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## Factors influencing low institutional delivery rates among Garo women in Meghalaya

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### Abstract

In Meghalaya's Garo tribe, institutional delivery remains low despite Government initiative through incentives. This study seeks to investigate the factors contributing to barrier in institutional delivery among women of Garo tribe. The study was conducted at Gambegre block of West Garo Hills district in Meghalaya. A total sample of 300 married women in the age group of 16 to 40 years having at least one living child from birth to 6 years was selected randomly and interviewed. The study found only 17.33 percent of the respondent's opted health care for recent delivery. Factors associated with this low institutional delivery rate included challenging hilly terrain, poor road, inadequate transportation options, negative health care worker experiences lack of awareness, low educational level, distance from healthcare centers and birth order. To address this issue, the study recommends raising awareness on significance of institutional delivery, improving transportation infrastructure, creating supportive healthcare environment, offering tailored maternal health and child care in the local dialect, and community efforts to prevent early marriages.

**Keywords:** Institutional delivery, Garo women, healthcare access, awareness promotion

### Introduction

Institutional delivery plays a pivotal role in reducing maternal and neonatal mortality. It refers to childbirth at any medical facility with skilled delivery assistance, ensuring access to essential healthcare services for expectant mothers. Maternal mortality refers to death due to complications from pregnancy and childbirth while neonatal mortality encompasses fetal deaths within the first 28 days. Yarinbab and Balcha (2018) [23] perceived the utilization of institutional delivery services as a proven intervention to enhance maternal health and overall wellbeing. These services provide a safe delivery environment and reduce birth-related complications. Institutional delivery not only contributes in the reduction of infant and maternal mortality but also increases the overall health status of the mother and the child (Sugathan, Mishra, & Retherford, 2001) [22]. For instance, research suggests that the widespread adoption of institutional delivery potentially reduce maternal deaths by 16% to 33% (Yoseph *et al.*, 2020) [26]. India has witnessed a progressive reduction in maternal mortality ratio (MMR) from 113 per 100,000 live births in 2016-18 and to 97 in 2018-20 according to the Sample Registration System (SRS) by the Registrar General of India (RGI). However, this figure falls short of both the Millennium Development Goal (MDG) target and the Sustainable Development Goal (SDG) target of achieving an MMR below 70 by 2030 (WHO, 2019) [25].

Bergstorm and Goodburn (2001) [3] noted that a significant proportion of obstetric complications occur in developing countries, with three-quarters of maternal deaths attributed to postpartum bleeding, sepsis, eclampsia, obstructed labor, and unsafe abortion. Meanwhile, research by Waiswa *et al.*, (2010) [24] in Uganda highlighted that the primary causes of maternal mortality are often associated with what they referred to as the "three delays": the delay in seeking care, the delay in reaching healthcare facilities, and the institutional delay in providing care. Govindasamy and Ramesh (1997) [7] have opined that the high maternal and neonatal mortality rates in India are primarily a result of inadequate access to and underutilization of healthcare services for delivery. Building on this, Shahabuddin *et al.*, (2017) [19] propose that a critical strategy for reducing maternal mortality is the prompt and adequate utilization of quality maternal health services. Delivery complications and death can be averted by a hospital or institution-assisted delivery with the assistance of skilled care providers within an enabling environment, and by effective referral systems (Anderson *et al.*, 2007) [1].

In India, there has been a notable increase in institutional delivery rates, rising from 38.7% in 2005 to 78.9% in 2015-16 and a remarkable 99.8% as per National Family Health Survey-5, 2019-20 (NFHS, 1997) [25]. Despite this overall increase, there remains significant variation both nationally and regionally. Notably, states like Kerala (99.8%) and Goa (99.7%) have the highest institutional delivery rates, while Nagaland (45.7%) has the lowest, and Meghalaya (58.1%) ranks as the second-lowest performing state in the country (Kumar and Das, 2020) [10]. This underscores the importance of conducting region-specific, evidence-based research to better understand the factors influencing institutional delivery utilization. Furthermore, research among the Garo tribe in this context is particularly limited. Such findings can provide valuable insights for the development and implementation of programs and policies aimed at promoting institutional delivery. In light of these considerations, the current study aims to assess the prevalence of institutional delivery and identify the socio-demographic factors that influence the utilization of institutional delivery services among Garo women in Meghalaya.

