Impact of Antenatal Care on Postnatal Outcomes among Postnatal Women in a Selected District Hospital, Assam

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Abstract

A descriptive study was undertaken to evaluate the impact of antenatal care on postnatal outcomes adopting System Model as the conceptual framework. Simple random sampling technique was used to select 100 postnatal women in a selected district Hospital, Assam. Semi structured interview schedule, record analysis and physical assessment proforma were used to collect information. The findings of the study revealed that, maximum postnatal women had either three or more than three antenatal visits. Record regarding complete physical examination and obstetrical examination were found for most of the postnatal women while Haemoglobin and other routine blood investigations, Urine testing and USG were found only for few. Iron and folic acid supplementation was not received by some postnatal women. Regarding history, only obstetrical histories were recorded for a few postnatal women. Most of the women received advice only about rest and sleep. The study revealed that adverse postnatal outcomes present among the postnatal women were maternal hypertension, PPH, maternal distress, and fetal distress, still birth, neonatal death and low birth weight (4%, 6%, 14%, 28%, 8%, 1% and 22% respectively). Significant association was found in between occupation and total family income of the postnatal women with number of antenatal checkup.Numbers of antenatal visit and live birth, complete obstetrical examination and birth weight, Hb estimation and PPH, occupation and birth weight were found to have significant association. The study was believed to be helpful in the nursing administration, practice and education field.

Key word: Antenatal check up, postnatal outcomes, nursing practices, rural health care, maternal morbidity

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1. Introduction

Maternal mortality is an important measure of a woman's health and is a good indicator of the performance of the health care system. The risk of dying of a woman during her pregnancy in a developing country is 200 times higher than the risk of a woman in developed countries [1]. The five major direct causes of maternal deaths in developing countries are haemorrhage, sepsis, PIH, obstructed labour and complication of unsafe abortion that accounts for more than 75 % of maternal deaths [2]. 20% of the women are encountered for atleast one obstetrical complication or death during delivery and post partum period [3]. 80% of the pregnancy related complication and the maternal deaths can be prevented if pregnant women have access to good quality antenatal, natal and postnatal care [2].

The antenatal care coverage from 1996 to 2004 in the world wise was 71%, in India 60% and the delivery conducted by skilled personnel was 63% worldwide and 43% in India [4]. According to UNICEF during 2007-2012, antenatal care coverage was atleast one visit 74 percent, at least four visits 37percent and the skilled attendant at birth 52 percent. UNICEF also stated that maternal mortality ratio by the year of 2007-2010 is 200(adjusted) [5]. On the other hand by the year of 2011-2012, in Assam only 13.3% women and in Golaghat district only 12.6% women had received full antenatal check-up [6]. Some of the studies indicate that women having lower education and those belonging to lower income groups were more likely to have less than three antenatal visits as compared to women with higher education and high income groups [7, 8, 9]. A significant association was also found in reduction in the proportion of women obtaining antenatal care services with increasing age, parity, and number of living children but no association was observed with outcome of previous pregnancy and presence of health facility in the village. Institutional delivery was practiced among maximum number of the women who availed antenatal care (51.7%) as compared to women who had not availed antenatal services (21.6%) [10].

The findings of some researchers indicate that there is no significant association between skilled delivery attendances with reduction in maternal mortality or stillbirth rates until coverage rates of about 40% were achieved. They also further reported that four or more antenatal visit was not associated with significant reductions in maternal death until about 60% coverage was achieved (3).

There are very few studies available on impact of antenatal care on postnatal outcomes. The present study aimed at to identify the nature of antenatal care received, to find out the outcome of the postnatal women in terms nature of delivery, maternal condition and condition of baby up to 24 hours following birth. The study also aimed at to see the association between utilization of antenatal care with selected demographic variables of the postnatal women and to see the association between utilization of antenatal care with postnatal outcome.

2. Methodology

2.1. Study design and area

In the present study survey approach and retrospective descriptive method was selected to accomplish the objectives of the study and thought to be appropriate.

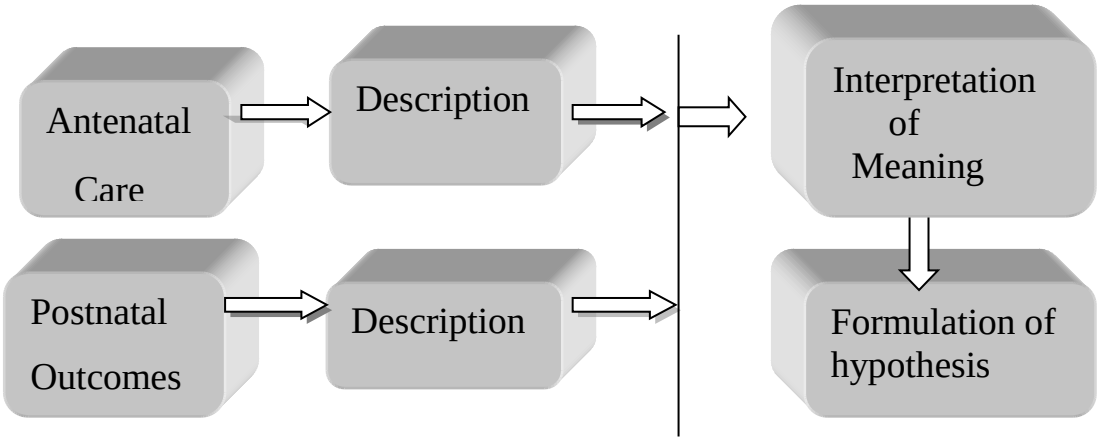

Figure 1: Schematic representation of research design [11].

