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Research Article

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Does delay in seeking care during labor for delivery affects pregnancy outcomes: A cross-sectional study

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Keywords

Three delay model, pregnancy outcome, mode of delivery, still birth

Abstract

Background: The three-delays model is considered to be a suitable framework for identifying and assessing the barriers faced by pregnant women before they access appropriate care. Reason for delaying to seek care during labor can be due to not taking timely decisions, affordability, and accessibility of quality of care.
Methods: It was a cross-sectional study that included 2 study centers. As per inclusion/exclusion criteria, this study included 650 post-partum mothers. Using Stratified random sampling study participants were enrolled. Data were collected and analyzed in SPSS 23. Using statistical tests i.e., Chi-square, etc data was analyzed.
Result: A Significant association was found between referral, distance travel, time taken during travel and time taken during admission with stillbirth and mode of delivery.
Conclusion: Delay during labor leads to significantly poor pregnancy outcomes. It needs to be overcome by timely referral, birth preparedness, appropriate transport facility, and timely interventions.

Introduction

Globally about 295 000 women died in 2017 of complications during pregnancy or childbirth. Southern Asia accounted for nearly 20% (58 000) and South-Eastern Asia accounted for over 5% of global maternal deaths (16 000). Most of these deaths can be avoided as the necessary medical interventions exist and are well known. The key obstacle is pregnant women's lack of access to quality skilled care before, during and after childbirth (who). Perinatal mortality is regarded as a key indicator, reflecting the quality of healthcare provided to women during pregnancy and childbirth as well as to neonates during his first week of life (1).

The three-delays model is considered to be a suitable framework for identifying and assessing the barriers faced by pregnant women before they access appropriate care. This approach was initially conceived to explore factors leading to maternal deaths. Three categories of factors are identified: delayin making decisions in seeking care (phase-one delay), delay in reaching the health facility (phase-two delay), and delay in receiving appropriate care at the health facility (phase-three delay)(2). The literature clearly indicates that while distance and cost are major obstacles in the decision to seek care. Reason for delaying to seek care during labour can be due to not taking timely decision, affordability and accessibility of quality of care.

Early detection and treatment of emergency conditions are protective factors during pregnancy, labor, and birth. They improve both the mother’s and the baby’s chances of survival (3-4).

The delays to reach an appropriate health facility and receiving care faced by women with pregnancy-related complications play an important role in the occurrence of these poor pregnancy outcomes.

The MMR can be reduced by having access to skilled birth attendants and referral facilities for managing obstetric and neonatal complications. However, access to care can be delicate particularly for those living in communities with inaccessible roads, limited transport options, and limited resources (5-6).

The low utilization of modern health care services in India is one explanation for poor health outcomes among mothers. Both timely arrival and high-quality delivery services have been shown to reduce maternal and neonatal morbidity and mortality (7-8).

This study will explore delays in seeking care during labour and pregnancy outcome.

Method and Methodology

Study center

This study was conducted among women who delivered in two hospitals Chandrikaben Rashmikant Gardi Hospital (CRGH) and Charak hospital (District Mother and Child Hospital), Ujjain. MP during the data collection period. Charak hospital is a 450 bedded hospital. About 800-900 deliveries are being conducted in a month. CRGH is 820 bedded tertiary care hospital and about 150-200 deliveries are being conducted in a month.

Study design and study population

The study was conducted using a cross-sectional design. The study population included women who delivered in these two hospitals during the data collection period. Those admitted in ICU or those not present on the bed at the time of visit or with incomplete information were excluded from the study.

Sample size and sampling technique: A sample of 629 was calculated using the sample size formula for a single proportion. A total of 650 postpartum mothers were enrolled. Stratified random sampling was used for the selection of participants from 2 centres along with simple random sampling.

Operational definition (9-10)

Delays during emergence obstetrics care: refers to at least one or more delays from the three delays model. Delays in seeking care: refers to the time it takes to seek care after the onset of labor that is longer than 1 hour.

Delays in reaching public health facility: refer to a mother who is unable to arrive within 1 hour of walking to reach the health facility.

Delays in receiving appropriate care: refers to a mother who does not receive an emergency obstetric care within the 5 min of arriving at a health facility.

Data collection: Data was collected after getting permission from the institute's ethical committee. The duration of the study was one and a half years. A pre-designed pre-tested questionnaire was used to collect data from postpartum mothers. Written consent was obtained after explaining the need and importance of the study to the participant. Most of the details were obtained by interview, however, some of the details like investigation etc were taken from mother and child protection card (MCP card)/ inpatient file.

