Internship Training

at

EngenderHealth (14April, 2021- 14July, 2021)

Social barriers in accessing caesarean delivery by women in Assam- A descriptive study

By

Dr AMAN CHUGH

PG/19/009

Under the guidance of

Dr A K Khokhar

PGDM (Hospital and Health Management)

2019-21

International Institute of Health Management Research

New Delhi

The certificate is awarded to

Dr AMAN CHUGH

in recognition of having successfully completed his/her

Internship in the department of

MOMENTUM SAFE SURGERY IN FAMILY PLANNING AND OBSTETRICS (MSSFPO) Project

and has successfully completed her Project on

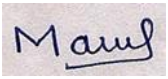
Social barriers in accessing caesarean delivery by women in Assam- A descriptive study

8June, 2021

EngenderHealth

She comes across as a committed, sincere and diligent person who has a strong drive and zeal for learning.

We wish him/her all the best for future endeavours.



Dr Manoj Pal
(Team Leader-MSSFPO project)
Training and Development

Mr Ravindra Upadhyay
Zonal Head-Human Resources

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr AMAN CHUGH** student of PGDM (Hospital and Health Management) from International Institute of Health Management Research, New Delhi has undergone internship training at **EngenderHealth** from **14 April,2021** to **14 July,2021.**

The Candidate has successfully carried out the study designated to him during internship training and his/her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfilment of the course requirements.

I wish him all success in all his/her future endeavours**.**

Ms. Divya Aggarwal
Associate Dean, Academic and Student Affairs
IIHMR, New Delhi

Dr A K Khokhar
Professor-Hospital Admin.
IIHMR, New Delhi

CERTIFICATE OF APPROVAL

The following dissertation titled "**Social barriers in accessing caesarean delivery by women in Assam- A descriptive study**" at "**EngenderHealth**" is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of PGDM (Hospital and Health Management) for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

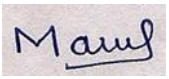
Dissertation Examination Committee for evaluation of dissertation.

Name	Signature
_____	_____
_____	_____
_____	_____

CERTIFICATE FROM DISSERTATION ADVISORY COMMITTEE

This is to certify that **Dr AMAN CHUGH**, a graduate student of the PGDM (Hospital and Health Management) has worked under our guidance and supervision. She is submitting this dissertation titled "**Social barriers in accessing caesarean delivery by women in Assam- A descriptive study**" at "**EngenderHealth**" in partial fulfilment of the requirements for the award of the PGDM (Hospital and Health Management).

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.



Dr A K Khokhar

Professor –Hospital admin.

IIHMR- NEW DELHI

Dr Manoj Pal

Team Leader-MSSFPO project

EngenderHealth

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH,

NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **"Social barriers in accessing caesarean delivery by women in Assam- A descriptive study"** submitted by **Dr AMAN CHUGH Enrolment No. PG/19/009** under the supervision of **Dr AK Khokhar**

for award of PGDM (Hospital and Health Management) of the Institute carried out during the period from 14April, 2021 to 14July, 2021 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Signature

FEEDBACK FORM

Name of the Student: Dr AMAN CHUGH

Dissertation Organisation: EngenderHealth

Area of Dissertation: Maternal Health

Attendance: Regular

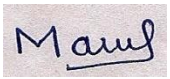
Objectives achieved: Yes

Deliverables: Dr Aman had worked to provide support in literature review, secondary data analysis and has helped in conducting qualitative interviews

Strengths: She is hard working and efficient. She develops deep understanding of subject and the is able to provide required support. She is a good team player.

Suggestions for Improvement: She has all the qualities of good professional. She will grow more once she gets greater exposure to the field of public health.

Suggestions for Institute (course curriculum, industry interaction, placement, alumni): None



Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation)

Date: 28/6/2021

Place: New Delhi

ACKNOWLEDGEMENTS

First of all, I thank almighty, for making everything possible by giving me strength and courage for the completion of this work.

I am grateful to International Institute of Health Management and Research, New Delhi for providing me with an opportunity to work on this project at EngenderHealth, Delhi. The period of dissertation has been a good learning experience for me.

I take the opportunity to express my profound gratitude and deep regards to my internal guide Dr. A K Khokhar for his encouragement and for providing me the excellence guidance throughout the project completion.

I would also like to express my gratitude to Dr. Manoj Pal my external guides, during the complete dissertation program for monitoring and constant encouragement. The support, help and guidance given by them, time to time shall carry me a long way in the journey of life on which I am about to embark.

Lastly, I thank my parents, sister and friends for their cooperation, help and support.

Internship Report

Dr AMAN CHUGH

PG/19/009

INTRODUCTION

EngenderHealth is a nonprofit organization based in Washington, D.C., active in women's health and sexual and reproductive health (SRH) operating in nearly 20 countries in Africa, Asia, and the Americas. The organization was established in 1943 and provided access to voluntary surgical contraception in the United States during its first 25 years. It has since expanded its mission to "training health care professionals and partnering with governments and communities to make high-quality family planning and sexual and reproductive health services available-today" and in the future.

In the course of its existence, EngenderHealth has undergone changes in name and mission. The organisation has been described as a prime example of how the modern US family planning movement was shaped by three overlapping but distinguishable social forces, i.e. the eugenics movement, the movement for (female) reproductive rights and the population control movement.

ORGANIZATIONAL PROFILE

Since 1988, EngenderHealth has helped expand and improve reproductive and maternal health services for women, men, and adolescents throughout many regions in India. In response to high rates of early marriage and early childbearing, some of our recent work focuses on ensuring that reproductive health services are youth-friendly and that adolescents are aware of the services available to them. In partnership with state governments, EngenderHealth works in all districts of Jharkhand and has also begun work in Bihar. In Jharkhand, nearly two-thirds of adolescent girls are married before they are 18, and at least one in four young women aged 15–19 is a mother. Our work in India helps advance sexual and reproductive health for adolescents, providing them with the information and services they need to make smart decisions that will positively affect themselves, their future families, and their communities

Vision
"A gender-equal world where all people achieve their sexual and reproductive health and rights."
Mission
"To implement high-quality, gender-equitable programs that advance sexual and reproductive health and rights"

Technical Expertise

EngenderHealth has expertise in below mentioned technical areas:

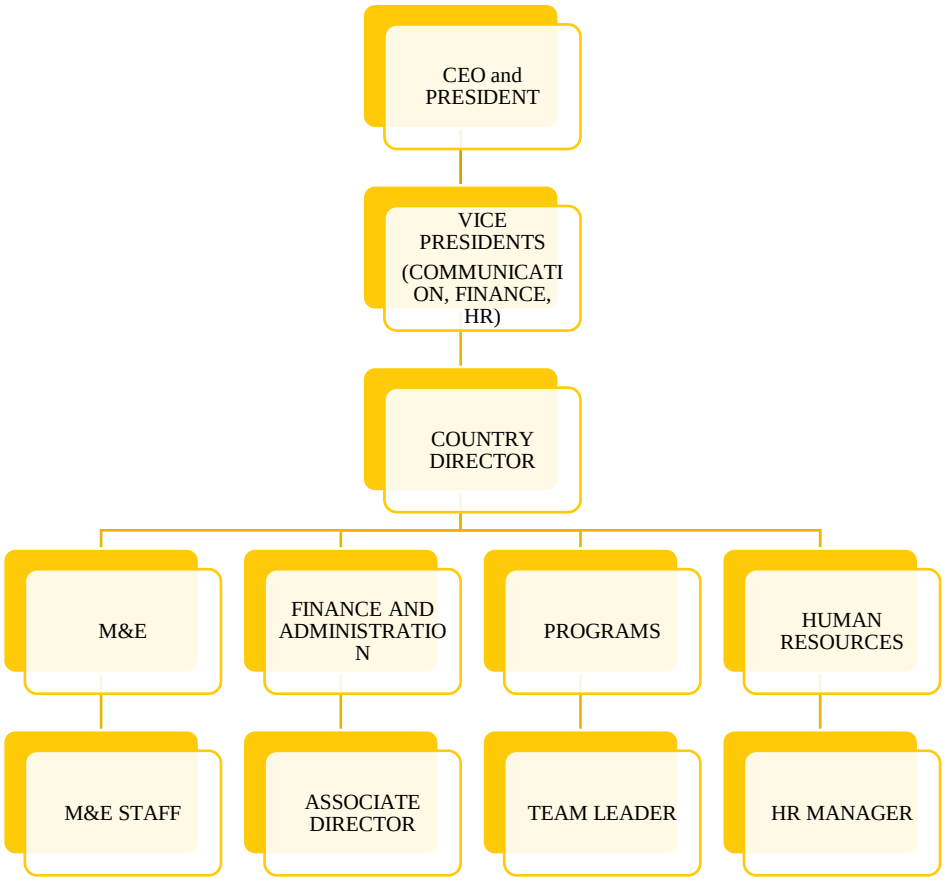
Comprehensive sexuality education; Contraceptive counselling and service delivery; Comprehensive abortion care; Maternal healthcare, including fistula prevention and treatment; Basic emergency obstetric and new-born care; Prevention and treatment of HIV/AIDS and other sexually transmitted infections; Prevention, detection, and

treatment of cervical cancer; Prevention, screening, counselling, and related services for gender-based violence survivor.