The study was conducted in district hospital of Golaghat district, Assam. According to the Assam Factsheet 2011-2012, total institutional delivery in Golaghat is 54.6% and out of this 37.6% occurs in Golaghat district hospital (6).

2.2. Study population and sampling

All the postnatal women who had delivered in the Golaghat District Civil hospital during the study period were considered as population for the study. Institutional delivery is one of most important factor that determines the postnatal outcomes. Therefore total institutional delivery in Golaghat district (Fact sheet 2011-2012) was considered as the decisive indicator for calculating the sample size for the present study. As per annual Health Survey Assam (Fact sheet 2011-2012) the total institutional delivery including urban and rural community is 54.6% (6). The sample size is calculating by using the following formula:

n= 4pq/ l^2; where p=54.6 (institutional delivery rate), q= (100-p)= 45.4, l= 20% of p= 10.92. As a result of sampling analysis, the calculated "n" value is found 83 (13). This formula was used by some other research activities carried out in Rural Lucknow (12).The proposed study is descriptive; to overcome the possibility of nonresponses 20% more sample is added. Total 100 postnatal mothers who had fulfilled the sample criteria were selected by using simple random sampling technique. The sampling criteria for the study were postnatal women who had delivered and were in the postnatal ward following 24 hours of delivery and who were willing to participate in the study. Informed consent was taken from every participant.

2.3. Data collection tools and techniques

For data collection, three tools were developed i.e. semi structured interview schedule to collect data regarding background information of the postnatal information and care received during antenatal period, structured record analysis performa to collect information regarding antenatal care received, and physical assessment performa to gather information regarding physical condition of both the postnatal women and their newborn within 24 hours following delivery. Data were collected during the period of December 2013 to January 2014.

3. Conceptual Framework

Conceptual framework refers to interrelated concepts or abstracts that are assembled together in some rational scheme by virtue of their relevance to a common theme (23, 24). Conceptual framework of the present study was developed based on Betty Neuman's system model (22). The system model has three major concepts that are input, process, and output.

Input

In the recent study, Input refers to age, parity, religion, psychological condition, educational level, occupation, economic status of the postnatal women. Psychological condition of the postnatal women is not included in the present study.

Process

In this study process include antenatal care received by postnatal women during their antenatal period. The components of antenatal care are number of total antenatal check up, quality antenatal check up, history taking, physical examination, obstetrical examination, lab investigation, immunization, health educations, high risk identification, proper referral and follow up. In this study quality antenatal check up is not included**.**

Output

Output includes the evaluation of the nature of delivery i.e. mode of delivery and total duration of labour, maternal condition during intranatal period in terms of maternal distress, PPH, and maternal condition within 24 hours of delivery like dehydration, presence of pallor, blood pressure, ability to take care of the newborn, establishment of breast feeding. Evaluations of the conditions of babies are also included in output, which are in terms of still birth, fetal distress, early neonatal death, neonatal condition like birth asphyxia, low birth weight, congenital abnormalities, injury mark.

