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Mothers Awareness on Antenatal Care and Newborn Health in Rajshahi Division

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ABSTRACT

Antenatal care is very much essential for mother and upcoming child in the world. Appropriate utilization of Antenatal Care (ANC) can prevent complications and ensures better maternal and child health care. Ensures early detection and management of antenatal risk factors, birth preparedness and complication readiness. However the present study has conducted to assess the awareness of rural and urban mothers regarding antenatal care; to determine the impact of awareness of rural and urban mothers regarding ANC; to examine the relationship between the awareness and impact on ANC of mothers; to determine the level of awareness and impact of antenatal care of the mothers. Total 442 antenatal mothers were selected for the study. Among them 241 mothers from rural and 201 mothers from urban area as considered their living place. Determinant the living place: those mothers were living outside the Rajshani or far from Rajshani city, they are considered as rural mothers and those mothers were living within the Rajshani city or near the Rajshani city, they are considered as urban mothers. Data were collected from primary and secondary sources. Primary data were collected from the respondents of study area. Secondary data were collected from books, research report, journals and internet. Questionnaire was used for data collection. Data were collected through face to face interview with questionnaire and secondary data were collected by reviewing books, research report, journals and internet etc. Data were computerized, analyzed and interpreted using of SPSS (Statistical package for social science) Windows software program version 16. From the result it was found that economic barriers and lack of education are significant predictors for the non utilization of ANC services. Respondents from rural areas with low-income families in Bangladesh have lower odds of utilizing ANC. Respondents with a lower level of education and those with less educated husbands, who had no access to media, had a lower chance of utilizing ANC services. In some cases mothers are eager to take ANC but their husband or guardians are not eager to take ANC. Some women did not take ANC due to lack of knowledge about ANC. These barriers can be mitigated by introducing mandatory free school education and reducing the cost of maternal healthcare services or providing special financing in the health sector via insurance or different organizations. The people of Bangladesh go to government and private hospitals or clinic to receive or utilization of ANC. Higher class society go to private hospitals or clinic to receive or utilization of ANC lower class or poor people go to government hospitals or health facilities to receive or utilization of ANC.The findings of this study showed the pandemic situation reduced the utilization of antenatal care services among pregnant women in the study area. Thus, the age of the mother, residency, educational status, history of still birth, interruption, and diversion of maternity health-care service, fear of COVID-19 pandemic, and transport inaccessibility were significant factors which contributed to the low antenatal care service utilization of pregnant women. From the study it can be recommended that cost of medical services related to ANC should be reduced in all kinds of health facilities. ANC can be done by extending the role of family planning providers to detecting pregnancy intention and motivating women to receive ANC, as well as making them collaborate with ANC providers to prespecified healthcare centers for ANC services. Policies and programs focusing on religious and cultural norms are also important to successfully increasing ANC uptake, particularly among communities where illiteracy and poverty are higher. Attention needs to be given to increase the level of autonomy of women, in particular their autonomy in decision making and economic matters. It is equally important to pay attention to women's age at birth, number of children, intervals between births and access to antenatal care services so as to improve mothers' reproductive health and pregnancy outcomes for both mother and child. It is recommended to improve the socioeconomic status, diversifying food intake including iron-rich foods and iron supplementation of pregnant women. Greater efforts are required to encourage early antenatal attendance for these at risk pregnant women. Moreover, using family planning methods and to enhance maternal health nutrition education intervention is highly recommended to potentially reduce the prevalence of anemia during pregnancy.

Keywords: *Antenatal Care, Utilization, Awareness, Maternal health, Antenatal visits, Mother's education, Knowledge, Hospital. Care provider.*

INTRODUCTION

The magnitude of women's reproductive health problems is a serious matter of concern. Among the reproductive health parameters Antenatal care (ANC) and safe delivery have important positions as these are directly related with maternal morbidity and mortality. Maternal and infant morbidity and mortality is a serious public health problem globally (The State of the World's Midwifery: 2011, Datta, D.C. 2014, WHO). Both maternal and child health are interdependent and substantially contributing to high burden of mortality worldwide. Every year, 2,89,000 women die due to complications in pregnancy and childbirth, and 6.6 million children below 5 years of age die of complications in the newborn period and of common childhood diseases (MDGs- 2015, WHO, 2014). 99% of these deaths occur in the developing countries. Not only that estimated 8 million more suffer serious illness and lifelong disabilities

(WHO, UNICEF, UNFPA and the World Bank, 1990-2008, and WHO, 2010). Every year 2 million newborns die within first 24 hours of life. Each day 12,000 babies die among the 35,000 babies within their first month of life, 2.6 million stillbirths, of which approximately 45% occur during labour and birth. More over millions of newborns suffer birth trauma that impairs their development and future productivity. These deaths occur late in pregnancy, at birth, or soon after delivery due to poor maternal and newborn care or inadequate management of pregnancy related complications. The overwhelming majority of these deaths occur in developing countries (Lawn J. Cousens S. Zupan J, 2005, Stillbirth: An executive summary. 2011, Lozoff B, Beard J, Connor J, Barbara F, Georgieff M, Schallert T. 2006, and Projahnmo , 2008). Appropriate antenatal care is one of the pillars of Safe Motherhood Initiatives, a worldwide effort launched by the World Health Organization (WHO) and other collaborating agencies in 1987 aimed to reduce the number of deaths associated with pregnancy and childbirth (World Bank, 2007).

Bangladesh is one of the developing countries with in the world. The Maternal and infant morbidity and mortality are still high (Bangladesh progress report, 2007). Maternal Mortality Ratio (MMR) - 194/100000 live birth (BDHS, 2011), Neonatal Mortality Ratio (NMR)- 28/1000 (BDHS, 2014) live births, Infant Mortality Ratio (IMR)- 38/1000 (BDHS, 2014) live births and Under 5 mortality Rate (U5MR)-46/1000 (BDHS, 2014). More over every year 600,000 women suffer from maternal complications and 600,000 under-5 children suffer from various diseases. These deaths and complications have to occur especially during child birth, soon after delivery and within 6 weeks after birth due to lack of proper antenatal care and inadequate management of postnatal care (BD Progress Report, 2013, HPNSDP, 2012, Countdown, 2015, World's Midwifery, 2012). In comparison to develop world which are remain high like in Azerbaijan country: MMR-26/100000 live birth, IMR-31/1000 live birth, NMR-15/1000 live birth, U5MR-35/1000 live birth (Countdown, 2015). It is well recognized that good antenatal care improves maternal, perinatal and neonatal outcomes. That's way the Health Population & Nutrition Section Development Program has been initiated by the Ministry of Health and Family Welfare (MOHFW), Government of Bangladesh (GOB) for a period of five years from July 2011 to June 2016. After HPSP (1998-2003) and HNPSP (2003-2011) to achieve the Millennium Development Goals 4 (to reduce child mortality) & 5 (to improve maternal health) (HPNSDP, 2012). According to WHO CCS, Bangladesh 2014-17, reported that there has been slow progress in antenatal care coverage by medically trained providers. Mothers having had only one visit 50.5% in 2004 and 54.6% in 2011 (BDHS, 2011) and having had four visits increased from 16.7% in 2004 to 25.5% in 2011. The government target of four visits is at least 50% and one visit 100% by 2015. Deliveries attended by skilled health personnel doubled from 15.6% in 2004 to 31.7% in 2011. This is due to a significant increase in facility delivery. Of the 68% home deliveries, only 3% were attended by skilled providers. Moreover, there is a large disparity in skilled assistance at delivery between rural 24% and urban 48% areas (BDHS, 2011). Target of children being exclusively breastfed for the first six months of the life is only 64%. Complementary foods are introduced at an early stage (BDHS, 2011). Postnatal care also increased significantly from 15.8% in 2004 to 27.1% in 2011. The latest data show postnatal care coverage of 38.9% in urban areas and 16.5% in rural areas (BDHS, 2011). Maternal Mortality Rate from 194/100000 live births to <143/1000000 live births, Neonatal Mortality Rate from 32/1000 live births to 21/1000 live births, Infant Mortality Rate from 43/1000 live births to 31/1000 live births, and Under Five Mortality Rate from 53/1000 live births to 48/1000 live births. These are all to be achieved by 2015 (BDHS, 2011, BD progress report, 2012).

Antenatal care (ANC) is one of the program to achieve the Millennium Development Goals 4 & 5. Antenatal care have to take complete physical check-up at regular intervals and early detection of deviation from the normal and their proper intervention or timely therapy. In addition counseling and advice of mother about various aspects like personal hygiene, nutrition, rest & sleep, travelling, birth spacing, place of delivery, exclusive breastfeeding, complementary feeding and postnatal care about their children. More over providing psychological and social support through patient hearing, suggestions for alleviation of fear and anxiety and referral to appropriate services solving any major problem faced by the women (Dutta, D.C., 2014). Maternal and neonatal morbidity and mortality is higher in the rural and urban slums due to lack of appropriate knowledge and practices among the mothers regarding their pregnancies and newborn care over the pregnancies and the postnatal period. Therefore, it is very important to identify the existing outcome of mothers awareness gained through antenatal care who are living both rural and urban area, whether the ANC services successful achieve or not. The findings of this study will help to formulate the strategies to develop the specific message to promote and sustain the program to achieve the Millennium Development goals 4 and 5.

OBJECTIVES OF STUDY

1. To assess the awareness of rural and urban mothers regarding antenatal care;
2. To determine the impact of awareness of rural and urban mothers regarding ANC;
3. To examine the relationship between the awareness and impact on ANC of mothers;
4. To determined the level of awareness and impact of antenatal care of the mothers.

RESEARCH QUESTIONS

1. What is the level of rural and urban mothers awareness on antenatal care?
2. What is the level of impact of rural and urban mothers awareness on antenatal care after delivery?

RESEARCH METHODOLOGY

1. Research design: This study was a descriptive cross sectional type of research design. The study was conducted from January 2020 to October, 2022.

2. Population and Setting

Population: The population of this study was Antenatal mothers and newborns.

Setting: This study was conducted at labour wards and Gynaecology wards of the Rajshani Medical College Hospital in Bangladesh. A large number of mothers were coming from different places to receive antenatal care, child birth and postnatal care. This study intended to examine the impact of rural and urban mother's awareness gained through antenatal care on mothers and newborn health.

3. Sample and Sampling

Sample and Sample size: The sample of this study was the antenatal mothers admitted to the labour and Gynecology wards of Rajshani Medical College Hospital. The sample size in this study was estimated by using formula (Daniel, 1991, Kothair, 1985).

$$n = \frac{Z^2 p(1-p)}{d^2}$$

Where n is sample size, Z = is the level of confidence or level of significance, d is the standard error, p is the proportion in the population possessing of interest. However, there are few prevalence studies in Bangladesh. It is estimated that average 45-50 mothers have to give childbirth per day. The 'p' is the proportion in the postpartum mother's which is obviously known. Since p = 0.5 in the formula yield the maximum value of 'n' and the sample will yield at least the designed precision. A 95% confidence interval (z = 1.96) with 0.05 standard error (d = 0.05) is desired in this study. Hence, the sample size is as follows:

$$n = \frac{(1.96)^2 (0.5)(0.5)}{(0.05)^2} = 384.16$$

However, the final sample size for data analysis in this study was 442 antenatal mothers. Among them 241 mothers from rural and 201 mothers from urban area as considered their living place. Determinant the living place: those mothers were living outside the Rajshani or far from Rajshani city, they are considered as rural mothers and those mothers were living within the Rajshani city or near the Rajshani city, they are considered as urban mothers.