Policies and duty of care

Duty of Care and safeguard; Anti-Trafficking Policy; Fraud & Whistle-Blower Policy; Gender, Equity, Diversity, and Inclusion (GEDI) Statement; Parental Leave Policy; Equal Employment Opportunity Policy

ORGANOGRAM



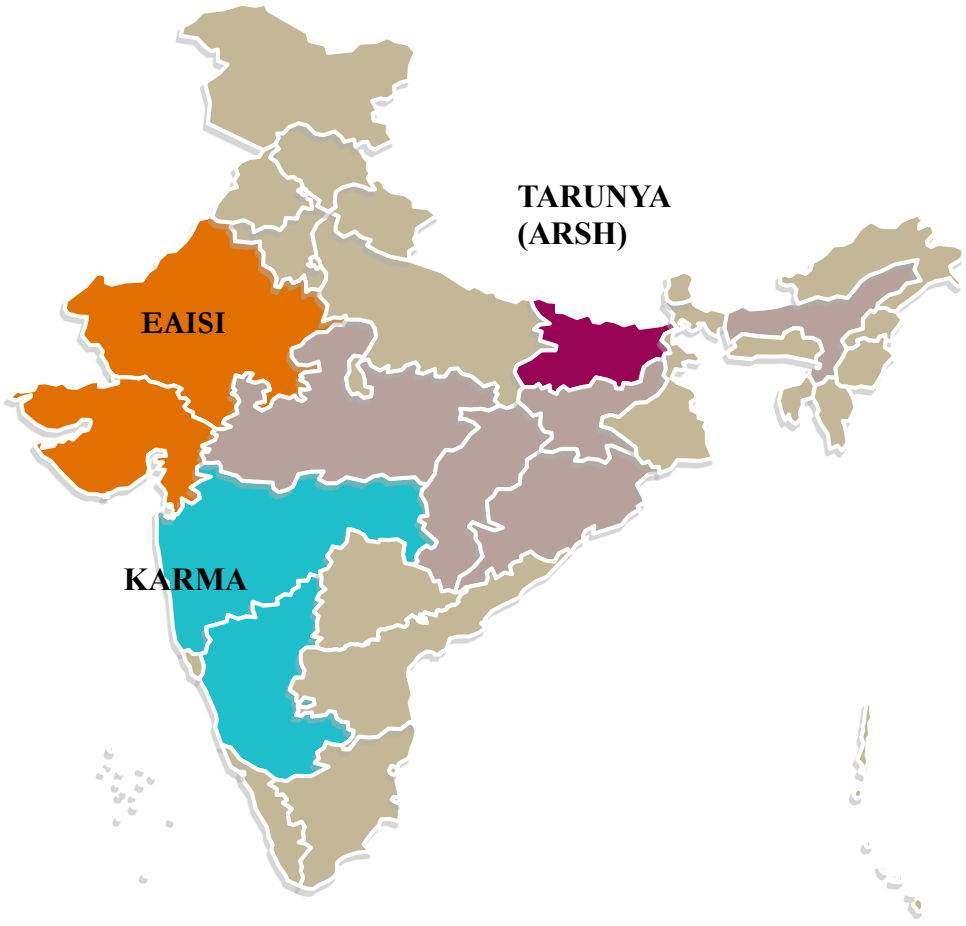
SERVICES PROVIDED BY ORGANIZATION

EngenderHealth has a vision of a Gender equal world where all people achieve their sexual and reproductive health and rights.

Working in India for last three decades and recent experience of working with National and State Governments in five states Gujarat, Rajasthan, Karnataka, Maharashtra and Bihar.

Technical areas of work include adolescent SRHR, gender mainstreaming, family planning, maternal health and health system strengthening.

Projects undertaken by EngenderHealth



DEPARTMENTS WORKED AND OBSERVATIONS/LEARNING

I Worked in department of Programs.

Engenderhealth provides immense growth and learning environment to its employees. The team actively participates in decision making, exchange their thoughts and ideas freely and discussion plays a major part. Also, the leader is present to provide the needed support and guidance.

I majorly Supported in tasks like preparation of vision statement, preparing M&E plan, secondary data analysis, literature review, preparation of rapid assessment tools, meeting with stakeholders and donors and learnt in depth about the tasks undertaken from the projects.

PROJECTS UNDERTAKEN OTHER THAN DISSERTATION

1) **MOMENTUM safe surgery in family planning and obstetrics:**

MSSFPO is a global project which seeks to sustainably support the Government of India in strengthening surgical safety within family planning and obstetric care, by promoting evidence-based approaches and testing new innovations.

Duration of work done: April 2021 – July 2021

Focus areas:

Surgical obstetric care (Caesarean delivery).

Informed modern contraceptive choices among youth with a special focus on LARC.

Voluntary, permanent family planning.

Geography: Five USAID priority states are- Assam, Jharkhand, Orrisa, Chhattisgarh, Madhya Pradesh.

2) **Youth campaign:** Project funded by WHO is in 10 states to roll out of Youth Campaign to disseminate COVID related messages
3) Project Funded by UNICEF to Engage adolescent girls as champions to improve survival of new born girl child

REPORTING EXTRAORDINARY GOOD EVENTS

1) Participated in meetings with Donors at global and national level
2) Participated in meetings with partners at global and national level
3) Participated in meetings with stakeholders

Social barriers in accessing Caesarean delivery by women in Assam-A descriptive study

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ABSTRACT

"Globally, caesarean section (CS) has immensely contributed to improved obstetric outcome in circumstances where vaginal delivery is not feasible. However, in some low-income countries, there is aversion to the procedure." Assam state of India is purposely selected for this study as Assam is the state that has the highest Maternal mortality rate among all the states of India. This study intends to find and address social barriers that limit the access to Caesarean delivery in Assam.

Methodology: systematic literature review has been done for the Assam state, Kids Recode data is retrieved from DHS- INDIA 2016-2016 and analysed on IBM SPSS. In order to check significance of data, Cross tabs were run and chi-square test was performed.

Results: Wealth index: CDs are more common among women with high wealth index mentioned in 5/6 studies. Education: CDs are more common among women with higher education mentioned in 4/6 studies. Cultural beliefs: CDs are averted where there are strict cultural norms- mentioned in 2/6 studies.1/6 studies suggest that CDs are more common among SC/ST. results from data suggests that, women with high educational attainment, who have high wealth index and belong to urban area, and have professional occupation have maximum no. of C-section as compared to women with low education, women who belongs to low economic background and who live in rural areas. Difference in delivery by C-section and by other means has been seen significant in different religion, women speaking language and belongs to different tribes and caste.

Conclusion: This study concludes that despite of increasing rate of C-section in India there are social barriers that limit the access to delivery by Caesarean section in Assam.