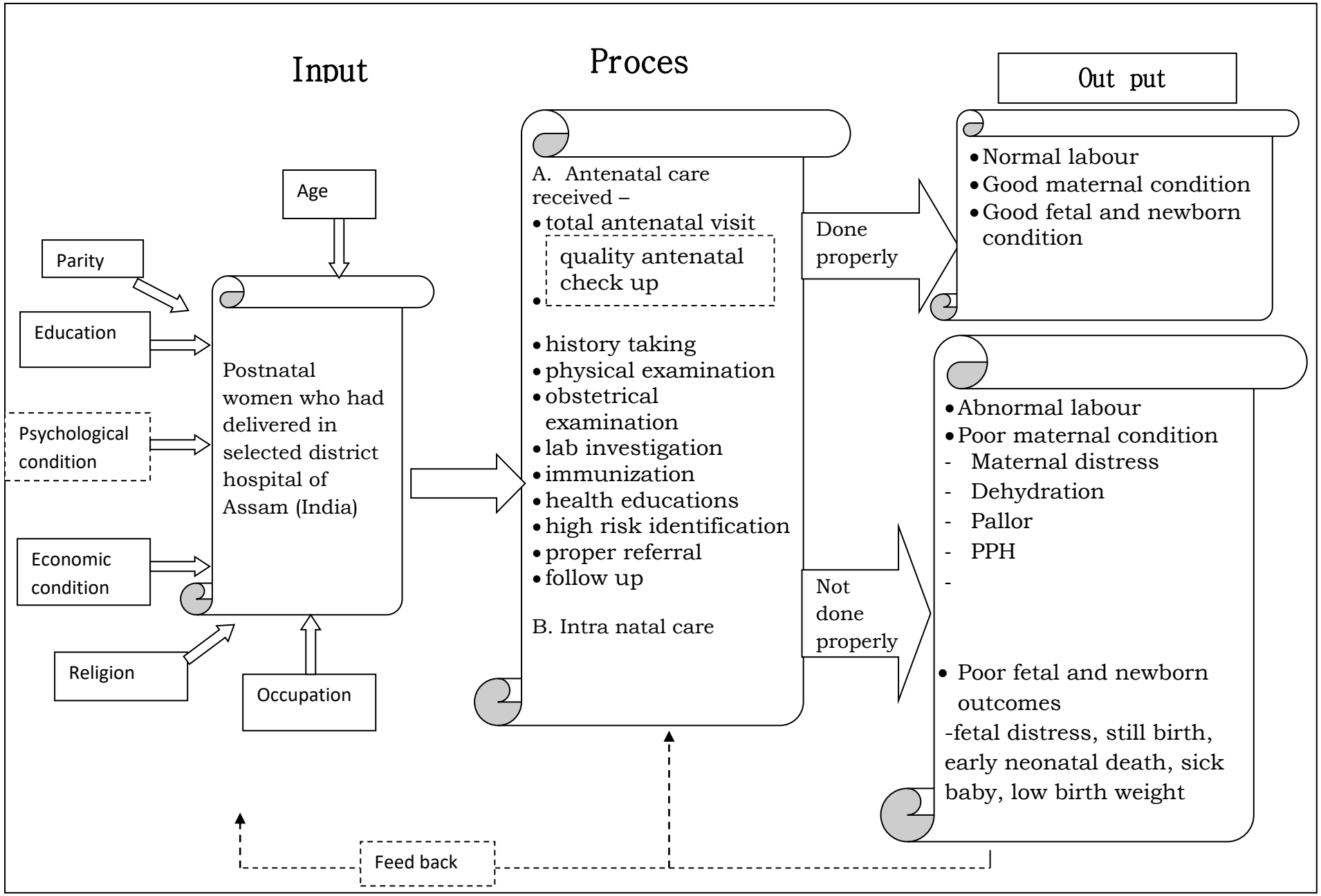

Figure 2: Conceptual framework based on system model (22).

4. Results

4.1. Demographic profile and antenatal care received by the postnatal women:

All of the postnatal women (100) were in the age group of 19 to 35 year .Majority of the postnatal women (70%) were Hindus and majority of the postnatal women (50%) have only primary education. 86 percent postnatal women are housewives and 71 percent belong to the income group of Rs. 1,000-3,000 per month. Majority of the postnatal women (94%) had either three or more than three times of antenatal visit. Only 29 percent received first antenatal checkup before 12 weeks of gestation. Meanwhile majority of the postnatal women (92 %) had taken two doses of Injection Tetanus Toxoid and prophylaxis doses of Iron and Folic acid had been received by 93 percent of the postnatal women. Regarding health problems faced during antenatal period was found that only one percent had complains of insomnia, headache, pain in the epigastric region, scanty urination; two percent had complain of insomnia, headache, pain in the epigastric region; one percent had headache, scanty urination, pain in epigastric region; one percent had complains of only scanty urination; one percent had only complains of pain in the epigastric region and two percent had complains of hyperemesis gravidarum . Total nine percent postnatal women had bad obstetrical history i.e. two percent had two percent women had history of still birth, one percent had history of abortion, and six had history of caesarean section.