3.1 Sample selection criteria

i. Inclusion criteria

- Mothers were delivered at least one day before;
- Agreed to participate;
- Both healthy and unhealthy mother;

ii. Exclusive criteria

- Mothers who disagree to participate in this study.

4. Sampling Method

Systematic random sampling method was used to recruit the eligible subjects in this study. Antenatal mothers who were given child birth before one day at antenatal and Gynacology wards and who were meet the selection criteria. Systematic random sampling were done by distribution of patients' bed i.e. two alternative bed selection to prevent bias. If the selected patient of the bed is unable to meet the selection criteria then next patient of the bed were included for sampling.

5. Research Instrument

Data were collected by using three questionnaires:

1) The Demographic data questionnaire,
2) The knowledge related questionnaire and
3) The Impact related questionnaire.

a) Demographic data questionnaire

The Demographic data questionnaire was designed by the researcher based on the literature review. It consisted of mothers' age, religion, educational level, occupation, monthly family income, living place, types of family, number of family member, number of children, gestational age and condition during pregnancy.

b) Awareness related questionnaire

Knowledge related questionnaire was developed by the researcher based on the literature review. It consisted of meaning of antenatal care, from where knew, where antenatal care provider, have taken antenatal care, importance of antenatal care, component of antenatal care, who advise to give antenatal care, antenatal care provider, number of

antenatal care received, advised about colostrums, who advised, meaning of colostrums, benefit of colostrums, advantages of breastfeeding, advised about breastfeeding and exclusive breastfeeding, who advised, length of exclusive breastfeeding, length of complementary feeding, advised about place of delivery, advised about antenatal care, advised about nutrition.

c) Impact related questionnaire

Impact related questionnaire was developed by the researcher based on the literature review. It consisted of place of delivery, who birth attendant, type of delivery, face any problem during child birth, cause of problem, age of newborn, birth weight of newborn, babies condition during birth, babies condition after birth, mothers condition during birth, mothers condition after birth, first feeding after birth, if colostrums when started, exclusive breastfeeding after birth.

6. Translation of the Instruments

The original instruments were developed in the English language. In this study, the English version instruments were translated into the bangali language. The method of translation was the back translation technique (Brislin, 1970). It is a translation process which ensures accuracy and the culturally equivalence of the instruments when translated to another language. Three bilingual translators who were fluent in both English and bangali translated the instruments (e.g., they were two medical physicians and one English editor). The process of back translation was conducted as follows.

1. The first bilingual translator translated the English version of instruments into the Bengali language.
2. The second bilingual translator back translated the instruments from the Bengali versions into the English language. This translation was unfamiliar with the original English version.
3. The third bilingual translator clarified and identified the differences in all items of two English versions.

After completion the back translation process, the researcher reviewed and compared both English versions. The researcher analyzed each item in details and revised based on the two translations. Then, the researcher modified the words of the instruments as needed in order to establish the same meaning within acceptable limits.

7. Validity and Reliability of the Instruments

- **Validity of the Instruments:**The content validity of the instruments (The Demographic data questionnaire, the knowledge related questionnaire and the Impact related questionnaire) in the original English version were validated by reviewing relevant data and information.
- **Reliability of the Instruments:**The researcher conducted a pilot study, using the Bengali version of the instruments with 30 postpartum mothers who had the same inclusion criteria as the subjects of this study. The purpose of the pilot study was to assess the readability and reliability of all the instruments (knowledge related and impact related questionnaires). The internal consistency and reliability of the knowledge related and impact related questionnaire were tested using Cronbach's alpha coefficient, with an acceptable level of at least 0.70 (Polit& Beck, 2008). In this study Cronbach's alpha coefficients were 0.738.

8. Data collection

Preparation Phase

Approval of the research proposal was given by the American Independent University, California. The researcher took written permission from the relevant authority to collect the data.

Data Collection Phase

1. After getting permission from the relevant authorities, the researcher met with the head nurse of antenatal and labor wards and explained the purpose of the study and data collection procedure.
2. Before collecting the data, the researcher approached the mothers who met the inclusion criteria, and introduced her-selves. She briefly explained the purpose of the study, the procedure for collecting data, and their rights about participating in the study.
3. The researcher asked mothers to sign an informed consent form that stated they had the right to refuse to participate in the study at any time.
4. The researcher gave the questionnaire to the mothers who decided to participate in this study. The researcher read the questions to the mothers 'word by word' and asked them to provide the answers in accordance with the questions being asked.
5. The researcher checked that the questionnaires had been completed.

9. Data analysis

Both descriptive and inferential statistics were used for analyzing the data. The descriptive statistics including frequencies, percentages, mean, and standard deviation were used for analyzing the demographic characteristics; awareness related and impact related data. The inferential statistics including chi-square test were used for analyzing the co-association between urban and rural mothers awareness. Correlation and one sample test with significant test was used for analyzing the relationship between demographic, awareness and impact of information.

RESULTS

The aims of this study was to examine the impact of rural and urban mothers awareness gained through antenatal care of which mothers admitted in the labour ward and postnatal wards of Rajshani Medical College Hospital for child birth. The sample size was 241 from rural mothers and 201 from urban mothers. A total of 442 mothers being used as sources of the data analyze in this study. The findings of this study are presented in three parts as figures and tables with brief explanation as follows:

Part I. Demographic characteristics of mothers
Part II. Awareness and impact of mothers about antenatal care
Part III. Relationship between Impact and Awareness of mothers on ANC andLevel of impact and awareness of mothers on ANC.

Part I. Demographic characteristics of mothers and newborns

The mean age of rural mothers was 24.82 ± 4.03 years and 24.68 ±4.5 years of urban mothers. The results showed, most 43.6% of rural mothers and 42.8% of urban mothers age group was 22-25 years.

Table 1 shows that the mean age of newborn was 2.21 ± 1.5 days rural & 2.6 ± 1.3 days urban. Most (41.55%) rural and (38.3%) urban newborn age was 3 days.

Table 1: Distribution of newborn by their age (Rural=241, Urban=201)

Age of newborn	Rural (N=241)		Urban (N=201)	
	Frequency	%	Frequency	%
2 days	71	29.5	72	35.8
3 days	100	**41.5**	77	**38.3**
4 days	37	15.4	27	13.4
5 days	9	3.7	5	2.5
6 days	3	1.2	4	2.0
>6 days	13	5.4	5	2.5
Stillborn	8	3.3	9	4.5
Death	-		2	1.0
Total	241	100	201	100

Mean age: 2.21 ± 1.5 days rural & 2.6 ± 1.3 days urban newborn

Table 2 and shows the mean education of rural mothers was 36.7 and 42.0 for urban mothers. Most rural mothers had a primary education (57.3%) and almost half of the urban had a primary level education (41.3%).

Table 2: Frequency and Percentage of Mothers Educational qualification

Mothers: Education level	Rural: N= 241		Urban: N=201	
	Frequency	%	Frequency	%
Illiterate	37	15.4	38	18.9
Primary School	138	57.3	83	41.3
Secondary School	51	21.2	48	23.9
Higher secondary	10	4.1	25	12.4
Bachelor degree	3	1.2	4	2.0
Masters	2	.8	3	1.5
Total	241	100	201	100

From the table 3 it was found that almost all of them were Muslim (80.5%) to the rural mothers and (87.1%) to the urban mothers. 19.5% rural mothers were Hindu, 12.4% urban mothers were Hindu and only 0.5% urban mothers were Christian.

Table 3: Religion of the Mothers

Religion	Rural: N= 241		Urban: N=201	
	Frequency	%	Frequency	%
Islam	194	80.5	175	87.1
Hindu	47	19.5	25	12.4
Christian	-	-	1	.5
Total	241	100	201	100

From the table 4 and it was found that 96.7%% rural mothers were House wife, 93.0%% urban mothers were House wife, 1.2%% rural mothers were Public service holder, 1.0%% urban mothers were Public service holder, 1.7%% rural mothers were NGO employees, 3.5%% urban mothers were NGO employees and 0.4%% rural mothers were Worker, 2.5%% urban mothers were Worker.

Table 4: Occupation of the Mothers

Occupation	Rural: N= 241		Urban: N=201	
	Frequency	%	Frequency	%
House wife	233	96.7	187	93.0
Public service	3	1.2	2	1.0
NGO	4	1.7	7	3.5
Worker	1	.4	5	2.5
Total	241	100	201	100

From the table 5 it was found that 64.7% rural and 56.7% urban mother's monthly family income were 5000-10000 taka.

Table 5: The average monthly family income was 7500 taka of mothers.

Family income	Rural		Urban	
<5000	25	10.4	12	6.0
5000-10000	154	64.7	114	56.7
11000-15000	41	17.0	47	23.4
16000-21000	10	4.1	18	9.0
21000-25000	3	1.2	4	2.0
>25000	6	2.5	6	3.0
Total	241	100	201	100

From the table 6 it was found that most (60.2%) rural mother's type family was joint and (67.2%) urban mother's types of family were nuclear. 39.8% rural mothers' family was nuclear type and 32.8% urban mothers' family was joint type.

Table 6: Type of Family of Mothers

Type of family	Rural: N= 241		Urban: N=201	
	Frequency	%	Frequency	%
Nuclear	96	39.8	135	67.2
Joint	145	60.2	66	32.8
Total	241	100	201	100

From the table 7 it was found that most (59.3%) rural mothers number of children was 2-3 and 50.2% urban mothers have less than 2 children. On the other hand 39.4% rural mothers had less than 2 children and 1.2% rural mothers had 4-5 children. 46.8% urban mothers had 2-3 children and 3.0% urban mothers had 4-5 children.

Table 7: Number of children

Number of Children	Rural: N= 241		Urban: N=201	
	Frequency	%	Frequency	%
<2 child	95	39.4	101	50.2
2-3 child	143	59.3	94	46.8
4-5 child	3	1.2	6	3.0
Total	241	100	201	100

From the table 8 it was found that 64.3% rural and 60.2% urban mother's family member were 4-6 persons. On the other hand 16.6% rural mothers' had less than 4 family members, 14.5% rural mothers had 7-9 family members and 4.6% rural mothers' had more than 9 family members. 30.8% urban mothers had less than 4 family members, 6.5% urban mothers had 7-9 family members and 2.5% urban mothers' had more than 9 family members.

Table 8: Number of family member

Number of family member	Rural: N= 241		Urban: N=201	
	Frequency	%	Frequency	%
<4 person	40	16.6	62	30.8
4-6 persons	155	64.3	121	60.2
7-9 persons	35	14.5	13	6.5
>9 persons	11	4.6	5	2.5
Total	241	100	201	100

From the table 9 it was found that regarding gestational age of mother maximum 84.6 rural and 76.6% urban mother's gestational age was term. On the other hand 14.5% rural mothers' gestational age were preterm and 0.8% rural mothers gestational age were post term. 22.4% urban mothers' gestational age were preterm and 0.8% urban mothers gestational age were post term.

