A STUDY ON NEONATAL CARE IN RURAL FIELD PRACTICE AREA OF SHRI B.M. PATIL MEDICAL COLLEGE, BIJAPUR

By

Dr. BHAVANA R. HIREMATH

Dissertation submitted to

BLDE UNIVERSITY, BIJAPUR.

KARNATAKA

In Partial Fulfillment of the requirements for the degree of

M.D

in

COMMUNITY MEDICINE

Under the Guidance of

Dr. M.M.ANGADI M.D.

DEPARTMENT OF COMMUNITY MEDICINE

B. L. D. E. U'S

SHRI B. M. PATIL MEDICAL COLLEGE HOSPITAL & RESEARCH CENTRE, BIJAPUR.

B.L.D.E.U's

SHRI B. M. PATIL MEDICAL COLLEGE HOSPITAL & RESEARCH CENTRE, BIJAPUR, KARNATAKA

DECLARATION BY THE CANDIDATE

I hereby declare that this dissertation/thesis entitled "**A STUDY ON NEONATAL CARE IN RURAL FIELD PRACTICE AREA OF SHRI B.M. PATIL MEDICAL COLLEGE, BIJAPUR**" is a bonafide and genuine research work carried out by me under guidance of **Dr. M.M.ANGADI** **M.D.**

Date: **Dr. BHAVANA R. HIREMATH**

Place: Bijapur

B.L.D.E.U's

SHRI B. M. PATIL MEDICAL COLLEGE HOSPITAL & RESEARCH CENTRE, BIJAPUR, KARNATAKA

CERTIFICATE BY THE GUIDE

This is to certify that the dissertation entitled "**A STUDY ON NEONATAL CARE IN RURAL FIELD PRACTICE AREA OF SHRI B.M. PATIL MEDICAL COLLEGE, BIJAPUR"** is a bonafide research work done by **Dr. BHAVANA R. HIREMATH** in partial fulfillment of the requirement for the degree of **M.D in Community Medicine.**

Date:

Place: BIJAPUR

DR. M.M.ANGADI M.D
PROFESSOR AND HEAD
DEPARTMENT OF COMMUNITY MEDICINE,
B.L.D.E.A's Shri. B. M. PATIL MEDICAL COLLEGE HOSPITAL & RESEARCH CENTRE, BIJAPUR

B.L.D.E.U's

SHRI B. M. PATIL MEDICAL COLLEGE HOSPITAL & RESEARCH CENTRE, BIJAPUR, KARNATAKA

ENDORSEMENT BY THE HOD, PRINCIPAL/HEAD OF THE INSTITUTION

This is to certify that the dissertation entitled "**A STUDY ON NEONATAL CARE IN RURAL FIELD PRACTICE AREA OF SHRI B.M. PATIL MEDICAL COLLEGE, BIJAPUR"** is a bonafide research work done by **Dr. BHAVANA R. HIREMATH** under the guidance of **Dr.M.M.ANGADI** $_{\textbf{M.D}}$, Professor and Head of Community Medicine.

Dr. M.M.ANGADI $_{\textbf{M.D}}$
PROFESSOR & HEAD
DEPARTMENT OF COMMUNITY MEDICINE,
B. L. D. E. U's Shri. B. M. PATIL MEDICAL COLLEGE HOSPITAL & RESEARCH CENTRE
BIJAPUR.

Date:

Place: Bijapur

Dr. M.S. BIRADAR $_{\textbf{M.D}}$
PRINCIPAL
B. L. D. E. U's Shri. B. M. PATIL MEDICAL COLLEGE HOSPITAL & RESEARCH CENTRE,
BIJAPUR.

Date:

Place: Bijapur

COPYRIGHT

DECLARATION BY THE CANDIDATE

I hereby declare that the Bijapur Liberal District Education University, Karnataka shall have the rights to preserve, use and disseminate this dissertation / thesis in print or electronic format for academic / research purpose.

Date: **Dr. BHAVANA R. HIREMATH**

Place: BIJAPUR

© Bijapur Liberal District Education University, Karnataka

ACKNOWLEDGEMENT

With proud privilege and deep sense of respect, I express my gratitude and indebtedness to my teacher and guide **Dr.M.M.Angadi**, Professor and Head Department of Community Medicine, BLDEU's SHRI B. M. PATIL MEDICAL COLLEGE, for his constant inspiration, patience, encouragement and support which he rendered in preparing this dissertation and in pursuit of my post graduate studies.

I am grateful to **Dr.M.S.Biradar**, Principal of B.L.D.E.U's Shri.B.M.Patil Medical College Hospital and Research Centre, Bijapur, for permitting me to conduct this study.

I take this opportunity to express my deep sense of gratitude and sincere thanks to **Dr.K.A.Masali, Dr.M.C.Yadavannavar, Dr.Shailaja.S.Patil**, **Dr.Rekha.Udgiri,** Professors for their supervision and timely advice.

My sincere thanks to **Dr.Vinod.S.Kamble** Associate Professor and **Dr.M.R.Gudadinni, Dr.Santosh.M.Biradar, Dr.Mallikarjun Biradar, Dr. Santosh Patil** Assistant Professors for their valuable supervision and good wishes.

I am extremely thankful to **Mrs. Vijaya Soraganvi**, Statistician for her guidance in statistical analysis.

My thanks to **Mr.G.V.Kulkarni, Mrs.Veena Algur** Lectures and **Miss Vidya Ugran** Entomologist for their support and good wishes.

I am very grateful to **Dr.Sowmya Bhat, Dr. Arun P. Jose, Dr. Shashank K.J., Dr. Prashant Wajantri** and my all friends for their kind co-operation.

My thanks to **Dr.Prakash.Biradar** tutor for his support and good wishes. I thank all the non teaching staff of my department for their constant encouragement and moral support.

I also thank **Mr. Babugouda Patil (**Om Sai Computers and Internet Browsing Centre**)**, Opp : BLDE Hospital, Bijapur for his efforts during printing of this dissertation.

I am infinitely obliged to my beloved parents **Dr. R. C. Hiremath** and **Smt.Chandrakala J.**, my sister **Dr Meghana** and my in-laws **Dr Basavaraj V. Kodliwadmath** and **Dr Girija B. Kodliwadmath,** my brother-in-law **Dr Ashwin** without whose support and encouragement I would never be able to complete my study. I am truly indebted to my dear husband **Dr Harsha** for his unwavering and unconditional support, understanding and his untiring patience.

Finally I acknowledge with gratitude to all participants for their co-operation during the study.

Date: **Dr. BHAVANA R. HIREMATH**

Place: Bijapur.

LIST OF ABBERVATIONS USED

ANC	-	Antenatal care
TT	-	Tetanus Toxoid injection
IFA	-	Iron and Folic acid tablet
p	-	Probability
NFHS	-	National Family Health Survey
DLHS	-	District Level Household Survey
IEC	-	Information Education and Communication
ASHA	-	Accredited Social Health Activist
PHC	-	Primary Health Centre
Rs	-	Rupees
WHO	-	World Health Organization
Yrs	-	Years

LIST OF CONTENTS

LIST OF TABLES

LIST OF GRAPHS

INTRODUCTION

"Ode to a Newborn"

"Everything in this world can wait but I cannot,

my body is tender and fragile.

I do not know what it means to be a boy or a girl,

a man or a woman.

I am new to this world, my whole being is helpless.

I need love, care and warmth.

When I grow up,

I want to contribute to this world as a capable human being.

I am no Abhimanyu but I would want to be one.

It is now that my bones and tissues are developing,

My senses are evolving,

I am a newborn – I cannot wait

- Dr. Siddharth Agarwal, 2007

Neonatal period is from the time of birth to first 28 days of life. This period comprises of an early neonatal (0-7days) and late neonatal (7-28 days) period.

It is estimated that globally each year 4 million newborns die accounting to two-third of all infant deaths in the first year of life. About 1 million of these newborn die during the first 24 hours and 2.8 million die during the early neonatal period.[1]

India has the daunting task of caring for the highest number of newborns than any other country in the world. Of the 26 million newborns each year, 1.2 million die in the neonatal period, accounting for one quarter of all neonatal deaths in the world. [2] 75% of these neonates die during the first week of life and of those deaths, 25% - 45% occur within the first 24 hours. [3] The problem is more acute in rural areas.

Thus the neonatal period is the most important phase in the life of newborn for its survival and development. Of this, the first week of life (early neonatal period) is the most crucial period because of two important reasons. Firstly, during intrauterine life, the respiratory system will not be functioning as exchange of gases will be taken care by placenta. Thus initiation of cardio-respiratory function is the most important thing the moment the baby is born. Slight delay leads to number of complications including death.

Secondly, the newborn has to adapt rapidly to the changes in the external alien environment from the warm, protective and nurturing environment of the intrauterine life.

Newborn care has fallen in the gap between maternal and child care. Neonatal survival is influenced by the health of the mother, socio-cultural practices and care provided by the family before, during and after delivery. It is in this scenario the

concept of "continuum of care" is highlighted. The continuum of care entails delivering essential care at critical points in the life cycle - adolescence, pregnancy, childbirth, neonatal period and childhood.[4] Care during preconception will be directed to improve the health of the adolescents and married women. During pregnancy, health care services will be provided not only to improve the health of the pregnant women but also of the foetus. After delivery, service will be provided to recuperate the health of the mother as well as care of the newborn. All neonates should have access to health care so as to survive, thrive and be able to grow into healthy children.

The term **"Neonatal Care"** stands for care of the newborn baby during the first 28 days of life as it decides the overall health of the baby. The important causes of neonatal mortality are asphyxia, hypothermia, infections, low birth weight, sepsis, tetanus or congenital abnormalities.[5] Social factors like illiteracy, ignorance and poverty will further aggravate the seriousness of these causes. Most of the neonatal deaths can be prevented with cost-effective interventions like having skilled health care assistant at hand during and after delivery, by recognizing and promptly treating complications, by keeping the baby warm and the umbilical cord clean, and by improving breastfeeding practices.

The World Health Organization guidelines for **Essential Newborn Care (ENC)** encompasses initiation of breathing, thermal protection, eye care, early and exclusive breast feeding, cleanliness, immunisation, management of illness, and care of low birth weight infants. [6]

The concept of special care for neonates which evolved in tertiary care hospital since the sixties has not given the desired results. This is because neonatal

care is not available to most neonates in developing countries as hospitals are inaccessible and costly. To make it as community based strategy Government of India introduced Essential Newborn Care under Child Survival and Safe Motherhood Programme in 1992 and it has been a part of RCH programme since 1997. [7] The primary health centres have been well equipped for providing essential newborn care for the rural people. Not only RCH officers of District hospitals and Medical officers of PHC's but also paramedical workers especially nurses and ANM's are getting trained under Facility Based Integrated Management of Neonates & Childhood Illnesses (F-IMNCI) for proper care and management of neonates in rural areas. Of late a new concept under **Home-based Neonatal Care (HBNC)** has been accepted in principle by Government of India to reduce neonatal mortality. [8] Already trials by the Government are going on in some selected areas to evaluate the efficacy of HBNC.

As a result of these efforts, neonatal morbidity and mortality have declined but not to the desired level. This is because India has its own cultural beliefs and practices with regards to newborn care which are centuries old. Most of them are based on centuries of keen observation, trial and error. These cultural practices and beliefs are not the same throughout India. With vast variations in language, food habits, dress, economic conditions, tradition, beliefs and cultural practices, truly speaking India is not a country but a sub-continent. It has also absorbed, adopted and adapted outside cultures and influences, which have merged into the Indian society. Not all customs and beliefs are harmful. Some of them have positive values while others may be useless or positively harmful. To effectively implement any programme and to bring about a change in the behaviour of the people, one must have knowledge regarding the cultural practices prevalent in that area.