N=100

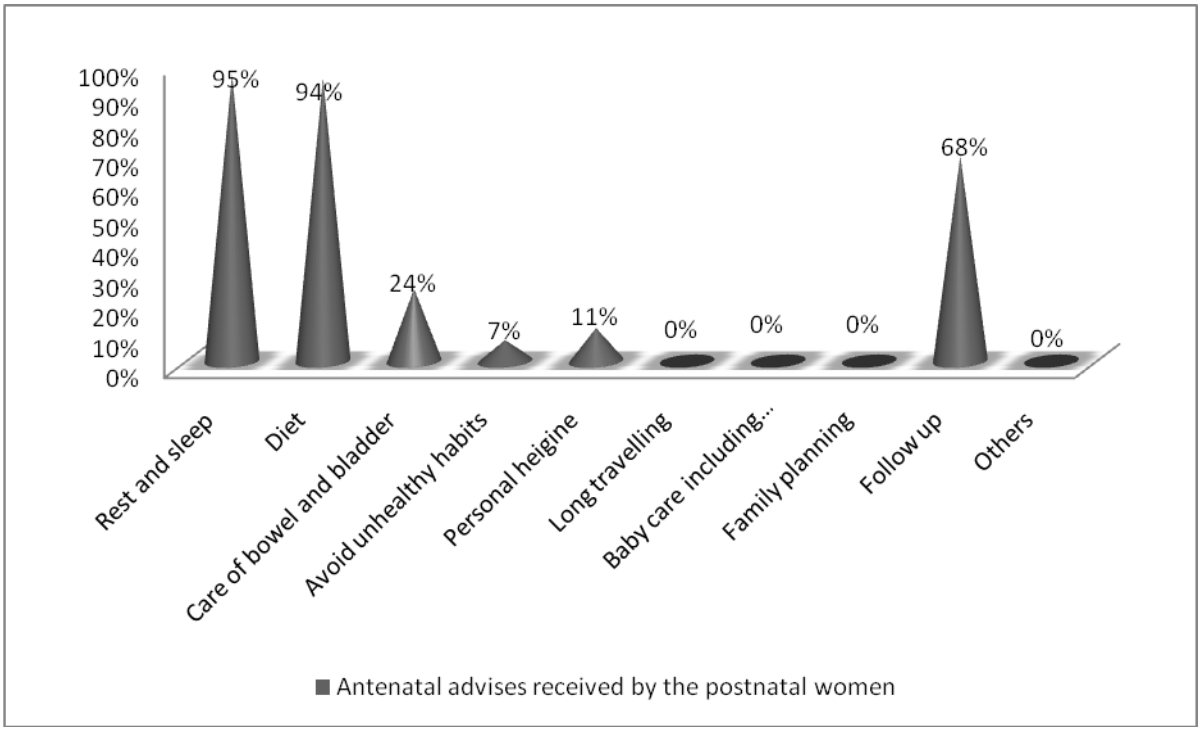

Figure 2: Advice received by the postnatal women during antenatal period

Complete physical examination (blood pressure, weight, and oedema) was done for majority of the postnatal women(51%). On the other hand complete blood investigation (blood for sugar, grouping, serology) was done for only 23 percent postnatal women . Out of the 100 postnatal women, urine testing was done for 24 and USG was done for only 23 postnatal women.From further analysis of the record, it was found that among the 24 percent of the postnatal women for whom urine testing was done, four percent had trace amounts of protein but action was taken by the health care provider only for one percent postnatal women. Data regarding antenatal advices received by the postnatal women were presented in Figure 2. Haemoglobin estimation was not done for any one of the postnatal women during first trimester of their pregnancy. On the other hand during second trimester haemoglobin was estimated only for eight percent of the postnatal women, and their haemoglobin level was in between 8gm% to 10 gm % (mild anaemia). At the third trimester haemoglobin estimation was done for 44 postnatal women out of 100. Among them 27 percent had haemoglobin level in between 8 gm% to 10 gm% (mild anaemia), 10 percent had either 7 gm% or less than 8 gm% (moderate anaemia), two percent had less than 7 gm% (severe anemia), whereas only five percent were detected without anaemia(> 10 gm%).

4.2. Evaluation of intranatal and postnatal outcomes of the postnatal women:

Most of the postnatal women (73%) had spontaneous vaginal delivery and among them 56 percent were full term, 15 percent were post-dated and only two percent were preterm. On the other hand, the total duration of labour was 6-12 hours for 57 percent had and 13-16 hours for 16 percent. Out of 100 postnatal women four (4) had hypertension during intranatal period, six (6) had during postpartum period, 14 postnatal women had maternal distress and 28 had foetal distress as recorded in the delivery record. About the condition of the newborn at birth out of 100, there were eight (8) still births; 23 had asphyxiated at birth and the rest (69) were normal. Most of the newborns (75%) had birth weight between 2.5 kg to 3.5 kg. 22 percent had less than 2.5 kg birth weight, meanwhile 22 percent were small for gestational age whereas only three percent had more than 3.5 kg birth weight. It was found from further analysis of records that two newborns died within 24 hours of delivery. One of them had birth asphyxia and was small for gestational age while another one had more than 3.5 kg birth weight with severe conginetal anomaly (anenecephaly). Remaining 90 percent postnatal women, who had live newborn, only 49 percent of the postnatal women had been successful in breastfeeding and 63 percent postnatal women were able to take care of their baby, rest of the postnatal women did not take care of their baby because they had difficulty in handling the baby. It may be due to lack of preparation during antenatal period. Data regarding maternal conditions within 24 hours of delivery were presented in table 1.

Table 1: Frequency distribution of the postnatal women in terms of maternal condition i.e. hydration, pallor and blood pressure within 24 hours of delivery as assessed

N=100

Sl.No.	Sample characteristics	Frequency
1	Dehydration	49
2.	Pallor	92
3.	Blood Pressure	
	• Hypo tension	18
	• Normotension	80
	• Hypertension	2
4	Condition of the nipple	
	• Normal	68
	• Inverted	17
	• Cracked	0
	• Inverted and cracked	6

4.3. Evaluation of impact of antenatal care on postnatal out come

Table 2 :Chi-square value showing the association between the educatonal level of the postnatal women and no. of antenatal checkup.

N=100

Level of education	No. of antenatal visit		Total	Chi- square value
	<3	≥3		χ^2
No formal education	2	13	15	.50
Primary and above primary level	4	81	85	

χ^2 df(1)= 3.841 P > 0.05

Data presented in Table 2 shows that among the 100 postnatal women 15 had no formal education and 85 of them had primary or above primary level of education. Out of 15 postnatal women who had no formal education, only two of them had less than three antenatal check up and 13 had either three or more than three antenatal check up. On the among 85 postnatal women, who had primary or above primary level education, four of them had less than three antenatal check up and remaining 81 of them had either three or more than three antenatal check up. The obtained chi square value after yate correction is .50 at df(1). The table value at df (1) is 3.841 is more than obtained chi value at 0.05 level of significance. It means, there is no significant association between level of education and number of antenatal checkup.

Table 3: Chi-square value showing the association between the occupation of the postnatal women and no. of antenatal checkup.