Table 9: Gestational age of mother

Gestational age of mother	Rural: N= 241		Urban: N=201	
	Frequency	%	Frequency	%
Term	204	84.6	154	76.6
Preterm	35	14.5	45	22.4
Post term	2	.8	2	1.0
Total	241	100	201	100

From the table 10 it was found that most mothers had no complication (97.5) to the rural mothers and (98.0) to the urban mothers condition during pregnancy. On the other hand 2.5% rural mothers had complication during pregnancy and 2% urban mothers had complication during pregnancy.

Table 10: Condition during pregnancy

Condition during pregnancy	Rural: N= 241		Urban: N=201	
	Frequency	%	Frequency	%
No complication	235	97.5	197	98.0
Complication	6	2.5	4	2.0
Total	241	100	201	100

Part II. Awareness and Impact on antenatal care of mothers

Regarding the mother's awareness gained through antenatal care, most 91.3% rural mothers and 97.5% urban mothers knew about the meaning of antenatal care and only 8.7% rural and 2.5% urban mothers did not know about that. Among this areas both mothers knowledge statistically highly significant (p=000*** and 001***). Regarding the place of care provide most 93.8% rural and 90% urban mothers knew where antenatal care provide and whether or not taken of antenatal care majority 96.3% rural and 90.5% urban mothers were taken antennal care. Maximum 81.3% rural and 74.11% urban mothers knew that antenatal care is important for mother and children benefit but only 2.1% rural and 1% urban mothers didn't know about the important of antenatal care. Half of the mothers 58.5% rural and 51.2% urban mothers knew that examination is done when antenatal care provide. At the same time the less than half percent mothers knew about the component of antenatal care. But statistically only important of antenatal care moderately significant with the both mothers knowledge (p=.045**). But antenatal care provider statistically highly significant to both mothers (p=.009***) (table 11).

Regarding the antenatal visits half (51.5%) rural mothers had taken fourth ANC for the check up but urban mothers less than 50% fourth visit had taken during pregnancy. Maximum 90.9% rural and 86.1% urban mothers knew about colostrums, respectively most mothers (90.9% rural and 82.1% urban) knew about meaning of colostrums, benefit of colostrums. In this regards the mothers awareness were showing highly significant with who did counseling about colostrums and benefit of colostrums (p=.009*** and p=.001***) and moderately significant with meaning of colostrums (p=.011**). Regarding the advantages of breastfeeding maximum 93.4% rural and 84.1% urban mothers knew about the benefit of breastfeeding. On behalf of counseling of breastfeeding maximum 25.7% rural and 42.3% urban mothers said that they had counseled by the doctors. These two areas mothers awareness were statistically highly significant (p=.000***and p=.006***). At the same time maximum 92.9% rural and 86.60% urban mothers knew about the exclusive breastfeeding and also most (93.8%) rural and 85.5% urban mothers knew that the duration of exclusive breastfeeding is up to 6 months. But mothers awareness statistically highly significant with who told about exclusive breastfeeding? (p=.001***) (Table 11).

Regarding the complementary feeding maximum 87.6% rural and 84.6% urban mothers knew that complementary feeding should start after 6 months and more than half (57.3%) rural and 60.2% urban mothers knew that breastfeeding continue with complementary up to 24 months. Statistically mothers awareness were showing highly significant with who told about complementary feeding (p=.000***) and moderately significant with breastfeeding continue with complementary feeding up to (p=.040**). Regarding advised on extra nutrition, maximum 75.5% rural and 73.6% urban mothers said that they had advised about extra nutrition during ANC and mostly 68% rural & 62.2% urban mothers knew that extra food need for mother and babies good health. More food intake during pregnancy maximum 54.4% rural and 52.7% urban mothers told that they ate rice, dal, meat, fish, egg, milk and vegetables. And mostly mothers 78.8% rural and 66.6% urban knew that anemia, low birth weight and illness are the more common problem due to less food intake. Regarding the advised on place of delivery maximum 91.7% rural and 94.5% urban mothers said that they received information about place of delivery; respectively 84.2% rural and 94.7% urban mothers said that they advised about hospital delivery. Regarding postnatal care (PNC) maximum 78.4% rural and 69.7% urban mothers said that they advised about PNC during pregnancy (Table 11).

Awareness about antenatal care

Whether the respondents know or don't know about meaning of antenatal care has shown in the table and graph. From the result it was found that in rural areas 91.3% respondents know about meaning of antenatal care but 8.7% respondents don't know about meaning of antenatal care. On the other hand in urban areas 97.5% respondents know about meaning of antenatal care but 2.5% respondents don't know about meaning of antenatal care.

Table 11: Meaning of antenatal care

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Know	220	91.3	196	97.5	p=.000***
Don't know	21	8.7	5	2.5	X^2=15.90
Total	241	100	201	100	

From where knew about antenatal care has shown in the table 12 and graph 12. From the result it was found that in case of rural areas 43.2% respondents replied that they knew from relatives which was maximum about antenatal care but in case of urban areas 39.8% respondents replied that they knew from relatives which was maximum about antenatal care.

Table 12: From where knew about antenatal care

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Relatives	104	43.2	80	39.8	
Neighbor and relatives	60	24.9	55	27.4	
Relative and media	22	9.1	23	11.4	p=.008***
Media	14	5.8	18	9.0	X^2=19.12
Neighbor	41	17.0	25	12.4	
Total	241	100	201	100	

Place of antenatal care providing has shown in the table 13. From the result it was found that in case of rural areas 93.8% respondents know about place of antenatal care providing but 8.7% respondents don't know about meaning of antenatal care. On the other hand in urban areas 97.5% respondents know about place of antenatal care providing but 2.5% respondents don't know about meaning of antenatal care.

Table 13: Place of antenatal care providing

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Know	226	93.8	181	90.0	p=.079
Not know	15	6.2	20	10.0	X^2=3.09
Total	241	100	201	100	

Whether taken antenatal care has shown in the table 14. From the result it was found that in case of rural areas 96.3% respondents taken antenatal care and 3.7% did not take antenatal care. On the other hand in case of urban areas 90.5% respondents taken antenatal care and 9.5% did not take antenatal care.

Table 14: Whether taken antenatal care

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Yes	232	96.3	182	90.5	P=.280
No	9	3.7	19	9.5	X^2= 1.16
Total	241	100	201	100	

Importance of antenatal care has shown in the table 15. From the result it was found that in case of rural areas 81.3% respondents replied that antenatal care is important for mother and child benefit which was maximum. But in case of urban areas 74.1% respondents replied that antenatal care is important for mother and child benefit which was maximum.

Table 15: Importance of antenatal care

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Mother and child benefit	196	81.3	149	74.1	
Child benefit	32	13.3	45	22.4	
Mother benefit	3	1.2	1	.5	p=.139
Child and family benefit	5	2.1	4	2.0	X^2=9.67
Don't know	5	2.1	2	1.0	
Total	241	100	201	100	

Reason of going Hospital/Clinic has shown in the table 16. From the result it was found that in case of rural areas 58.5% respondents replied that they go to Hospital/Clinic for examination which was maximum. But in case of urban areas 51.2% respondents replied that they go to Hospital/Clinic for examination which was maximum.

Table 16: Reason of going Hospital/Clinic

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
For examination	141	58.5	103	51.2	p=.253 X^2=4.08
For investigation	94	39.0	95	47.3	
Don't know	6	2.5	3	1.5	
Total	241	100	201	100	

Component of antenatal care has shown in the table 17. From the result it was found that in case of rural areas 37.3% respondents replied that full physical care is component of antenatal care which was maximum. But in case of urban areas 51.2% respondents replied that component of antenatal care is advice and counseling which was maximum.

Table 17: Component of antenatal care

Component of antenatal care	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Advise and counseling	90	37.3	78	38.8	p=.427 X^2=2.78
Full physical care	99	41.1	70	34.8	
Investigation	45	18.7	51	25.4	
Don't know	7	2.9	2	1.0	
Total	241	100	201	100	

Person advice about antenatal care has shown in the table 18. From the result it was found that in case of rural areas 30.3% respondents replied that they received antenatal care related advice from Doctor which was maximum. But in case of urban areas 36.8% respondents replied that they received antenatal care related advice from Doctor which was maximum.

Table 18: Person adviced about antenatal care

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Doctor	73	30.3	74	36.8	p=.309 X^2=8.27
Nurse	17	7.1	15	7.5	
Relatives	62	25.7	53	26.4	
FWV	57	23.7	36	17.9	
Doctor and nurse	10	4.1	14	7.0	
Doctor and FWV	16	6.6	7	3.5	
No body	6	2.5	2	1.0	
Total	241	100	201	100	

Antenatal care provider has shown in the table 19. From the result it was found that in case of rural areas 30.7% respondents replied that Doctor was antenatal care provider which was maximum. But in case of urban areas 34.3% respondents replied that Doctor, Doctor and nurse were antenatal care provider which was maximum.

Table 19: Antenatal care provider

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Doctor	74	30.7	69	34.3	p=.038*** X^2=16.35
Nurse	5	2.1	8	4.0	
Doctor and nurse	68	28.2	69	34.3	
Doctor, nurse and FWV	18	7.5	16	8.0	
FWV	41	17.0	22	10.9	
Doctor and FWV	24	10.0	12	6.0	
Nurse and FWV	6	2.5	3	1.5	
No body	5	2.1	2	1.0	
Total	241	100	201	100	

Number of antenatal care visit has shown in the table 20. From the result it was found that in case of rural areas 51.5% respondents replied that they took four antenatal care visits which was maximum. But in case of urban areas 47.8% respondents replied that they took four antenatal care visits which was maximum.

Table 20: Number of antenatal care visit

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
One visit	11	4.6	17	8.5	p=.07* X^2=10.15
Two visit	56	23.2	40	19.9	
Three visit	35	14.5	24	11.9	
Fourth visit	124	51.5	96	47.8	
More than fourth visit	9	3.7	22	10.9	
No visit	6	2.5	2	1.0	
Total	241	100	201	100	

If ANC visit less than fourth visit attended, reason has shown in the table 21. From the result it was found that in case of rural areas 66.6% respondents replied that they took less than four antenatal care visits for money problem which was maximum. But in case of urban areas 43.2% respondents replied that they took less than four antenatal care visits for money problem and for no opportunity which was maximum.

Table 21: If ANC visit less than fourth visit attended, reason

Answer given by the mothers	Rural		Urban		X^2 Test
	Frequency	%	Frequency	%	
Money problem	72	66.6	35	43.2	p=.013** X^2=14.53
No opportunity	23	21.3	35	43.2	
No time	5	4.6	5	7.46.2	
Far from home	8	7.4	6	7.4	
Total	108	100	81	100	

If no one visit attended, reasons has shown in the table 22. From the result it was found that all the respondents took no one antenatal care visit due to lack of money or money problem.

