Original Article

A Comparative Study Of Pregnancy Outcome And Its Determinants In Rural And Urban Field Practice Areas

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Abstract

Background and objectives: Worldwide annually, an estimated 5,15,000 women die of causes related to pregnancyand childbirth; of which 99% occur in developing countries. In developing regions of world Maternal Mortality Ratio (MMR) averages to 450 per lakh population [(1)].Pregnancy outcome is influenced by various maternal, socio-economic, cultural factors and also availability, accessibility of health care services [(2)]. Most of our knowledge of factors affecting pregnancy outcome are derived from hospital based, cross-sectional studies which will have inherent biases. Hence this community based prospective study was intended to study the pregnancy outcome and its contributory factors both in rural area and urban slum to learn the differences in pregnancy outcome. **Materials and methods**: This community based prospective study was carried out among the antenatal mothersresiding in the rural and urban field practice areas of Nathnagar, Bhagalpur from Feb 2020 to Feb 20121. Relevant information was collected using predesigned semi-structured questionnaire and antenatal examination. **Conclusion**: In our study major adverse pregnancy outcomes were low birth weight baby followed pre-term deliveries. Anemia, bad obstetric history, and duration of pregnancy were found to have a statistical significance influence on birth weight. There was nosignificant difference in pregnancy outcome between rural and urban slum.

Keywords: Pregnancy Outcome; Determinants of Outcome; Prospective Study; Low birth weight;Pre-term.

Introduction

Pregnancy is a physiological condition but great care should be taken during this period as it involves the life of both mother and child. Worldwide annually, anestimated 515,000 women die of causes related to pregnancy and childbirth; of which 99% occur in developing countries. In developing regions of world Maternal Mortality Ratio (MMR) averages to 450 per lakh population [(1)]. Pregnancy outcome isinfluenced by various maternal, socio-economic, cultural factors and also availability, accessibility of health care services. A multi-factorial inter-relationship exists between the environment in which pregnant mothers live and the growth of the fetus [(2)]. One of the important millennium development goals set in the year 2000 was three-quarters reduction in maternal and infant mortality rates by the year 2015. InfantMortality Rate (IMR) is the most sensitive indicator of health status of the country. The main goal of National Rural Health Mission

(NRHM) launched by Govt. of India in 2005 is to reduce IMR and MMR. One of the important outcome of pregnancy is low birth weight baby. Birth weight is the single most important factor determining the survival, healthy growth and development of newborn [3]. It is general knowledge that the etiology of Low Birth Weight (LBW) is multi-factorial. Babies born with a weight of less than 2500 gm, irrespective of the period of gestation are termed as low birth weight babies. Half of peri-natal and one third of all infant deaths are directly or indirectly related to LBW [4,5]. After the implementation of the NRHM there is considerable decrease in IMR and MMR in India and also in Bhagalpur[6]. Most of our knowledge of factors affecting pregnancy outcome are derived from hospital based cross-sectional studies which will have inherent biases. Socio-cultural condition of the antenatal women of urban slums is no way better than antenatal women of rural area and also not many comparative studies are done in the past. Hence community based prospective study was intended to study the pregnancyoutcome and its contributory factors like medical, demographic and socio-cultural both in rural area and urban slum to learn the differences in pregnancy outcome and tocompare among these groups. This study throws light on ground realities of antenatal care services in rural area and urban slum, which would help the healthcare providers to strengthen maternal and child health care services.

Objectives

1. To study the pregnancy outcome and its determinants among rural and urbanantenatal women.
2. To compare the pregnancy outcome between rural and urban antenatalwomen.

Materials and methods

This community based prospective study was carried out among the antenatal mothersresiding in the rural and urban field practice areas of Nathnagar, Bhagalpur from Feb 2020 to Feb 20121. Department of Community Medicine JLNMCH Bhagalpur. Relevant information was collected using predesigned semi-structured questionnaire and antenatal examination. All antenatal women who are residing in the field practice area of Nathnagar, Bhagalpur and who have registered in PHC Nathnagar and its sub centers (SC) are considered as rural antenatal women and those who register in UHC Nathnagar. urban Antenatal women.

Inclusion criteria

All confirmed pregnancies those are registered in PHC and UHC area.

Exclusion criteria

Those who are not willing to participate for their own reasons.