N=100

Occupation of the postnatal women	No. of antenatal visit		Total	Chi- square value χ^2
	<3	≥3		
Labourer	5	9	14	
Housewives	1	85	86	19.73

χ^2 df(1)= 3.841 P <0.05

Data presented in table 3 shows that among the 100 postnatal women, 14 were laborer and 86 were housewives. Out of 14 postnatal women who were laborer, five postnatal women had less than three antenatal visit and nine had either three or more than three antenatal visit. On the other hand among the housewives, only one had less than three antenatal visit and 85 had either three or more than three antenatal visit. The obtained chi square value after yate correction is 19.73 at df(1). The table value at df (1) is 3.841 is less than obtained chi value at 0.05 level of significance. It means, there is a significant association between occupation of the postnatal women and number of antenatal checkup.

Table 4: Chi-square value showing the association between the family income of the postnatal women and no. of antenatal checkup.

N=100

Family income per month	No. of antenatal visit		Total	Chi- square value χ^2
	<3	≥3		
<1000	5	15	20	
≥ 1000	1	79	80	12.07

χ^2 df(1)= 3.841 P <0.05

Data presented in table 4 shows that among the 100 postnatal women, 20 had family income less than Rs 1000 per month and 80 had eithe Rs. 1000 or more than Rs 1000 per month. Out of 20 postnatal women who had family income less than Rs 1000, five had less than three antenatal visit and 15 postnatal women had either three or more than three

antenatal visit. On the other hand, 80 postnatal women who had either Rs 1000 or more than Rs 1000 per month family income, only one postnatal women had less than three antenatal visit and others had either three or more than three ante natal visit. The obtained chi square value after yate correction is 12.07 at df(1). The table value at df (1) is 3.841 is less than obtained chi value at 0.05 level of significance. It means, there is a significant association between total family income of the postnatal women and number of antenatal checkup.

Table 5: Chi square showing association between no. of antenatal visit and PPH

N=100

No. of antenatal visit	PPH		Total	Chi- square value χ^2
	Present	Absent		
<3	1	5	6	
≥3	5	89	94	1.287
Total	6	94	100	

χ^2df (1)=3.841 P>0.05

Data presented in Table 5 illustrates that out of 6 postnatal women who had less than 3 antenatal checkups, only 1 had PPH. On the other hand, out of 94 postnatal women who had either 3 or more than 3 antenatal checkups, PPH was present for 5 postnatal women. The obtained chi-square value after yate correction is 1.287 at df (1). The table value at df(1) is 3.841 is more than obtained chi-value at 0.05 level of significance. It shows that there is no significant association between the number of antenatal checkups and PPH among the postnatal women.

Table 6: Chi- square value showing the association between no. of antenatal visit and live births

N=100

No. of antenatal visit	Condition of the newborn at birth		Total	Chi-square value χ^2
	Still birth	Live birth		
<3	5	1	6	
≥3	3	91	94	49.21
Total	8	92	100	

χ^2df(1)= 6.635 P<0.01

Data presented in Table 6 shows that among the postnatal women (6) who had less than 3 antenatal checkups, majority of the postnatal women (5) delivered stillborn babies and only one had a live birth. Among the postnatal women (94) who had either 3 or more than 3 postnatal checkups, only 3 had still births and 91 postnatal women delivered live births . The obtained chi- square value after yate correction is 49.21 at df(1). The table value at df(1) is 6.635 is less than obtained chi-square value at 0.01 level of significance. So it can be said that there is significant association between the no. of antenatal visit and live births.

Table 7: Chi-square value showing the association between physical examination carried out during antenatal checkup and occurance of PPH.

N=100

Parameter of physical examination completed (BP,Weight, edema)	Occurance of PPH		Total	Chi-square value χ^2
	Present	Absent		
<3	4	45	49	
≥3	2	49	51	0.7971
Total	6	94	100	

χ^2 df(1) =1 P>0.05

Data presented in Table 7 shows that among the postnatal women (49) who had not covered minimum 3 parameters of physical examination during antenatal checkup, 4 had PPH after delivery. While from the other group of the postnatal women (51) who had covered either 3 or more than 3 parameters of physical checkup, only two of them had PPH and 49 had no PPH. The obtained chi-square value after yate correction at df(1) is .7971. the table value at df(1)is 3.841 more than the obtained chi-square value at the 0.05 level of significance. It means that there is no significant association between the physical parameters checked during antenatal visit and PPH.

Table 8: Chi-square value showing association between the obstetrical examination during antenatal checkup and birth weight.

n=92

Parameter of obstetrical examination (Fundal height, abdominal palpation, abdominal girth, fetal heart sound auscultation)	Birth weight		Total	Chi-square value χ^2
	<2.5 kg	≥2.5 kg		
<3	9	11	20	8.834
3	11	61	72	

χ^2 df(1)= 6.635 P< 0.01

Data presented Table 8 illustrates that the birth weight amongst the newborn of those postnatal women (20) who had not covered 3 parameters of the obstetrical examination, 9 were less than 2.5 kg and rest of the newborns (11) weighed more than *2.5 kg*. While for the other postnatal women (72) who had covered 3 parameters of the obstetrical examination, 11 had newborns having birth weight less than 2.5 kg and 61 had newborns wieghing more than ≥2.5 kg. The obtained chi-square value at df(1) is 8.834. The table value at df(1)is 6.635, less than obtained chi-value at 0.01 level of significance. It means that there is significant association between the obstetrical examination during antenatal period and birth weight of the newborn.