Table 22: If no one visit attended, reasons

Answer given by the mothers	Rural		Urban		X^2 Test
	Frequency	%	Frequency	%	
Money problem	6	100.0	2	100.0	p=.435 X^2=1.66

Whether the respondents receive any information about colostrums has shown in the table 23. From the result it was found that in case of rural areas 90.9% respondents replied that they took any information about colostrums which was maximum. But in case of urban areas 86.1% respondents replied that they took any information about colostrums which was maximum.

Table 23: Whether the respondents receive any information about colostrums

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Yes	219	90.9	173	86.1	p=.585 X^2=0.298
No	22	9.1	28	13.9	
Total	241	100	201	100	

Meaning of colostrums has shown in the table 24. From the result it was found that in case of rural areas 90.9% respondents replied that they know about colostrums which was maximum. But in case of urban areas 92.5% respondents replied that they don't know about colostrums which was maximum.

Table 24: Meaning of colostrums

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Know	219	90.9	186	92.5	p=.03** X^2=6.84
Don't know	22	9.1	15	7.5	
Total	241	100	201	100	

Counseling persons about colostrums has shown in the table 25. From the result it was found that in case of rural areas 33.6% respondents replied that Doctor was counseling person about colostrums which was maximum. But in case of urban areas 47.8% respondents replied that Doctor was counseling person about colostrums which was maximum.

Table 25: Counseling persons about colostrums

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Doctor	81	33.6	96	47.8	p=.016** X^2=15.66
Nurse	21	8.7	23	11.4	
Doctor and nurse	47	19.5	28	13.9	
Relative	32	13.3	24	11.9	
FWV	29	12.0	13	6.5	
Doctor and FWV	14	5.8	6	3.0	
No body	17	7.1	11	5.5	
Total	241	100	201	100	

Knowledge about benefit of colostrums has shown in the table 26. From the result it was found that in case of rural areas 90.9% respondents replied that they know about benefit of colostrums which was maximum. But in case of urban areas 94.5% respondents replied that they don't know about benefit of colostrums which was maximum.

Table 26: Knowledge about benefit of colostrums

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Know	217	90.0	180	94.5	p=.002*** X^2=12.25
Don't know	24	10.0	11	5.5	
Total	241	100	201	100	

Knowledge about advantages of breastfeeding has shown in the table 27. From the result it was found that in case of rural areas 93.4% respondents replied that they know about advantages of breastfeeding which was maximum. But in case of urban areas 95% respondents replied that they don't know about advantages of breastfeeding which was maximum.

Table 27: Knowledge about advantages of breastfeeding

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Know	225	93.4	191	95.0	p=.007*** X^2=9.97
Don't know	16	6.6	10	5.0	
Total	241	100	201	100	

Counseling person about breastfeeding has shown in the table 28. From the result it was found that in case of rural areas 25.7% respondents replied that Doctor was counseling person about breastfeeding which was maximum. But in case of urban areas 42.3% respondents replied that Doctor was counseling person about breastfeeding which was maximum.

Table 28: Counseling person about breastfeeding

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Doctor	62	25.7	85	42.3	p=.000*** X^2=35.23
Nurse	45	18.7	27	13.4	
Doctor and nurse	60	24.9	32	15.9	
Relatives	21	8.7	20	10.0	
FWV	34	14.1	14	7.0	
Nurse and relative	6	2.5	5	2.5	
Doctor and FWV	13	5.4	9	4.9	
Total	241	100	201	100	

Whether advised about exclusive breastfeeding has shown in the table 29. From the result it was found that in case of rural areas 92.9% respondents replied that they advised about exclusive breastfeeding which was maximum. But in case of urban areas 86.6% respondents replied that they advised about exclusive breastfeeding which was maximum.

Table 29: Whether advised about exclusive breastfeeding

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Yes	224	92.9	174	86.6	p=.839 X^2=.041
No	17	7.1	27	13.4	
Total	241	100	201	100	

If answer is yes, telling person about exclusive breast feeding has shown in the table 30. From the result it was found that in case of rural areas 22.4% respondents replied that Doctor was counseling person about exclusive breastfeeding which was maximum. But in case of urban areas 36.3% respondents replied that Doctor was counseling person about exclusive breastfeeding which was maximum.

Table 30: If answer is yes, telling person about exclusive breast feeding

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Doctor	54	22.4	73	36.3	
Nurse	33	13.7	29	14.4	
Doctor and nurse	46	19.1	42	20.9	
Relatives	14	5.8	13	6.5	
FWV	47	19.5	19	9.5	p=.004***
Doctor and FWV	18	7.5	8	4.0	X^2 =20.83
Nurse and FWV	12	5.0	8	4.0	
No body	17	7.1	9	4.5	
Total	241	100	201	100	

Duration of Exclusive breastfeeding has shown in the table 31. From the result it was found that in case of rural areas 93.8% respondents replied that 6 months was the duration of exclusive breastfeeding which was maximum but in case of urban areas 85.6% respondents replied that 6 months was the duration of exclusive breastfeeding which was maximum.

Table 31: Duration of Exclusive breastfeeding

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
6 months	226	93.8	172	85.6	
3-5 months	2	.8	20	10.0	p=.359
Don't know	13	5.4	9	4.5	X^2=2.05
Total	241	100	201	100	

Counseling person about complementary feeding has shown in the table 32. From the result it was found that in case of rural areas 20.7% respondents replied that Doctor was counseling person about complementary feeding which was maximum. But in case of urban areas 33.3% respondents replied that Doctor was counseling person about complementary feeding which was maximum.

Table 32: Counseling person about complementary feeding

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Doctor	50	20.7	67	33.3	
Nurse	30	12.4	37	18.4	
Doctor and nurse	45	18.7	40	19.9	
FWV	48	19.9	19	9.5	
Nurse and FWV	10	4.1	10	5.0	
Relatives	17	7.1	8	4.0	p=.000***
Doctor and FWV	15	6.2	4	2.0	X^2 =59.37
Nurse and relatives	3	1.2	3	1.5	
Media	9	3.7	4	2.0	
No body	14	5.8	9	4.5	
Total	241	100	201	100	

Starting time of complementary feeding has shown in the table 33. From the result it was found that in case of rural areas 87.6% respondents replied that after 6 months was starting time of complementary feeding which was maximum.But in case of urban areas 84.6% respondents replied that after 6 months was starting time of complementary feeding which was maximum.

Table 33: Starting time of complementary feeding

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
After 4-5 months	3	1.2	18	8.9	
After 6 months	211	87.6	170	84.6	
More than 6 months	15	6.2	6	3.0	p=.654
Don't know	12	5.0	7	3.5	X^2=1.62
Total	241	100	201	100	

Breastfeeding continued with complementary feeding has shown in the table 34. From the result it was found that in case of rural areas 57.3% respondents replied that breastfeeding continued with complementary feeding up to 24 months which was maximum. But in case of urban areas 60.2% respondents replied that breastfeeding continued with complementary feeding up to 24 months which was maximum.

Table 34: Breastfeeding continued with complementary feeding

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
6 months	2	.8	9	4.5	p=.178 X^2=10.20
12 months	4	1.7	9	4.5	
18 months	21	8.6	17	8.5	
24 months	138	57.3	121	60.2	
3 years	66	27.4	38	18.9	
4 years	7	2.9	3	1.5	
Don't know	3	1.2	4	2.0	

Whether mother was advised about extra nutrition during ANC has shown in the table 35 From the result it was found that in case of rural areas 75.5% respondents replied that mother was advised about extra nutrition during ANC. But in case of urban areas 73.6% respondents replied that mother was advised about extra nutrition during ANC.

Table 35: Whether mother was advised about extra nutrition during ANC

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Yes	182	75.5	148	73.6	p=.310 X^2=2.34
No	59	24.5	53	26.4	
Total	241	100	201	100	

If answer is yes, reasons have shown in the table 36. From the result it was found that in case of rural areas 90.1% respondents replied that extra nutrition during ANC is needed for mother & baby good health which was maximum. But in case of urban areas 69.6% respondents replied that extra nutrition during ANC is needed for mother & baby good health which was maximum.

Table 36: If answer is yes (reason of extra nutrition during ANC)

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Mother & baby good health	164	90.1	135	69.6	p=.474 X^2=4.54
Baby s good health	13	7.1	27	13.9	
Mothers good health	6	3.3	31	15.9	
Able to eat	1	.5	1	.5	
Total	241	100	201	100	

Food should intake more during pregnancy has shown in the table 37. From the result it was found that in case of rural areas 54.4% respondents replied that rice, dal & fruits should intake more during pregnancy which was maximum. But in case of urban areas 69.6% respondents replied that rice, dal & fruits should intake more during pregnancy which was maximum.

Table 37: Food should intake more during pregnancy

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Rice, dal & fruits	131	54.4	106	52.7	p=.376 X^2=6.43
Rice, dal, meat, egg, milk vegetable	68	28.2	68	33.8	
Rice, dal, fish & vegetables	34	14.1	17	8.5	
Rice, dal, fruits, milk & vegetables	8	3.3	10	4.9	
Total	241	100	201	100	

Problems ariseif extra food not taken during pregnancy has shown in the table 38. From the result it was found that in case of rural areas 78.8% respondents replied that LBW, anaemia& Illness will arise if extra food not taken during pregnancy which was maximum. But in case of urban areas 68.6% respondents replied that LBW, anaemia& Illness will arise if extra food not taken during pregnancy which was maximum.

Table 38: Problems ariseif extra food not taken during pregnancy

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Aneamia and abnormal baby	22	9.1	30	14.9	
LBW & death	5	2.1	4	2.0	
LBW, anaemia& Illness	190	78.8	138	68.6	p=.244
LBW, anaemia& V/bleedin.	7	2.9	15	7.4	X^2=12.65
Don't know	17	7.1	14	6.9	
Total	241	100	201	100	

Whether advised get about place of delivery during ANC has shown in the table 39. From the result it was found that in case of rural areas 91.7% respondents replied that they got advice got about place of delivery during ANC which was maximum. But in case of urban areas 94.5% respondents replied that they got advice got about place of delivery during ANC which was maximum.

Table 39: Whether advice got about place of delivery during ANC

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Yes	221	91.7	190	94.5	p=.000
No	20	8.3	11	5.5	X^2=17.47
Total	241	100	201	100	

If answer is yes, name of receiving ANC has shown in the table 40. From the result it was found that in case of rural areas 84.2% respondents replied that they received ANC from hospital. But in case of urban areas 94.7% respondents replied that they received ANC from hospital. On the other hand in case of rural areas 15.8% respondents replied that they received ANC from home with TBA. But in case of urban areas 15.8% respondents replied that they received ANC from home with TBA.

Table 40: If answer is yes, name of receiving ANC

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Hospital	186	84.2	180	94.7	p=.000
Home with TBA	35	15.8	10	5.3	X^2=270.0
Total	241	100	201	100	

Advice got about PNC during ANC has shown in the table 41. From the result it was found that in case of rural areas 78.4% respondents replied that they got advices about PNC during ANC. But in case of urban areas 69.7% respondents replied that they got advices about PNC during ANC. On the other hand in case of rural areas 21.6% respondents replied that they did not get advices about PNC during ANC. But in case of urban areas 30.3% respondents replied that they did not get advices about PNC during ANC.