### Material and Methods

Community based cross-sectional study was conducted in Gambegre block of West Garo Hills districts in Meghalaya. Within this block, 9 villages from two primary health sub-centers namely, Sakaboldamgre, Edenbari PHC sub-center

were randomly selected along with one village which falls under urban PHC. A total sample of 300 married women aged between 16 and 40 years, each having at least one living child from birth to 6 years was randomly selected and interviewed. A self-structured interview schedule was developed to elicit specific information and primary data was collected through in-depth interviews by visiting the household of each participant. The socio-demographic characteristics of participants were then summarized in a table using percentage, means, and Chi-square ( $\chi^2$ ) analysis. Furthermore, a p-value was done to examine the factors associated with institutional delivery and home delivery.

### Results and Discussion

#### Socio-demographic characteristics of respondents

The study participants had a mean age of 27.05 years with  $\pm$  5.8 while their husband had a mean age of 30 years. In terms of educational background, despite matrilineal society, majority of the women (94.33%) had completed education up to the Primary and middle school level, with only a small percentage having completed high school (4.66%). Similarly, all the respondent's husbands had received an education, but the majority of them had completed education up to primary and middle school (69.66%). However, in general, men tended to have higher literacy levels than women. The mean family income was Rs.7100 (table.1).

**Table 1:** Socio-demographic characteristics of respondents

Age of respondents	Frequency(N=300)
16-25	130 (43.33)
26-35	148 (49.33)
Above 35	22 (7.33)
	Mean: 27 yrs
Husband Age	Frequency (N=300)
18-25	87 (29.00)
26-35	167 (55.67)
36-45	46 (15.33)
	Mean: 30 years
Education of respondents	Frequency (N=300)
Graduate	3 (1.00)
High school	14 (4.67)
Primary and Middle high school	283 (94.33)
Husband educational level	Frequency (N=300)
Primary and Middle high school	209 (69.67)
High school	52 (17.33)
HSSLC	37 (12.33)
Graduate	2 (0.67)
Income	Frequency (N=300)
5000-7000	170 (56.67)
7001-12000	130 (43.33)
	Mean income: Rs.7100

#### Obstetric and maternal characteristics of respondents

**Age at marriage:** Table (2) revealed that over half of respondents (51.33%) were married between the ages of 20 and 25 years, and a significant 42 percent were married during their teenage years. The mean age at marriage was 20.38 years. This data highlights a concerning prevalence of teenage pregnancy in the selected area study in Garo Hills district. Such a high rate of teenage marriage can have adverse effects on health and social development of the women, making it an alarming issue.

**Age at first pregnancy:** It was observed that 41.33 percent of women in the study experienced their first pregnancy and childbirth during their teenage years. Furthermore, the majority of them gave birth within the same year of their marriage. This can be inferred from the mean age at marriage (20.38 years) and the mean age at first pregnancy (20.47 years). The narrow gap between the age at marriage and age at first pregnancy might be attributed to the prevalence of premarital pregnancies, possibly influenced by socio-cultural factors.

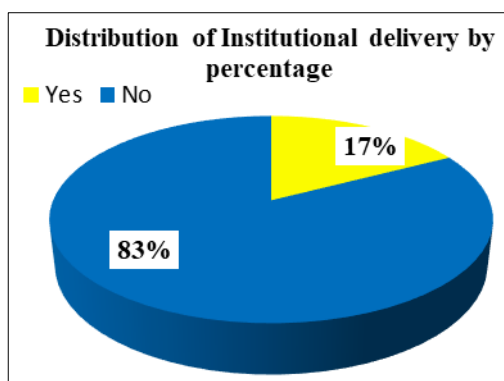
**Number of children:** Observation from the table indicate that institutional delivery was more commonly reported among women with only one child (36.33%) followed by those with two children (21.67%). Fewer women opted for institutional delivery when they had three and more children. Respondents attributed their choices to factors such as financial constraints and their confidence in delivery based on previous experiences.