Table 9: Chi- square value showing the association between Hb estimation at the third trimester and PPH

N=100

Hb estimation at third trimester	PPH		Total	Chi-value χ^2
	Present	Absent		
Done	0	46	46	5.43
Not done	6	48	54	
Total	6	94	100	

χ^2df(1) =3.841 P<0.05

Data presented in Table 9 shows that there was no PPH among the postnatal women (46) who had undergone detection of HB% during third trimester of pregnancy but PPH was present in 6 postnatal women out of 54 for whom blood for HB% was not done during the third trimester. The obtained chi-square value after yate correction at df(1) is 5.43. The table

value at df(1) is 3.841 less than the obtained chi value at 0.05 level of significance. So it indicates that there is significant association between HB% detection at the third trimester and PPH.

Table 10: Chi-square value showing the association between physical examination during their antenatal visit and live birth among the postnatal women

N=100

Physical examination (Blood pressure, weight, edema)	Condition at Birth		Total	Chi-square value χ^2
	Still birth	Live birth		
<3 parameters	5	44	49	.183
3 parameters	3	48	51	
	8	92	100	

χ^2df(1)= 3.841 P> 0.05

Data presented in Table 10 shows that out of 100 postnatal women, 51 had completed 3 parameters of the physical examination during their antenatal visit and 49 had not completed 3 parameters of the physical examination. There were 5% stillborn cases among the postnatal women who had not completed their physical examination during antenatal visit and there were only 3 stillborn cases among the women who had completed 3 parameters of the physical examination during antenatal period. The obtained chi-square value after yate correction is 0.183 at df(1), the table value at df(1) is more than the obtained value at 0.05 level of significance. So it indicates that there is no significant association between physical examination during antenatal period and live births.

Table 11: Chi-square value showing the association between occupation of the postnatal women and birth weight of the newborn

n=92

Occupation of the postnatal women	Condition of the new born		Total	Chi-square value χ^2
	Still birth	Live birth		
Laborer	7	7	14	39.95
House wife	1	85	86	
Total	8	92	100	

χ^2df(1)= 6.635 P< .01

Data presented in Table 11 shows that the number of still birth cases(7) is more among the postnatal women who are labourers while there is only one still birth case among

the postnatal women who are housewives. The obtained chi-square value after yate correction is 39.95 at df (1). The table value at df(1) is 6.635 which is less than the obtained chi square value at the 0.01 level of significance. It shows that there is significant association between the occupation of the postnatal women and live birth.

5. The implications of the present study

The findings of the study have several implications for nursing practice, nursing administration, nursing education and nursing research.

5.1. Nursing practice

The comprehensive nursing care to a pregnant women is the important responsibility of the nursing personnel. Midwives can play an important role in in reducing maternal and newborn mortality and morbidity through proper antenatal assessment and identifieng the risk factors which have adverse impact on postnatal outcomes. Public health nurses can take special effort in conducting community survey on lifestyle, nutritional status, knowledge regarding antenatal care among the community people and can conduct educational programme for the family members of the pregnant women regarding care during antenatal period.

5.2. Nursing administration

The findings have implications in policy making on care during antenatal period at different levels of health care centres. The nurse administrator should take initiatives to educate and advice the nurse on antenatal assessment and also point out the scope to develop skills on antenatal assessment.The nurse administrator should take initiatives in organizing contuing education or an in-service programme for health worker or supervisor regarding care to a woman during ante natal, intranatal and postnatal period. The nurse administrator has to ensure that the nurse can practice independently in the field of midwifery with evidence based findings as a midwifery practitioner.

5.3. Nursing education and research

Assessment of a pregnant woman is very important aspect in the clinical area. Nursing education programme should be organized in such a way that the student will able to develop skills in antenatal assessment for early identification of problem and take necessary steps to minimize the problem. Students should conduct health education programme regarding antenatal care as a part of their teaching and learning activities.A teaching institution can

arrange and organize in-service education programme regarding different influencing factors of postnatal outcomes.

Further research in the area of the antenatal care is vital if we are to provide effective directions to achieve the most benificial outcomes for both the mother and the baby.

5.4. An outlook of the present study

The study can not be broadly generalised because participants for the study were selected from one setting only. The study was done only on the postnatal women who had delivered within the study period in the selected district hospital and had antenatal card with them.

On the basis of findings, the following recommendations can be offered for future research. Firstly, this study was conducted with somewhat smaller pool of data, and thus the findings of this study can be replicated on a larger sample for generalisation. Secondly, a comparative study can be conducted between rural and urban settings. A longitudinal study can be conducted to assess the impact of antenatal care on postnatal outcomes.

