Original Article

Factors Influencing Institutional Delivery and Its Associates among Antenatal Women in Surat city: A Cross Sectional Study

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Abstract

Background: India has focused to incentivize institutional delivery. Skilled care is key for reducing maternal and neonatal mortality. We examined the determinants influencing institutional delivery, its associates among antenatal women and birth preparedness among 310 pregnant women attending an urban health centre.

Methods: A facility based cross-sectional study conducted among 310 antenatal women at Urban Health Training Centre attached to Government Medical College, Surat, Gujarat. Predesigned, semi- structured, pretested questionnaire was used for data collection after informed written consent.

Results: This study was conducted among 310 pregnant women attending an urban health centre. Mean age of participants was 22.9±3.6 years. Highest educational level for most of participants (38.4%) was higher secondary. Around three-fourth 238 (76.7%) of participants were satisfied with institutional delivery whereas one-tenth (9.7%) participants were not ready for institutional delivery out of 72 (23.2%) unsatisfied participants. Majority 196 (63.2%) participants were aware about Janani Suraksha Yojana. Time required to reach health facility was significantly associated with birth preparedness.

Conclusion: Study results shows that 23.2% participants were unsatisfied with institutional delivery and some 9.7% were opting for home delivery. Institutional delivery can be increased by promoting awareness about government schemes and fulfilling the need of participants.

Keywords: Antenatal women, Birth preparedness, Institutional delivery

Introduction

Maternal death related to obstetric complications remains great challenge in developing countries. [1] Majority of maternal deaths occur during labor, delivery, and within 24 hour spost-partum. There are several interconnected socio cultural factors which delaycare-seeking and contribute to maternal deaths, apart from medical causes. Care-seeking is delayed because of delay in (a) Identifying the complication (b) Deciding to seek care (c) Identifying and reaching health facility and (d) Receiving adequate and appropriate treatment at health facility.[2] Preparing for childbirth and its probable complications can reduce delays in seeking care.[3] Maternal Mortality Ratio (MMR) of India has declined over the years to

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103 in 2017-19 from 113 in 2016-18, 122 in 2015-17 and 130 in 2014-2016 and MMR of Gujarat in 2017-19 was 70 (per one lakh live birth).[4]

Institutional delivery is a delivery that takes place at any medical facility staffed by skilled delivery assistance. It is estimated that using institutional delivery could reduce 16 to 33% of maternal deaths. [5] According to NFHS-5 institutional delivery in public facility in Gujarat is 43.3%[6] which needs to be increased for safe delivery. One of the effective strategies for reducing number of maternal deaths is delivery by skilled birth attendant.[7] Maternal education is broadly positioned to positively affect the mother's and her children's health.[8]

Birth preparedness like higher number of antenatal care visits, having good knowledge on the danger signs of labor, primary and above educational level of the husband, and less than 30-min travel time to the nearby health institutions had significantly increased the rate of institutional delivery service utilization.[5] Government of India has launched Universal Immunization Programme in 1985, Child Survival and Safe Motherhood (CSSM) in 1992, Reproductive and Child Health (RCH-I) in 1997, (RCH-II) in 2005 and Janani Suraksha Yojana (JSY) in 2005.[9] JSY is safe motherhood intervention under the National Rural Health Mission (NRHM) being implemented with the objective of reducing maternal and neonatal mortality by promoting institutional delivery among the poor pregnant women. The Yojana, launched on 12th April 2005, by the Hon'ble Prime Minister, is being implemented in all states and UTs with special focus on low performing states. JSY is a 100 % centrally sponsored scheme and it integrates cash assistance with delivery and post-delivery care.[10] Knowledge about financial assistance and transportation provided in JSY was 37.2% and 32.9% respectively.[2] Institutional delivery was found higher due to linkage of monetary incentives like JSY and referral transport schemes.[11]

Ministry of Health and Family Welfare launched an innovative scheme to provide free health check-ups to pregnant women at government health centres and hospitals by private doctors under the Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) referred to as 'I pledge for 9' on June 9, 2016, invited the private sector to provide free Ante-Natal Care services on the 9th of every month on voluntary basis to pregnant women, especially those living in underserved, semi-urban, poor and rural areas.[12]

At UHTC Althan monthly around 5 deliveries are conducted. India's maternal mortality ratio (MMR) – maternal deaths per 100,000 live births – dropped 10 points to 103 for 2017-19, according to the special bulletin released by the Registrar General of India, bringing it closer to the global sustainable development goal of bringing down MMR to 70[13] but still not achieved completely so there is a need for better dissemination of knowledge and application of that knowledge.