**Table 2:** Obstetric characteristics of respondents

Age at marriage	Frequency (N=300)
12-19	126 (42.00)
20-25	154 (51.33)
26-34	20 (6.67)
	Mean: 20.38 yrs
Age at first pregnancy	Frequency (N=300)
12 to 19	124 (41.33)
20-25	155 (51.67)
26-34	21 (7.00)
	Mean: 20.47 yrs
Number of children	Frequency (N=300)
1	109 (36.33)
2	65 (21.67)
3 and above	126 (42.00)
	Mean:2.3

**Institutional delivery**

Regarding institutional delivery, despite government promotion of institutional births through various initiatives like conditional cash transfer (CCT) program, Janani Suraksha Yojana (JSY), Janani Shishu Suraksha Karyakram (JSSK), or Meghalaya Maternity Benefit Scheme (MMBS) aim at reducing the maternal mortality ratio (MMR), out of 300 interviewed women who had gavin birth for their last delivery before the survey, only 17.33 percent opted for delivery at a health care center. The majority (82.67%) had home deliveries conducted by Auxiliary Nurse Midwives (ANMs) or traditional birth attendants (TBAs). A similar finding was reported by Sarkar (2018) [18] among Khasi women in Ri Bhoi district within the same state of Meghalaya. However, this study’s results contrast with findings from other regions such as South Tamil Nadu (95.2%) by Ravi and Kulasekaran (2014) [16], Lucknow in Uttar Pradesh North (84.9%) as reported by Roy (2013) [17], Ethiopia (34%) as per Kidanu, Degu, & Tiruye (2017) [9] and Ghana (37.5%) as indicated by Esena and Sappor (2013) [5].



**Fig 1:** Distribution of Institutional Delivery by Percentage

**Reasons for preference of home delivery**

During focused group discussions, female respondents were asked about their preference for home delivery over

institutional delivery. Some explained that they resorted to home delivery because they felt they had no other option. Despite being aware of the importance of institutional delivery, they chose home birth due to financial constraints, as they could not afford the expenses associated with hospital delivery. Particularly in the Sakaboldamgre block, women expressed dissatisfaction with the local health services. The health center in their area had inadequate infrastructure, and in cases of complications, they had to endure a 2 to 2 ½ hour journey to reach the town. Additionally, there were only one or two public transportation options available from their village, forcing them to hire vehicles, which was beyond their financial means. This was exacerbated by the fact that most of them were daily wage earners or unemployed, making it difficult for them to save enough money. Moreover, the hilly terrain and risky roads, especially during the rainy season, posed significant challenges for pregnant women, further discouraging them from opting for institutional delivery. Consequently, poor transportation and long-distance travel significantly impacted the feasibility of institutional delivery for these women

Another reason cited was the attitude and behavior of health workers towards rural women. Some women mentioned that health workers sometimes displayed inappropriate behavior or spoke rudely to them. This kind of unfriendly conduct by health workers can have a negative impact on villagers when it comes to seeking healthcare services. Rural people are often simple, unassuming, and reserved, but they can also be emotionally sensitive.

Furthermore, some women felt that pregnancy is a natural process, and they believed institutional delivery was only necessary in complicated cases. They expressed satisfaction with the emotional and physical support they received from their family members, relatives, and neighbors. This strong preference for home delivery may be attributed to rural women perceiving a lack of necessity for institutional delivery and being unaware of the potential postpartum complications.

**Socio-demographic characteristic factors and institutional delivery**

Table 3 shows the factors associated with the utilization of institutional delivery and socio-demographic characteristics of respondents.

**Age of the respondents and place of delivery**

Age indicates the level of maturity of individuals and therefore is one important factor to examine the age of respondents. Respondents were categorized as younger age (16 to 25 yrs), middle-aged women (26 to 35 years), and older-aged women (above 35 years) to understand reproductive age. The study revealed that the percentage of institutional delivery was higher among middle-aged women (18.2%) compared to younger women (16.9%) and older women (13.6%). However, no significant association was found between age group and institutional delivery. This finding contrasts with a study by Garg *et al.*, (2010) [6] in rural Punjab where institutional deliveries were found to be more common in younger age groups for women age 18-25 (43%) compared to women age 36-45 years (23%).

**Distance from hospital:** The data clearly indicates that distance from the district headquarters is a significant determinant of the place of delivery. As distance increases, the likelihood of having an institutional delivery decreases.

Among the three selected primary health centers (PHC), Saka Boldamgre PHC (32.2 km approx, the farthest from district headquarters, Tura) reported the lowest utilization of institutional delivery (9.72%). In contrast, women from Dobasipara PHC (4 km), which is closest to district headquarter of Tura were more likely to choose the health center for childbirth. A significant association was found between geographical location and institutional delivery. Consequently, it is evident that women living in remote villages are less likely to utilize health care institutions for childbirth compared to women residing near the district headquarter.