With this background I have taken up this study to document the various socio-cultural factors influencing the neonatal care in a rural area of this backward district. I hope the outcome of this study will help the planners to formulate effective intervention strategies and provide timely assistance to the newborn to adapt to the extra-uterine alien environment.

OBJECTIVES

1. To study knowledge, attitude and practices of mothers regarding neonatal care in a rural area.

2. To study the socio demographic profile of the families.

REVIEW OF LITERATURE

Childhood should be a time of joy, growth and healthy development. Over a million babies born in the country die within the first month of their life. India has the unfortunate distinction of claiming more than a quarter of the total newborn deaths in the world. [3, 9]

Newborn babies constitute the foundation of life. Healthy babies are likely to evolve as physically and mentally strong adults with enhanced quality of life. Neonatal care is highly cost-effective because saving the life of a newborn is associated with survival and productivity over the next 5 decades. [10] Therefore, improving newborn health is part of any poverty reduction strategy, given the wide gap between rich and poor in neonatal outcomes.

The World Bank estimates the sequel to perinatal problems account for 9.1% of DALY-loss in India, making intervention a public health priority. [10] Neonatal mortality in India is 36/1000 live births. It is higher in rural areas at 40 per 1000 live births compared to urban areas, 22/1000 live births. [11]

The Indian government has put substantial resources for child survival through various national programs. In 1978, Expanded Programme on Immunisation (EPI) was started to protect all children against the six vaccine-preventable diseases. This was later renamed in 1985 as Universal Immunisation Programme (UIP) which aimed to achieve universal immunisation coverage of the eligible population by 1990. [11] This assured that newborn health was firmly placed on the national agenda.

The National Child Survival and Safe Motherhood (CSSM) program was formulated (1992) with specific objectives to enhance child survival by integrating immunisation services, diarrhoeal disease control programme and acute respiratory infection control programme. [11]

In 1997, Reproductive and Child Health (RCH-I) program was launched, which combined the CSSM components with those of the family planning program.

Essential Newborn Care has been a part of RCH programme. [7] It comprises initiation of breathing, thermal protection, eye care, early and exclusive breast feeding, cleanliness, immunisation, management of illness, and care of low birth weight infants. In the year 2000, at the request of the National Neonatology Forum the government agreed to observe a National Newborn Week from 15th to 21st November each year. The maiden Newborn Week was launched on 15th November 2000. [12] This signified the recognition of newborn health as a key national priority.

RCH- phase II began in 2005 with focus on reducing maternal and child morbidity and mortality with emphasis on rural health care. RCH-II has three complementary elements with regard to infant care namely, care at birth, Integrated Management of Neonatal and Childhood Illnesses (IMNCI) and Immunisation. [11]

A new national programme "Navjaat Shishu Suraksha Karyakram" (NSSK) for neonatal care and resuscitation was introduced in 2009 in 10 Indian states to increase focus on issues like prevention of hypothermia, infection and other neonatal problems. [13]

The Millennium Development Goal-4 to reduce child mortality by two-thirds between 1990 and 2015 cannot be met unless neonatal mortality is halved. [14] Since the countdown to 2015 looms large and near, we are in the critical phase of ensuring that we will win and make it on time to meet our goals before the countdown is finished.

It is worth highlighting the important work of Dr. Abhay Bang and his colleagues in Maharashtra. A field trial of home-based neonatal care, including management of sepsis reduced neonatal and infant mortality by nearly 50% among the malnourished, illiterate, rural study population. [15] This approach could reduce neonatal mortality substantially in developing countries.

I. SOCIO-DEMOGRAHIC PROFILE OF FAMILIES

Neonatal survival is influenced much by care provided by the family before, during and after delivery, which in turn is influenced not only by mother's beliefs, but also perceptions of her immediate family. Care is manifested in ways a child is fed, nurtured, taught and guided. It is an expression by individuals and families of the domestic and cultural values that guide them.

In many Indian households, where the basics of survival take centre stage, the health of mothers and their newborns is simply not seen as a priority. Therefore, it is essential to understand the socio-demographic characteristics of the families which may influence the care given to the neonate.

A Coverage Evaluation Survey: All India Report 2009 describes that around one-fourth of the women lived in kachcha houses, 39.4 % in semi-pucca houses and 35.7 % lived in pucca houses. In 47.7% of the households, the main source of drinking

water was piped water. 40.9 % used a hand pump and only 3.6 % households depended on well-water. [16]

In a field trial study conducted in rural Maharashtra by Abhay Bang (1999), in intervention group it was seen that 69.4% of males and 37.9% of females were literate while in control group it was 66.3% of males and 33% of females. In the intervention group 24.4% respondent were agricultural labourers compared to 24.8% respondents of control group. 9.1% respondents of intervention group and 5.9% of respondents of control group had business or were salaried. [15]

Manju Rahi *et al* (2006) conducted a study in urban slums of Delhi, 40.2% mothers had primary level education while, 34.1% had senior secondary level and 6.1% were graduates or above. Majority of the study population were Hindus (93.9%). Joint family system was predominant (75.6%) followed by nuclear families (24.4). [17]

Among urban poor of Indore, Siddharth Agarwal (2007) conducted a study, where it was found that husband was the sole breadwinner in 88.1% families and in more than 2/3rd families he worked as a daily wage labourer (71.1%).[18]

Perianayagam and Abhishek (2008) conducted a study in the Empowered Action Group states of India to elicit the trends and determinants of neonatal mortality which showed that highest rates of neonatal mortality was seen among those born to mothers under 20 years of age, those born of high birth order, those born of a birth interval less than 2 years and for very small babies. [19]

A study conducted in Chandigarh by Sonia Puri (2008) showed that overall 226 urban and slum respondents (mothers) were considered. Male newborns outnumbered female in both urban and slum area. The ratio was 1.4:1 in urban area and 1.5:1 in slum area. Nuclear families were predominant in both clusters followed by joint families and extended families. In urban area 69% mothers belonged to upper social class whereas in slums 72.6% belonged to lower class. [20]

A descriptive study conducted by K Madhu (2009) in rural Bangalore showed that majority of the mothers (60%) were between age 21 to 25 years followed by age 15 to 20 years (30%). 69% were married between the age 15 to 20 years. Illiterate mothers were 52% and 55% mothers belonged to low to medium socio-economic class. Majority of the mothers were housewives (69%) and 22% mothers were employed. [21]

Amy J Kesterton and John Cleland (2009) showed in their study in rural Karnataka that teenage pregnancy with first child was seen in 46.3% of the mothers. 44.6% mothers were illiterates and 46.9% families earned <1000 rupees per month. [22]

A study conducted by Z Khan (2009) in Aligarh revealed that all mothers had poor socio-economic status and lived in congested, unsanitary environment in the slum. 56.5% were illiterate and 60.9% lived in nuclear families. 67% women preferred to deliver at home. [23]

Satija M, Singh J, Singh A (2010) conducted a study in urban area of Punjab which showed that, 57% respondents were between 20-24 years of age, 30% were between 25-29 years of age and 6.9% belonged to 30-34 years age group.[24]

A KAP study conducted in Puducherry by Padiyath M A, Bhat B V, Ekambaram M (2010) revealed that maternal age ranged between 18 to 35 years with an average of 25.18 ± 3.8 years. 29 % of the mothers had completed primary school or less and 22% were graduates. 93% mothers were housewives or unskilled labourers and remaining 7% were employed in a profession. [25]

In a study conducted in Lucknow by Pratibha Gupta (2010), 59.5% mothers were illiterate. Majority of families (67%) belonged to Class V socio-economic status. 70% families were nuclear type. [26]

According to a study conducted in Jammu by Kumari R (2011), majority (41.9%) of females were in 25 – 29 years age group, followed by 20 – 24 years (40.3%), 30- 34 years (10.4%) while females aged more than 35 years were 4.2% and 2.95% were teenagers. 84.6% were literate, majority 36.8% being educated upto secondary level. 15.1% females had literacy level above secondary education. Only 15.4% females were illiterate. 94.5% of women were housewives followed by service sector 3.6% and labour class 1.9%. [27]

Study in Bangladesh by Sohely Yasmin (2001) revealed that 27% mothers were married in their teenage. 3% had delivered their fifth child or higher. Median maternal age was 22 years. One-third had received no formal schooling, one-half had been

educated till primary level and 13% had progressed to secondary level. Most mothers were Muslims (77%). [28]

In Nepal a study conducted by Chandrashekar *et al* (2006) revealed that median age of mothers was 24 years. 38.8% mothers were illiterate and only 13.7% had high school education and above. Mean monthly family income was 6360 Nepalese rupees. 81.7% mothers were Hindus and 13.8% were Buddhists. [29]

In a comparative cross-sectional study of Essential newborn care practice in hospital versus home deliveries conducted in Pakistan by Khan MH (2006), mother's ages ranged 15-35 years. 82% women were illiterate with minor criteria of being able to read and write. [30]

Reports from a study conducted in eastern Uganda by Waiswa P (2010) revealed that most of the mothers were young, with 44% being 25 years or below, and only 27% were above 30 years. 67% mothers had only primary education and 13% were not educated. [31]

II. ANTENATAL CARE AND DELIVERY CHARACTERISTICS

Pregnancy and childbirth are special events in a woman's lives and indeed in the lives of their families. This is a time of great hope and joyful anticipation. In any community, mother and child constitute a priority group i.e. "Vulnerable" or special risk group. They comprise approximately 70% of the population in a developing country.

A pregnant woman should be treated with special care i.e. antenatal care which is an excellent example of preventive medicine. It provides the pregnant women an opportunity to discuss with the health care provider about her health in pregnancy, complications that may arise during pregnancy and a delivery plan that will meet her needs. The primary aim of antenatal care is to achieve at the end of pregnancy, a healthy mother and a healthy baby by providing essential services that are recommended for all pregnant women such as tetanus toxoid (TT) immunization and prevention of anaemia through nutrition education and provision of iron & folic acid (IFA) tablets. [11]

National health policy envisages 100% antenatal coverage of pregnant women and immunization against tetanus. But in reality only 43.8% of pregnant women in India, 60.1% pregnant women in Karnataka and 27.2% pregnant women in Bijapur District receive adequate ANC check-ups. [32]

WHO has declared many World Health Day themes to emphasise the importance of a maternal and child health, the latest being in 2005 "Make every mother and child count". [33]

In a study conducted by Sethi V (2005) in rural area of western Uttar Pradesh, home deliveries were common and conducted either by the mother in law (MIL) or TBA due to traditional factors, economic constraints, low physical and social access to health facilities.[34]

In a study in urban slums of Delhi by Manju Rahi *et al* (2006) showed that, home deliveries (46) were more common (56.1%) as compared to institutional deliveries (36, 43.9%). Home deliveries were conducted by dais (24, 91.3%) or by relatives (4, 8.7%). Most of the deliveries (80, 90.2%) were normal vaginal deliveries and only 2 (9.8%) were caesarean sections. Most of the babies (81, 98.8%) cried immediately after birth while 1 (1.2%) failed to do so. [17]

According to a study by Siddharth Agarwal (2007) in Indore, 82.0% of mothers had received 2 TT shots during their pregnancy. 86.2% mothers received IFA tablets. Of whom only 11.5% of them consumed IFA tablets for 3 months or more. 76.6% mothers received atleast one ANC checkup and 40.1% mothers received three or more ANC checkups during their pregnancy. 72.1% of deliveries were conducted at home of which 66.5% were conducted by trained birth attendants. [18]