Materials and Methods

A facility based cross-sectional study among antenatal women attendees from November 2020 to April 2021 at urban health training centre (UHTC) Althan attached to Government Medical College, Surat Gujarat. Althan is the field practice area of Department of Community Medicine in Surat, Gujarat. Due permission was obtained from health service provider. This UHC provides primary healthcare services like immunization, antenatal care, family planning, and treatment of minor ailments to the community.

A predesigned, semi- structured, pre tested questionnaire was used for data collection. Proper explanation of the study to the participants was done in a local language they can understand and consent form was signed.

Sample size

Desk review was done before conducting this study which revealed that around 5 ANC women attend UHTC OPD per day. Assuming three interviews per day and 20 working days per month; in 6 months of study duration, approximately 300 to 350 ANC were feasible to study after considering a drop out of 15%. A total of 310 antenatal women who attended antenatal clinic of UHTC were consecutively included in the study.

Study setting

This study was conducted at field practice area of Community Medicine Department, Surat at Urban Health Training Centre; which was chosen purposively.

Inclusion criteria

Antenatal women of more than twenty weeks of pregnancy from Community Medicine Department attached field practice area.

Exclusion criteria

Participants who did not gave the consent

Study tool

The questionnaire was divided into three domains assessing "Socio demographic details"; "Perception about health care delivery centre" and "Knowledge about governmental schemes and birth preparedness". Exit interview was present at the end of questionnaire for assessment of reasons for home delivery, if applicable.

BPACR index was calculated from the following indicators[2] :

Percentage of the women who knew about > 8 danger signs of pregnancy.

Percentage of the women who knew about financial assistance provided by government in Janani Suraksha Yojana (JSY).

Percentage of the women who knew about transportation provided by government in JSY.

Percentage of the women who availed Antenatal Care (ANC) in 1st trimester by skilled provider.

Percentage of the women who identified skilled birth attendant for delivery.

Percentage of the women who identified mode of transportation.

Percentage of the women who saved money to pay for expenses.

BPACR index was calculated as ∑Indicator/7

Data collection and analysis

Informed written consent was taken from the participants and they were allowed to not give the interview midway if they felt uncomfortable or they have any other work. Data collection was done by face to face interview using data collection tool. Data entry was done in Microsoft excel and analysis was done in SPSS trial version 23. Univariate analysis was done including descriptive statistics of mean, standard deviation, frequency and percentage. The variables with association of p-value<0.2 were further analysed by Logistic regression to assess independent predictors of Birth preparedness. P<0.05 was considered to be statistically significant. Privacy was maintained by interviewing in a secluded place and confidentiality was ensured by giving ID number to the participants.

Results and Discussion

According to NFHS-5 institutional delivery in Gujarat is 94.3% and of Kerala is 99.8% while institutional delivery of Gujarat in public facility is 43.3%.[6] In our study Majority (90.3%) of the participants opted for institutional delivery but still few participants (9.7%) were willing to remain at home for delivery. Similarly, in study done by Olowokere et al. majority (97.0%) participants opted for institutional delivery. [14]

This study was conducted about satisfactory factors towards institutional delivery and birth preparedness among 310 pregnant women attending an urban health centre. Mean age of participants was 22.9 years (standard deviation, SD 3.6 years). Highest educational level for most of participants (38.4%) was higher secondary. Ninety seven (31.3%) participants were graduates or professionals as compared to two-fifth (42.9%) of their husbands. Almost six-tenth (61.9%) participants were involved in unskilled or semi-skilled work and two-fifth (38.1%) participants were homemakers. Around one-third (35.5%) of participants belonged to upper middle class followed by 33.5% participants who belonged to middle class. BPACR index was calculated as ∑Indicator/7 which was observed to be 62.3%.

Table 1 Distribution of participants on the basis of their factors of satisfaction towards institutional delivery (n=238)

Satisfactory factor	Number	Percentage (%)
Doctor always there	170	71.4
Always open	50	21
Staff responds well	98	41.2
Always has necessary medicines	127	53.4
Not a long wait	146	61.3
Staff treat women respectfully	163	68.5

Table 1 depicts that about three-fourth (71.4%) women stated that their satisfaction towards institutional delivery is mainly due to availability of doctor. Around three-fourth 238 (76.7%) of the participants were satisfied with institutional delivery whereas one-tenth (9.7%) participants were not ready for institutional delivery out of 72 (23.2%) unsatisfied participants. Qualitative assessment was done for women who choose home as planned place for delivery. Their reasons were; no privacy in the hospital (30.0%), comfortable environment at home (23.3%), can keep eye on other children (16.7%), no clean wards (16.7%), relatives not ready to stay with me in hospital (13.3%).