The sample size for the present was calculated using proportion of low birth weight, which is one of the predominant adverse pregnancy outcomes. Proportion of low birth weight babies in India is 28%. Assuming the above findings, the sample size for the present study was calculated with a relative precision of 20% and confidence level of 95%. Hence the calculated sample size was 257. As per 2011 census population of PHC Nathnagar is 17,489. Considering the birth rate of India, which is 21/1000 population,it was expected that 367 births occur in one year in PHC area and also It was estimated from previous antenatal records that there will be approximately 30 to 35 new antenatal women registration per month in PHC Nathnagar area. It was planned to make a cohort of antenatal women by registering for the duration of 4 months, which accounted for 128 women. All the health staff and the study group were briefed regarding the purpose of thestudy and the confidentiality was maintained. The data was collected by direct interview with each Ante-natal women by administration of a pre-tested, semi- structured questionnaire at their residence or at the ANC camps. The questionnaire consisted of basic information, socio-demographic details, obstetric and medical history. Antenatal registers maintained at the PHC and antenatal cards possessed by the pregnant women were used to confirm the given information. In addition, detailed clinical and obstetric examination was done. During the enrollment, study questionnaire was applied to all the antenatal women. Detailed case history was taken along with their phone number and address. Antenatalwomen were examined for height, weight, blood

pressure and thyroid problem. Hemoglobin percentage was noted if it was done already. For those women where investigation records were not available, were advised to go for investigation at our primary health center. They were followed up later at their residence and required information was collected.

Results and Discussion

Table 1: Distribution of study population according to health facility

Health facility	Frequency	Percentage (%)
RHTC	128	49.8
UHTC	129	50.2
Total	257	100.0

Total of 257 participants were registered for this study. The table shows that thenumber of study participants from RHTC and UHTC was almost equal.

Table 2: Religion of study population

Religion	Frequency	Percentage (%)
Hindu	136	52.9
Muslim	121	47.1
Total	257	100.0

Table 2 shows the religion-wise distribution of study participants. Among studypopulation 52.9% were Hindu and 47.1% were Muslims.

Table 3: Age-wise distribution of study population

Age groups (in years)	Frequency	Percentage (%)
≤ 20	51	19.8
21 to 25	156	60.7
26 to 30	41	16.0
≥ 31	9	3.5
Total	257	100.0

Age-wise distribution of study population table shows that majority of study subjects belonged to age group of 21-25 years (60.7%), followed by age group less than 20 years (19.8%). In the study conducted by Solanki N et al [(7)] the mean age of the study participant was found to be 22.9 years.

Table 4: Educational status of study population

Education	Frequency	Percentage (%)
Not literate	23	8.9
Primary	32	12.5
Higher primary	57	22.2
High school	86	33.5
Pre-University	40	15.6
Graduates	16	6.2
Post graduates	3	1.2
Total	257	100.0

This table shows that 8.9% of the study subjects were not literate. Majority (33.5%) ofstudy participants had education up to High school while 15.6% were educated up to Pre-University and 22.2% upto higher primary. The number of study subjects who had higher education was very less i.e 6.2% were graduates and 1.2% were post graduates. In the study conducted by Gawande UH et al [8] the proportion of lbw babies of mothers who were illiterate or educated upto primary school was as high as 39%.Similar findings were also been observed by Pachauri et al[9] and Ghosh et al[10].

Table 5: Occupational status of study population

Occupation	Frequency	Percentage (%)
Homemaker	238	92.6
Laborer	13	5.1
Office work	6	2.3
Total	257	100.0

This table shows the occupational status of study population. Majority of the study subjects were home makers (92.6%), while 5.1% worked as laborers and 2.3% did office work during their antenatal period.

Table 6: Socio-economic status (SES) according to modified BG Prasad classification

SES	Frequency	Percentage (%)
Upper class	14	5.4

Upper middle class	45	17.5
Middle class	68	26.5
Lower middle class	86	33.5
Lower class	44	17.1
Total	257	100.0

The above table shows Socio-economic status (SES) of the study subjects according to modified BG Prasad classification, majority belonged to lower middle class (33.5) where as 26.5% belonged to middle class and 17.5% to upper middle class. Only 5.4% were belonged to upper class and 17.1% to lower class

Table 7: Age at first pregnancy

Age groups (in years)	Frequency	Percentage (%)
≤ 20	130	50.6
21 to 25	104	40.5
≥ 26	23	8.9
Total	257	100.0