Table 41: Advice got about PNC during ANC

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Yes	189	78.4	140	69.7	p=.020
No	52	21.6	61	30.3	X^2=5.401
Total	241	100	201	100	

Part II. Impact of mother's awareness about antenatal care on mothers and newborn health

The following tables showing that regarding the place of delivery, maximum 94.2% rural and 92% urban mothers said that they had delivered in the hospital and most 95% rural and 92.5% urban mothers was delivered by the doctors and nurses. Most of them 79.3% rural and 75.6% urban mothers had caesarean section and only 20.7% rural and 24.4% had normal vaginal delivery. Impacts of mothers awareness statistically moderate significant with the place of delivery and birth attendant (p=.016** and p=.018**). Regarding the problem during child birth maximum 76.8% rural and 77.1% urban mothers did not face any problem, only 23.2% rural and 22.9% urban mothers had some problems during child birth and most of the problem was delayed labour.Regarding the weight of newborn maximum 76.4% rural and 75.8% urban babies birth weight were within normal (2.5-3 kg). In addition maximum 86.7% rural and 89.5% urban babies condition was good during birth and after birth of the newborn the condition were also good respectively 89.7% rural and 92.6% urban babies. Impacts of mothers awareness were showing statistically highly significant with babies condition during and after birth (p=.001*** and p=.001***) (Table 12).

About mothers condition maximum 79.3% rural and 80.6% urban mothers condition was good during child birth and only 20.7% rural and 19.4% urban mothers were poor during child birth and 83.8% rural and 88.1% urban mothers condition was good after child birth. Regarding the feeding of new born maximum 87.5% rural & 82.1% urban babies first feeding was colostrums, but only 8.5% rural and 8.9% urban babies initiation of first breastfed within one hour. respectively 49.3% rural and 55.2% urban babies first colostrums was given within 2 hours after birth but 11.6% rural and 17.9% urban babies first feed was prelacteal feed. Regarding exclusive breastfeeding maximum 88.4% rural and 91.1% urban babies had exclusively breastfeeding. Impacts of mothers awareness shows statistically highly significant with first feeding, colostrums and exclusive breast feeding (p=.000***, p=.000*** and p=.000***) (Table 12).

Impact of mother's awareness on ANC

Place of delivery has shown in the table 42. From the result it was found that in case of rural areas 94.2% respondents replied that place of delivery was Hospital which was maximum. But in case of urban areas 92.0% respondents replied that that place of delivery was Hospital which was maximum.

Table 42: Place of delivery

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Hospital	227	94.2	185	92.0	p=.217 X^2=4.44
Home	12	5.0	4	2.0	
Clinic	2	.8	12	6.0	
Total	241	100	201	100	

Name of birth attendant has shown in the table 43. From the result it was found that in case of rural areas 95.0% respondents replied that Doctor and nurse was birth attendant which was maximum. But in case of urban areas 92.5% respondents replied that Doctor and nurse was birth attendant which was maximum.

Table 43: Name of birth attendant

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Doctor and nurse	229	95.0	186	92.5	p=.120 X^2=4.23
Doctor	12	5.0	14	7.0	
FWV	-		1	.5	
Total	241	100	201	100	

Type of delivery has shown in the table 44. From the result it was found that in case of rural areas 20.7% respondents replied that they gave normal vaginal delivery but in case of urban areas 24.4% respondents replied that they gave normal vaginal delivery. On the other hand in case of rural areas 79.3% respondents replied that they gave caesarean section delivery but in case of urban areas 75.6% respondents replied that they caesarean section delivery.

Table 44: Type of delivery

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Normal vaginal delivery	50	20.7	49	24.4	p=.345 X^2=3.318
Caesarean section	191	79.3	152	75.6	
Total	241	100	201	100	

Problems faced during child birth have shown in the table 45. From the result it was found that in case of rural areas 23.2% respondents faced problems during child birth but in case of urban areas 22.9% respondents faced problems during child birth. On the other hand in case of rural areas 76.8% respondents did not face problems during child birth but in case of urban areas 77.1% respondents did not face problems during child birth.

Table 45: Problems faced during child birth

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Yes	56	23.2	46	22.9	p=.090 X^2=.70
No	185	76.8	155	77.1	
Total	241	100	201	100	

If answer is yes name of faced problems has shown in the table 46. From the result it was found that in case of rural areas 44.6% respondents faced delayed labour which was maximum. On the other hand in case of urban areas 47.8% respondents faced delayed labour which was maximum.

Table 46: If answer is yes name of faced problems

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Delayed labour	25	44.6	22	47.8	p=.031** X ^{2}=15.41
Perineal tear	13	23.3	9	19.6	
Delayed &perineal tear	10	17.8	4	8.7	
Still birth	8	14.2	9	19.6	
Death	0	0	2	4.3	
Total	241	100	201	100	

Birth weight of new born has shown in the table 47. From the result it was found that in case of rural areas 76.4% respondents replied that birth weight of their new born were 2.5-3 Kg which was maximum. On the other hand in case of urban areas 47.8% respondents replied that birth weight of their new born were 2.5-3 Kg which was maximum.

Table 47: Birth weight of new born

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
<2.5 kg	38	16.3	27	14.2	p=.516 X ^{2}=6.20
2.5 -3 kg	178	76.4	144	75.8	
3-4 kg	17	7.3	19	10.0	
Total	241	100	201	100	

Babies' condition during birth has shown in the table 48. From the result it was found that in case of rural areas 86.7% respondents replied that babies condition during birth was good. But hand in case of urban areas 89.5% respondents replied that babies condition during birth was good.

Table 48: Babies' condition during birth

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Poor	31	13.3	20	10.5	p=.001*** X ^{2}=21.53
Good	202	86.7	170	89.5	
Total	241	100	201	100	

Babies' condition after birth has shown in the table 49. From the result it was found thatin case of rural areas 89.7% respondents replied that babies condition after birth was good. But hand in case of urban areas 92.6% respondents replied that babies condition after birth was good.

Table 49: Babies' condition after birth

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Poor	24	10.3	14	7.4	p=.001*** X ^{2}=21.94
Good	209	89.7	176	92.6	
Total	241	100	201	100	

Mothers condition during child birth has shown in the table 50. From the result it was found that in case of rural areas 79.3% respondents replied that mothers condition during child birth was good. But hand in case of urban areas 80.6% respondents replied that mothers condition during child birth was good.

Table 50: Mothers condition during child birth

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Poor	50	20.7	39	19.4	p=.825 X ^{2}=.38
Good	191	79.3	162	80.6	
Total	241	100	201	100	

Mothers' condition after child birth has shown in the table 51. From the result it was found that in case of rural areas 83.8% respondents replied that mothers condition after child birth was good. But hand in case of urban areas 88.1% respondents replied that mothers condition after child birth was good.

Table 51: Mothers' condition after child birth

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Poor	39	16.2	24	11.9	p=.446
Good	202	83.8	177	88.1	X^2=1.61
Total	241	100	201	100	

First feeding after child birth has shown in the table 52. From the result it was found that in case of rural areas 87.5% respondents replied that mothers firstly feed colostrums to their child after child birth. But hand in case of urban areas 82.1% respondents replied that mothers firstly feed colostrums to their child after child birth.

Table 52: First feeding after child birth

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Colostrum	204	87.5	156	82.1	
Prelacteal feed	27	11.6	34	17.9	p=.000***
No feed	2	.8	-	-	X^2=22.14
Total	241	100	201	100	

Time of colostrums starting has shown in the table 53. From the result it was found thatin case of rural areas 49.3% respondents replied that mothers started to feed colostrums to their child after child birth within 2 hours which was maximum. But hand in case of urban areas 55.2% respondents replied that mothers started to feed colostrums to their child after child birth within 2 hours which was maximum.

Table 53: Time of colostrums starting

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Within one hour	20	8.5	17	8.9	
Within 2 hours	115	49.3	105	55.2	
3-4 hours	56	24.1	33	17.3	p=.000***
>4 hours	39	16.7	35	18.4	X^2=27.16
No feed	3	1.3	-	-	
Total	241	100	201	100	

Whether exclusive breast feeding start after birth has shown in the table 54. From the result it was found that in case of rural areas 88.4% respondents replied that mothers started exclusive breast feeding after child birth which was maximum. But hand in case of urban areas 91.1% respondents replied that that mothers started exclusive breast feeding after child birth which was maximum.

Table 54: Whether exclusive breast feeding start after birth

Answer given by the mothers	Rural: N= 241		Urban: N=201		X^2 Test
	Frequency	%	Frequency	%	
Yes	206	88.4	173	91.1	
No	24	10.3	17	8.9	p=.000***
No feed	3	1.3	-		X^2=22.64
Total	241	100	201	100	

Descriptive Statistics of Mothers Awareness and Impact score on ANC.

Table 55 shows the descriptive statistics of each independent variable and a dependent variable. The mean score of the rural mothers awareness was 18.55 (SD=2.77). The highest and lowest scores were 2.00 and 22.00 respectively and the mean impact score was 9.39 (SD=2.14). The highest and lowest scores were 2.00 and 12.00 respectively. On the other the mean score of the urban mothers awareness was 19.69 (SD=2.16). The highest and lowest scores were 2.00 and 22.00 respectively and the mean impact score was 9.39 (SD=2.25). The highest and lowest scores were 2.00 and 12.00 respectively. The mean score of all mothers awareness was19.07 (SD=2.57). The highest and lowest scores were 2.00 and 22.00 respectively and the mean impact score was 9.40 (SD=2.18).

Table 55: Descriptive Statistics of Mothers Awareness and Impact score on ANC

Items	M	SD	Median	Min	Max	Skewness	Kutosis
Rural mothers (N=241)							
Awareness Score	18.55	2.77	19.00	2.00	22.00	-2.82	10.46
Impact Score	9.39	2.14	10.00	2.00	12.00	-1.39	1.60
Urban (N=201							
Awareness Score	19.69	2.16	20.00	10.00	22.00	-2.07	5.76

Impact Score	9.39	2.25	10.00	2.00	12.00	-1.67	2.30
All mothers (N=442)							
Awareness Score	19.07	2.57	20.00	2.00	22.00	-2.61	9.99
Impact Score	9.40	2.18	10.00	2.00	12.00	-1.54	1.99

Table 56 shows the descriptive statistics of each independent variable and a dependent variable. The mean percentage of the rural mothers awareness was 84.30 (SD=12.61). The highest and lowest percentages were 100.00 and 9.09 respectively and the mean impact was 78.42 (SD=17.76). The highest and lowest percentages were 100.00 and 16.67 respectively. On the other the mean percentage of the urban mothers awareness was 89.52 (SD=9.84). The highest and lowest percentages were 100.00 and 45.45 respectively. The mean percentage of impact was 78.31 (SD=18.78). The highest and lowest percentages were 100.00 and 16.67 respectively. The mean percentage of all mothers awareness was 86. 68 (SD=11.71). The highest and lowest percentages were 100.00 and 9.09 respectively and the mean percentage of impact was 78.37 (SD=2.18). The highest and lowest percentages were 100.00 and 16.67 respectively.