This finding aligns with previous studies that have shown geographical access to healthcare facilities is a key factor influencing the choice of delivery location. Research by Stephenson and Tsui (2003)<sup>[21]</sup> support this by suggesting that access to health services within 5 km of the village or higher density of health facilities has a significant impact on institutional delivery, although the effect of access may vary by state. Kumar, Dansereau, & Murray (2014)<sup>[11]</sup> also found that providing access to a health facility within 5 km could increase institutional delivery by 10%. Therefore, it is clear that promoting institutional delivery among rural women may not be successful without proper transport and communication facilities, even if the government offers schemes or incentives. These results underscore the need to improve accessibility and communication facilities in remote areas to enhance the rates of institutional delivery.

#### Level of education

The result suggests a strong association between the educational level and place of delivery. Previous research studies conducted by Bhattacharyya *et al.*, (2016)<sup>[4]</sup> and Srivastava and Joseph (2019)<sup>[20]</sup> have reported that higher levels of education among women are positively correlated with institutional deliveries. Our study also aligns with these findings, as it revealed that women with higher levels of education were more inclined to choose institutional deliveries. Among the participants in our study, those with graduate education exhibited a notably high preference for institutional deliveries, with two out of three (66.66%) opting for this choice. Similarly, mothers with a high school education had institutional deliveries at a rate of 50%, whereas only 15.19% of women with primary and middle school educational levels chose institutional deliveries. This preference among educated women may be attributed to their greater awareness of maternal healthcare services, heightened consciousness regarding obstetric complications, and a better understanding of the benefits associated with institutional delivery.

**Birth ordinal:** The birth order of the child emerged as a significant factor influencing the utilization of healthcare services. An analysis of institutional deliveries in relation to birth order revealed that mothers exhibited a stranger inclination towards opting for institutional delivery services for their first childbirth in contrast to subsequent births. Notably, as the number of births increased, institutional delivery rates decreased, reaching a point where no institutional deliveries were recorded for the 7<sup>th</sup> and 8<sup>th</sup>

childbirths. This trend aligns with a study conducted in rural India by Kesterton *et al.*, (2010)<sup>[8]</sup>, which also highlighted significantly higher prevalence of institutional deliveries for first births compared to subsequent ones. The declining rates of institutional deliveries with increasing birth order may be attributed to factors such as women's growing experience and confidence, the perceived lower risk of later pregnancies, economic constraints, reduced accessibility to healthcare facilities, cultural norms favoring home births deliveries and a lack of awareness about the potential risks. These factors may necessitate interventions to promote institutional deliveries for higher birth orders.

**Age at marriage:** The age at which women marry is another significant factor influencing the place of delivery. Early marriage is associated with a higher likelihood of home delivery. This finding is consistent with previous research of Barman *et al.*, (2020)<sup>[2]</sup> and Paul and Pandey (2020)<sup>[14]</sup>, which found that older age at marriage is positively associated with a higher likelihood of choosing healthcare institutions for childbirth. Early marriage can limit women's autonomy and decision-making power, affecting their ability to access healthcare services.

**Husband education:** The study found a significant link between the educational level of women's husbands and the choice of healthcare institutions for childbirth. Specifically, women whose husbands held a graduation-level education (60%) were more likely to give birth at healthcare facilities compared to those whose husbands had secondary school or lower educational backgrounds. This trend aligns with studies in Ethiopia and India. Educated husbands are often more knowledgeable about health matters, understand the advantages of institutional deliveries, and can make informed decisions. Given that men often influence family decisions, including healthcare choices, they may play a key role in encouraging their wives to opt for healthcare institutions. Efforts to involve husbands in maternal healthcare decisions and to promote educational attainment can enhance informed decision-making, ultimately improving maternal and child health outcomes.

This finding was in line with studies done by Mitikie, Wassie, Beyene (2020)<sup>[12]</sup> in Northwest Ethiopia and Kesterton *et al.*, (2010)<sup>[8]</sup> in India. This may be because husbands with higher education were more equipped with health-related information and able to make informed decisions. As men take a major family decision, educated husbands might have influenced their wives to deliver at a health facility.