A study on newborn health among tribes of Madhya Pradesh (2007) by Neeru Singh revealed that the condition of antenatal care among the tribal women was appalling as

about 56% of scheduled tribal women did not receive any ANC services, and 48% of them did not receive any TT injection. About two-third tribal women (64%) did not receive any IFA tablets or syrups. Nearly 91% of deliveries among scheduled tribes were conducted at home as compared to 80% in the state. Untrained persons assist about 70% of total and 86% of scheduled tribes women's deliveries in the state. 90 % women had not received any post natal visit by health worker. [35]

District Level Household and Facility survey conducted in Karnataka in 2007-2008 revealed that. 51.1% mothers who had full antenatal check-ups. 65.1% women opted for institutional delivery, 34.1% opted for home delivery. [36]

A study conducted by Sonia Puri (2008) in Chandigarh revealed that in urban area 93.8% (106) mothers had minimum of 3 antenatal visits compared to slums where 61.9% (70) were registered. Immunization by tetanus toxoid was 90% in urban and 70% in slums. 86.7% (98) mothers in urban area and 44.2% (50) in slum area took iron supplementation (minimum for 3 months). Proportion of mothers who delivered at full term was similar in urban and slum area. Majorities of the mothers were registered at government institutions, 84% (89) in urban setup and 72.1% (31) in slum setup. In urban area 96.5% (109) deliveries were conducted at hospitals and 70.8% (80) were at mother's residential area. Out of the total home deliveries, 8.4% (19) were done by untrained personnel and (61.9%) 140 by trained personnel. In urban area, 94.7% (107) were by skilled attendants. Around 12.8% (29) deliveries were conducted by mother / in laws / neighbours. [20]

A study conducted in urban slums of Aligarh by Zulfia Khan (2009) reported that a total of 19.6% of the mothers did not receive any antenatal care. Of these, a large majority were those who preferred to deliver at home. There was a significant difference in the rate of antenatal care received (at least one visit and 1 tetanus toxoid) among women who delivered at home and those who delivered in an institution. While overall a majority of women (80.4%) had at least one antenatal check-up either in government hospital or a private clinic/nursing home, the number was significantly higher in those women who had institutional deliveries (z=2.145.Sig.). A total of 9.6% of the mothers did not receive a dose of Inj. Tetvac. These were the same mothers who did not receive any antenatal check-up. The majority of women received two doses of Inj. Tetvac (78.2%). However, the rate was significantly higher in women who chose to have an institutional delivery (z=2.477.Sig). [23]

Study done in slums of Meerut city by Jain T (2010) revealed that more than half of the mothers (50.5%) had not received any antenatal care. Coverage of iron and folic acid prophylaxis was very poor, only 5.7% of mothers had consumed adequate amount. Only 27.2% of the mothers had an institutional delivery. Private hospitals (22.4%) were largely preferred in contrast to Government hospitals (4.8%). One third of home deliveries (34.7%) were conducted by untrained personnel. [37]

Study in Uttar Pradesh by Singh S (2010) showed that 75% women had two antenatal visits and only 1.4% women had all three antenatal check-ups. 20.8% mothers had no antenatal check-up throughout their pregnancy. 75% women had received two doses of TT and 23.6% women had consumed 100 Iron folic Acid (IFA) tablets. 62.5%

deliveries were conducted at home, out of which 26.4% were conducted by untrained health personnel and 36.1% were by trained dai. [38]

Satija M, Singh J, Singh A (2010) conducted a study in urban area of Punjab which showed that, 78.1% of the pregnant women had availed 3 or more ANC visits, while 3.5% did not visit any health facility at all during their pregnancy. 96.4% pregnant women received 2 TT/booster doses, while 1.5% of them were not immunized against TT. Only 47.4% pregnant women had IFA supplementation for 3 or more months, while 12.3% subjects had no IFA supplementation. [24]

According to a study conducted in Jammu by Kumari R (2011), 17.4% pregnant women had less than 3 antenatal visits while 80.8% had three or more antenatal visits. Only 1.8% of them had no visits even in later stages of pregnancy. 48% pregnant women had IFA supplementation for more than 3 months, while 14% had not taken IFA tablets at all. Regarding Tetanus toxoid injection 94.4% women had received 2 doses of TT / booster dose while 2.6% did not receive even a single dose. 75.3% deliveries occurred in hospitals (Govt. or Private) as against only 24.7% which occurred at home. [27]

The study conducted in Andhra Pradesh by Burankar V (2011) revealed that 74.11% women delivered at the institution and the remaining 25.89% delivered at home. Out of 74.11% who delivered at the institution, 72.93% preferred the Government Hospital and 27.07% preferred Private nursing homes. Of those who delivered at home, majority (93.75%) were delivered by traditional birth attendants and only 1.25% women were delivered by the ANM. It was also observed that 77.02%

delivered normally, 21.04% were delivered by caesarean section and 1.94% were delivered by forceps. [39]

The results of a study conducted in Bangladesh by Yasmin S (2001) showed that 23% of the mothers received no antenatal care, 48% were primiparous, and 3% had delivered their fifth child or higher. [28]

David Osrin (2002) conducted a study in Nepal which showed that 90% women gave birth at home, either in the house or in the courtyard. 11% women gave birth alone while in 40% deliveries the birth attendant was mother-in-law. [40]

Chandrashekar *et. al.* (2006) reported that in western Nepal, 30.4% of the mothers had not gone for any antenatal visit and only 10.4% mothers had at least four antenatal visits as recommended by the National Safe Motherhood Program of Nepal. 29.2% mothers did not receive tetanus toxoid vaccine during their previous pregnancy and 86 (35.8%) received two doses of tetanus toxoid as recommended by the National Safe Motherhood Program. 85.5% mothers interviewed had delivered at home at least once before. 92.5% of the deliveries took place either in a separate room or inside the house and the remaining 7.5% deliveries took place outside the house, either in the backyard or other places. Only 6.3% deliveries were attended by skilled personnel and 5.4% deliveries were attended by traditional birth attendants. [29]

III. POSTNATAL CARE (NEONATAL CARE)

A good number of neonatal morbidity and mortality is attributed to improper delivery and newborn care practices. Most of the neonatal deaths can be prevented with cost-effective solutions that do not depend on highly trained provider or sophisticated equipment. Proper nutrition and hygiene are the answers in many cases, also having skilled health care at hand during and after delivery, by recognizing and promptly treating obstetric complications, by keeping the baby warm and the umbilical cord clean, and by improving breastfeeding practices.

Neonatal care practices depend on the knowledge, attitude and practice of the community as well as the availability and accessibility of the services

In other words, the real challenge is to spread the awareness of sound newborn health practices and to integrate essential newborn health care into existing maternal and infant care programs.

Essential newborn care encompasses cleanliness, thermal protection, initiation of breathing, eye care, early and exclusive breast feeding, immunisation and management of illness

EARLY NEONATAL CARE

The first week of life is the most crucial period in the life of an infant. Of the 1.2 million neonatal deaths in India, 75% die within the first week of life. Of these, 25 – 45% may die during the first 24 hours of birth. [3] This is because the new born has to adapt itself rapidly and successfully to an alien external environment. The risk of death is the greatest during the first 24-48 hours after birth. The problem is more acute

in rural areas where expert obstetric care is scarce and the home environmental conditions in which the baby is born are usually unsatisfactory.

The objective of early neonatal care is to assist the newborn in the process of adoption to an alien environment by establishment and maintenance of cardio-respiratory functions, maintenance of body temperature, avoidance of infection, establishment of satisfactory feeding regimen and early detection and treatment of congenital and acquired disorders, especially infections. [11]

IMMEDIATE NEONATAL CARE [11]

1. CLEARING THE AIRWAY

Establishment and maintenance of cardio-respiratory functions (e.g., breathing) is the most important thing the moment the baby is born, and everything else is secondary.

To help establish breathing, the airways should be cleared of mucus and other secretions. Mouth is first suctioned gently and then the nose. The head is held slightly downward to promote drainage of mucus and fluid. Resuscitation becomes necessary if natural breathing fails to establish within a minute. Neonate is stimulated to cry by slapping his heels, lightly tapping the buttocks, and/or rubbing his back gently.

In case neonate has been subject to hypoxia during labour more active measures are used such as suction, application of oxygen mask, intubation and assisted respiration.

2. BODY TEMPERATURE MAINTENANCE:

Avoiding hypothermia (rectal temperature less than 36.5°C or 96.8° F) is important for newborn health outcomes because hypothermia increases morbidity and mortality. The risk of losing heat is greatest when the baby is wet (i.e., just after delivery or bath). A baby can lose one degree of body temperature per minute when wet, even in a room that is not obviously cold. To prevent heat loss, it is necessary to dry up the baby and wrap the baby in a clean, dry cloth and to make sure the baby's head is covered. Place the infant in a radiant heat warmer. Infant is kept close to the mother's skin. Skin-to-skin contact with the mother will help prevent heat loss (rooming-in).

3. CARE OF CORD

In a normal infant, the umbilical cord should be cut and tied when it has stopped pulsating so that the baby derives about 10 ml of extra blood. This is particularly important in India where anaemia is frequent. Care must be taken to prevent tetanus of the newborn by using properly sterilized instruments and cord ties. It is essential to apply an antiseptic preparation on the cord stump and the skin around the base. The cord should be kept as dry as possible. It dries and shrivels up and separates by aseptic necrosis in 5-8 days.

4. CARE OF EYES

Before the eyes are open, the lid margins of the newborn should be cleaned with sterile wet swabs, one for each eye from inner to outer side. Instil a drop of freshly prepared silver nitrate solution (1 per cent) to prevent gonococcal conjunctivitis,

alternatively, a single application of tetracycline 1 per cent ointment can be given. Any discharge from the eye of an infant is pathological and calls for immediate treatment.

5. CARE OF SKIN

Dry the baby thoroughly with a clean cloth immediately after birth. Wrap baby with a warm, clean cloth and cover the head. If culturally acceptable, the first bathing may be delayed for 12-24 hours after birth to avoid cooling the body temperature. The first bathing is done by the nursing staff and thereafter no further bathing is necessary until the day before discharge.

TRADITIONAL AND CULTURAL PRACTICES

The Indian society is still tradition bound to a large extent. Almost all families have their own traditions of neonatal care and child care. Majority of the rural people believe that wrath of Gods and Goddesses, evil eye, spirit or ghost intrusion are supposed to be the causes of some diseases. Application of kajal to ward off evil eye, application of substances like oil, turmeric, ash, garlic to the umbilical cord stump to aid healing, discarding colostrums under the belief that it is spoilt milk and initiating breast feed from second or third day after birth is still going on. In spite of the fast developing modern science, people have misconceptions about health and disease.

In a study in urban slums of Delhi by Manju Rahi *et al* (2006) 82.6% of home delivered newborns were given a bath immediately after birth. In 30.4% deliveries air passage was not cleared at all. In 63% of home deliveries air passage was cleaned by using a finger. Eyes of the newborns were cleaned (wiped) by unsterile cloth or cotton in 30.4% of home deliveries and by boiled and different cotton swabs for each eye in 2.2% case, whereas in 32.6% of home delivered newborns, eyes were not cleaned at all. Of the home delivered babies, 39.1% were weighed at birth compared to weighing in all cases of institutional deliveries. BCG, OPV and hepatitis B vaccine were given to 17.4% of newborns that were delivered at home. Majority of this immunization was done at urban health centre, situated in the study area. In the institutional deliveries BCG and OPV were given to most of the newborns but hepatitis B vaccine was given only to 77.8% babies. Surprisingly, 26.1% home delivered newborns were given injection tetanus toxoid by unqualified practitioners of that area. This was on the recommendation of the dai conducting the delivery. A new shaving blade was used to cut the cord in 78.3% of home deliveries. Cord of the newborn was tied using a clip or a rubber band in institutional deliveries. Whereas sterile thread or clip (available in the delivery kit) was used only in 28.3% of home deliveries, the difference being highly significant (P <0.001). In rest of the cases threads, available at home, were used which can be presumed to be unsterile. Cord applicants like turmeric with oil or ghee; just oil or ghee and cold cream were applied in as much as 32.6% home deliveries. These were applied in 11.1% institutional deliveries, after bringing the child home. [17]

Among urban poor of Indore a study done by Agarwal S (2007) found that home deliveries were conducted on the floor of the room in nearly all families (93.2%). However, a washed sundried cloth/ polythene/mackintosh from the DDK was laid on the delivery surface in 46% homes and in 26.2% homes delivery was conducted on an unclean and uncovered floor. Although, 61.4% birth attendants washed their hands with soap and water before conducting the delivery, only 14.7% of them let their hands air-dry after washing with soap and water prior to delivery. A clean cord tie was used only by 34% families. Nearly all (96.6%) families used a new blade for cutting the cord, but only 30.7% did not dip it in hot water before use. The cord stump was left clean with no applicant in 50% of families.