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LIST OF ABBREVIATIONS

CDs- Caesarean Deliveries

CS/C-section- Caesarean section

DHS- Demography and Health Survey

DLHS- District Level Household and facility Survey

GDHS- Ghana Demographic and Health Survey

HMIS- Health Management Information System

MMR- Maternal Mortality Rate

MOHFW – Ministry of Health and Family Welfare

NFHS- National Family Health Survey

NHM- National Health Mission

NRHM- National Rural Health Mission

OBC- Other backword Class

OOPE- Out of Pocket Expenditure

PHC- Population and housing Census

RMNCHA- Reproductive, Maternal, New-born, Child and Adolescent Health

SC/ST- Schedule Caste/ Schedule Tribe

SRS- Sample Registration System

UHC- Universal Health Coverage

WHO- World Health Organization

INTRODUCTION

Caesarean section is the most reliable and efficient emergency obstetric procedure where vaginal delivery doesn't seem safe or possible. World Health Organization (WHO) consider the caesarean section as a safe mode of delivery and suggest that its adoption or acceptance rate should lie between 5 to 15%.

There is immense pleasure and satisfaction in giving birth to a healthy baby and also there is no massive pain than the maternal and child death due to complications in pregnancy or during labor, especially/mainly when it happens because of a preventive reason. Caesarean birth is not acceptable to many women even when it is the only option to save their lives, such cases are more prominent in low socio-economic demographics. As an emergency operative procedure Caesarean section has contributed to improve the obstetric care globally.

METHODOLOGY

Rationale:

Assam is purposely selected for this study as Assam is the state that has the highest Maternal mortality rate among all the states of India.

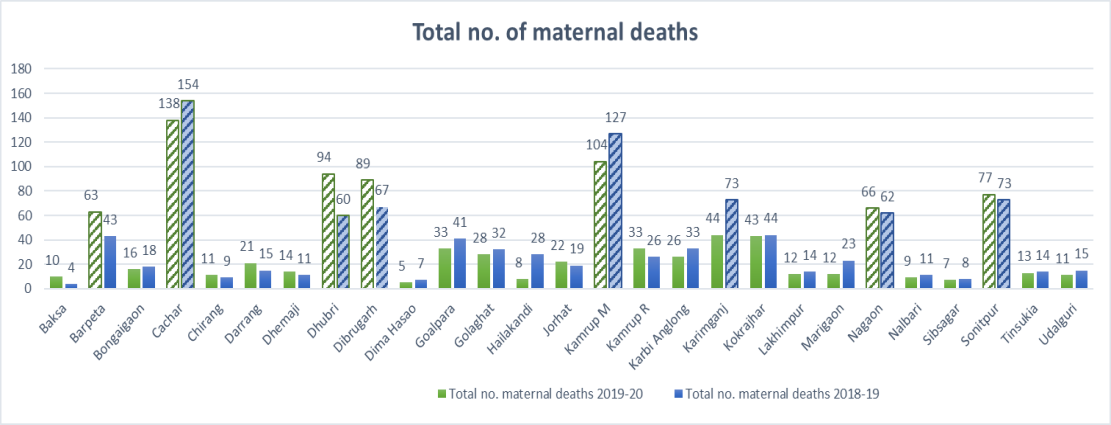
"Assam is a state in north-eastern India which lies south of the eastern Himalayas along the Brahmaputra and Barak River valleys and covers the area of 78,438 km2 (30,285 sq. mi). The State, with over 3 crore population as per the Census 2011 data, has nearly 86% population residing in rural areas and only around 14% population in urban areas. Maternal Mortality Rate (MMR) 300 (as per SRS Bulletin 2011-13) and 215(as per SRS Bulletin 2016-18)." Distribution of maternal death as per district has been shown in fig 1(source HMIS)

As per NFHS-5

- Total institutional births have been increased from 70.6(2015-2016) to 84.1(2019-2020).
- Total CDs has been increased from 13.4(2015-2016) to 18.1(2019-2020)

Although overall increase in Caesarean delivery has been seen but state like Assam where majority of population (86%) live in rural areas, especially tea plantation communities (6 million people (approx.) which is around 20% of total population of Assam) and boat communities where situation is much worse and access to sexual and reproductive resources is scarce. Which in turn leads to poor maternal health. There is need to study the parameters which contributes in increasing Maternal and child deaths, hence the study aims to find the social barriers that limit the access of caesarean delivery to women in Assam.

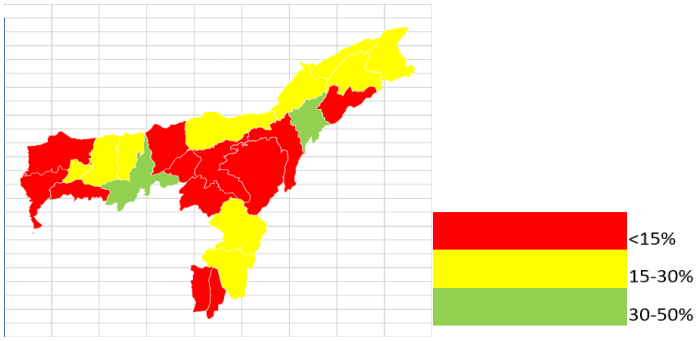
Fig1.1



Distribution of C-section in public and private facilities shown in fig2, 3 (source HMIS)

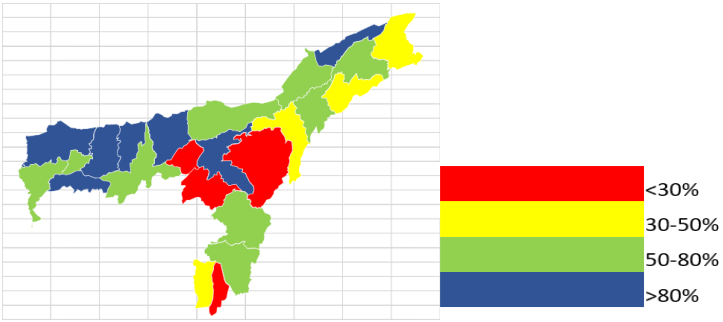
% Caesarean delivery conducted at public facilities to total Deliveries conducted at public facilities (2019-2020)

Fig1.2



% Caesarean delivery conducted at private facilities to total Deliveries conducted at public facilities (2019-2020)

Fig1.3



Literature review

For qualitative data:

Relevant policy and program documents related to the C-section were reviewed, sources for information are:

- Govt websites (MOHFW, NHM, NITI Aayog, State DoH websites)
- Scientific databases: (i) PubMed, (ii) NCBI, (iii) Researchgate
- Other sources for published literature: Bibliography, subject-specific key journals/ reports and development partners' websites, free-hand web-search

Secondary data has been reviewed from NFHS, HMIS and available literature

KEY WORDS: caesarean delivery, social barriers, Emergency obstetric care, maternal mortality, Tea garden population

Data collection:

For quantitative data:

Secondary data is used for this study

Data-sets for the study is collected from "THE DHS PROGRAM DEMOGRAPHY AND HEALTH SURVEYS" for KIDS RECODE India-2015-2016.

Inclusion and exclusion criteria:

1) Cases of births happened in last 5 years to women of only Assam state were taken from the datasets of India; rest were excluded

Data of Assam state was filtered and extracted out of the dataset.

Data cleaning and filtering, calculation and analysis for Assam state was done using IBM SPSS

Analysis is done on IBM SPSS, cross tabs was done for various variables and chi square test done for significance testing.

Sample size:

Total no. recorded cases of births in last 5 years in Assam were recorded to be 10309

Variable considered:

Religion; Education status; Type of place of resident; Wealth index; respondent's occupation(grouped); respondents' mother tongue; respondent's caste and tribe- for women who had delivery by caesarean section.

Ethics considerations:

The literature review will be conducted in compliance with the principles of Helsinki Declaration (respect for autonomy, beneficence, non-maleficence, justice, and privacy and confidentiality); data used for study was available on public domain; registration was done for accessing DHS datasets

RESULTS

Literature review

Table2.1.