Table 2 Distribution of participants according to awareness about Government initiatives related to pregnancy (n=310)

Yojana	Number	Enrolment process through		Place to get benefits	
Janani Suraksha Yojana	196 (63.2%)	Health Centre	69 (35.2%)	Govt.	196 (100%)
		ASHA	127 (64.8%)	Private	00
Chiranjeevi yojana	62 (20.0%)	Healthcentre	41 (66.1%)	Govt.	50 (80.6%)
		ASHA	21 (33.9%)	Private	12 (19.4%)
Kasturba Poshan Sahay Yojana	119 (38.4%)	Health Centre	37 (31.1%)	Govt.	119 (100%)
		ASHA	82 (68.9%)	Private	00

Table 2 depicts that 63.2% participants were aware about Janani Suraksha Yojana. Majority of participants (56.4%) were aware about nutritional benefit during pregnancy followed by cash incentive (34.1%). Almost similar results were found in a study conducted by Anikwe et al. that two- thirds and one-third of women, respectively, especially those from backward and below poverty line (BPL) families knew about cash incentive and referral transport schemes.[15] Awareness about JSY scheme was higher in our study than a conducted by Acharya A. et al, in which they observed that 32.7% were aware about transportation and 37.2% about financial assistance provided by government in JSY scheme.[2]

Table 3: Factors affecting the level of birth preparedness

Factors	Categories	Adjusted Odds Ratio (CI)	p-Value
Education ofwomen	Illiterate	1	
	Class 12 or below	0.89 (0.45-1.79)	0.76
	Higher than class 12	0.96 (0.44-2.11)	0.92
Type of family	Nuclear	1	
	Joint	0.97 (0.48-1.95)	0.92
	Three generation	0.63 (0.29-1.34)	0.23
Awareness about danger signs during pregnancy	No	1	
	Yes	1.39 (0.67-2.87)	0.37
Awarenessabout exclusive breastfeeding	No	1	
	Yes	1.22 (0.61-2.42)	0.56
Time requiredto reach health facility	<30 minutes	1	<0.01
	30-60 minutes	0.26 (0.14-0.48)	
	60-90 minutes	0.05 (0.02-0.11)	
	90-120 minutes	0.04 (0.01-0.12)	
Parity	Nulliparous	1	
	Multiparous	1.19 (0.57-2.47)	0.65

Table 3 shows factors affecting the level of birth preparedness Participants who made any two out of four arrangements were counted as less prepared and who made three or more arrangements were counted as well prepared. Time required to reach health facility was the significantly associated with birth preparedness. Participants who were residing within 30 minutes distancehad highest odds of being well prepared. Distance is important for reaching to the health facility timely and getting assistance from skilled birth attendant during delivery. It will be helpful for safe delivery and healthy baby. In current study, most of the participants belonged to urban area and an urban health centre being present in that area, almost half (47.7%) participants were within less than 30 minutes distance. Similarly, in a study by Ekabua J et al, they observed that 49.5% were within 2 km distance while 42.5% were resided in 2-5 km area and 8% resided in more than 5 km area from health facility. [16] Debelew et al. found that being in urban residence and having health centre within two hours distance were among the higher level factors increasing birth preparedness and complication readiness.[17] Similarly, our study also found that time required to reach health facility was the significant factor with birth preparedness. Participants who were residing within 30 minutes distance had highest odds of being well prepared. However, Klobodu et al. study found that travel time to nearest health facility is not significantly associated with birth preparedness. [18]

This study depicted that education, type of family, awareness about danger signs and parity were not significant factor for birth preparedness. On the contrary parity, education and joint family system were associated with having a birth plan in study by Acharya et al.[2] In multiparous chance of being well prepared was higher in our study which differs from study by Smeele et al. where parity is significant predictor for birth preparedness and nulliparous women were well prepared.[19] In India,nulliparous women generally are not aware of pregnancy related complications and preparedness to avoid it. Multiparous women have higher preparedness due to their past experience.

Conclusion

Around three-fourth (76.8%) of the participants were satisfied with RCH services of the health facility. Awareness about government schemes was low with highest being in JSY of (63.2%). Majority of participants had chosen healthcare system as a place of delivery but one-tenth (9.7%) participants were not ready for institutional delivery and qualitative assessment was done for them in which main factor found was no privacy at UHTC.

