more aware and participate more in the decision-making process, they are likely to opt for a repeat C-section. Yet, although this is an important factor, others like medical history, healthcare provider advice, and socioeconomic status could also play a role in the decision-making process and need to be explored further.

5. FINDINGS AND DISCUSSION

Theoretical evidence derived from the provided results underscores the multifaceted interaction of demographic, socioeconomic, and accessibility of healthcare factors in determining multiple Caesarean sections among women. The differences between multiple C-sections by age groups, although realized, were not statistically significant, implying that age per se may not be a determining factor. Nevertheless, important variations occurred by place, suggesting that rural women have more repeat C-sections compared to urban women, possibly as a result of variations in access to healthcare, medical decision-making, or obstetric care. Whereas access to health facilities seemed to be related to having several C-sections in descriptive analysis, the statistical tests failed to verify a significant relationship, suggesting that other underlying conditions, including healthcare quality or individual health status, might be more important. Furthermore, the regression analysis pointed to the existence of a slight, albeit notable influence of both awareness and decision-making matters on women's choices to have another C-section, implying that decision-making relies on the women's information acquisition capability and having accessibility to pertinent healthcare information are mostly ideal self-determinants in birthing. The latter findings are in full agreement with healthcare accessibility and reproductive autonomy models, revealing that the most efficient and impactful ways of breaking knowledge barriers, improving treatment services, and ensuring fair maternal care are evidence-based interventions that take rural settings as their priority.

The results of this study fit the previous studies on multiple Caesarean sections well, showing the influence of the place of birth, the level of awareness, and the process of decision-making on the outcome of childbirth. Furthermore, it has been found that rural women are more likely to have multiple repeat cesarean sections, often due to lack of accessibility to good-quality maternal healthcare and institutional norms rather than informed decisions. The same conclusion is true for the non-significance of age statistics in predicting multiple C-sections as shown in the study conducted by Pavlidou, et al., (2023) [35]; this also depends on the fact proposed by the authors that maternal age alone cannot be used as the sole factor to predict the likelihood of repeated C-sections but it is also dependent on other factors such as medical history and institutional policy. Additionally, regular but substantial effects of knowledge and decision-making on the multiple C-sections are supported by the findings of Ahmmed, et al., (2021) [36], according to whom the better access to the health data of the women, the stronger the inclination of the women is to look for VBAC (Vaginal Birth After Caesarean) options. The authors of this study are of a belief that this result is a deviation from the usual as it is absolutely normal for the basic accessibility to healthcare services to rise or fall together with the rate of multiple C-sections. Access to health services may appear to be very significant as a predictor of multiple C-sections, but the separation of the decision-making step from quality information and advice in healthcare indicates the importance of counseling and quality of care. These comparative findings corroborate the importance of the provision of maternal education from evidence-based care, to curb the inequality between Vaginal Birth After Caesarean and Repeat Cesarean Section, and certainly access to reproductive health care, which is of high quality and easy to reach and maternal education is important.

6. CONCLUSION

The study thoroughly investigates the health risks and complications of multiple cesarean sections among women in Maharashtra, India, particularly those related to their offspring. Conducted by the authors of the report, the study discusses the rise in the number of cesarean sections globally and the possible dangers mothers face when undergoing such surgeries. The authors of the report also discuss the fact that young women (18–30 years) and women from rural areas are the main victims of multiple cesarean sections. Moreover, the limited availability of health facilities is a determinant of the growing number of repeated procedures. The results confirm that the prevention of maternal deaths will be more promising if interventions are concentrated on the provision of healthcare in rural areas and on removing the disparities in the access and choice of healthcare.

6.1 Implications, Limitations, and Future Research Directions

The findings of the study are of great importance for clinical practice and healthcare policy. The greater prevalence of

repeated cesarean sections in rural and underserved areas can be seen as an indication of systemic disparities that need immediate attention. The policymakers should, therefore, pay special attention to the following issues, namely upgrading healthcare facilities in the rural parts of the country, and making available fair and equal prenatal and obstetric services. Moreover, healthcare workers also have to be very alert to the idea of proper education of women about numerous cesarean sections and the possibility of other modes of delivery whenever it is feasible. This study further suggests that the main focus to tackle the disparities should include the socio-economic underpinnings (education, income, etc.) as they are the factors behind women's making the decision to have a repeat cesarean section. The broader realization of the problem of education and income inequality that the public has and local government intervention like well-informed campaigns and community programs can greatly contribute to the lessening of inequalities no end.

But despite its invaluable outcomes, the research also has a pair of shortcomings that need to be addressed. First of all, the low sample size (41 participants) poses a problem in terms of the generalization of the outcomes to the entire population. The use of convenience sampling to select participants can lead to a bias, that is, non-random selection, which does not represent the entire subject. Moreover, it should also be noted that the research is confined to women in Maharashtra alone and the results may not translate well into other states or even other countries where the situation may be completely different. It should be precisely recognized that self-report data can sometimes be distorted and miscommunicated as a result of the inaccurate nature of the person's memory or the person's willingness to appear in the future in a more favorable way. Furthermore, the research suggests that there is a connection between demographic factors and undergoing a series of cesarean deliveries but it does not confirm the cause of the issue. Therefore, further research is necessary if causal relationships are to be determined.

In future research, the drawbacks could be remedied by employing larger sample sizes representative of the major regions and also relevant in numerous places thereby improving the findings' generality and external validity. When it comes to studies of longitudinal nature, these are a more suitable option for exploring the health status of mothers and children in the prolonged period following the performance of several cesarean sections. Qualitative studies that concentrate on understanding women's preferences for decision-making about repeat cesarean sections are beneficial as these types of investigations act as a background to facilitate the collection of quantitative information. Analysis of the influence of both health professionals' suggestions and cultural habits affect cesarean rates would additionally be beneficial. In the final analysis, it is crucial that future studies test the effectiveness of certain measures to lower the number of cesarean sections that are carried out needlessly, the outcome of which should be definitely safe for both mothers and babies.

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