Common applicants used included warm ghee (saturated milk fat)/ mustard oil/ coconut oil/ Sindoor/ turmeric paste/ talcum powder. These applicants were applied so that the cord stump dries and falls off quickly. 38% families made efforts to keep the birth room warm on the advice of the TBA. 62.5% birth attendants bathed the newborn with lukewarm water immediately after birth. [18]

Sonia Puri *et. al*. (2008) conducted a study in urban and slum areas of Chandigarh to find the following results, the practice of observing thermal care in newborns was significantly ($p<0.05$) higher in urban setup, 93.8% in comparison to slums, 12.4%. Majority of newborns (61.9%) were given bath after birth within 6-12 hrs, followed by 14.2% within 12-24 hrs. The practice of not giving bath till 15 days was observed in 3.5% in slums as compared to 2.7% in urban area. 24.8% in urban and 6.2% in slums bathed the newborn with milk or curd. Significantly higher difference was seen

in urban and slum area regarding cord care practice ($p<0.05$). Almost half of the study subjects received help from elderly in newborn care, 51.5%. Practice of applying kajal was found to be much higher in slums, 94.7% as compared to 28.3% in urban ($p<0.05$). [20]

A study conducted in rural area of Bangalore by Madhu K (2009) reported total of 90% hospital deliveries and 10% home deliveries. The care provided during the home deliveries was mainly given by an untrained birth attendant (40%). A household knife (50%) was used to cut the umbilical cord in five home deliveries. In both hospital and home deliveries, nothing was applied for umbilical cord dressing (67%). Talcum powder (10%) and turmeric was used by some mothers for cord dressing. A total of 16% of the mothers still practiced branding of the child for illness. A total of 93% of the children received all vaccinations needed according to the national immunization schedule. [21]

According to a study done among slum dwellers of Lahore, Punjab by Aziz N (2010), 37.2% of newborns were bathed immediately after birth. While 40.5% were given bath within 6 hrs of delivery. 18.3% of babies were bathed within 7 – 24 hrs of delivery and 4.2% were given bath after 24 hrs of delivery. 18.8% were wrapped immediately while 82.2% were wrapped after delivery of placenta. 12% reported placing the newborn on the floor, thereby increasing the risk of hypothermia. Only 23.5% babies were dried immediately before the placenta was delivered. Almost 68.9% of the newborns were dried within one hour after the placenta was delivered.[41]

The study done to observe Umbilical Cord Care Practices among the Newborns of Gadaba and Konda tribes by Giridhar L (2011) showed that, majority of the newborns in Gadaba (82.3%) and Konda Dora (84.0%) populations are born at home. The umbilical cord was cut after the delivery of the placenta (18.0%-20.0%). In very few cases (2.7%) in both the communities the cord was cut before the placenta was expelled. New shaving blade was used to cut the umbilical cord in 80.3% of Gadaba and 82.3% of Konda Dora tribes. Surgical blade was used in 17.0% of Gadaba and 12.0% of Konda Dora tribe. Use of kitchen knife and sickle are also used as the tools to cut the cord in 2.7%-5.6% of cases. After cutting the umbilical cord, new thread (purchased from the market) was tied to arrest the blood flow in 80.3% of Gadaba and 83.0% of Konda Dora newborn. The other widely used tool to arrest the blood flow from the umbilical cord is sterile thread (11.0%), clip (2.3%) from the delivery kit or a washed cloth available at home (2.0%) and wool (1.7%) or thread available at home (1.3%). Nearly 96.0% of Gadaba and 95.3% of Konda Dora newborns were applied with variety of oils or ash of vegetative origins and also different powders. In reality only 3.0% of Gadaba and 4.0% of Konda Dora women have not applied any substance to the cut end of the cord stump of the newborn. Other substances used are ash of the coconut shell/ coal powder/ red pot powder/ ash of cotton cloth cold cream (1.0% of Gadaba and 2.7% of Konda Dora); talcum powder (9.7% of Gadaba and 3.0% of Konda Dora); oil with turmeric paste (6.7% of Gadaba and 5.3% of Konda Dora); Neosporin (7.0% of Gadaba and 4.0% of Konda Dora) and warming the cord with coal. [42]

A cross-sectional study conducted in Nepal by Osrin D *et. al.* (2002) to assess newborn care revealed that, 55% women recalled that helpers had washed their hands, 28% recalled that they had not done so and 14% could not clearly remember. The umbilical cord was cut with a razor blade in 56% births, although in only 33% could the blade be reliably described as clean. A household sickle (not generally sterilised by heat or other means for this purpose) was used in about a third of births. Once the cord had been cut, the umbilical stump was usually left undressed (73%).The most common application was oil (18%). In three quarters of cases the newborn infants were wrapped in used pieces of cloth which were washed and dried in advance. Almost all babies had been bathed within six hours of birth, three quarters within the first half hour and 92% within 1hour. [(40)]

In a study conducted to assess home delivery and newborn care practices among urban women in western Nepal by Chandrashekar ST et.al. (2006), it was found that the umbilical cord was cut after expulsion of placenta in 64.2% deliveries and cord was cut using a new/boiled blade in 90.4% deliveries. Mustard oil was applied to the umbilical cord in 22.1% deliveries. Only 45.8% newborns were wrapped within 10 minutes and 97.1% were wrapped within 30 minutes. Majority (93.8%) of the newborns were given a bath soon after birth. Mustard oil massage of the newborns was a common practice (60%). [(29)]

In a baseline survey conducted among slum dwellers of Dhaka by Moran A C *et.al.* (2009), majority of women reported cutting the umbilical cord after expulsion of placenta, which ranged from 2 to 20 minutes after the birth of the baby. Almost all

women reported taking special care of the umbilical cord (98%). Applying heat massage and a range of substances was an integral part of home-based routine newborn care and was almost universally practiced among respondents. The substances applied to the umbilical stump included mustard oil, mustard with chopped smashed garlic, coconut oil, boric powder, talcum powder, savlon (an antiseptic liquid) and *chular mati* (earth from a clay oven). 86% of women reported bathing the baby within the first two days after birth. [43]

Reports from a study conducted in eastern Uganda by Waiswa P (2010) revealed that cord cutting was mostly by use of a razorblade (67%) of which 10% were reused, and only 28% reported to have used cord scissors. About half of the mothers put substances on the cord (such as powder, surgical spirit, salty water, or lizard droppings). To keep the babies warm, 86% were immediately wrapped, but skin-to-skin (STS) care was almost non-existent (2%). Early bathing was the norm, with 56% of the babies bathed within the first 6 hours, 82% within the first 12 hours. [31]

IV. BREAST FEEDING PRACTICES

A cross-sectional study conducted in Nepal by Osrin D (2002) to assess newborn care revealed that 93% of women had breast fed. A taste of clarified butter (ghee), sugar, or honey was sometimes given before feeding began (12%), but 85% of women said that the first feed given to their newborn infants was breast milk. Breast feeding was started within an hour of birth for 63% and within six hours for 91%. Breastfeeding

rates were about 99% at one week. Colostrum was discarded before the first feed in 45% of cases; foremilk was discarded at every subsequent feed in 69% cases. [40]

In a study done among urban poor of Indore by Agarwal S (2007), it was found that 54.5% of the mothers initiated BF within an hour of birth. 38.1% mothers fed prelacteals to their newborns. Type of prelacteal feed included jaggery water, weak tea, honey, unboiled water, goat & cow's milk and a traditional 'ghutti' made from honey and nutmeg. It is appreciable that 58.3% mothers mentioned that they EBF their infants till 2 months of age. However, 37.2% mothers predominantly breastfeed (i.e. they were fed non nutritional supplements like water and 'ghutti') and 4.5% mothers breastfed (i.e. also fed animal milk in addition to water and 'ghutti' although the predominant source of nourishment was breast milk) upto 2 months of age. [18]

In Kanpur a study was conducted by Srivastava S, Srivastava A (2008) which revealed that 45.3% mothers give honey as first feed to the neonate. 21.3% mothers give colostrums, 18.6% mothers give glucose water, 12% give cow's milk and 2.6% give goat's milk. Among mothers who did not give colostrums, 50.8% cited traditional reason, 14.4% cited lack of milk secretion, 22% due to their illness and 12.7% due to child's illness. 51.3% mothers followed on-demand feeding practice. [44]

A study conducted in rural area of Bangalore by Madhu K (2009) reported that 44% mothers initiated breast feeding within 30 minutes with home delivery and 38% with caesarean section. A total of 19% mothers did not breastfeed even after 24 hours after delivery. These neonates were given prelacteal feeds and discarded the colostrums. 13% of the babies were fed with sugar water alone for more than 48 hours. Honey (6%) and ghee (3%) were commonly used pre lacteal feeds. 40% mothers practiced

exclusive breastfeeding until 6 months. 53% mothers started weaning prematurely, majority at 3 to 4 months age. 84% mothers followed on-demand feeding practices. Cow's milk was most common food used when breastfeed was stopped prematurely. Only 19% mothers used commercial formula. [21]

In a study conducted in Bankura district, West Bengal by Sinhababu A *et. al.* (2010) it was shown that although breastfeeding was universal, only 13.6% of the study children were put to the breast within one hour of birth. About 5% of the neonates had to wait for at least 24 hours for first sips of breast milk. The overall prevalence of prelacteal feeding was 26.7%. The major types of prelacteal feeds were sweetened water, animal-milk, especially goat's milk, and honey. 57.1% of the infants aged less than six months were exclusively breastfed. 6.7% of infants aged less than two months consumed 'other milk' (formula milk and animal-milk), in addition to breastfeeding. [45]

A study conducted by Takalkar AA et.al. (2010) to assess breastfeeding practices in rural community of Andhra Pradesh showed that 3.6% mothers successfully initiated breastfeeding within 6 hours of baby birth and 22.6% mothers discarded colostrum. 72.6% mothers exclusively breast fed their child for less than or up to six months duration and 10.1% mothers introduced artificial foods along with breast milk. Statistically significant association was observed between educational status of mothers and period of continuation of breast feeding ($p<0.05$). 50% of mothers who discarded colostrum did this on elders' advice. Breast feeding was discontinued because of insufficient breast milk (53.1%) within first 6 months. In 10.9% cases

illness of baby was observed to be one of the important reason for discontinuation of breast feeding. [46]

A study done in rural Kanpur by Midha T (2010) showed that 21.6% infants were initiated on breast feeding within 1 hour of birth. Mothers of 51.0% of infants exclusively breast fed their babies for 6 months. 72.7% infants were given pre-lacteals, such as honey, ghutti or water. Birth interval more than or equal to 3 (OR=2.05), male child (OR=3.57) and institutional delivery (OR=3.86) were factors responsible for early initiation of breast feeding. [47]

