SHORT ARTICLE

Assessment of Accessibility and Quality of Emergency Obstetric Care services: A cross sectional study in rural Varanasi

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Abstract

Background: Emergency Obstetrics care is an integrated strategy developed by the WHO, UNFPA and UNICEF that aims to equip health facilities with the capacity to provide evidence based, cost effective interventions to attend the leading causes of maternal mortality. **Methods:** A community based cross sectional study was conducted between April 2019 - July 2020. A total of 201 women who delivered in the last 6 months and had complications during their pregnancy were interviewed to find out accessibility and quality emergency obstetric Care (EmOC) services. Facility assessment was also done at two health facilities of Chiraigaon block for the assessment EmOC. **Results:** Findings show that only 41.8% respondents were able to reach the government health facilities in less than half-an-hour. Out of the total respondents who utilized government health facilities for EmOC, only 19% were attended by the health providers within 1 hour. **Conclusion:** Low percentage of respondents with complications were reaching the health facility within 30 minutes. Therefore, there is a strong need for strengthening of basic EmOC services at health facilities.

Keywords

Obstetrics, Obstetric care, Quality of Health Care

Introduction

According to World Health Organization's (WHO) 2019 report(1) globally, about 2,95,000 women died during and following pregnancy and childbirth in 2017. The vast majority of these deaths (94%) occurred in low-resource settings, and most of these could have been prevented. Sub-Saharan Africa and Southern Asia accounted for approximately 86% (2,54,000) of the estimated global maternal deaths in 2017.

India's share among global maternal deaths has declined significantly to about 15% as per the MMEIG report. According to the latest Sample Registration System 2015-2017 bulletin(2) for MMR, Maternal mortality ratio (MMR) in India has seen a reduction from 130 per lakh live births in 2014-2016 to 122 per lakh live births in 2015-2017. Sustainable Development Goal (SDG) 3 - target is to "reduce the global maternal mortality to less than 70 per 1,00,000 live births by 2030, with no country having a maternal mortality rate of more than twice the global average".

Emergency Obstetrics Care is an integrated strategy developed by the World Health Organization (WHO), United Nations Population Fund (UNFPA) and the United Nations Children's Fund (UNICEF) that aims to equip health facilities with the capacity to provide evidence based, cost effective interventions to attend to the leading causes of maternal mortality. The components of Emergency Obstetric Care services are as follows:

Basic EmOC Services

1. Parenteral antibiotics
2. Parenteral anticonvulsants
3. Parenteral utero-tonics
4. Manual removal of placenta
5. Removal of retained products of conception
6. Assisted vaginal delivery
7. Resuscitation of the newborn baby using bag and mask

Comprehensive EmOC services

All included in basic EmOC (1-7) plus

8. Caesarean Section
9. Blood Transfusion

In emergency obstetric care, all women must be ensured of basic as well as comprehensive emergency obstetric care services for all kinds of complications during antepartum, intrapartum and early postpartum period. As such, EmOC focuses on the identification, referral and treatment of women with obstetric complications. Despite effective antenatal care and identification of the risk factors at an early stage, decline in MMR has been sluggish. Therefore, access to and utilization of Emergency Obstetric Care is essential to reach the SDG 3 target of MMR less 70 per 1,00,000 live births by 2030.

Aims & Objectives

To assess the accessibility &quality of Emergency Obstetric Care services in rural Varanasi.

Material & Methods

Study Type: The study adopted a cross sectional study design

Study Area: The study was conducted in rural areas of Varanasi district

Study Duration: The study was conducted from 15th April 2019 to 31st July 2020.

Sample Size: To determine the sample size, it is necessary to know the proportion of pregnant females having complications. This proportion is considered as the key variable in sample size determination.

Considering that about 15% (MOHFW, 2010) of the delivered mothers have complications requiring EmOC and 5% as non-response error, sample size obtained was 206.

The required number of delivered mothers would be

$n = \{p (1- p) (z^2 / e^2)\}$

where,

n = required sample size for delivered mothers having complication

p = proportion of delivered mothers having complication

z = 1.96 (z value at 5 per cent level of significance)

e = 0.05 (amount of admissible error)

Thus, as an approximation, suppose that about 15 per cent of the delivered mothers having complications then

$n = p (1- p) (z^2 / e^2) = 196$

Considering 5% as non-response error, the final sample size would be

n= 196 * 1.05 = 206

- Design effect was not calculated in the study because we have taken one block and clustering effect was not observed among different villages of that block.

As per government reports (census 2011, NFHS 4), from every 6 households in a village of eastern UP, one can find at least one delivery in last one year. So, from 36 households, one can obtain at least one complicated delivery who needs EmOC. Therefore, 7416 households were chosen from the study area to get the required number of deliveries in the sample. At least 15 villages would be needed for getting the expected sample in the proposed study, after considering that the average number of households in a village would be 500 with mean household size of 6.