STUDY TITLE	STUDY TYPE	SELECTION CRITERIA FOR SAMPLE	METHODOLOGY	RESULTS
"Maternal health and maternal mortality: A study of four selected districts of Assam"	"Systematic literature review/ coss-sectional study"	"Multistage sampling to identify the villagers"	"Systematic literature review followed up by community survey -Secondary data collected from SRS, NFHS, NRHM -Primary data collected from 8 villages of 4 districts. Statistical methods used- one way anova, Pearson's chi-square test, Bayesian logistic regression for various variables"	"Districts with better socioeconomic conditions have better maternal health facility Maternal health seeking behaviours are influence by socioeconomic factors like no care taker at home for pregnant women, heavy work loads, long queue at facility; cultural factors such as hesitation and ignorance ;Lack of transport and referral support in areas of respondents"
"Prevalence of the Caesarean Section in India"	"Observational study"	"The main objective of the study was to analyse the prevalence of caesarean section among the married women, in India, so all of the 29 states are considered. The study analyzes	"To assess the impact of socio-demographic factors towards the use of caesarean section, both bivariate and multivariate binary logistic regression models were used."	"The analysis/survey/investigation confirmed that age of delivery, maternal education, choice of medical institution, place of residence and birth order were important predictors for the prevalence of caesarean sections during childbirth."

		data on ever-married women from the NFHS-II (1998-1999) and NFHS-III (2005-2006)."		
"Caesarean section delivery in India: causes and concerns"	"A cross sectional studies"	"latest birth of ever-married women aged 15-49, who had given birth (both live and still birth) since January 1, 2004 and reported the type of delivery were included"	"To understand the trend of the rates of C-section delivery, along with DLHS-3, data from 1st, 2nd and 3rd round of NFHS has been used. A logistic regression model has been used to identify the net impact of demographic, socio-economic and institutional factors on woman's experience of caesarean section delivery"	"Higher percentage of CS is observed among non SC/ST (SC-Scheduled Caste, ST-Scheduled Tribe) women than the SC/ST group. -women who have completed 5-10 years schooling or higher are significantly more likely to experience caesarean delivery than those who never attended school. -caesarean delivery is higher among those who are under any insurance coverage/health scheme and living in urban areas. -Women from rich families are significantly more likely to undergo C-section than women from poor families"

Table2.2

STUDY TITLE	STUDY TYPE	SELECTION CRITERIA FOR SAMPLE	METHODOLOGY	RESULTS
"Socioeconomic inequalities in the use of caesarean section delivery in Ghana: a cross-sectional study using nationally representative data"	"a cross-sectional study"	"The data was drawn from the 2014 Ghana Demographic and Health Survey (GDHS). -study includes only females between 15 and 49 years old residing in Ghana. Based on the updated 2010 Ghana Population and housing Census (PHC) respondents were selected in all the ten regions of the country. Participants were selected into the survey in two stages. 427 clusters were selected and subsequently 30 households from each cluster were selected through systematic sampling."	"Univariable and multivariable logistic regression models were fitted to examine the socioeconomic inequalities in CS use."	"-the proportion of women who had a CS delivery is higher among women with higher education. -CS delivery rate was more than two-folds higher in urban residents than women living in rural areas -(27.5%) of the richest group had CS birth whilst the percentage was 5% for the poorest group. -no substantial difference in the proportion of CS births among employed and unemployed women -CS births for Christians were about twice that of the traditional and other believers;the proportion of Muslim women who reported

				having had a CS was 9.9%”
“Cesarean delivery and associated socioeconomic factors and neonatal survival outcome in Kenya and Tanzania: analysis of national survey data”	“Cross-sectional study”	“(DHS) data from Kenya (2014) and Tanzania (2015–2016) with ≥90% response rates were used. -only institutional birth records of the most recent live-born neonates were used”	“binary logistic regression used to analyze cross-sectional demographic and health survey data”	“higher rates of cesarean delivery among mothers from richest households, compared to middle class, no insurance, primary education and unemployed, respectively”.
“Perception and Socio-cultural Barriers to the Acceptance of Caesarean Delivery in A Tertiary Hospital in Abakaliki, South East Nigeria”	“A cross-sectional study”	“study included pregnant women attending the antenatal clinic at the Federal Teaching Hospital Abakaliki. The total sample size was 360. 16 participants were excluded from the study due to incorrectly filled questionnaires, giving a total of 344 eligible respondent”	“Data were collated using a self-administered questionnaire and was analyzed using SPSS version 20.0 and conclusions were drawn by means of descriptive statistics.”	“The major barriers to acceptance were being considered by peers as a reproductive failure, high cost and religious beliefs. more than four-fifths of the respondents had secondary and tertiary formal education, the majority continued to have aversion to caesarean.”

Assam specific data analysis

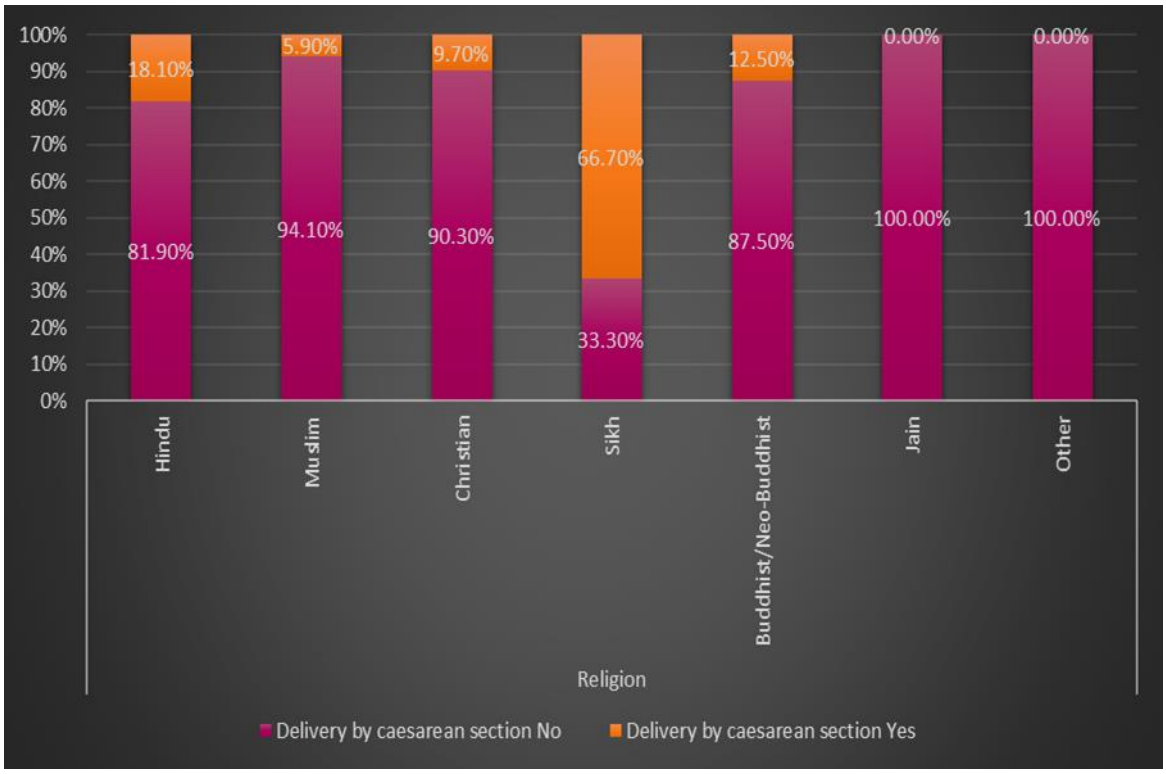


Fig2.1 (Religion * Delivery by caesarean section)

The result of this analysis show how various Religious beliefs influence in opting the caesarean delivery.

It is notable that the women belonging to Hindu and SIKH Religion has the highest percentage of 18.10% and 66.7% respectively who preferred Caesarean delivery.

The figures vary for the religions like BUDDHIST opting for 12.5%, CHRISTIANS for 9.7% and MUSLIMS as low as 5.9%.

Conversely the JAIN Community / OTHER RELIGION has the lowest percentage of 0.0% or NIL.