**Income of family:** Wealth has consistently emerged as the most influential factor in determining the choice between a private-for-profit or public facility for institutional births, as found by Kesterton *et al.*, (2010)<sup>[8]</sup>. The cost of health care services has also been identified as a critical factor influencing the decision to seek care (Rajeswari, Dilip, Duggal 2003)<sup>[15]</sup>. In the present study, it was evident that the monthly mean income of the family was low, with an of Rs.7100/-. This economic disparity strongly indicates that the financial constraints faced by these families are a significant factor leading women to opt for home deliveries.

**Table 3:** Socio-demographic factors and place of delivery

variables	delivery		Chi-square	
	Home delivery	Institutional delivery		
<b>Age</b>			0.31063	0.85
16-25 (n=130)	108 (83.076)	22 (16.923)		
26-35 (n=148)	121 (81.756)	27 (18.243)		
Above 35 (n=22)	19 (86.363)	3 (13.636)		
<b>Distance from District Headquarter</b>	<b>Home delivery</b>	<b>Institutional delivery</b>	29.669**	.0001
4.5 km (N=40)	22 (55.00)	18 (45.00)		
9 km (n=75)	59 (78.6)	16 (21.33)		
31.2 km (N=185)	167 (90.2)	18 (9.72)		
<b>Educational level</b>	<b>No</b>	<b>Yes</b>	16.425**	.0002
Graduate (n=3)	1 (33.33)	2 (66.66)		
HSLC (n=14)	7 (50.0)	7 (70.5)		
Under matric (n=283)	240 (84.8)	43 (15.19)		
<b>Number of children</b>	<b>Home delivery</b>	<b>Institutional delivery</b>	18.324**	.0001
1 (n=109)	81 (74.3)	28 (25.6)		
2 (n=65)	49 (75.38)	16 (16.88)		
3 above (n=126)	118 (93.65)	8 (6.34)		
<b>Age at marriage</b>	<b>Home delivery</b>	<b>Institutional delivery</b>	22.416**	.00001
12-19 yrs (n=126)	111 (88.09)	15 (11.90)		
20-25 yrs (n=154)	128 (83.11)	26 (16.88)		
26-34 yrs (n=20)	9 (45.00)	11 (55.00)		
<b>Husband Education</b>	<b>Home delivery</b>	<b>Institutional delivery</b>	7.21674	.027
Under matric (n=253)	209 (82.6)	44 (17.39)		
HSSLC (n=42)	37 (88.09)	5 (11.90)		
Graduate (n=5)	2 (40.00)	3 (60.00)		
<b>Income</b>	<b>Home delivery</b>	<b>Institutional delivery</b>	0.02695	.869
5000-7000 (n=170)	140 (82.05)	30 (17.64)		
8000-18000 (n=130)	108 (83.07)	22 (16.92)		
Average (n=78)	64 (82.05)	14 (17.94)		

\*\* $p < .05$ 

## Conclusion

Prevalence of institutional delivery was poor in the study area. Teenage pregnancy and premarital childbirth were highly prevalent. Poor economic condition, lack of transportation, lack of perceived needs for institutional delivery and lack awareness in postpartum complication, low level of education and lack of access to the nearby health center, early marriage, birth order, attitude of health workers emerged as crucial factors determining institutional delivery than a reproductive child and health knowledge. The study suggests that efforts should be taken to empower women, improve the economic condition of rural families, increase the educational level of both females and males and improve accessibility and communication. Moreover, intervention through awareness on the advantage of institutional birth and the effect of different parenting techniques may be given as early as thirteen years. The findings of this study highlight several critical factors influencing institutional delivery practices among Garo women of Meghalaya. These factors encompass a range of socio-demographic and cultural aspects that intersect with economic, health care behavior and geographical constraints. The prevalence of teenage marriages and early initiation into motherhood is a concerning issue. To address these issues, targeted interventions are crucial. Comprehensive awareness campaigns promoting delayed marriages and family planning need to be implemented. Improving healthcare accessibility particularly in remote areas remains paramount along with community sensitization efforts and increased involvement of men in maternal healthcare decisions. Continuous monitoring and evaluation of these interventions are essential to track progress and ensure their effectiveness, ultimately leading to improved maternal and child health outcomes. Further, the study recommends the government to introduce compulsory institutional delivery health insurance scheme for all eligible

individuals from low income families. The scheme should comprehensively increase institutional delivery rates to enhance maternal and neonatal health outcomes.

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