Table 56: Descriptive Statistics of Mothers Awareness and Impact score as percentage on ANC.

Items	M	SD	Median	Min	Max	Skewness	Kutosis
Rural mothers (N=241)							
Awareness Score (%)	84.30	12.61	86.36	9.09	100.00	-2.82	10.47
Impact Score (%)	78.42	17.76	83.33	16.67	100.00	-1.41	1.71
Urban (N=201)							
Awareness Score (%)	89.52	9.84	90.90	45.45	100.00	-1.67	2.30
Impact Score (%)	78.31	18.78	83.33	16.67	100.00	-1.67	2.30
All mothers (N=442)							
Awareness Score (%)	86.68	11.71	90.90	9.09	100.00	-2.61	9.99
Impact Score (%)	78.37	18.21	83.33	16.67	100.00	-1.54	1.99

Part III. Relationship between Impact and Awareness of mothers gained through antenatal care on mothers and newborn health.

Table 57 shows the result of chi-square test for different level of score of rural mothers by their demographic data. The total score is classified into 3 levels, ranging from a minimum of 2 to maximum of 22 according to the number of correct answers given. The awareness score of mothers was 18.55 (SD=2.77) on average out of 22 questions, which is calculated as 84.3% achievement. Monthly family income, number of family member and number of children were found to be highly correlated (p=.000***, .009***, .000***) respectively with the awareness of rural mothers. But the age, education and gestational age of rural mothers did not found significant (p=.557, .997, 1.00) with the awareness on ANC.

Table 57: Matrix distribution of rural mothers demographic data by awareness score by (N=241)

Answered	Score (2-8)	Score (9-15)	Score (16-22)	Significant p value
Age				
18-21 years	1 (1.8)	8 (14.3)	47 (83.9)	P=.557
22-25 years	1 (.9)	3 (2.8)	101 (96.2)	
26-29 years	1 (1.4)	6 (8.2)	66 (90.4)	
30-33 years	0	2 (33.3)	4 (66.7)	
Above 33 years	0	0	1 (100.0)	
Education				
Illiterate	1 (2.7)	2 (5.4)	34 (91.9)	P=.997
Primary	2 (1.4)	12 (8.7)	124 (89.9)	
SSC	0	5 (9.8)	46 (90.2)	
HSC	0	0	10 (100.0)	
Bachelor Degree	0	0	3 (100.0)	
Master Degree	0	0	2 (100.0)	
Monthly income				
Less than 5000 Taka	1 (4.0)	7 (28.0)	17 (68.0)	P=.000***
5000-10000 Taka	2 (1.3)	9 (5.8)	145 (92.9)	
11000-15000 Taka	0	3 (7.3)	38 (92.7)	
16000-20000 Taka	0	0	10 (100.0)	
21000-250000 Taka	0	0	3 (100.0)	
Above 25000 Taka	0	0	6 (100.0)	
Number of family member				
Less than 4 person	1 (2.5)	0	39 (97.5)	P=.009***
4- 6 person	2 (1.3.0)	10 (6.5)	143 (92.3)	

7-9 person	0	7 (20.0)	28 (80.0)	
Above 9 person	0	2 (18.2)	9 (81.8)	
Number of children				
Less than 2 child	1 (1.1)	8 (8.4)	86 (90.5)	P=.000***
2-3	2 (1.4)	11 (7.7)	130 (90.9)	
4-5	0	0	3 (100.0)	
Gestational age				
Term	3 (1.5)	16 (7.8)	185 (90.7)	P=1.00
Preterm	0	3 (8.6)	32 (91.4)	
Post-term	0	0	2 (100.0)	

Table 58 shows the result of chi-square test for different level of score of urban mothers by their demographic data. The total score is classified into 3 levels, ranging from a minimum of 10 to maximum of 22 according to the number of correct answers given. The awareness score of urban mothers was 19.69 (SD=2.16) on average out of 22 questions, which is calculated as 89.52% achievement. This section age was found highly significant correlated (p=.000***) with the urban mothers awareness. Monthly family income also found correlated (p=.093*) with the awareness of urban mothers. But number of children, education and gestational age did not found significant (p=.405, .556, 1.00) with the urban mothers awareness on ANC.

Table 58: Matrix distribution of urban mothers demographic data by awareness score on ANC(N=201)

Answered	Score (10-13)	Score (14-17)	Score (18-22)	Significant p value
Age				
18-21 years	1 (5.3)	0	18 (94.7)	.000***
22-25 years	4 (2.4)	45 (27.2)	118 (71.5)	
26-29 years	0	2 (50.0)	2 (50.0)	
30-33 years	0	1 (50.0)	1 (50.0)	
Above 33 years	11 (100.0)	0	0	
Education				
Illiterate	3 (7.9)	6 (15.8)	29 (76.3)	P=.556
Primary	4 (4.8)	6 (7.2)	73 (88.0)	
SSC	0	1 (2.1)	47 (97.9)	
HSC	0	0	25 (100.0)	
Bachelor Degree	0	0	4 (100.0)	
Master Degree	0	0	3 (100.0)	
Monthly income				
Less than 5000 Taka	2 (16.7)	3 (25.0)	7 (58.3)	.093*
5000-10000 Taka	5 (4.4)	8 (7.0)	101 (88.6)	
11000-15000 Taka	0	1 (2.1)	46 (97.9)	
16000-20000 Taka	0	1 (5.6)	17 (94.4)	
21000-250000 Taka	0	0	6 (100.0)	
Above 25000 Taka				
Number of family member				P=.409
Less than 4 person	0	3 (4.8)	59 (95.1)	
4- 6 person	7 (5.8)	7 (5.8)	107 (88.4)	
7-9 person	0	2 (15.4)	11 (84.6)	
Above 9 person	0	1 (20.0)	4 (80.0)	
Number of children				
Less than 2 child	5 (5.0)	4 (4.0)	91 (91.0)	p=.405
2-3	2 (2.1)	7 (7.4)	86 (90.5)	
4-5	0	2 (33.3)	4 (66.7)	
Gestational age				
Term	6 (3.9)	10 (6.5)	138 (89.6)	P=.100
Preterm	1 (2.2)	2 (4.4)	42 (93.3)	
Post-term	0	1 (50.0)	1 (50.0)	

Table 59 shows the result of chi-square test for different level of score of rural mothers by their demographic data. The total score is classified into 3 levels, ranging from a minimum of 2 to maximum of 12 according to the number of correct answers given. The impact score of rural mothers was 9.39 (SD=2.14) on average out of 12 questions, which is calculated as 78.42% achievement. This section number of family member was found to be highly correlated

(p=.000***) with the rural mothers impact. Gestational age and education were also found moderate correlated (p=.045** & .050*) with the impact of rural mothers. Number of children is more important than age and monthly family income for impact of rural mother's awareness on ANC.

Table 59: Matrix distribution of rural mothers demographic data by impact score by (N=241).

Answered	Score (2-5)	Score (6-9)	Score (10-12)	Significant p value
Age				
18-21 years	5 (8.9)	21 (37.5)	30 (53.6)	P=.236
22-25 years	8 (7.6)	36 (34.3)	61 (58.1)	
26-29 years	3 (4.1)	22 (30.1)	48 (65.8)	
30-33 years	0	1 (16.7)	5 (83.3)	
Above 33 years	0	1 (100.0)	0	
Education				
Illiterate	2 (5.4)	12 (32.4)	23 (62.2)	P= .050*
Primary	8 (5.8)	50 (36.3)	80 (57.9)	
Secondary School Certificate	6 (11.8)	13 (25.5)	32 (62.7)	
Higher Secondary Certificate	0	6 (60.0)	4 (40.0)	
Bachelor Degree	0	1 (33.3)	2 (66.7)	
Master Degree	0	0	2 (100.0)	
Monthly income				
Less than 5000 Taka	1 (4.2)	6 (25.0)	17 (70.8)	P=.285
5000-10000 Taka	12 (7.6)	52 (33.1)	93 (59.2)	
11000-15000 Taka	2 (4.9)	19 (46.3)	20 (48.8)	
16000-20000 Taka	0	1 (10.0)	9 (90.0)	
21000-250000 Taka	0	2 (66.7)	1 (33.3)	
Above 25000 Taka	1 (16.7)	2 (33.3)	3 (50.0)	
Number of family member				
Less than 4 person	4 (10.0)	14 (35.0)	22 (55.0)	P= .000***
4- 6 person	5 (3.2)	55 (35.5)	95 (61.3)	
7-9 person	2 (5.7)	11 (31.4)	22 (62.9)	
Above 9 person	5 (45.5)	2 (18.2)	4 (36.4)	
Number of children				
Less than 2 child	7 (7.4)	40 (42.1)	48 (50.5)	P= .151
2-3	8 (5.6)	41 (28.7)	94 (65.7)	
4-5	1 (33.3)	1 (33.3)	1 (33.3)	
Gestational age				
Term	9 (4.4)	67 (32.8)	128 (62.7)	P= .045**
Preterm	7 (20.0)	15 (42.9)	13 (37.1)	
Post-term	0	0	2 (100.0)	

Table 60 shows the result of chi-square test for different level of score of urban mothers by their demographic data. The total score is classified into 3 levels, ranging from a minimum of 2 to maximum of 12 according to the number of correct answers given. The impact score of urban mothers was 9.39 (SD=2.25) on average out of 12 questions, which is calculated as 78.31% achievement. This section age and number of children of mothers were found to be highly correlated (p=.000***, p=.000***) with the urban mothers impact. Education, gestational age, monthly family income and number of family member did not found significant correlation (p=.324, .344, .926 & .999) with the impact of urban mothers awareness on ANC.

Table 60: Matrix distribution of urban mothers demographic data by impact score on ANC (N=201).