Statistical analysis: Data were analysed using IBM statistical package for the social sciences (SPSS) version 23 for Windows10. For Analysis descriptive statistics were calculated to summarize the sample characteristics. A Chi-square test was applied to see the association with still birth and mode of delivery. Logistic regression was applied for predicting poor pregnancy outcomes. A p-value of less than 0.05 was considered to be statistically significant.

Ethical consideration: Ethical approval was obtained from the institutional ethical committee of R. D. Gardi medical college, Ujjain. Confidentiality and data security were assured. Participation was made voluntary as each participant was at liberty to opt out at any point in the study.

Result:

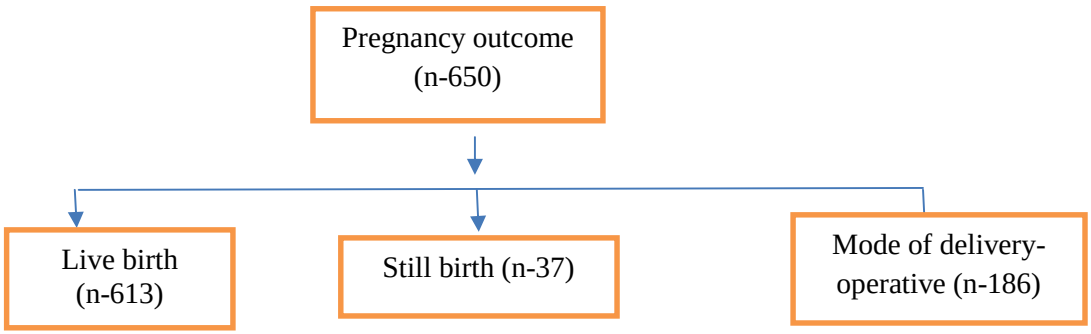
Frequency distribution of socio-demographic factors of study participants:

Mothers' age ranges from 17 years to 40 years with a Mean age was 25.38 years. Only 31.2% of post-partum mothers had education more than high school. Only 19.1% of post-partum mothers belong to the socioeconomic class above III (i.e., class I & II of modified BG Prasad). It was observed that 64% of post-partum mothers belong to below poverty line (BPL) families. About 57.3% of post-partum mothers reside in rural areas. Parity distribution of postpartum mothers was 59.8% were multipara. About 70.8% of mothers were married before 20 years of age. It was found that 63.4% of post-partum mothers live in a joint or 3 generations family About 42.5% live in Kutcha houses. It was observed that 2% of delivered in ambulance as seen in table 1.

Table 1: Frequency distribution of socio-demographic factors of study participants

Factors	Category	Frequency	Percent
Mother's age group	<= 20 Years	66	10.2
	21-30 years	499	76.8
	>30 years	85	13.1
Place of Delivery	Ambulance	13	2.0
	Govt	480	73.8
	Private	157	24.2
Mother's education	Illiterate	119	18.3
	<High school	328	50.5
	>=High school	203	31.2
Socio economic class	Above class III	124	19.1
	Class III	147	22.6
	Below class III	379	58.3
Religion	Christian	4	0.6
	Hindu	422	64.9
	Jain	15	2.3
	Muslim	195	30.0
	Sikh	14	2.2
Caste	General	128	19.7
	OBC	288	44.3
	SC	161	24.8
	ST	65	10.0
	Others	8	1.2
Married at age of	≤20 year	460	70.8
	>20 year	190	29.2
Residence type	Rural	349	53.7
	Urban	301	46.3
Parity	Multipara	389	59.8
	Primipara	261	40.2
Type of Family	Nuclear	238	36.6
	Joint+3 generation	412	63.4

Pregnancy outcomes:



In the study, it was observed that out of 650 pregnancy outcomes 37 outcomes were stillbirth and 186 mothers had the operative mode of delivery.

Obstetrics related characteristics: It was observed that a significant association was found between ANC visits (χ2-53.197, p-0.000) and a number of ANC visits (χ2-7.263, p-0.007) and stillbirth. It was also seen that a significant association was found between complications of pregnancy and stillbirth (χ2-18.531, p-0.000) as seen in table 2. These are some factors for birth preparedness.