Sampling Procedure: Chiraigaon Block was selected randomly out of 8 blocks in rural Varanasi and subsequently, 15 villages were selected (randomly) out of total 142 villages, considering the average population of 3000-4000. A list of deliveries with complications was taken from ASHAs. Women who delivered during the last 6 months and those who gave consent to participate were interviewed with pretested semi structured questionnaire and severely ill women were excluded from the study.(Figure 1)

- Pretested semi-structured questionnaire was used to collect data, we have not developed any scale that is the reason validation was not done. There was 6-month gap between delivery and interview.
- Author herself collected the data
- In Chiraigaon block there are
  - 1 CHC Narpatpur
  - 1 Block PHC
  - 4 Additional PHC
  - 38 Subcenters
  - Nearby FRU-Cholapur
  - and district hospital

Assessment of block PHC and Cholapur CHC (FRU) were done to assess availability and quality of EmOC services [As per modified IPHS 2012 standards].

- We have not taken list of private health facilities providing EmOC services.

Results

In this study, the mean age of respondent was 24.7±3.54 years. Almost half (49.8%) of respondents were aged between 20-24 years and 10% were 30 years& above and 3% were 19 years & below. In addition, a total of 72.6% respondents were 20-24 years old at their first pregnancy. (Table 1)

Accessibility of EmOC Services: Out of total respondents (201), only 41.8% took less than 30 minutes to reach the health facility whereas 44.8% of them reached within 30-60 minutes for the same and 13.4% took more than 60 minutes (Figure 2).

Quality of EmOC Services: Among the total respondents who utilized government health facilities for Emergency

Obstetric Care services, more than half (53.6%) stated that they were attended by health providers after waiting for 1 hour, while 27.4% respondents said that they were attended after 1 hour of waiting and only 19% were attended in less than 1 hour by the health providers (Figure 3).

Out of the total,35.7% respondents informed that the health care provides were friendly followed by 32.1% who said that their behavior were rude, 26.2% stated unhelpful nature of the providers and 6% described them very friendly (Figure 4).

Discussion

In this study, the mean age of respondent was 24.7±3.54 years. Similar finding was seen in the study done by Gopalakrishnan S et al., 2015(3) in which mean age of respondent was 24.33 years. The mean age of respondent at first pregnancy was 21.57±2.69 years and around three fourth (72.6%) respondents were age between 20-24 years at their first pregnancy while 16.9% belong to 15-19 years age group.

Delay in accessing the health facility for care of the respondent can affect her health status and also cause death. The delay in decision-making to seek emergency obstetric care contributes to one-third of maternal deaths which is distinctly higher in rural areas as compared to urban areas (Hirose et al) (4). This is because, timing is critical in preventing maternal death and disability; although post-partum haemorrhage can kill a woman in less than two hours, for other complications, a woman usually has 6-12 hours or more to receive life-saving emergency care.

Quality of care is a multidimensional concept with no universally accepted definition. Theoretical concept of quality of care is difficult to translate into a concrete practical approach. Quality of care is underpinned by three factors: effectiveness; timeliness; upholding of basic reproductive rights (Hulton et al)(5). The road to quality maternal care in India, however, remains a long and winding one.

The quality of service could also be affected by the duration of time spent at the facility before the client has been attended by maternal health care providers. As per WHO guidelines, the recommended duration of time to be spent by clients at hospital should not be more than 30 minutes. The perception of poor delivery of health care services (i.e. lack of attention or proper treatment) at government establishments was cited as one of the key factors behind underutilization of government facilities in India (Vora et al)(6). Among those who gave response about attitude of health worker described 26.2% health worker were unhelpful. This study revealed that majority of the respondents haven't accessed First Referral Unit (FRU) and they went directly to private clinic for management of complications.

Conclusion

Only two-fifth of the sample had utilised government health facility for Emergency Obstetric Care services. Low percentage of respondents with complications were reaching the government health facility within 30 minutes. The attitudes and behaviors of maternal health care providers are an important element of quality as they influence both positively and negatively how women experience maternal health care. Therefore, there is strong need for strengthening of basic EmOC services.

Recommendation

More than half respondents were not aware about danger signs/complications during pregnancy. Based on this finding in this study, interventions in health related sectors such as community health education and behavior change should be enhanced.

Limitation of the study

Among the study's limitations there may have been some recall bias, particularly in the measures of time taken to reach health facility and waiting time at health facility before seeking health care. In order to reduce this bias, information was also cross checked from other family members who accompanied the respondent at the time of complications.