This table shows the age at first pregnancy of the study population. Majority of the study subjects had first pregnancy in the age group of less than 20 years (50.6%), while 40.5% belonged to the age group 21-25 years and 8.9% were more than 26 years of age. In a study conducted by Phaneendra Rao RS et al[11] the mean age at first pregnancy was found to be 23.0±3.7 years whereas in our study it was found to be 21.48±2.8 years. During the antenatal period the women worked on an average of 3.45 hours and took rest/sleep for 9.41 hours. They received average of 6 antenatal check-ups and consumed an average of 121 iron and folic acid tablets. Their mean hemoglobin was 10gm% and mean blood pressure was 113/73 mm of Hg. They gained an average weight of 9.35 ±2.46 kg during ante natal period and mean weight of their baby was 2.86 kgs (excluding lost to follow up and abortion total of 251 antenatal woman were considered). In the study conducted by velankar et al[12] the mean maternal age at time of deliverywas 22.9±3.8 years (Range: 16 - 40 years), mean years of schooling was 6.7±4.3 years, mean height and mean weight was 153.7±5.9cm and 48.8±4.8kg respectively. Around 72% mothers were Below Poverty Line. Around 45% mothers were primiparous. A study conducted by Ghosh et al documented that mothers who were less than 140 cm in Height were more prone to have LBW. A study conducted by Gourangi et al[13] showed 88% mother had pre pregnancy weight of 45kg. Subjects with better pre pregnancy weight had corresponding favorable total weight gain resulting inbetter birth weights of babies. Among the total of 257 participants 248 had full term normal delivery, which are singleton and hospital deliveries. The pregnancy of four study participants ended in anabortion and one in still birth. One participant delivered twins and two were lost to follow up. A study done by Phaneendra Rao RS et al on influence of pre-pregnancy weight, maternal height and weight gain during pregnancy on birth weight showed that, there were 75 live singleton deliveries,3 abortions, 3 lost to follow-up, 1 twin delivery and2 home deliveries

with no record of birth weight.

Table 8: Outcome based on duration of pregnancy

Duration	Frequency	Percentage (%)
Pre-term	45	17.93
Term	206	82.07
Total	251	100.0

Table 9: Association of Birth weight and bad obstetric history

Bad obstetrics-history	Birth weight (Kg)			Total
	<2.5	**2.5 to 4**	**>4**	
	No.(%)	No.(%)	No.(%)	No.(%)
Absent	51(26)	135 (68.9)	10 (5.1)	196 (100)
Present	29(52.7)	11(20)	15 (27.3)	55(100)
Total	80 (31.9)	146 (58.1)	25 (10.0)	251 (100)

χ^2 =48.45 df=2 P=0.000

Majority of the mothers who had no bad obstetric history gave birth to babies with normal weight (68.9%) while only 20% of mothers with bad obstetric history gave birth to normal birth weight babies. The proportion of low birth weight was high among mothers with poor obstetric history (52.7%). This association between birth weight and bad obstetric history was found to be highly significant. ($p<0.01$). Similar to the findings of our study, Negi KS et al[(2)] showed mothers with bad obstetrics history had over all poor out comes and delivered low birth weight babies. In a study by Negi et al[(2)]**,** the association between birth interval and low birth weight was found to be significant ($p<.05$). The birth of LBW was high (34.5%) among thosemothers with birth interval of less than 12 months.

Table 10: Association between duration of pregnancy and Health facility

Duration of pregnancy	**Health Facility**		**Total**
	Rural	**Urban**	**N(%)**
	No. (%)	No. (%)	No. (%)
Preterm	22(48.9)	23(51.1)	45 (100)

Term	102(49.5)	104(50.5)	206 (100)
Total	124 (49.4)	127 (50.6)	251(100)

χ^2 =0.0057 df=2 P=0.939

Number of preterm deliveries in rural area and urban area are almost similar and thedifference is statistically not significant.

Conclusion

In our study normal delivery with normal baby was the major pregnancy outcome andadverse outcome were low birth weight baby followed pre-term deliveries. Factorslike anemia, bad obstetric history, and duration of pregnancy were found to have a statistical significance influence on birth weight in present study. There was not much difference between rural and urban slums in terms of maternal health condition and pregnancy out come. Hence there is a need for equitable distribution of maternal and child health services in both rural and urban(especially urban-slums)areas.

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