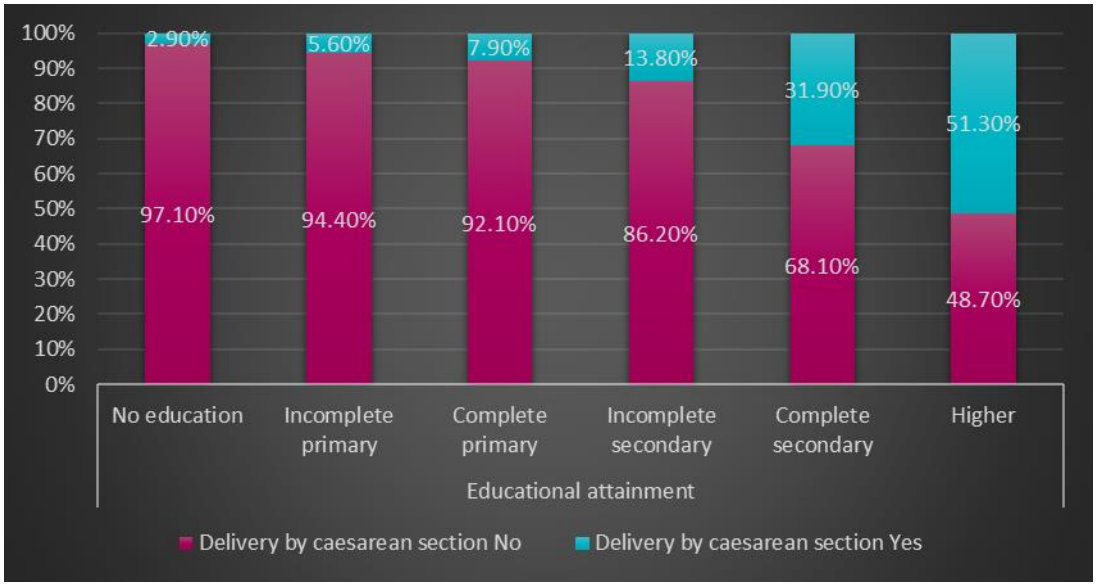


Fig2.2 (Educational attainment* Delivery by caesarean section)

This analysis was performed to see how Educational attainment affects the caesarean delivery.

It is worth discussing these crucial facts revealed by the results of the investigation.

These findings are consistent with the data showing that with Educational Attainment as low as Nil/No Education, only 2.9% people opt for caesarean delivery and 97.1% refuses for the same.

This rise exponentially with the higher education as Incomplete Primary group 5.6% opted for Caesarean delivery and 94.4% refuses.

The complete Primary group and the incomplete secondary group opted for caesarean delivery as 7.9% and 13.8% respectively.

With the attainment of education as high as complete secondary about 31.90% people opted for caesarean delivery and the number rises with Educational background as 51.30% people who have their education qualification as Higher secondary opted for caesarean delivery.

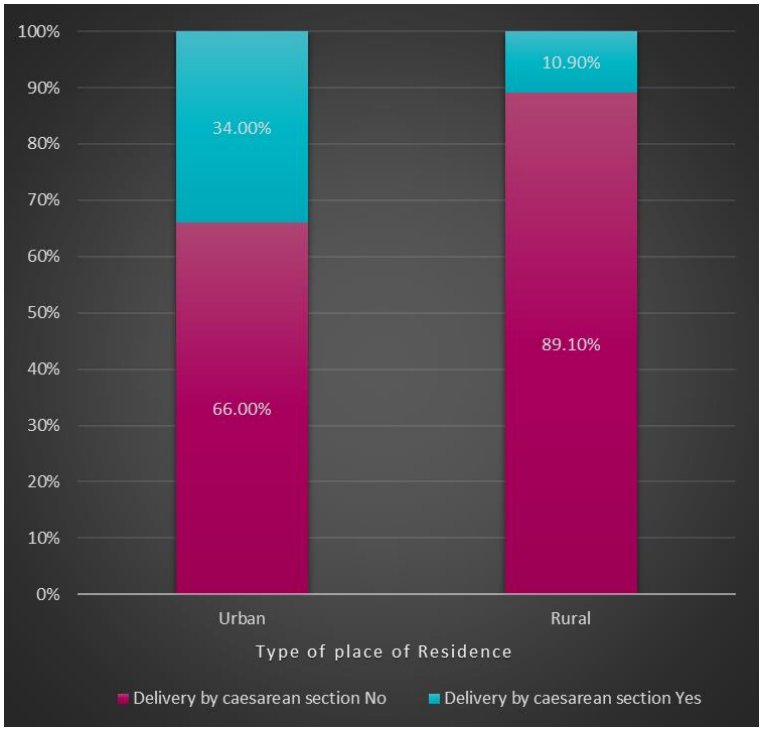


Fig2.3 (Type of place of residence * Delivery by caesarean section)

This bar graph illustrates how the Type of Residence influence in choosing the caesarean delivery.

The results of this analysis revealed there is significant difference between people's type of residence and their willingness to opt for caesarean delivery.

In the Urban areas nearly 34.0% people choose caesarean as their method of delivery while 66.0% refused.

On the contrary in the Rural areas only 10.90% people opted for caesarean delivery and nearly 89.10% refused.

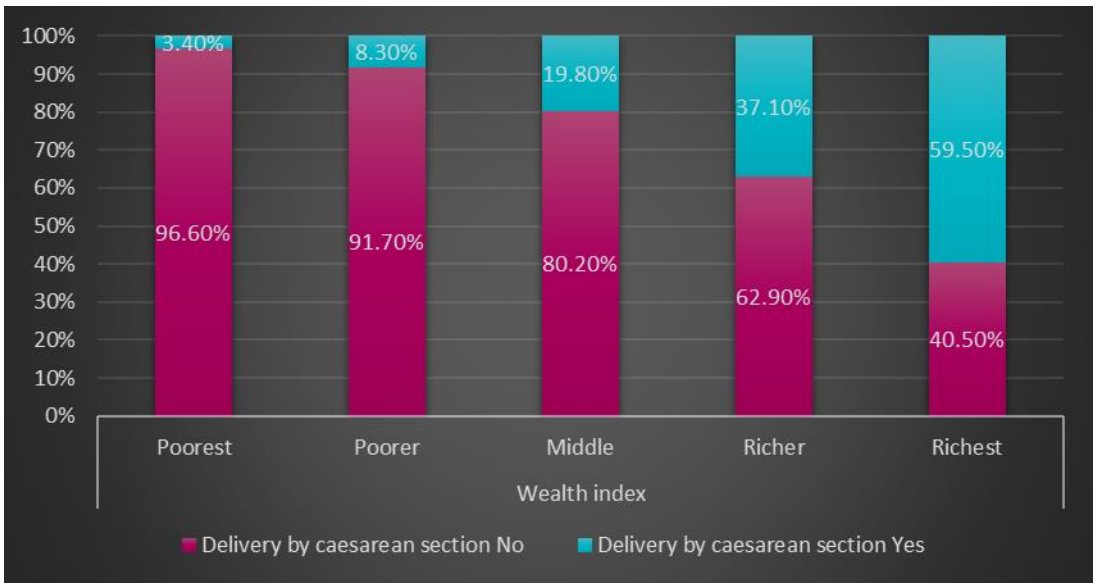


Fig2.4 (Wealth index * Delivery by caesarean section)

This analysis shows whether wealth index contributes in people's choice for opting/choosing the caesarean delivery.

These basic findings are consistent with the data showing that with the health index as Poorest only 3.40% chose for caesarean delivery.

While the 8.30% Poorer and 19.80% middle wealth index opted for caesarean delivery.

A similar pattern of results was obtained and nearly 37.10% of the Richer and 59.50% of the Richest opted for the caesarean delivery method.