A comparative study done by Srivastava A (2010) in rural and urban areas of Kanpur show that majority of urban population has started breastfeeding within 24 hrs but in the rural population it is mostly after 24 hrs. Most common substance used as first feed for new born in rural areas was "ghutti" (81.2%) followed by honey whereas honey (53.2%) followed by breast milk in urban areas. Demand feeding practice was better prevalent (38.8%) in rural areas in comparison to urban areas (26.2%) but ideal feeding posture and post feed burping practice were better prevalent in urban areas. Most common reason cited for premature termination of breastfeeding (at age of <6 months) was insufficient breast milk (69.2%) in urban areas whereas baby's illness (60.9%) in rural areas. [48]

A study of breast feeding practices among non-working women in rural area of Puducherry by Senthilvel V (2011) revealed that 25% of women breastfed within 2 – 6 hours and 15% of them fed within 7 – 12 hours. 95% of the mothers knew that exclusive breast feeding (up to 6 months) should be given to their children. 74% of the mothers gave colostrums to their children. 19% of the mothers gave pre-lacteal food to their children. Out of those mothers who gave prelacteal feed, 58.34% of them gave complementary food to their children in 4 – 6 months. The importance of breast feeding initiation advice was received from health workers and professional was 90%.[49]

In a study conducted in urban slums of Vadodara by Katara PS *et.al*. (2011), out of 192 infants, only 15.5% received exclusive breastfeeding. Majority (76.8%) were given water with breast feeding. Exclusive breast feeding was discontinued in 30% of infants by 1 month of age, in 50% of infants by 2months of age and in 11% of infants by 5 months of age. [50]

In the baseline survey conducted in Dhaka by Moran A C *et.al.* (2009), 64% of women reported first feeding their baby with something other than breast milk (colostrum). Forty percent of women reported first giving their baby honey, while 16% of women gave sugar water, and 4% gave mustard oil. Half of women reported breastfeeding within one hour of birth, 35% reported breastfeeding within one day of birth, and 14% reported breastfeeding after one day of birth. [43]

In a study in eastern Uganda by Waiswa P (2010), although all babies were breastfed, only about half were initiated within the first hour of birth, with 41% initiating within 1 - 6 hours. Other feeds besides breast milk, including cow's milk, plain water, sugar or glucose water, gripe water and tea, were given to 35% of babies in the neonatal period, contrary to recommendations. [31]

A study conducted in Bangladesh by Mihrshahi S *et.al.* (2010) to estimate the determinants of infant and young child feeding practices, it was noted that, only 27.5% of mothers initiated breastfeeding within the first hour after birth, 99.9% had ever breastfed their infants, 97.3% were currently breastfeeding and 22.4% were currently bottle-feeding. Among infants under 6 months of age, 42.5% were exclusively breastfed and among those aged 6 to 9 months, 62.3% received complementary foods in addition to breast milk. Among the risk factors for an infant not being exclusively breastfed were higher socioeconomic status, higher maternal education. Higher birth order and female sex were associated with increased rates of exclusive breastfeeding of infants under 6 months of age. The risk factors for bottle-feeding were similar and included having a partner with a higher educational level (OR = 2.17), older maternal age (OR for age > or = 35 years = 2.32), and being in the upper wealth quintiles (OR for the richest = 3.43). Urban mothers were at higher risk for not initiating breastfeeding within the first hour after birth (OR = 1.61). Those who made three to six visits to the antenatal clinic were at lower risk for not initiating breastfeeding within the first hour (OR = 0.61). The rate of initiating breastfeeding within the first hour was higher in mothers from richer households (OR = 0.37). [51]

MATERIALS AND METHODS

STUDY SETTING: The present study was carried out in Shivanagi village, which is the rural field practice area of B.L.D.E.U's Shri B.M.Patil Medical College, situated 30 km from Bijapur city and has population of 9283.

STUDY POPULATION: All neonates born during the study period, (1^{st} January 2011 to 31^{st} December 2011) in Shivanagi village.

STUDY DESIGN: Community based cross sectional study by interview technique.

DURATION OF STUDY: 1^{st} January 2011 – 5^{th} January 2012.

SAMPLE SIZE ESTIMATION:

Estimated population of Shivanagi = 9283.

Crude birth rate of Bijapur District as per district records is 27 per 1000 population.

Therefore, for a population of 9283, the total number of births per year will be 251.

Neonatal mortality rate of Bijapur District as per district records is = 34 per 1000 live births.

Therefore, for 251 births, NMR will be 8.6 ≈ 9.

No. of neonates alive = 251 - 9 = 242 neonates.

n = 242.

6 mothers did not show interest in the study hence, were excluded.

Therefore, n = 242 – 6 = 236

SAMPLE SIZE = 236

ETHICAL CLEARANCE

The study protocol was submitted to the ethical committee of Shri B.M. Patil Medical College and clearance was obtained before commencement of study. (Annexure II)

DATA COLLECTION:

Study was done once a week on every Thursday throughout the study period. After obtaining oral consent, all mothers who delivered during the study period were interviewed in their homes to assess knowledge, attitude and practices regarding neonatal care. Information regarding socio-demographic profile of the family was also obtained from mothers or caretakers in a pre-designed proforma.

STATISTICAL ANALYSIS:

SPSS v.16 (Statistical Package for Social Sciences) was used to analyze data. Statistical tests like graphs, mean ± SD, percentages were used. Chi-square tests were applied wherever necessary.

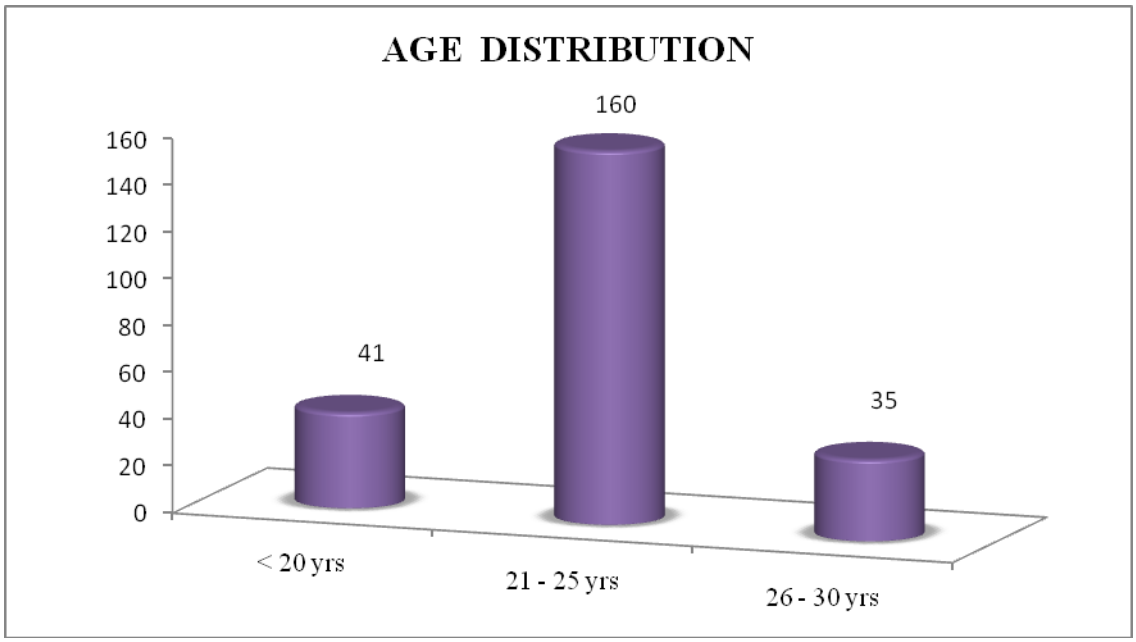
INCLUSION CRITERIA

1. All postnatal mothers who delivered during January 1st 2011 – December 31st 2011 and willing to participate in the study.

EXCLUSION CRITERIA

1. Postnatal mothers who lost their babies.
2. Those parents/guardians who were not willing to participate in the study.

GRAPH 1: DISTRIBUTION OF MOTHERS BASED ON AGE.



RESULTS

A. SOCIO-DEMOGRAPHIC PROFILE

TABLE 1: DISTRIBUTION OF MOTHERS BASED ON SOCIO-DEMOGRAPHIC FACTORS (AGE & RELIGION).

SOCIO-DEMOGRAPHIC FACTORS		FREQUENCY (n = 236)	PERCENT
AGE	≤ 20	41	17.4
	21-25	160	67.8
	26-30	35	14.8
RELIGION	Hindu	175	74.2
	Muslim	61	25.8

In the present study, maximum mothers were in the age group of 21-25 years (67.8%), followed by ≤ 20 years (17.4%) and > 25 years (14.8%). Mean ± S.D. of mothers age was 23.11 ± 2.78 years.

Majority of the families (74.2%) belonged to Hindu religion while 25.8% belonged to Muslim religion.

GRAPH 2: DISTRIBUTION OF MOTHERS BASED ON EDUCATION STATUS.

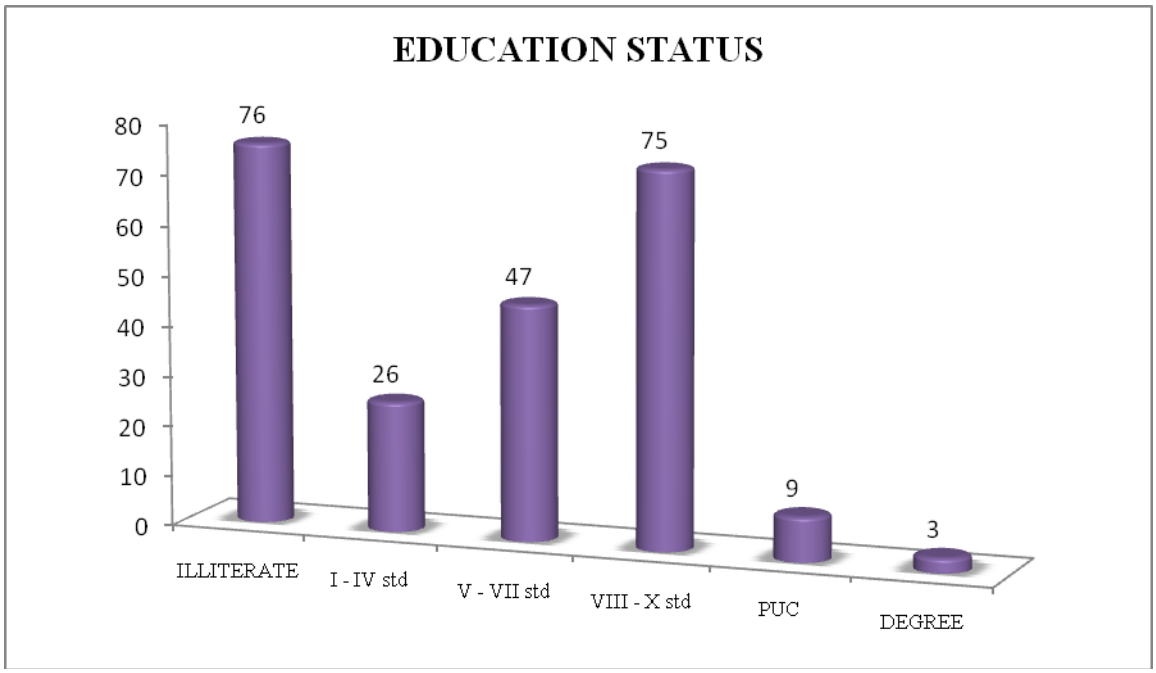


TABLE 2: DISTRIBUTION OF MOTHERS BASED ON SOCIO-DEMOGRAPHIC FACTORS (EDUCATION STATUS, OCCUPATION & TYPE OF FAMILY).