Answered	Score (2-5)	Score (6-9)	Score (10-12)	Significant p value
Age				
18-21 years	2 (10.5)	14 (73.7)	3 (15.8)	P=.000***
22-25 years	2 (1.2)	45 (27.3)	118 (71.5)	
26-29 years	0	2 (50.0)	2 (50.0)	
30-33 years	0	1 (50.0)	1 (50.0)	
Above 33 years	11 (100.0)	0	0	
Education				
Illiterate	5 (13.2)	15 (39.5)	18 (47.4)	P=.324
Primary	5 (6.0)	25 (30.1)	53 (63.9)	
SSC	3 (6.3)	12 (25.0)	33 (68.7)	
HSC	1 (4.0)	7 (28.0)	17 (68.0)	

Bachelor Degree	1 (25.0)	2 (50.0)	1 (25.0)	
Master Degree	0	1 (33.3)	2 (66.7)	
Monthly income				
Less than 5000 Taka	1 (8.3)	4 (33.3)	7 (58.3)	P=.926
5000-10000 Taka	11 (9.6)	35 (30.7)	68 (59.6)	
11000-15000 Taka	2 (4.3)	14 (29.8)	31 (65.9)	
16000-20000 Taka	0	6 (33.3)	12 (66.7)	
21000-250000 Taka	0	1 (25.0)	3 (75.0)	
Above 25000 Taka	1 (16.7)	2 (33.3)	3 (50.0)	
Number of family member				
Less than 4 person	5 (8.1)	21 (33.9)	36 (58.1)	p=.999
4- 6 person	9 (7.4)	35 (28.9)	77 (63.6)	
7-9 person	1 (7.7)	4 (30.7)	8 (61.5)	
Above 9 person	0	2 (40.0)	3 (60.0)	
Number of children				
Less than 2 child	9 (9.0)	31 (31.0)	60 (60.0)	P=.000***
2-3	5 (5.3)	30 (31.6)	60 (63.2)	
4-5	1 (16.7)	1 (16.7)	4 (66.7)	
Gestational age				
Term	7 (4.5)	48 (31.2)	99 (64.3)	P=.344
Preterm	8 (17.8)	14 (31.1)	23 (51.1)	
Post-term	0	0	2 (100.0)	

Relationship between mother's awareness and impact of mother's health and newborn health on ANC by chi-square test probabilities

Table 61 shows the relationship between mother's awareness and impact on mother's health by chi-square test on ANC. The result showed, among the mothers awareness only importance of ANC and face any problem during delivery was found moderate correlated (.019**). Advised about place of delivery during pregnancy and mothers condition after birth with face any problem during delivery were found highly correlated (p=.001*** and p=.043**). Advised about PNC during pregnancy and face any problem during delivery was found moderate correlated (.022**). The other areas of mothers awareness: meaning of antenatal care, place of ANC provide, receive ANC , important of ANC visit, component of ANC, number of ANC visit, If less than 4 visit, why, idea of colostrums, meaning of colostrums, benefit of colostrums, benefit of breastfeeding, idea about exclusive breastfeeding, duration of exclusive breastfeeding, when start complementary feeding, breastfeeding continue with complementary feeding, advised about extra nutrition and advised about postnatal care during pregnancy did not found correlated with the impact on new born health by chi-square test probabilities on antenatal care.

Table 61: Relationship between awareness and impact on mothers health by Chi-Square test probabilities on ANC (N=201)

Impact on mothers health → Awareness on antenatal care ↓	**Face any problem during delivery**	**Mothers condition during delivery**	**Mothers condition after delivery**
Meaning of ANC	.726	.982	.416
Place of ANC provide	.917	.133	.810
Were you taken of ANC	.932	.306	.468
Important of ANC	.019*	.609	.259
Important ANC visit	.290	.377	.230
Component of ANC	.389	.472	.609
Number of ANC visit	.278	.453	.973
If less than 4 visit, why	.553	.387	.680
Idea of clostrum	.533	.968	.546
Meaning of colostrums	.986	.531	.811
Benefit of colostrums	.465	.561	.801
Benefit of breastfeeding	.615	.115	.383
Idea about exclusive BF	.634	.431	.729
Duration of EBF	.533	.480	.811
Start complementary feeding	.138	.704	.341
BF continue with complementary	.898	.973	.830
Advised about extra nutrition	.168	.138	.077
Advised on place of delivery	.043**	.001***	.230
Were you advised about PNC	.022**	.176	.623

Table 62 shows the relationship between mother's awareness and impact on newborn health by chi-square test on ANC. The result showed that some area of mothers awareness with the impact on newborn health significant relationship. Regarding number of received antenatal visit and the babies condition during birth was moderate correlated (p=.046**). Idea of colostrums and babies condition after birth with first feeding after birth were found moderate correlated (p=.014**, p=.031**). Meaning of colostrums and babies condition after birth with exclusive breastfeeding after birth were found to be highly correlated (p=.001***, p=.008***) and also moderate correlated (p=.046**, p=.030**) with the birth weight of newborn & first feeding after birth. Benefit of colostrums and babies condition after birth, first feeding after birth & exclusive breastfeeding were found highly correlated (p=.001***, p=.002*** & p=.006). Benefit of breastfeeding and babies condition after birth was found to be highly correlated (p=.009***). Duration of exclusive breastfeeding and first feeding after birth was found moderate correlated (p=.030**). When start complementary feeding and exclusive breastfeeding with first feeding after birth were found to be highly correlated (p=.001*** & p=.008***). Advised about extra nutrition during pregnancy and exclusive breastfeeding was found to be highly correlated (p=.001***) and also moderate & mild correlated (p=.043**, p=.030** & p=.050*) with the babies condition after birth and first feeding after birth. Some other area regarding meaning of antenatal care, place of ANC provide, receive ANC , important of ANC visit, component of ANC, If less than 4 visit, why, idea about exclusive breastfeeding, breastfeeding continue with complementary feeding, advised about place of delivery and advised about postnatal care during pregnancy did not found correlated with the impact newborn health on antenatal care.

Table 62: Relationship between awareness and impact on newborn health by Chi-Square test probabilities on ANC (N=201).

Impact on newborn health → Awareness on antenatal care ↓	Birth weight of newborn	Babies condition during birth	Babies condition after birth	First feeding after birth	Exclusive breastfeeding after birth
Meaning of ANC	.774	.774	.383	.222	.324
Place of ANC provide	.932	.932	.914	.506	.241
Were you taken of ANC	.592	.388	.468	.753	.616
Important of ANC	.544	.584	.472	.732	.536
Important ANC visit	.456	.456	.501	.520	.448
Component of ANC	.544	.544	.584	.493	.536
Number of ANC visit	.990	.046**	.695	.925	.339
If less than 4 visit, why	.634	.223	.737	.189	.378
Idea of clostrum	.210	.610	.014**	.030**	.055
Meaning of colostrums	.046**	.210	.001***	.030**	.008***
Benefit of colostrums	.048**	.048**	.001***	.002***	.006***
Benefit of breastfeeding	.190	.190	.009***	.081	.212
Idea about exclusive BF	.519	.519	.071	.096	.180
Duration of EBF	.610	.210	.397	.030**	.055
Start complementary feeding	.781	.737	.499	.008***	.001***
BF continue with complementary	.867	.520	.534	.134	.092
Advised about extra nutrition	.299	.050*	.043**	.030**	.001***
Advised on place of delivery	.387	.387	.289	3.99	.448
Were you advised about PNC	.499	.127	.335	.548	.337

Table 63 shows the relationship between mother's awareness and the impact of rural mother's health by chi-square test on ANC. The result showed that some area of awareness significant relationship with the impact on newborn health. Regarding meaning of antenatal care and mothers condition during delivery with mothers condition after delivery were found to be highly correlated (p=.000*** & .000***). Place of antenatal care provide and mothers condition during and after delivery were found to be moderate correlated (p=.011** & p=.010). Received number of ANC visit and mothers condition during delivery was found mild correlated (p=.074*). If less than 4 visit, why and birth weight of newborn was found mild correlated (.048*). Duration of exclusive breastfeeding and mothers condition during delivery with mothers condition after delivery were found moderate and mild correlated (p=.034** & p=.069*). When start complementary feeding and mothers condition after delivery was found moderate correlated (p=.041**). Breastfeeding continue with complementary feeding and mothers condition after delivery and mothers condition during delivery were found highly and mild correlated (p=.001***, & p=.085*). Advised about extra nutrition and mothers condition during delivery and mothers condition after delivery were found highly and mild correlated ()p=.007*** & p=.064*). Some other area of mothers awareness regarding receive ANC, important of ANC, important of ANC visit, component of ANC, idea of colostrums, meaning of colostrums, benefit of colostrums, benefit of breastfeeding, idea about exclusive breastfeeding, advised about place of delivery and advised about postnatal care during pregnancy did not found correlated with the impact on new born health after delivery.

Table 63: Relationship between awareness and impact on mothers health by Chi-Square test probabilities on ANC (N=241)

Impact on mothers health → Awareness on antenatal care ↓	Face any problem during delivery	Mothers condition during delivery	Mothers condition after delivery
Meaning of ANC	.986	.000***	.000***
Place of ANC provide	.633	.011**	.010**
Were you taken of ANC	.918	.074	.616
Important of ANC	.846	.302	.376
Important ANC visit	.683	.803	.974
Component of ANC	.554	.669	.890
Number of ANC visit	.069*	.074*	.215
Less than 4 visit, why	.048*	.509	.643
Idea of clostrum	.092*	.157	.120
Meaning of colostrums	.246	.157	.120
Benefit of colostrums	.732	.294	.271
Benefit of breastfeeding	.277	.139	.264
Idea about exclusive BF	.014**	.295	.544
Duration of EBF	.021**	.034**	.069*
Start complementary feeding	.546	.556	.041**
BF with complementary	.419	.085*	.001***
Advised about Place delivery	.686	.931	.156
Advised about extra nutrition	.283	.007***	.064*
Were you advised about PNC	.912	.676	.913

Table 64 shows the relationship between mother's awareness and impact on newborn of rural mothers by chi-square test on ANC. The result showed that some area of mothers awareness significant relationship with the impact on newborn health. Regarding meaning of antenatal care and birth weight of newborn, babies condition during birth were found to be highly correlated (p=.004***, p=.004***). Place of antenatal care provide and babies condition during birth was found to be highly (p=.001***). Received antenatal care and birth weight of newborn, babies condition during birth, with first feeding after birth were found to be highly and moderate correlated (p=.000***, p=.019**, & p=.041**). Component of ANC and birth weight of newborn, babies condition after birth, first feeding after birth with exclusive breastfeeding after birth were found to be highly and moderate correlated (p=.009***, p=.019**, p=.041** & p=.031**). Idea of colostrums and birth weight of newborn, babies condition after birth with exclusive breastfeeding after birth were found moderate and mild correlated (p=.031**, p=.042**, & p=.075*). Meaning of colostrums and birth weight of newborn, babies condition after birth with exclusive breastfeeding were found moderate and mild correlated (p=.031**, .042**, & p=.075*). Benefit of colostum and birth weight of newborn, babies condition during birth with babies condition after birth were found highly and mild correlated (p=.003**, p=.069* & p=.075*). Benefit of breastfeeding and birth weight of newborn, babies condition during birth, babies condition after birth, exclusive breastfeeding after birth with first feeding after birth were found to be highly, moderate and mild correlated (p=.000***, p=.017**, p=.028**, p=.049 & p=.068*). Idea about exclusive breastfeeding and birth weight of newborn with exclusive breastfeeding after birth were found moderate and mild correlated (p=.026** & p=.097*). Breastfeeding continue with complementary feeding and first feeding after birth was found highly, moderate and mild correlated (p=.003***). Advised about place of delivery during pregnancy and birth weight of newborn was found moderate correlated (p=.002**). Advised about extra nutrition and exclusive breastfeeding after birth, first feeding after birth and birth weight of newborn were found highly and moderate to be correlated (p=000***, p=.001*** & p=.017**). Advised about postnatal care and birth weight of newborn was found highly correlated (p=.002***). Some other area of mothers awareness regarding important of ANC, number of ANC visit, Less than 4 visit, why, duration of exclusive breastfeeding and when start complementary feeding did not found correlated with the impact on newborn health of rural mothers awareness by chi-square test on ANC.