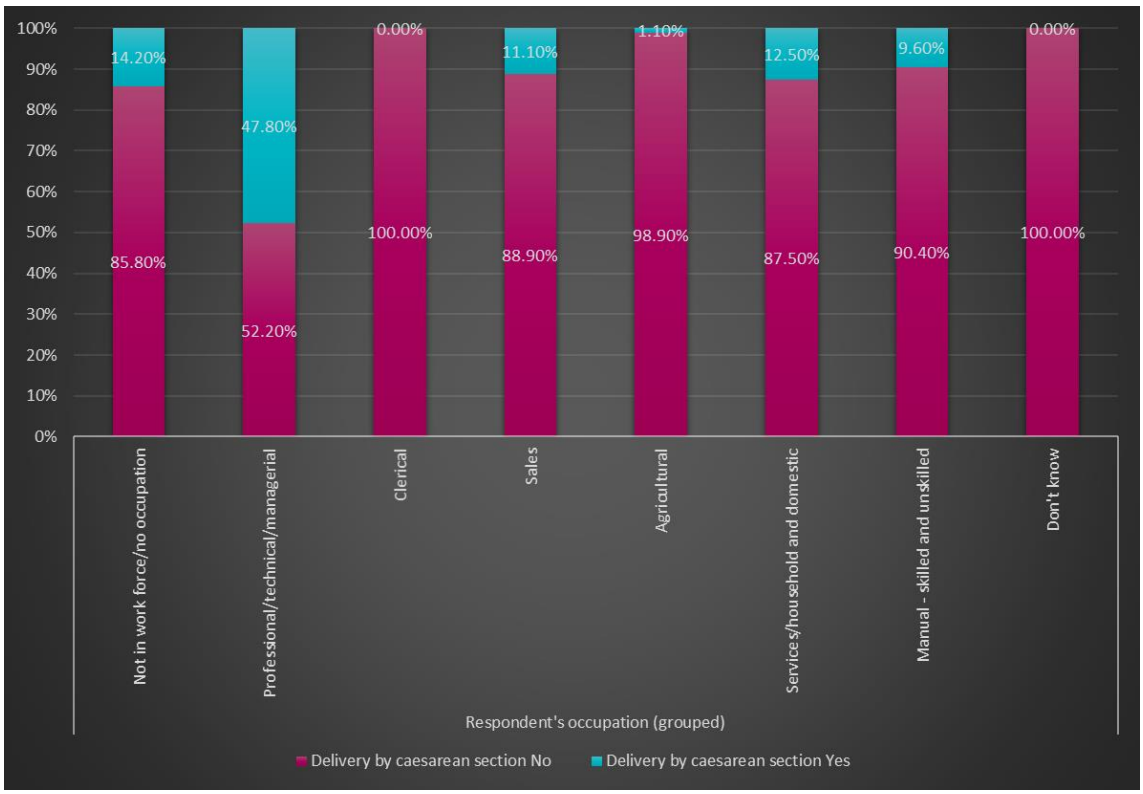


Fig2.5 (Respondent's occupation (grouped) * Delivery by caesarean section)

There is another important finding in the understanding how the respondent's occupation impacts the delivery by caesarean section.

In the professional/technical/managerial class about 47.80% people chose caesarean delivery method which is highest amongst all the classes in this category.

In the service/household/ domestic category 12.50% and in the Sales category 11.10% opt for caesarean while those are not in workforce or has no occupation about 14.20%people chose caesarean method.

The manual skilled or unskilled group has 9.60% while the clerical and agricultural has 0.00%and 1.10% people opting for C-section delivery.

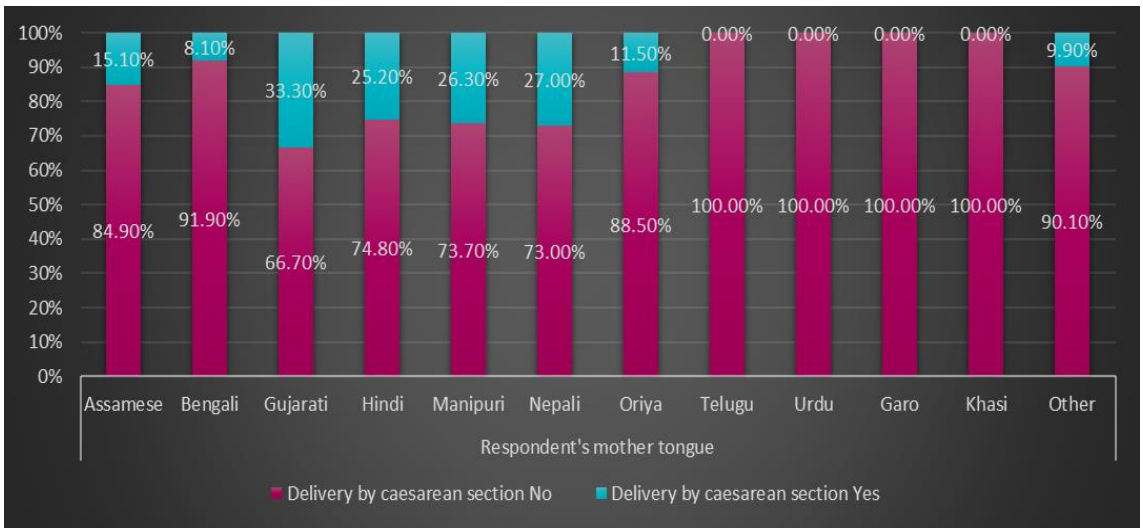


Fig2.6 (Respondent's mother tongue * Delivery by caesarean section)

We also acknowledge that there are considerable difference in data as to know how respondent's mother tongue influence the delivery by c section.

The Nepali community as 27.0%, Manipuri as 26.30%, Hindi as 25.20%, Assamese as 15.10% Oriya as 11.50% and Bengali as 8.10%.

The data depicts that the Gujarati community has the highest no as about 33.30%opting for caesarean.

While the other classes as 9.90%

However the Telugu/Urdu/Garo and Khasi has shown 0.0% or Nil C-section rates

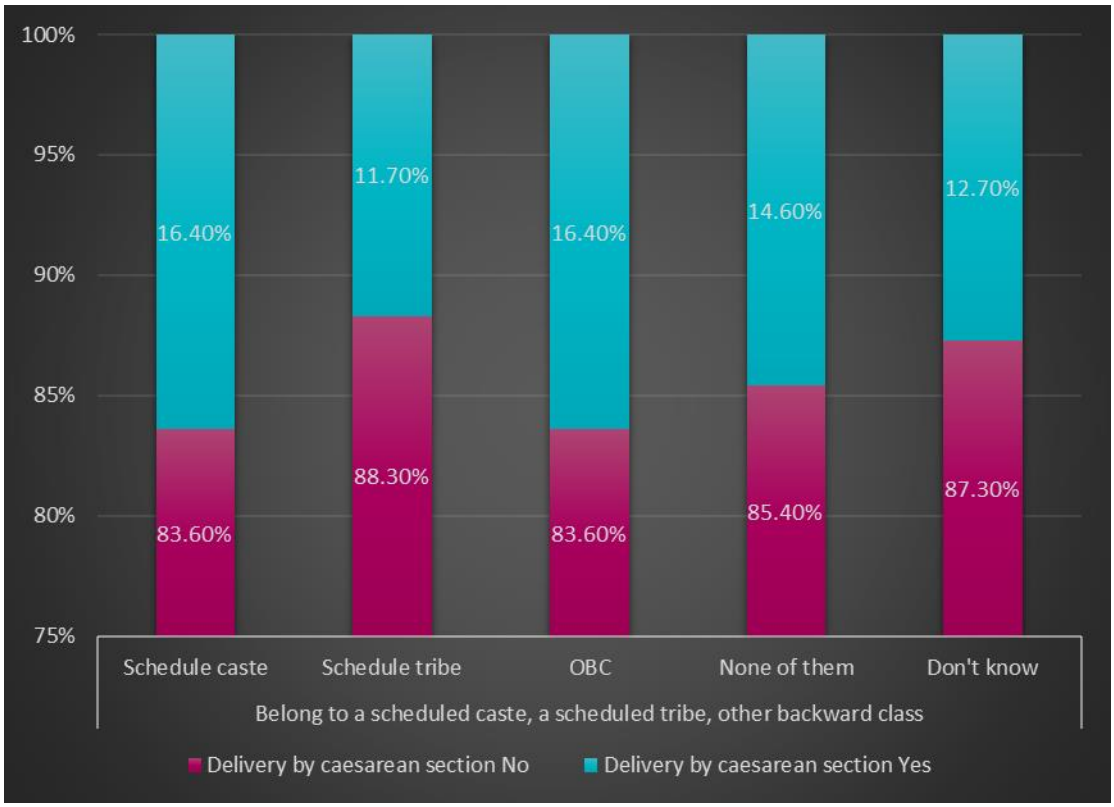


Fig2.7 (Belong to a scheduled caste, a scheduled tribe, other backward class * Delivery by caesarean section)

It is particularly important when investigating whether the caste impacts the caesarean delivery or not.