SOCIO-DEMOGRAPHIC FACTORS		FREQUENCY (n = 236)	PERCENT
EDUCATION STATUS	Illiterate	76	32.2
	I - IV std	26	11.0
	V - VII std	47	19.9
	VIII - X std	75	31.8
	PUC	9	3.8
	Degree	3	1.3
OCCUPATION	Agriculture labourer	110	46.6
	Housewife	126	53.4
TYPE OF FAMILY	Nuclear	34	14.4
	Joint	118	50.0
	Three generation	84	35.6

Out of 236 mothers in the present study, it was seen that 32.2% mothers were illiterate, 11% had an education between I – IV std., 19.9% between V – VII std, 31.8% between VIII – X std, 3.8% had education upto PUC and a mere 1.3% held a degree.

With regards to Occupation of the mother, 53.4% were housewives and 46.6% worked as agriculture labourers.

Regarding type of family, it was seen that half the mothers (50%) lived in Joint families, 35.6% lived in Three-generation families, and 14.4% lived in Nuclear families.

TABLE 3: DISTRIBUTION OF FAMILY BASED ON SOCIO-ECONOMIC STATUS. (ECONOMIC STATUS AS PER PRASAD'S UPDATED CRITERIA – ANNEXURE III)

SOCIO-ECONOMIC STATUS	FREQUENCY (n = 236)	PERCENT
Class II	6	2.5
Class III	123	52.2
Class IV	105	44.5
Class V	2	0.8
Total	236	100.0

*None of the families belonged to Class I socio-economic status.

In our study, of the 236 families, majority (52.1%) of the families belonged to Class III socio-economic status followed by 44.5% to Class IV and 0.8% belonged to Class V.

TABLE 4: DISTRIBUTION OF FAMILY BASED ON HOUSING CONDITION.

HOUSING CONDITION	FREQUENCY (n = 236)	PERCENT
POOR	111	47.03
SATISFACTORY	125	52.97
GOOD	0	0

*Housing condition scores in Annexure IV

In context of housing condition, it was seen that of the 236 families, 111 (47.03%) had a poor housing condition, 125 (52.97%) had satisfactory housing condition and none of the families had good housing condition.

B: STUDY OF OBSTETRIC FACTORS.

TABLE 5: DISTRIBUTION OF DEMOGRAPHIC PROFILE OF PARTICIPANTS.

OBSTETRIC FACTORS		FREQUENCY (n = 236)	PERCENT
AGE AT MARRIAGE	<15yrs 16 - 18yrs > 18yrs	18 152 66	7.6 64.4 28.0
AGE AT FIRST PREGNANCY	16 - 18yrs > 18yrs	76 160	32.2 67.8
OBSTETRIC SCORE	Primipara Multipara	57 179	24.2 75.8

Out of 236 mothers, it was unfortunate to note that, 7.6 % were married before attaining 15years age, majority mothers (64.4%) were married between 16 – 18 years of age. With regard to age at first pregnancy, 32.2% mothers were pregnant before attaining the age of 18years. 67.8% mothers were pregnant after age of 18years. Majority of mothers (75.8%) were multipara.

Graph 3: Distribution of mothers based on place of registration.

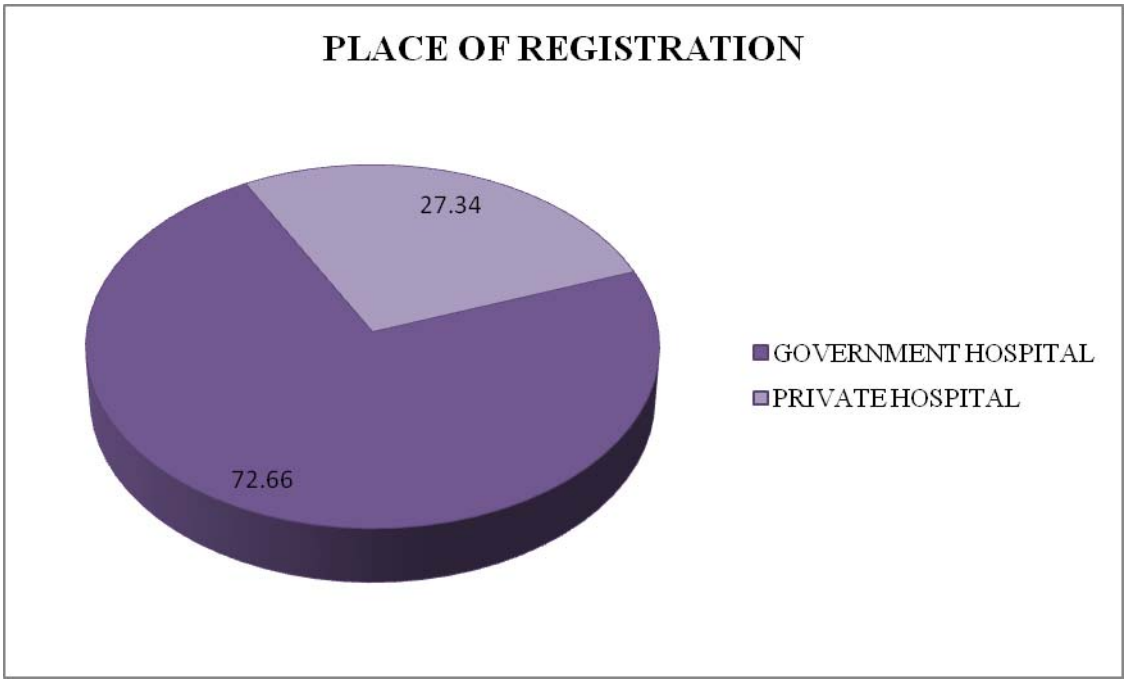


TABLE 6: DISTRIBUTION OF WOMEN BASED ON REGISTRATION OF PREGNANCY.

REGISTRATION OF PREGNANCY		FREQUENCY (n = 236)	PERCENT
REGISTRATION OF PREGNANCY	Yes	139	58.9
	No	97	41.1
PLACE OF REGISTRATION (n = 139)	Government hospital Private hospital	101 38	72.66 27.34

In the present study it was seen that of the 236 mothers, 139 (58.9%) mothers had registered their pregnancy while the remaining 97 (41.1%) had not registered their pregnancy.

Of the 139 mothers who had registered pregnancy, 101 (72.66%) had registered in Government hospitals while 38 (27.34%) had registered in Private hospitals.

TABLE 7: DISTRIBUTION OF WOMEN BASED ON ANC CHECKUPS.

ANC CHECKUP		FREQUENCY (n = 236)	PERCENT
NO. OF ANC CHECK-UPS (n = 236)	None	97	41.1
	1 check up	37	15.7
	2-3 check up	79	33.5
	> 3 check up	23	9.7
TIMING OF FIRST ANC CHECK-UPS (n = 139)	0-12 wks	51	36.7
	12-20 wks	64	46
	20-28 wks	24	17.3

Out of 236 mothers in the present study, 139 (58.9%) had utilised ANC services. 97 (41.1%) mothers did not have any ANC check-up, 79 (33.5%) had 2 -3 ANC check-up, 37 (15.7%) had 1 ANC check-up while only 23 (9.7%) had >3 ANC check-up. Of 139 mothers who had received ANC check-ups, 64 (46%) had their first ANC check-up between 12 – 20 weeks of gestation, 51 (36.7%) had between 0 – 12 weeks while the remaining 24 (17.3%) had between 20 – 28 weeks of gestation.

TABLE 8: DISTRIBUTION OF WOMEN BASED ON INVESTIGATIONS DONE.

INVESTIGATIONS		FREQUENCY (n = 139)	PERCENT
BLOOD EXAMINATION	Yes	125	89.9
	No	14	10.1
URINE EXAMINATION	Yes	113	81.3
	No	26	18.7

In our study, of the 139 women who had utilised ANC services, blood examination was done for 125 (89.9%) women while urine examination was done for 113 (81.3%) women.

TABLE 9: DISTRIBUTION OF WOMEN BASED ON ANC SERVICES RECEIVED.

ANC SERVICES RECEIVED		FREQUENCY	PERCENT
NO. OF TT DOSES (n = 139)	1 dose 2 doses	58 81	41.72 58.3
NO. OF IFA TABLETS (n = 236)	Not taken 30 tablets 60 tablets 90 tablets > tablets90	119 10 60 45 2	50.4 4.2 25.4 19.1 0.8

With regards to TT injection, 81 (58.3%) had received 2 doses while 56 (41.72%) mothers had received 1 dose. 119 (50.4%) mothers had not consumed IFA tablets during antenatal period, 60 (25.4%) mothers had consumed 60 tablets, 45 (19.1%) mothers had consumed 90 tablets, 10(4.2%) mothers had consumed only 30 IFA tablets, while only 2 (0.8%) mothers had consumed more than 90 tablets.

Graph 4: Distribution of mothers based on place of delivery.

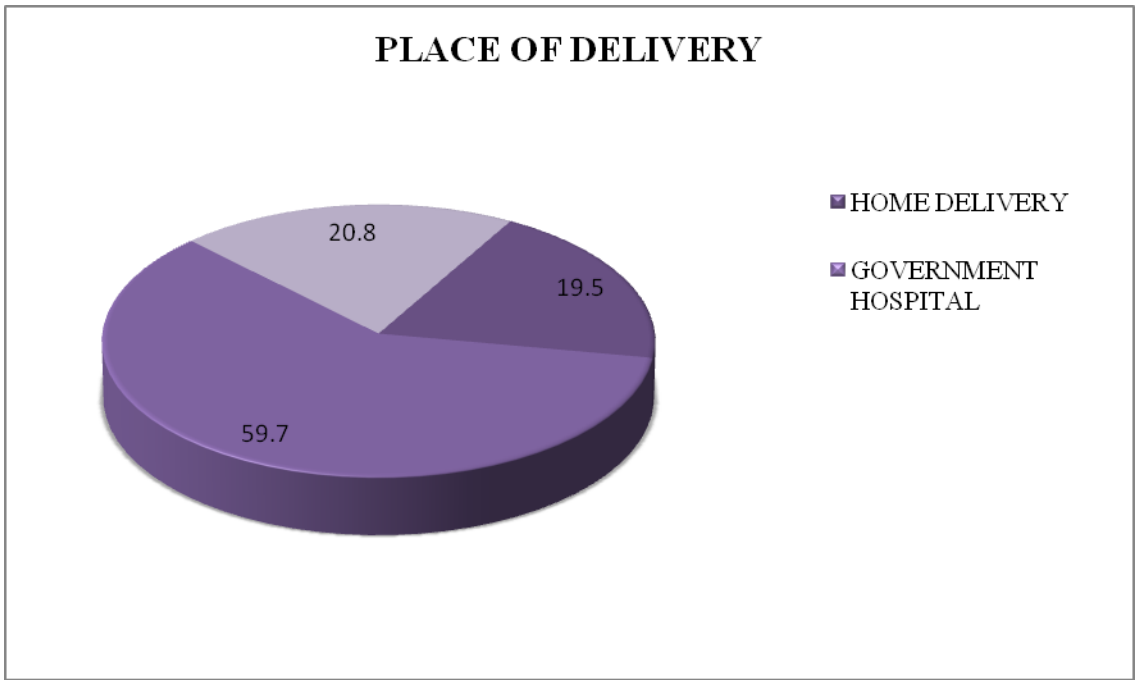


TABLE 10: DISTRIBUTION OF WOMEN BASED ON PLACE OF DELIVERY.