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Conflict of Interest: Nil

References

1. Ananche, T.A., Wodajo, L.T. Birth preparedness complication readiness and determinants among pregnant women: a community-based survey from Ethiopia. BMC Pregnancy Childbirth 20, 631 (2020). https://doi.org/10.1186/s12884-020-03297-w
2. Acharya AS, Kaur R, Prasuna JG, Rasheed N. Making pregnancy safer-birth preparedness and complication readiness study among antenatal women attendees of a primary health center, delhi. Indian J Community Med. 2015 Apr-Jun;40(2):127-34. doi: 10.4103/0970-0218.153881. PMID: 25861175; PMCID: PMC4389500.
3. Berhe, A.K., Muche, A.A., Fekadu, G.A. et al. Birth preparedness and complication readiness among pregnant women in Ethiopia: a systematic review and Meta-analysis. Reprod Health 15, 182 (2018). https://doi.org/10.1186/s12978-018-0624-2.
4. Sample registration system, Office of the Registrar General India. Special Bulletin on Maternal Mortality in India 2017-19. New Delhi, India: Vital statistics Division; 2022.p1–4.
5. Yoseph, M., Abebe, S.M., Mekonnen, F.A. et al. Institutional delivery services utilization and its determinant factors among women who gave birth in the past 24 months in Southwest Ethiopia. BMC Health Serv Res 20, 265 (2020). https://doi.org/10.1186/s12913-020-05121-9
6. Ministry of Health and Family Welfare, Key Indicators National Family Health Survey. 2019-20.p.46-51.
7. Solnes Miltenburg A, Roggeveen Y, Shields L, van Elteren M, van Roosmalen J, Stekelenburg J, et al. (2015) Impact of Birth Preparedness and Complication Readiness Interventions on Birth with a Skilled Attendant: A Systematic Review. PLoS ONE 10(11): e0143382. https://doi.org/10.1371/journal.pone.0143382

8. Ketema, D.B., Leshargie, C.T., Kibret, G.D. et al. Effects of maternal education on birth preparedness and complication readiness among Ethiopian pregnant women: a systematic review and meta-analysis. BMC Pregnancy Childbirth 20, 149 (2020). https://doi.org/10.1186/s12884-020-2812-7

9. Kigali R. Republic of Rwanda Rwanda Demographic and Health Survey 2014-15 Final Report National Institute of Statistics of Rwanda Kigali, Rwanda Ministry of Finance and Economic Planning Kigali, Rwanda Ministry of Health. 2016 [cited 2021 Jul 24]; Available from: www.DHSprogram.com.

10. Sharma V, K. Kamra P. Achieving maternal health through Janani Suraksha Yojana under NRHM:A qualitative study of conditional cash transfer scheme in Punjab, North India. International Journal of Advanced Research. 2020; 8(5):01–8.

11. Family Welfare, Division MH, Bhavan N, Delhi N. As in October 2006. 2006;(October):1–18.

12. Ministry of Health and Family Welfare Government of India Guidelines Pradhan Mantri Surakshit Matritva Abhiyan. 148:148–62.

13. India close to national maternal mortality target of 100 and SDG goal of 70 | India News,The Indian Express [Internet]. [cited 2022 Jun 28]. Available from: https://indianexpress.com/article/india/india-close-to-national-maternal-mortality-target-of-100-and-sdg-goal-of-70-7820101/

14. Olowokere AE, Oyedele AT, Komolafe AO, Olajubu AO. Birth preparedness, utilization of skilled birth attendants and delivery outcomes among pregnant women in Ogun State, Nigeria. Eur J Midwifery. 2020 May 28;4:22. doi: 10.18332/ejm/120116. PMID: 33537624; PMCID: PMC7839086.

15. Anikwe CC, Okorochukwu BC, Ikeoha CC, Asiegbu OGK, Nnadozie UU, Eze JN, Obuna JA, Okoroafor FC. Birth Preparedness and Complication Readiness among Pregnant Women in a Secondary Health Facility in Abakaliki, Ebonyi State, Nigeria. Biomed Res Int. 2020 Jul 25;2020:9097415. doi: 10.1155/2020/9097415. PMID: 32775449; PMCID: PMC7399737.

16. Olaogun AA, Olatubi MI, Akinsola RO. Awareness of Birth Preparedness and Complication Readiness Among Pregnant Women in a Resource Limited Setting. 2017;1–4.

17. Debelew GT, Afework MF, Yalew AW. Factors affecting birth preparedness and complication readiness in Jimma Zone, Southwest Ethiopia: a multilevel analysis. The Pan African Medical Journal. 2014;19:272. DOI: 10.11604/pamj.2014.19.272.4244. PMID: 25870727; PMCID: PMC4391899.

18. Klobodu, C., Milliron, BJ., Agyabeng, K. et al. Maternal birth preparedness and complication readiness in the Greater Accra region of Ghana: a cross-sectional study of two urban health facilities. BMC Pregnancy Childbirth 20, 566 (2020). https://doi.org/10.1186/s12884-020-03263-6

19. Smeele, P., Kalisa, R., van Elteren, M. et al. Birth preparedness and complication readiness among pregnant women admitted in a rural hospital in Rwanda. BMC Pregnancy Childbirth 18, 190 (2018). https://doi.org/10.1186/s12884-018-1818-x