It is important to highlight the fact that 16.40% scheduled caste , 11.70% scheduled tribe and 16.40% OBC said yes to the delivery by C-section while 14.60% people lies in the none of them and 12.70% don't know about their preferences.

Data is significant as Pearson's Chi-square value is seen to be less than 0.05% for every parameter considered.

DISCUSSION

Out of total population of approx. 31 million in Assam, tea-tribe population (tea garden community/tea garden workers) contributes approximately 6 million (20% of total population of Assam) Out of which approximately 4 million live in residential quarters constructed inside 799 tea estates expanded across the tea-growing areas of Assam and remaining 2.5 million live in the nearby villages developed around those tea-growing areas.

"Assam is predominantly a rural based state, almost 86 per cent of its population still living in rural areas. The socio-economic position among the people in rural areas is very pathetic compare to urban area & all India figures. Rural poverty is more than twice that of urban poverty. The population growth in Assam also implied that there has hardly been any reduction in the absolute number of the poor over the years. MMR of Assam is much higher than national average level. Assam is one of the maternal death prone states of India; both infant and maternal health status is very poor in Assam compared to All India."

Results from literature review and data analysis also suggests difference in accessing caesarean section among various parameters which has been considered in this study. Wealth index: CDs are more common among women with high wealth index mentioned in 5/6 studies. Education: CDs are more common among women with higher education mentioned in 4/6 studies. Cultural beliefs: CDs are averted where there are strict cultural norms- mentioned in 2/6 studies.1/6 studies suggest that CDs are more common among SC/ST. results from data suggests that, women with high educational attainment, who have high wealth index and belong to urban area, and have professional occupation have maximum no. of C-section as compared to women with low education, women who belongs to low economic background and who live in rural areas. Difference in delivery

by C-section and by other means has been seen significant in different religion, women speaking language and belongs to different tribes and caste.

Other social barriers identified are:

> "1) High cost of procedure(OOPE); 2) Fear of immense pain or death of self or child due to Caesarean delivery. (as heard from peers and relatives); 3) Myths and stigma related to caesarean deliveries like unable to conceive or prolonged hospital stay; 4) Negative perception of the community or culture like fear of abandonment from the community/ Not accepted in the culture/ Caesarean delivery is curse on a unfaithful woman/ Caesarean delivery is sign of failure of her reproductive functions/ Caesarean delivery is result of spiritual attacks; 5) Insufficiency of roads and transport, studies states that women avoided going to the facility due to their experiences during previous births as unavailability of proper roads and transport system has caused huge mental and physical trauma while reaching equipped emergency obstetric facilities on time during labor emergencies."

CONCLUSION

Women who are poor and are living in remote/secluded/faraway/tribal areas or communities are usually least likely to get emergency obstetric services.

The major social barriers factors preventing women from seeking emergency obstetric care at the time of pregnancy and labor are:

- Poor economic conditions
- Large Distance from the facilities
- lack of education and awareness
- Religion, cultural beliefs or practices.
- Poor infrastructure and lack of services

The barriers that limit the access to quality maternal health services must be identified and addressed at both health system and societal levels to improve maternal health.

maternal mortality due to social barriers can be prevented:

- If we address inequalities in access to along with quality of emergency obstetric care; RMNCHA;
- If we ensure/secure universal health coverage (UHC) for comprehensive RMNCHA
- If we address social barriers of maternal mortality; reproductive and maternal morbidities; and related disabilities.
- By initiating Social and behaviour change practices.
- By strengthening health systems to collect high and best quality of data in order to give response to the needs along with priorities of women and girls; and
- If we ensure the accountability to improve quality of care and equity.

Appendix 1

Religion * Delivery by caesarean section

Crosstab					
			Delivery by caesarean section		Total
			No	Yes	
Religion	**Hindu**	Count	4733	1046	5779
		Expected Count	5030.1	748.9	5779.0
		% within Religion	**81.9%**	**18.1%**	100.0%
	Muslim	Count	3794	240	4034
		Expected Count	3511.2	522.8	4034.0
		% within Religion	**94.1%**	**5.9%**	100.0%
	Christian	Count	420	45	465
		Expected Count	404.7	60.3	465.0
		% within Religion	**90.3%**	**9.7%**	100.0%
	Sikh	Count	1	2	3
		Expected Count	2.6	.4	3.0
		% within Religion	**33.3%**	**66.7%**	100.0%
	Buddhist/Neo-Buddhist	Count	21	3	24
		Expected Count	20.9	3.1	24.0
		% within Religion	**87.5%**	**12.5%**	100.0%
	Jain	Count	2	0	2
		Expected Count	1.7	.3	2.0

		% within Religion	**100.0%**	**0.0%**	100.0%
	Other	Count	2	0	2
		Expected Count	1.7	.3	2.0
		% within Religion	**100.0%**	**0.0%**	100.0%
Total		Count	8973	1336	10309
		Expected Count	8973.0	1336.0	10309.0
		% within Religion	**87.0%**	**13.0%**	**100.0%**

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	323.832[a]	6	<.001
Likelihood Ratio	347.282	6	<.001
Linear-by-Linear Association	45.774	1	<.001
N of Valid Cases	10309		

a. 7 cells (50.0%) have expected count less than 5. The minimum expected count is .26.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.177	<.001
	Cramer's V	.177	<.001
N of Valid Cases		10309	

Educational attainment* Delivery by caesarean section

			Delivery by caesarean section	Delivery by caesarean section	Total
			No	Yes	
Educational attainment	No education	Count	2435	72	2507
		Expected Count	2182.1	324.9	2507.0
		% within Educational attainment	**97.1%**	**2.9%**	**100.0%**
	Incomplete primary	Count	1178	70	1248
		Expected Count	1086.3	161.7	1248.0
		% within Educational attainment	**94.4%**	**5.6%**	**100.0%**
	Complete primary	Count	398	34	432
		Expected Count	376.0	56.0	432.0
		% within Educational attainment	**92.1%**	**7.9%**	**100.0%**
	Incomplete secondary	Count	4200	673	4873
		Expected Count	4241.5	631.5	4873.0
		% within Educational attainment	**86.2%**	**13.8%**	**100.0%**
	Complete secondary	Count	541	254	795
		Expected Count	692.0	103.0	795.0
		% within Educational attainment	**68.1%**	**31.9%**	**100.0%**
	Higher	Count	221	233	454

		Expected Count	395.2	58.8	454.0
		% within Educational attainment	**48.7%**	**51.3%**	**100.0%**
Total		Count	8973	1336	10309
		Expected Count	8973.0	1336.0	10309.0
		% within Educational attainment	**87.0%**	**13.0%**	**100.0%**

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1145.461[a]	5	<.001
Likelihood Ratio	981.759	5	<.001
Linear-by-Linear Association	819.071	1	<.001
N of Valid Cases	10309		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 55.99.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.333	<.001
	Cramer's V	.333	<.001
N of Valid Cases		10309	

Type of place of residence * Delivery by caesarean section

Crosstab					
			Delivery by caesarean section		Total
			No	Yes	
Type of place of residence	Urban	Count	619	319	938
		Expected Count	816.4	121.6	938.0
		% within Type of place of residence	**66.0%**	**34.0%**	**100.0%**
	Rural	Count	8354	1017	9371
		Expected Count	8156.6	1214.4	9371.0
		% within Type of place of residence	**89.1%**	**10.9%**	**100.0%**
Total		Count	8973	1336	10309
		Expected Count	8973.0	1336.0	10309.0
		% within Type of place of residence	**87.0%**	**13.0%**	**100.0%**

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	405.307[a]	1	<.001		
Continuity Correction[b]	403.257	1	<.001		
Likelihood Ratio	311.528	1	<.001		
Fisher's Exact Test				<.001	<.001
Linear-by-Linear Association	405.268	1	<.001		
N of Valid Cases	10309				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 121.56.

b. Computed only for a 2x2 table

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	-.198	<.001
	Cramer's V	.198	<.001
N of Valid Cases		10309	