PLACE OF DELIVERY		FREQUENCY (n = 236)	PERCENT
PLACE OF DELIVERY	Home	46	19.5
	Government hospital	141	59.7
	Private hospital	49	20.8
DELIVERY CONDUCTED BY	Doctor	190	80.5
	Dai	41	17.4
	Relative	5	2.1

Regarding place of delivery, 141 (59.7%) mothers delivered in Government hospital, 49 (20.8%) delivered in Private hospitals while remaining 46 (19.5%) delivered at home.

Majority of the deliveries (190, 80.5%) were conducted by a doctor, 41 (17.4%) by dai and 5 (2.1%) by a relative.

C: POST NATAL CARE

TABLE 11: DISTRIBUTION OF NEONATES BASED ON DELIVERY NOTES.

DELIVERY NOTES		FREQUENCY (n = 236)	PERCENT
GESTATIONAL AGE	Preterm	16	6.8
	Full term	220	93.2
SEX OF NEONATE	Male	96	40.7
	Female	140	59.3
BABY CRIED IMMEDIATELY AFTER BIRTH	Yes	225	95.3
	Don't Know	11	4.7

Majority mothers (220, 93.2%) had a full term delivery while 16 (6.8%) mothers had preterm delivery. It is encouraging to note that of the 236 neonates, 140 (59.3%) were females while 96 (40.7%) were males.

As regards to crying of baby immediately after birth, 225 (95.3%) mothers were aware that their baby cried soon after birth while 11 (4.7%) mothers were unaware of it.

Graph 5: Distribution of neonate based on method employed to clean respiratory passage.

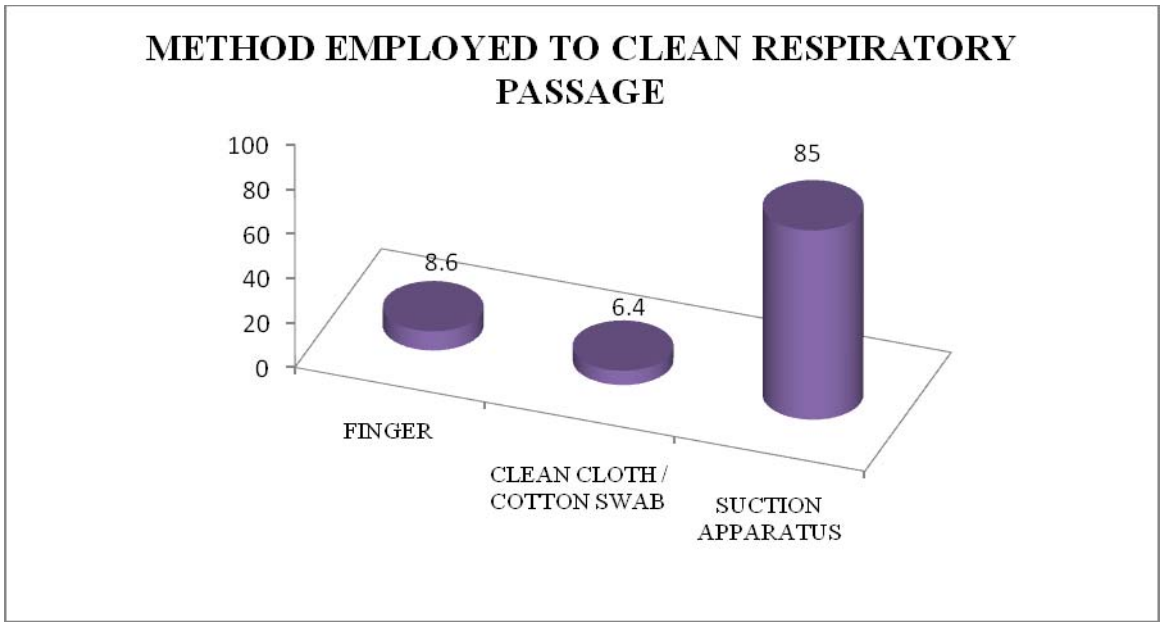


TABLE 12: DISTRIBUTION OF NEONATE BASED ON IMMEDIATE NEWBORN CARE OF RESPIRATORY PASSAGE.

A. RESPIRATORY PASSAGE		FREQUENCY	PERCENT
CLEANING OF RESPIRATORY PASSAGE (n= 236)	Yes	174	73.7
	Don't know	62	26.3
METHOD EMPLOYED FOR CLEANING RESPIRATORY PASSAGE (n = 174)	Finger	15	8.6
	Clean cloth / Cotton swab	11	6.4
	Suction apparatus	148	85

Immediate newborn care of neonates include procedures employed immediately after delivery of neonate like cleaning respiratory passage, cleaning of eyes, wiping baby and covering the baby to keep it warm and prevent hypothermia.

Of 236 mothers, 174 (73.3%) mothers knew that cleaning of respiratory passage was done for their baby while the remaining 62 (26.3%) did not know.

Of the above 174 mothers, 148 (85%) mothers cited suction apparatus, 15(8.6%) mothers cited finger while 11(6.4%) cited clean cloth / cotton swab as method employed for cleaning respiratory passage of the neonate.

TABLE 13: DISTRIBUTION OF NEONATE BASED ON IMMEDIATE NEWBORN CARE OF EYES. (N= 236).

B. EYES		FREQUENCY	PERCENT
CLEANING EYES	Yes	158	66.9
	Don't know	78	33.1
METHOD EMPLOYED FOR CLEANING EYES (n = 158)	Sterile cloth Wet cotton swab Unsterile cloth	97 41 20	61.4 25.9 12.7

With regard to cleaning eyes of neonate soon after delivery, of 236 mothers, 158 (66.9%) mothers knew that eyes of their neonate were cleaned while 78 (33.1%) mothers did not know.

Of the above 158 mothers, 97 (41.1%) mothers cited sterile cloth, 41 (17.4%) cited wet cotton swab while remaining 20 (8.5%) mothers cited unsterile cloth were used for cleaning eyes of neonates.

TABLE 14: DISTRIBUTION OF NEONATE BASED ON IMMEDIATE NEWBORN CARE OF WIPING BABY.

C. WIPING BABY		FREQUENCY (n= 236)	PERCENT
WIPING BABY WITH CLEAN CLOTH	Yes	182	77.1
	Don't know	54	22.9

182 (77.1%) mothers informed that the body of their baby was wiped with clean cloth soon after delivery while the remaining 54 (22.9%) mothers did not know.

All 236 mothers informed that their baby was covered with a clean dry cloth soon after delivery.

TABLE 15: DISTRIBUTION OF NEONATES BASED ON IMMEDIATE CORD CARE PRACTICES.

CORD CARE PRACTICES		FREQUENCY (n = 236)	PERCENT
INSTRUMENT USED TO CUT CORD	Kitchen knife	5	2.1
	Broken glass	2	0.8
	Sickle	2	0.8
	New blade	37	15.7
	Sterile surgical blade	190	80.6
CORD TIE	Cord clamp	185	78.4
	Cotton thread	51	21.6

With regard to umbilical cord care practices the study revealed that sterile surgical blade was used to cut the umbilical cord in majority (190, 80.6%) of neonates, new blade was used in 37 (15.7%) neonates. Unsterile instruments like kitchen knife, broken glass and sickle were used in 9 (3.7%) neonates.

In 185 (78.4%) neonates, cord clamp was applied to the cut end of umbilical cord while in remaining 51 (21.6%) neonates cotton thread was used.

Graph 6: Distribution of neonate based on cord applicant.

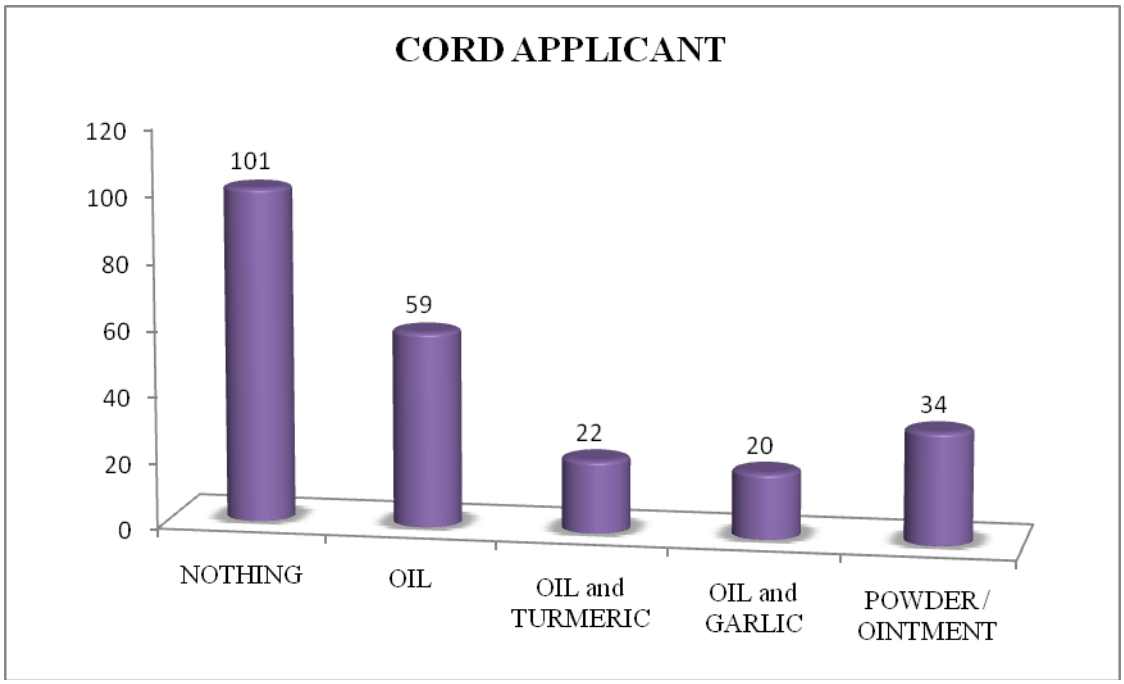
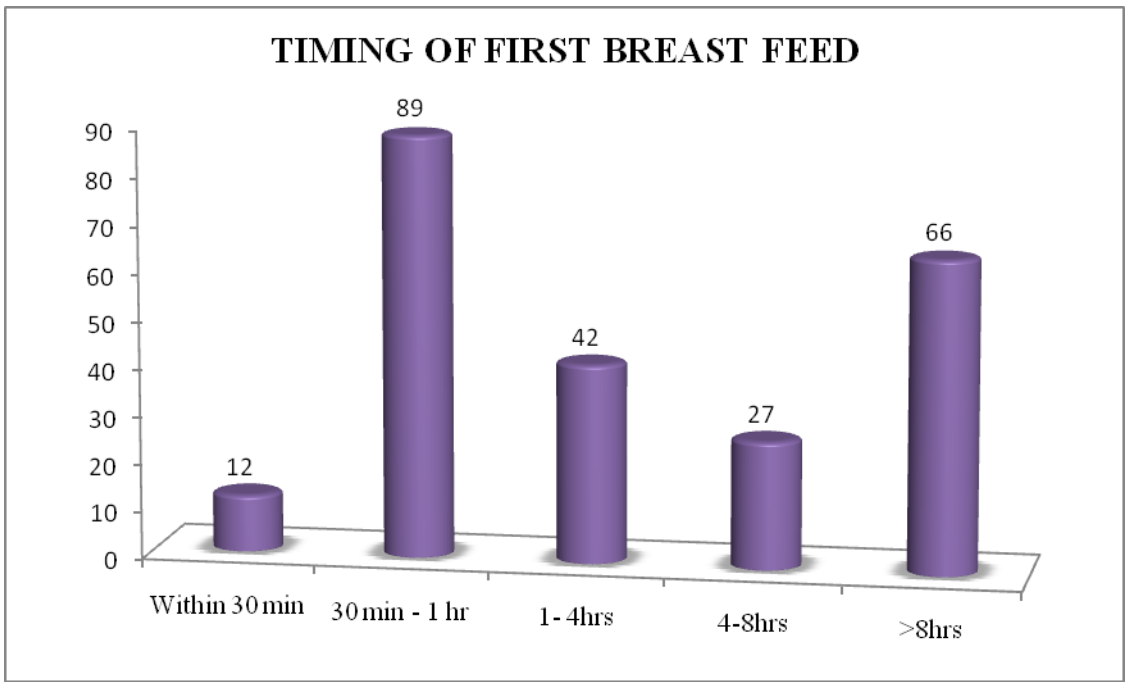


TABLE 16: DISTRIBUTION OF NEONATES BASED ON CORD APPLICATION PRACTICES.