6. Discussion

WHO recommends that antenatal care for the majority of normal pregnancies should consist of four visits during pregnancies (16). In the present study the use of antenatal care was 94 percent. The level of use of antenatal care in the present study is comparable to the utilization pattern in Rural Lucknow, where 85.5 percent of the beneficiaries received at least three antenatal care services from any health facility (12). In the mean time in Rural North India also, three or more visits to the health centre were made by 93 (34.9%) of the women (27). In the N.F.H.S-II survey in Goa also present that, 73.4 percent women registered for antenatal care, within 12 weeks of pregnancy and the study carried out by Kulkarni et al in North Goa district shows that 78 percent women utilized antenatal services regularly (17, 18) .On the other hand the research activity in Nigeria by Olayinka , A., et al found that only 58 percent attend antenatal clinic regularly (13).

As per recent study, only 29 percent postnatal women had visited the antenatal clinic during 1st trimester. On the other hand the work of Olayinka , A., et al reported that 57.1 percent had attend the clinic during 1st trimester (13). The result of other research activities also shows that 53.7percent had attended clinic during their 1st trimester (12). The

study conducted in Goa reflects comparatively better scenario, where 73.4 percent women registered for antenatal care, within 12 weeks of pregnancy (17).

In the present study, it was found that 92 percent postnatal women had taken injection tetanus toxoid. The study carried out by another researcher also informed that majority of the women (77.1%) had taken injection tetanus toxoid (15). It was reported in the recent study that complete physical examination was done for 51 percent postnatal women during their antenatal check up. Comparatively same finding was reported in another study carried out in Rural Karnataka, where it was found that complete physical check up was done for 50 percent women (28).

The result of the present study shows that iron and folic acid tablet was received by 93 percent postnatal women, similar result was reported by another research activity in Rural Karnataka. In Rural Karnata Iron and folic acid was prescribed for 96.4 percent postnatal women (28).

Regarding health problems faced during antenatal period it was found that only one percent had complains of insomnia, headache, pain in the epigastric region, scanty urination; two percent had complain of insomnia, headache, pain in the epigastric region; one percent had headache, scanty urination, pain in epigastric region; one percent had complains of only scanty urination; one percent had only complains of pain in the epigastric region and two percent had complains of hyperemesis gravidarum. The findings of some other research activities shows that majority of women (57.5%) did not report any problem during pregnancy, Some (10.9%) reported pain in abdomen and 6.8 percent reported bleeding. Other problems reported were, weakness (8.5%), backache (6%), dragging sensation (2%), leakage (1%) and injury (1%) etc (27).

The recent study findings show that nine percent postnatal women had bad obstetrical history. In the mean time the survey carried out in Uttar Pradesh reflects that 20 percent postnatal women have bad obstetrical history (25). We show that 95 percent postnatal women were reached with at least one educational message during antenatal check up, haemoglobin estimation in third trimester was done for 44 percent postnatal women, urine for protein was checked only for 24 percent women. Almost similar result was found in a cross sectional study carried out in Nigeria in the year of 2008, where it was found that, 99 percent women received atleast one educational message, 42.8% had haemoglobin estimation and 43.1% had urine checked for protein (26).

Regarding the postnatal outcomes, in the present study it was found that there were total eight percent stillbirth among 100 postnatal women. The study carried out by another

researcher in Uttar Pradesh shows that the still birth rate was 22 percent (32). Our study shows that only 49 percent of the postnatal women had successfully established breastfeeding, on the other hand another study carried out in Aligarh found that only 11.9 percent of the mothers were having some breast-feeding problems (33).

In the present study it was found thatt there is no significant association between the educatonal level of the postnatal women and number of antenatal checkup [χ^2 df(1)= 3.59, P > 0.05]. But the the study conducted by Singh, et al (2012), reveals that women with middle and higher education were two (CI = 1.580–2.851) and nearly three times (CI = 2.033–3.991) more likely to utilize full antenatal care than uneducated women (20). This discrimination may be the result of active participation of the ASHA (Accredited Social Health Activists) and other health workers, the health information through various media like news paper, television and radio.

Conversely in the recent study, significant association was found between number of antenatal visit with occupation and total family income of the postnatal women at 0.05 level of significance. The other researchers' activity also reported that there was a highly significant association between adequacy of attendance of antenatal care and level of occupation, and total family income of women (29, 30, 31). The finding of the study reveals that there is a significant association between the number of antenatal visit and live birth. Also it was found that there is a significant association between antenatal examination and delivery of low birth weight baby.The similar findings was reported by Petrou (2000) on association between antenatal visit and adverse perinatal outcomes (19). Ramy, A.R., et al (1998) reported a highly significant association between the materno-foetal outcome and the adequacy of antenatal care (21).

References

1. Arora, S. V. P., (2005). Maternal Mortality –Indian Scenario: Medical Journal of Armed Force India. 61(1); 214-215
2. Dutta, D.C., (2011). Text Book of Obstetrics .7(1): 602-603.
3. Worku, A. G., Yalew, A. W., & Afework, M. F. (2014). The Contributions of Maternity Care to Reducing Adverse Pregnancy Outcomes: A Cohort Study in Dabat District,Northwest Ethiopia. Maternal Child Health J,18(1):1336–1344
4. http://www.who.int/whr/2005/en/index.html
5. http://www.unicef.org/infobycountry/india_statistics.html