Wealth index * Delivery by caesarean section

Crosstab					
			Delivery by caesarean section		Total
			No	Yes	
Wealth index	Poorest	Count	3145	111	3256
		Expected Count	2834.0	422.0	3256.0
		% within Wealth index	**96.6%**	**3.4%**	**100.0%**
	Poorer	Count	3684	332	4016
		Expected Count	3495.5	520.5	4016.0
		% within Wealth index	**91.7%**	**8.3%**	**100.0%**
	Middle	Count	1429	353	1782
		Expected Count	1551.1	230.9	1782.0
		% within Wealth index	**80.2%**	**19.8%**	**100.0%**
	Richer	Count	581	343	924
		Expected Count	804.3	119.7	924.0
		% within Wealth index	**62.9%**	**37.1%**	**100.0%**
	Richest	Count	134	197	331
		Expected Count	288.1	42.9	331.0
		% within Wealth index	**40.5%**	**59.5%**	**100.0%**
Total		Count	8973	1336	10309
		Expected Count	8973.0	1336.0	10309.0
		% within Wealth index	**87.0%**	**13.0%**	**100.0%**

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1530.053[a]	4	.000
Likelihood Ratio	1251.646	4	<.001
Linear-by-Linear Association	1384.062	1	<.001
N of Valid Cases	10309		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 42.90.

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	.385	.000
	Cramer's V	.385	.000
N of Valid Cases		10309	

Respondent's occupation (grouped) * Delivery by caesarean section

Crosstab					
			Delivery by caesarean section		Total
			No	Yes	
Respondent's occupation (grouped)	Not in work force/no occupation	Count	1260	209	1469
		Expected Count	1267.1	201.9	1469.0
		% within Respondent's occupation (grouped)	**85.8%**	**14.2%**	**100.0%**
	Professional/technical/managerial	Count	12	11	23
		Expected Count	19.8	3.2	23.0
		% within Respondent's occupation (grouped)	**52.2%**	**47.8%**	**100.0%**
	Clerical	Count	1	0	1
		Expected Count	.9	.1	1.0
		% within Respondent's occupation (grouped)	**100.0%**	**0.0%**	**100.0%**
	Sales	Count	16	2	18
		Expected Count	15.5	2.5	18.0
		% within Respondent's occupatio	**88.9%**	**11.1%**	**100.0%**

		n (grouped)			
	Agricultural	Count	86	1	87
		Expected Count	75.0	12.0	87.0
		% within Respondent's occupation (grouped)	**98.9 %**	**1.1 %**	**100.0 %**
	Services/household and domestic	Count	21	3	24
		Expected Count	20.7	3.3	24.0
		% within Respondent's occupation (grouped)	**87.5 %**	**12.5 %**	**100.0 %**
	Manual - skilled and unskilled	Count	47	5	52
		Expected Count	44.9	7.1	52.0
		% within Respondent's occupation (grouped)	**90.4 %**	**9.6 %**	**100.0 %**
	Don't know	Count	7	0	7
		Expected Count	6.0	1.0	7.0
		% within Respondent's occupation (grouped)	**100.0 %**	**0.0 %**	**100.0 %**
Total		Count	1450	231	1681
		Expected Count	1450.0	231.0	1681.0

	% within Respondent's occupation (grouped)	**86.3 %**	**13.7 %**	**100.0 %**

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	36.630[a]	7	<.001
Likelihood Ratio	37.465	7	<.001
Linear-by-Linear Association	3.070	1	.080
N of Valid Cases	1681		

a. 6 cells (37.5%) have expected count less than 5. The minimum expected count is .14.

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	.148	<.001
	Cramer's V	.148	<.001
N of Valid Cases		1681	

Respondent's mother tongue * Delivery by caesarean section

Crosstab					
			Delivery by caesarean section		Total
			No	Yes	
Respondent's mother tongue	Assamese	Count	5408	960	6368
		Expected Count	5542.7	825.3	6368.0
		% within Respondent's mother tongue	**84.9%**	**15.1%**	**100.0%**
	Bengali	Count	2380	210	2590
		Expected Count	2254.3	335.7	2590.0
		% within Respondent's mother tongue	**91.9%**	**8.1%**	**100.0%**
	Gujarati	Count	2	1	3
		Expected Count	2.6	.4	3.0
		% within Respondent's mother tongue	**66.7%**	**33.3%**	**100.0%**
	Hindi	Count	77	26	103
		Expected Count	89.7	13.3	103.0
		% within Respondent's mother tongue	**74.8%**	**25.2%**	**100.0%**
	Manipuri	Count	28	10	38
		Expected Count	33.1	4.9	38.0
		% within Respondent's mother tongue	**73.7%**	**26.3%**	**100.0%**
	Nepali	Count	65	24	89
		Expected Count	77.5	11.5	89.0
		% within Respondent's mother tongue	**73.0%**	**27.0%**	**100.0%**

	Oriya	Count	23	3	26
		Expected Count	22.6	3.4	26.0
		% within Respondent's mother tongue	**88.5%**	**11.5%**	**100.0%**
	Telugu	Count	2	0	2
		Expected Count	1.7	.3	2.0
		% within Respondent's mother tongue	**100.0%**	**0.0%**	**100.0%**
	Urdu	Count	1	0	1
		Expected Count	.9	.1	1.0
		% within Respondent's mother tongue	**100.0%**	**0.0%**	**100.0%**
	Garo	Count	30	0	30
		Expected Count	26.1	3.9	30.0
		% within Respondent's mother tongue	**100.0%**	**0.0%**	**100.0%**
	Khasi	Count	29	0	29
		Expected Count	25.2	3.8	29.0
		% within Respondent's mother tongue	**100.0%**	**0.0%**	**100.0%**
	Other	Count	928	102	1030
		Expected Count	896.5	133.5	1030.0
		% within Respondent's mother tongue	**90.1%**	**9.9%**	**100.0%**
Total		Count	8973	1336	10309
		Expected Count	8973.0	1336.0	10309.0
		% within Respondent's mother tongue	**87.0%**	**13.0%**	**100.0%**

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	133.493[a]	11	<.001
Likelihood Ratio	141.114	11	<.001
Linear-by-Linear Association	10.026	1	.002
N of Valid Cases	10309		

a. 10 cells (41.7%) have expected count less than 5. The minimum expected count is .13.

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	.114	**<.001**
	Cramer's V	.114	**<.001**
N of Valid Cases		10309	

Belong to a scheduled caste, a scheduled tribe, other backward class * Delivery by caesarean section

Crosstab					
			Delivery by caesarean section		Total
			No	Yes	
Belong to a scheduled caste, a scheduled tribe, other backward class	Schedule caste	Count	786	154	940
		Expected Count	802.5	137.5	940.0
		% within Belong to a scheduled caste, a scheduled tribe, other backward class	**83.6%**	**16.4%**	**100.0%**
	Schedule tribe	Count	1662	221	1883
		Expected Count	1607.5	275.5	1883.0
		% within Belong to a scheduled caste, a scheduled tribe, other backward class	**88.3%**	**11.7%**	**100.0%**
	OBC	Count	1911	375	2286
		Expected Count	1951.5	334.5	2286.0
		% within Belong to a scheduled caste, a scheduled tribe, other backward class	**83.6%**	**16.4%**	**100.0%**
	None of them	Count	2349	402	2751
		Expected Count	2348.5	402.5	2751.0
		% within Belong to a scheduled caste, a scheduled tribe,	**85.4%**	**14.6%**	**100.0%**

		other backward class			
	Don't know	Count	89	13	102
		Expected Count	87.1	14.9	102.0
		% within Belong to a scheduled caste, a scheduled tribe, other backward class	**87.3%**	**12.7%**	**100.0%**
Total		Count	6797	1165	7962
		Expected Count	6797.0	1165.0	7962.0
		% within Belong to a scheduled caste, a scheduled tribe, other backward class	**85.4%**	**14.6%**	**100.0%**

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	20.984[a]	4	<.001
Likelihood Ratio	21.514	4	<.001
Linear-by-Linear Association	.096	1	.756
N of Valid Cases	7962		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 14.92.

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	.051	<.001
	Cramer's V	.051	<.001
N of Valid Cases		7962	

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