Relevance of the study

Our study's results are valuable for sensitisation of program to reassure the availability, accessibility and quality of EmOC to improve the utilisation of EmOC services.

Emergency obstetric care is one of the preventable measure in controlling maternal morbidity and mortality in developing countries like India that is focused in our study.

Among the study's limitations there may have been some recall bias, particularly in the measures of time taken to reach health facility and waiting time at health facility before seeking health care. In order to reduce this bias, information was also cross checked from other family members who accompanied the respondent at the time of complications.

Authors Contribution

GS- Principal Investigator; Drafted the work, role in acquisition, analysis and interpretation of the data, and ensured that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. SK- Co-drafted the work, role in critical interpretation of data, gave final approval of the version to be published and ensured that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. AK- Critical interpretation of data, gave final approval of the version to be published and ensured that questions related to the accuracy or integrity of any part of the work are

appropriately investigated and resolved. IJ- Interpretation of data, revised the study critically for important intellectual content and gave final approval of the version to be published

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Tables

TABLE 1 DEMOGRAPHIC &SOCIO-ECONOMIC CHARACTERISTICS OF RESPONDENT

Variables	Category	Frequency (N=201)	Percentage (%)
Age(in years)	15-19	6	3.0
	20-24	100	49.8
	25-29	75	37.3
	≥30	20	10.0
Age at first pregnancy (years)	15-19	34	16.9
	20-24	146	72.6
	25-29	17	8.5
	≥30	4	2.0
Education of Respondent	Illiterate	21	10.4
	Upto middle class	36	17.9
	Upto Intermediate	81	40.3
	Graduation and above	63	31.3
Husband's Educational status	Illiterate	14	7.0
	Upto middle class	43	21.6
	Up to Intermediate	74	37.2
	Graduation and above	68	34.2
Occupation status of Respondent	Home maker	197	98.0
	Working	4	2.0
Husband's Occupation	Unemployed	12	6.0
	Unskilled	120	59.7
	Semi-skilled	28	13.9
	Skilled	41	20.4
Child birth order	1st	101	50.2
	2nd	64	31.8
	3rd	24	13.4
	≥4th	9	4.5
Religion	Hindu	193	96.0
	Muslim	8	4.0
Caste	SC/ST	33	16.4
	OBC	159	79.1
	General	9	4.5
Type of Family	Nuclear	19	9.5
	Joint	182	90.5
Socio-economic status	Class I	11	5.5
	Class II	22	10.9
	Class III	67	33.3
	Class IV	84	41.8
	Class V	17	8.5

Figures

FIGURE 1 MAP OF VARANASI DISTRICT WITH COMMUNITY DEVELOPMENT BLOCKS

FIGURE 2 TIME TAKEN TO REACH HEALTH FACILITY

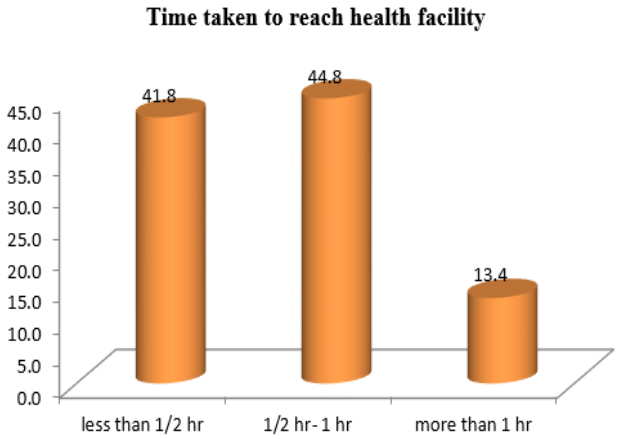

FIGURE 3 WAITING TIME TO SEEK CARE AT GOV. HEALTH FACILITY

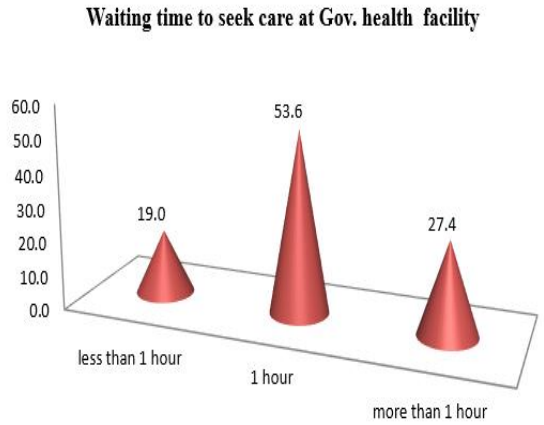

FIGURE 4 BEHAVIOUR OF HEALTH CARE PROVIDERS