6. http://www.censusindia.gov.in
7. Gupta, A., Chhabra, P., Kannan. A. T., Sharma, G., (2010). Determinates of the utilization pattern of antenatal and delivery services an urbanised village of east delhi: Indian Journal of Preventive and Social Medicine.41 (3).
8. Navaneetham, K., Dharmalingam, A.,(2002). Utilization of maternal health care services in Southern India: Social Science and Medicine. 55(10) 1849-1869.
9. Jat, T. R., Naw, N. G., Sebastian, M. S., (2011). Factors affecting the use of maternal health services in Madhya Pradesh State of India: a multilevel analysis: International Journal for Equity in Health. 10 (1) 59.
10. Chandhok, N., Dhillon, S.B., Kambo, I., Saxena, N.C., (2006). Determinants of antenatal care utilization in rural areas of India : A Cross-sectional study from 28 districts (An ICMR task force study): J Obstet Gynecol India .56 (1): 47-52.
11. Burns, N., Grove, S. K., (2007). Understanding Nursing Research. 4(1): 237-271.
12. Roy, M., Mohan, U., Singh, S. K., Singh, V., Srivastava, A. K., (2013). Determinants of Utilization of Antenatal Care Services in Rural Lucknow, India. Journal of Family Medicine Prim Care. 2(1): 55–59.
13. Olayinka, A., Afolayan, J. A., Oladimeij, B. D., (2012). Factors influencing utilization of antenatal care services among pregnant women in Ife Central Lga, Osun State Nigeria. 3(3): 1309-1315.
14. Singh, A. K. (2011). Tests, measurements and research methods in behavioural sciences. 5(1): 339-359.
15. Ibnouf A.H., Borne, H.W., Maarse, J.A. (2007). Utilization of antenatal care services by Sudanese Women in their reproductive age. Saudi Med Journal. 28(5):737-743
16. Antenatal care in developing Countries. An analysis of trends, levels and differentials, 1990-2001.WHO and UNICEF, 2003.
17. NFHS -II Goa. National Family Health Survey India 1998-99. International Institute for Population Sciences, Mumbai. 2002.
18. Kulkarni M.S., Nimbalkar M.R.,(2008). Influence of socio-demographic factors on the use of antenatal care. Indian Journal of Prev. Soc. Med. 39(3 &4): 99-102.
19. Petrou, S., Kupek, E., Vause, S., Maresh, M., (2003). Antenatal visit and adverse perinatal outcomes: results from a British Population – based study. Eur J Obstet Gynecol Reprod Biol. 106 (1): 40-49.

20. Singh, P. K., Rai, R. K., Alagarajan, M., Singh, L., (2012). Determinants of Maternity Care Services Utilization among Married Adolescents in Rural India. Available from: URL: http://www.plosone.org
21. Ramy, A. E., Abou, E. L., Nour, A., (1998). Relation of antenatal care services to obstetric outcome in Ain Shams Maternity Hospital. Available from : URL http://www.popline.org.
22. http://currentnursing.com/nursing_theory/Neuman.html
23. Haber, J., Wood., (2009). Reading, understanding and applying Nursing research. . 3 (1) : 239-40.
24. Polit, D. F., Hungler, B. P., (2000). Nursing Research: Principles and Methods. 6 (1) : 105-127.
25. Misra, P. K., Thaku, S., Kumar, A., Tandon, S., (1993). Perinatal mortality in rural India with special reference to high risk pregnancies. Available from : URL : http://www.ncbi.nlm.nih.gov/pubmed/8445688.
26. Osungbade, K., Oginni, S., Olumide, A., (2008). Content of antenatal care services in secondary health care facilities in Nigeria: implication for quality of maternal health care. International Journal for quality health care. 20 (5) :346-351.
27. Singh, A., Arora, A. K., (2007). The changing profile of pregnant women and quality of antenatal care in rural North India. Indian Journal of Community Medicine. 32 (1): 135-136.
28. Matthews, Z., Mahendra, S., Kilaru, A., Ganapathy, S., (2001). Antenatal care, Care-seeking and morbidity in Rural Karnataka, India : Results of a prospective study. Asia-Pacific Population Journal. 16 (2) : 11-28.
29. Ramy, A. R., Abul-El Nour, A., Mostafa, G. F., Laban, M., Abdel-Hafez, S. M., (1998). Relation of antenatal care services to obstetric outcome in Ain Shams Maternity Hospital. Egyptian Society of Obstetrics and Gynecology. 24(7-9):513-2
30. Nisaf, N., White, F., (2008). Factors affecting utilization of Antenatal Care among reproductive age group Women (15-49 years) in an urban squatter settlement of Karachi. Journal of Pakistan Medical Association.Available from : URL : http://jpma.org.pk/full_article_text.php?article_id=83.
31. Pallikadavath, S., Foss, M., Stones, R. W., (2004). Antenatal care: provision and inequality in rural north India. Social science and medicine. 59 (6): 1147–1158.

32. Misra, P. K., Thakur, S., Kumar, A., Tandon, S., (1993). Perinatal Mortality in Rural India with Special Reference to High Risk Pregnancies. Available from : URL : http://www.ncbi.nlm.nih.gov/pubmed/8445688.
33. Khan, Z., Mehnaz, S., Khalique, N., Ansari, M. A., Siddiqui, A. R., (2009). Poor perinatal care practices in urban slums: possible role of social mobilization networks. Indian Journal of community medicine. 34(2): 102–107.