Table 64: Relationship between awareness and impact on newborn health by Chi-Square test probabilities on ANC (N=241).

Impact on newborn health → Awareness on antenatal care ↓	Birth weight of newborn	Babies condition during birth	Babies condition after birth	First feeding after birth	Exclusive breastfeeding after birth
Meaning of ANC	.004***	..004***	.137	.623	.974
Place of ANC provide	.147	.001***	.428	.209	.534
Were you taken of ANC	.000***	.019**	.071	.041**	.103
Important of ANC	.113	.629	.486	.589	.544
Important ANC visit	.051*	.248	.143	.216	.185

Component of ANC	.009***	.366	.019**	.041**	.031**
Number of ANC visit	.432	.052	.526	.570	.176
Less than 4 visit, why	.931	.180	.604	.229	.370
Idea of clostrum	.031**	.382	.042**	.314	.075*
Meaning of colostrums	.031**	.138	.042**	.314	.075*
Benefit of colostrums	.003***	.069*	.075*	.167	.125
Benefit of breastfeeding	.000***	.017**	.028**	.068*	.049**
Idea about exclusive BF	.026**	.470	.245	.401	.097*
Duration of EBF	.200	.679	.504	.743	.619
Start complementary feeding	.259	.651	.912	.831	.363
BF with complementary	.657	.239	.373	.003**	.451
Advised about Place delivery	.002**	.881	.813	.547	.468
Advised about extra nutrition	.017**	.529	.211	.001***	.000***
Were you advised about PNC	.002***	.147	.881	.547	.277

Relationship and co-association between impact and mothers awareness on ANC after delivery

Table 65 shows regarding the relationship between impact and mothers awareness of antenatal care after delivery. There is very weak positive Spearman correlation and statistically also not significant (r= .045, p=.491) of the rural mothers but co association was found statistically highly significant (x^2=211.869, p=.004) by chi-square test. The result of the urban mothers, there is also very weak positive correlation and statistically moderate significant (r=.138, p=.050) but co association statistically highly significant (x^2=157.772, p=.002) was found by chi-square test. In general, all mothers relationship between impact and mothers awareness on antenatal care after delivery, there was also found no correlation with not significant (r=.092, p=.053) and also not co-association (x^2=189.866, p=.053) by chi-square test probabilities.

Table 65: Relationship and co-association between awareness score and impact score of mothers on ANC

Items	Spearman correlation		Chi-square Test	
	r	p value	x^2	p value
Rural Mothers (N=241)				
Impact and awareness on ANC	.045	.491	211.869	.004***
Urban mothers (N=201)				
Impact and awareness on ANC	.138	.050*	157.772	.002***
All mothers (N=442)				
Impact and awareness on ANC	.092	.053	189.866	.053

.00 - .19=very weak, .20 - .39=weak correlation (Evans-1996). * p < .10, ** p < .05, *** p < .01

Spearman correlation between impacts of mothers awareness by awareness score on ANC

Table 66 shows, all mothers' relationship between impacts of mothers' awareness gained through antenatal care by awareness score of mothers after delivery. The result shows that mothers awareness on ANC and birth weight of newborn was found positive correlation (r=.174) and statistically highly significant (p=000***). Mothers awareness and babies condition during child birth was also found positive correlation (r=.145) and statistically highly significant (p=002***). The result also shows that mothers awareness and babies condition after child birth was found positive correlation (r=.128) and statistically highly significant (p=.007***). On the other hand, mothers awareness and mothers condition during and after delivery was found positive correlation (r=.055, r=.034) but statistically not significant (p=.247, p=.475) respectively. Relationship between first feeding after birth and exclusive breastfeeding with mothers awareness was found positive correlation (r=.032, r=.066) but not statistically significant (p=.497, p=.169) respectively.

Table 66: Spearman correlation between impact of mothers awareness by awareness score (N=442)

Impact of mothers and newborn health	Spearman correlation	
	r	P value
Birth weight	.174	.000***
Babies condition during child birth	.145	.002***
Babies condition after child birth	.128	.007***
Mothers condition during delivery	.055	.247
Mothers condition after delivery	.034	.475
First feeding after birth	.032	.497
Exclusive breastfeeding	.066	.169

Table 67 shows that the chi-square test between the rural mothers and the urban mothers level of awareness on ANC. It was observed that the urban mothers level of awareness is higher (94%) than the rural mothers level of awareness (87.6%) and this is statistically significant (p=.021**) that the rural mothers level of awareness is lower than the urban mothers level of awareness.

Table 67: Matrix distribution between living place and awareness of mothers by Chi-square Test

Living place	Level of awareness		Chi-square (x^2)	P value
	Low level	High level		
Rural mothers (N=241)	30 (12.4%)	211 (87.6%)	5.348	.021**
Urban mothers (N=201)	12 (6.0%)	189 (94.0%)		

Table 68 shows that the chi-square test between the rural mothers and the urban mothers level of impact on ANC. It was observed that the urban mothers level of impact is higher (78.6%) than the rural mothers level of impact (76.3%) but statistically not significant (p=.572) that the rural mothers impact is lower than the urban mothers impact.

Table 68: Matrix distribution between living place and impact of awareness by Chi-square Test

Living place	Level of Impact		Chi-square (x^2)	P value
	Low level	High level		
Rural mothers (N=241)	57 (23.7%)	184 (76.3%)	.319	.572
Urban mothers (N=201)	43 (21.4%)	158 (78.6%)		

The descriptive statistics and one sample test (Table 28), the result showed that the level of awareness of mothers on ANC. It was observed that statistically highly significant to the rural mothers awareness (p=.000***) and urban mothers awareness (p=.000***) on ANC.

Table 69: Descriptive Statistics and one sample Test of awareness score in rural and urban mothers

Areas	Mean	SD	t	df	P value
Rural mothers (241)	18.54	2.77	103.77	240	.000***
Urban mothers (201)	19.69	2.16	128.91	200	.000***

The descriptive statistics and one sample test (Table 20), the result showed that the level of impact of mothers awareness on ANC. It was observed that statistically highly significant to the rural mothers impact (p=.000***) and urban mothers impact (p=.000***) on ANC.

Table 70: Descriptive Statistics and one sample Test of impact score in rural and urban mothers

Areas	Mean	SD	t	df	P value
Rural mothers (241)	9.41	2.13	68.54	240	.000***
Urban mothers (201)	9.39	2.25	59.11	200	.000***

Table 71 shows the relationship between the different level of mother's awareness and impact by chi-square test. It was observed that low level impact depends on low level awareness and high level impact depends on high level awareness of the mothers but statistically not significant to rural and urban mothers. But only rural and urban all together mothers awareness and impact were statistically significant (p=.033**) relationship between higher level awareness and higher level impact on ANC.

Table 71: Matrix distribution between level of awareness and impact by Chi-square Test probabilities

Awareness Score	Impact score		Chi-square (x^2)	df	P value
	Low level	High level			
Rural mothers (N=241)					
Low level High Level	10 (33.3%) 47 (22.3%)	20 (66.7%) 164 (77.7%)	1.779	1	1.779
Urban mothers (N=201)					
Low level High level	5 (41.7%) 38 (20.1%)	7 (58.3%) 151 (79.9%)	3.119	1	.077*
All mothers (N=442)					
Low level High level	15 (35.7%) 85 (21.3%)	27 (64.3%) 315 (78.8%)	4.543	1	.033**

CONCLUSION

This descriptive cross sectional study designed to examine the extent to which mother's awareness of antenatal careinfluence the impact on mother and newborn health. This study was conducted at labor ward and postnatal ward in Rajshani Medical College Hospital from January 2020 to June 2022 Four hundred forty two mothers were used in the statistical analysis. Among them two hundred fifty six rural mothers and one hundred eighty six urban mothers. Mothers were asked to respond to the instruments that included the demographic Data, the awareness Questionnaire, the Impact Questionnaire. The instruments were validated by seven experts. All Instruments were translated into Bengali language through the back translation procedure. A pilot study was done with 30 postpartum mothers. The Cronbach's alpha reliabilities of questionnaire were .738. Descriptive statistics were used to analyze the demographic data, awareness and impact data. Pearson's product correlation was used to analyze the relationships among variables. The results showed that almost of half of the mothers age group had 22-28 years (43.8% rural & 42.5% urban). Half of the mothers had primary school (55.9% rural & 41.9% urban). Almost all of them (80.9% rural & 87.1% urban) were Muslims and (96.9% rural & 92.5% urban) mothers were housewives. The level of family income of mothers were (65.2% & 55.4% urban) from 5000-10000 Taka per months. Most of the mothers type of family was nuclear (67.2% rural & 43.4% urban). More than half of them (64.55 rural & 59.75 urban) family member were 4-6 person and maximum (60.2% rural & 51.6% urban) of the mother children were 2-3 & less than two in urban mothers.

The mean score of mothers awareness (M=19.07) and impact (M=9.40) of mothers awareness on antenatal care were not much higher than actual mean scores. In terms of relationship, there was a statistically highly significant and positive relationship between mothers awareness and impact of mothers awareness on antenatal care on mothers and newborn health (r=, p=.092*). Regarding the level of mothers awareness and impact, it was observed that mothers who had high level awareness, they had also high level impact and statistically moderate significant (p=.033**) to the all mothers and mild significant (p=.077*) to the urban mothers but no significant (p=1.779) to the rural mothers was found. Regarding correlation and co-association between impact and awareness score, it was observed that no correlation and co-association (r=.045, p=.491) to the rural mothers but chi-square test highly significant (p=.004***). Mild significant correlation (r=.092, p=.050*) to the urban mothers and statistically also highly significant (p=.002***) by chi-square test was found. On the other hand, by the one sample Test, it was found that impact of mothers awareness on antenatal care was found significantly high correlated (p=.000***) to the rural mothers and also significantly high correlated (p=.000***) to the urban mothers. The overall impact on mother and newborn health by the mothers awareness score on antenatal care, the result showed that good impact was found on newborn health which are birth weight (p=.000***), babies condition during child birth (p=002***), babies condition after child birth (p=.007***) but no significant on mother health which are mothers condition during delivery (p=.247) and mothers condition after delivery (p=.475).

RECOMMENDATION

Findings showed that all level of ANC has greater achievement. Not only that 4 visit >50% mothers has completed during pregnancy, more than 93% delivered in hospitals, 75% did not face any problem during and after child birth, above 80% babys birth weight was normal, >73% babys condition was good during child birth, >77% mothers condition was good during and after child birth, >82% babys first feeding was colostrun after child birth, >84% babys exclusively breastfeeding after birth. But the present study has made some recommendation to be achieved:

1. Encourage the mother and family about at least 4 checks up during ANC.
2. Increase to use the partograph during labour to reduce Caesarean section because normal delivery decreases complication than Caesarian section.
3. Increase the mother's awareness about initiation of breastfeeding within half hour.
4. Based on the results and limitation of the present study, the findings of the study can be used in further experimental study to represent the whole population.

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