Table 2: Obstetrics related factors

Factors(n-650)	Category	Stillbirth	Mode of delivery(operative)
ANC visits	Yes	33(5.07%)	127(19.5%)
	No	4(0.6%)	59(9.07%)
		χ2-53.197, p-0.000 OR-0.803, p-0.416, CI-0.473-1.362	χ2-2.454, p-0.293 OR-0.806,p0.342,CI-0.517-1.258
Number of ANC visit	Less than four	19(9.3%)	76(11.6%)
	Greater than four	18(4.0%)	110(16.9%)
		χ2-7.263, p-0.007 OR-0.409, p-.009, CI-0.210-0.798	χ2-2.907, p-0.088 OR-1.397, p-0.089, CI-0.950-2.052
Wanted pregnancy	Yes	33(5.6%)	156(24.1%)
	No	4(6.6%)	30(4.61%)
		χ2-0.094, p-0.759 OR-1.182, p-0.760, CI-0.404-3.457	χ2-1.049, p-0.306 OR-1.342, p-0.307, CI-0.763-2.361
Complication during delivery	Yes	18(13.3%)	89(65.9%)
	No	19(3.7%)	97(18.8%)
		χ2-18.531, p-0.000 OR-0.249, p-0.000, CI-0.127-0.489	χ2-116.118, p-0.000 OR-0.120, p-0.000, CI-0.079-0.182

Health facility factors:

It was observed that referral to another hospital had a significant association with stillbirth (χ2-21.517, p-0.000) and delay in seeking care (χ2-4.496, p-0.034). Timely referral to other health care center is needed to avoid stillbirth. It was observed that there is a significant association between distance travel by mother and stillbirth(χ2-6.624, p-0.010) as seen in table 3.

Table 3: Health facility-related factors

Factors (n-650)	category	Still birth	Mode of delivery
Referred from another health facility	Yes	29(10.7%)	84(30.9%)
	No	8(2.1%)	102(27%)
		χ2-21.517, p-0.000 OR-0.181, p-0.000, CI-0.081-0.403	χ2-1.177, p-0.278 OR-0.827, p-0.278, CI-0.587-1.166
Distance travel by mother	>25km	19(4.2%)	118(25.9%)
	<25 km	18(9.3%)	68(35.1%)
		χ2-6.624, p-0.010 OR-2.352, p-0.012, CI-1.206-4.588	χ2-5.608, p-0.018 OR-1.546, p-0.018, CI-1.077-2.220
Time taken to reach hospital	>1 hour	13(3.2%)	134(32.5%)
	<1 hour	24(10.1%)	52(21.8%)
		χ2-13.491, p-0.000 OR-3.442, p-0.000, CI-1.718-6.898	χ2-8.417, p-0.004 OR-0.580, p-0.004, CI-0.401-0.840
Time taken for admission	<15 min	10(1.5%)	60(9.23%)
	>15 min	27(4.1%)	126(19.38%)
		χ2-12.047, p-0.001 OR-0.567, p-0.001, CI-0.404-0.796	χ2-4.236, p-0.040 OR-1.405, p-0.065, CI-0.979-2.017

Discussion:

The study aimed to assess the proportion of delays during labor among mothers and factors associated with it. It also aims to study pregnancy outcomes with associated factors. The current study revealed that 49.7% of mothers had delays during labour. The proportion of to emergency obstetric care was high as compared to the first (46.80%), second (44.00%), and third (31.70%) maternal delays in Gamo Zone, Southern Ethiopia [11]. On the other hand, the delay during emergency obstetric care was lower than in other studies conducted in Yem-special Woreda [12], Pakistan [13], and Mozambique [14-15] which were 76.3%, 70%, and 69.7%, respectively.

In current study found that 53.7% of participants were from rural areas and had a poor socioeconomic status. It could have an impact on how they use delivery services and contribute to a high proportion of poor pregnancy outcomes.

It was observed that pregnant women referred to other hospitals, distance travel and time taken to reach hospital had a significant role for pregnancy outcome.The possible reasons may be lack of women empowerment for early decision-making autonomy, poor physical access to health facilities that provide safe delivery service, poor road construction, and lack of access to health education regarding complications during labor and delivery(16).

Inadequate financial and logistical support, a severe shortage of skilledhealthcare staff , and an ineffective referral system [17], have all harmed physical access to health services, potentially leading to inappropriate health-seeking behavior. As a result, improving access to health care facilities and addressing the associated factors at the community level through synergistic intervention will reduce the proportion of delays duringobstetric care.

Conclusion: Delay during labor leads to significantly poor pregnancy outcome. It needs to be overcome by timely referral, birth preparedness, appropriate transport facility, and timely interventions.

Limitations: This was a cross-sectional hospital-based study. Many of the data on the study variable was collected from hospital records.postpartum mothers who were eager to leave the hospital may have caused information bias with recall bias.

Funding: None

Conflict of interest: None

Ethical approval: Ethical clearance for the study was taken from the institutional ethical committee of R.D. Gardi Medical College, Ujjain, Madhya Pradesh before starting the study. Ethical clearance number IEC Ref no-136

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