CORD CARE PRACTICES		FREQUENCY (n = 236)	PERCENT
CORD APPLICANT	Nothing	101	42.8
	Oil	59	25.0
	Oil with turmeric	22	9.3
	Oil with garlic	20	8.5
	Powder/Ointment	34	14.4
REASON FOR CORD APPLICATION	Culture	48	35.6
	Faster healing	87	64.4
	TOTAL	135	100

Application of substance to umbilical cord stump was a common practice followed by 135 (57.2%) mothers. The most common substance applied was oil in 59(25%) followed by powder / ointment in 34 (14.4%), oil with turmeric in 22 (9.3%) and oil with garlic in 20 (8.5%). The reason given by majority for cord application was as it helps in faster healing in 87 (64.4%) and culture in 48 (35.6%).

Graph 7: Distribution of neonate based on timing of first breast feed.



Graph 8: Distribution of neonate based on type of prelacteal feed.

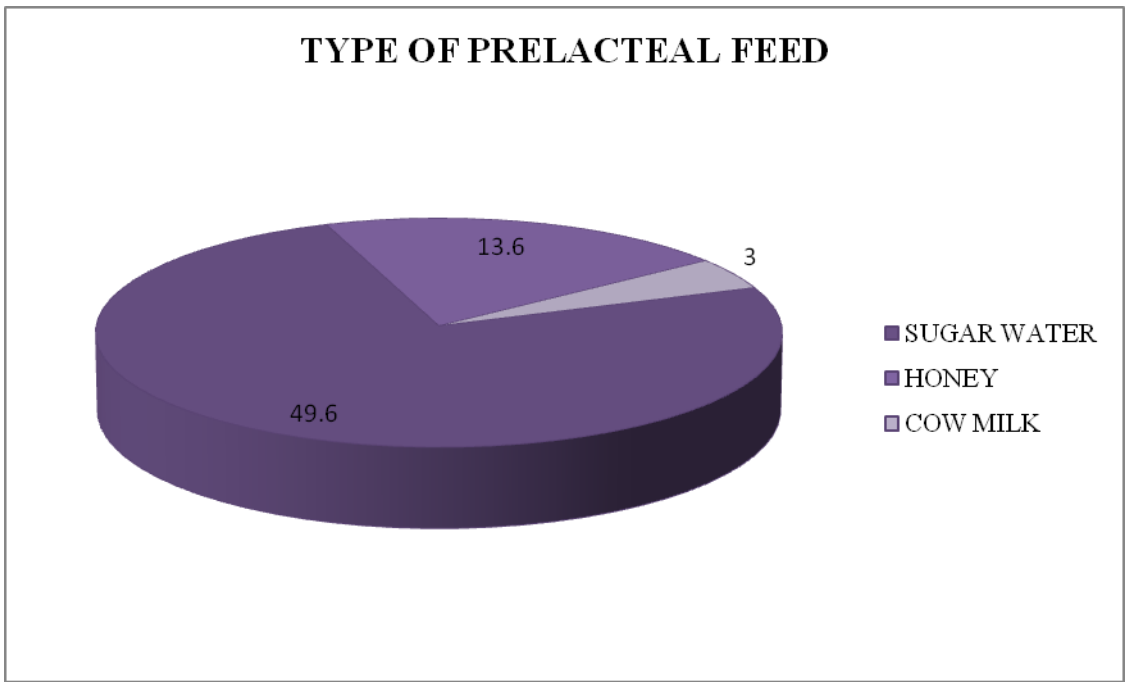


TABLE 17: DISTRIBUTION OF NEONATES BASED ON DETAILS OF FIRST FEED.

DETAILS OF FIRST FEED		FREQUENCY (n = 236)	PERCENT
TIMING OF FIRST BREAST FEED	Within 30 min	12	5.1
	30 min - 1 hr	89	37.7
	1- 4hrs	42	17.8
	4-8hrs	27	11.4
	>8hrs	66	28
PRELACTEAL FEED	Yes	156	66.1
	No	80	33.9
TYPE OF PRELACTEAL FEED	Sugar water	117	49.6
	Honey	32	13.6
	Cow milk	7	3.0
	TOTAL	156	100
COLOSTRUM	Colostrum given	170	72.0
	Colostrum not given		
	a. Culture	41	17.4
	b. Others	25	10.6

The findings of this study revealed that, of the 236 mothers, 101 (42.8%) initiated breast feeding within 1hour of delivery, 42 (17.8%) mothers initiated between 1hour

to 4 hours, 27 (11.4%) mothers between 4-8 hours while 66 (28%) mothers initiated breast feeding after 8hours of delivery.

156 (66.1%) mothers had given prelacteal feeds to their neonates. Sugar water was the most common type of prelacteal feed given to 117 (49.6%) neonates, followed by honey in 32 (13.6%) neonates and cow's milk in 7 (3%) neonates.

It was encouraging to note that colostrum was given to 170 (72%) neonates. The reason given by the 66 mothers who discarded the colostrums was culture in 41 (17.4%) and other reasons in 25 (10.6%).

TABLE 18: DISTRIBUTION OF NEONATES BASED ON BREAST FEEDING PRACTICES.

BREAST FEEDING PRACTICES		FREQUENCY (n = 236)	PERCENT
EXCLUSIVE BREASTFEEDING	Yes	64	27.1
	No	172	72.9
DEMAND FEEDING	Yes	215	91.1
	No	21	8.9
PROBLEMS WHILE BREASTFEEDING	None	152	64.4
	Lack of milk	44	18.6
	Painful	40	17

It was discouraging to find that of the 236 mothers, only 64 (27.1%) practiced exclusive breast feeding. Majority (215, 91.1%) of mothers practiced demand feeding. With regards to problems while breast feeding, it was found that 152 (64.4%) mothers did not face any problem. Among the remaining mothers, lack of milk and painful feeding were the problems cited by 44 (18.6%) and 40 (16.9%) mothers respectively.

Most distressing finding of this study is that none of the mothers cleaned their breast before breast feeding their neonate.

Graph 9: Distribution of neonate based on timing of first bath.

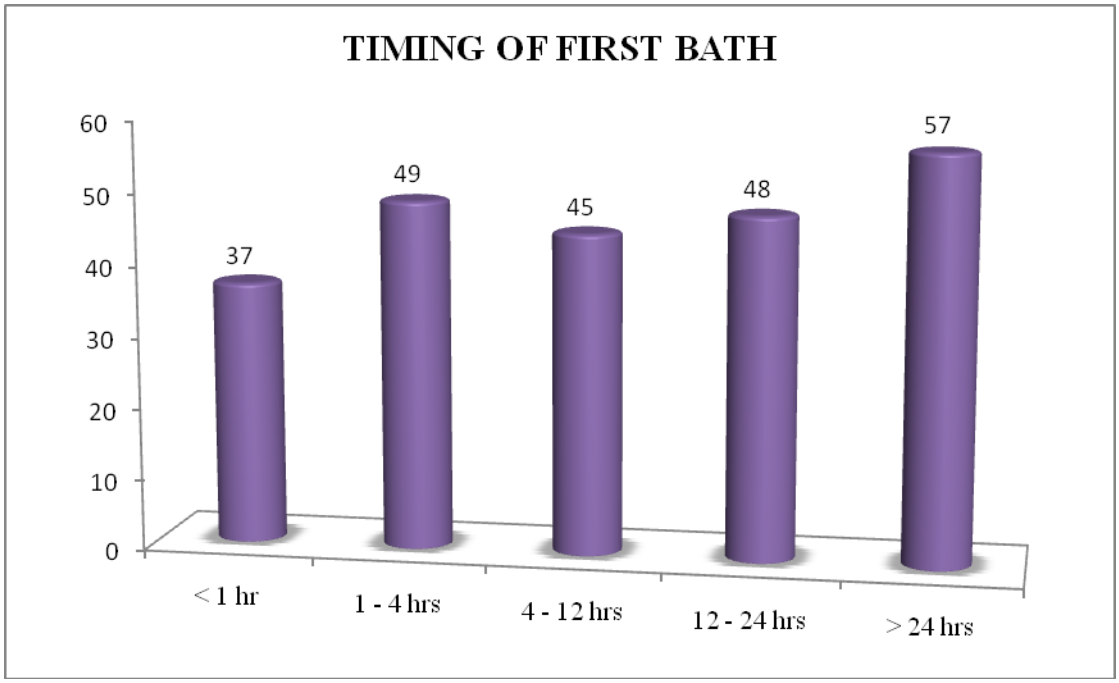


TABLE 19: DISTRIBUTION OF NEONATES BASED ON BATHING PRACTICES.

BATHING PRACTICES		FREQUENCY (n= 236)	PERCENT
TIMING OF FIRST BATH	< 1hr	37	15.7
	1 - 4hrs	49	20.8
	4 - 12hrs	45	19.1
	12 - 24hrs	48	20.3
	> 24hrs	57	24.2
FREQUENCY OF BATH	Once daily	206	87.3
	Alternate days	30	12.7

From the above table on bathing practices it is encouraging to note that the only 37 (15.7%) neonates were given bath within 1 hr of birth which is very useful in preventing hypothermia. 49 (20.8%) neonates were bathed between 1hr – 4hrs, 45 (19.1%) neonates were bathed between 4 – 12 hrs, 48 (20.3%) neonates were bathed between 12 – 24 hrs and 57 (24.2%) neonates were bathed after 1 day of birth. Majority of neonates (206, 87.3%) were bathed once daily.

TABLE 20: DISTRIBUTION OF NEONATES BASED ON TRADITIONAL PRACTICES.

TRADITIONAL PRACTICES		FREQUENCY (n= 236)	PERCENT
PUTTING OIL IN EAR	Yes	198	83.9
	No	38	16.1
APPLYING KAJAL TO EYES	Yes	208	88.1
	No	28	11.9

Traditional practices which are harmful for the neonates are prevalent in this area. It is evident from the above table that in 198 (83.9%) neonates practice of putting oil in ear is prevalent. 208 (88.1%) neonates had application of kajal to eyes.

TABLE 21: DISTRIBUTION OF NEONATES BASED ON IMMUNISATION FACTORS.

IMMUNISATION FACTORS		FREQUENCY (n= 236)	PERCENT
IMMUNISATION RECEIVED	Yes	216	91.5
	No	20	8.5
POSSESSION OF IMMUNISATION CARD	Yes	127	53.8
	No	109	46.2

Out of 236 neonates, it is encouraging to note that 216 (91.5%) had received immunisation with BCG vaccine and OPV. While only 127 (53.8%) neonates possessed immunisation card at the time of the study.

D: ANALYSIS OF FACTORS AFFECTING NEONATAL CARE PRACTICES.

TABLE 22 : RELATIONSHIP BETWEEN MOTHER'S EDUCATION AND REGISTRATION OF PREGNANCY.

REGISTRATION OF PREGNANCY	MOTHER'S EDUCATION							P
	Illiterate	I - IV std	V - VII std	VIII - X std	PUC	Degree	Total	
Yes	36 (47.4)	11 (42.3)	26 (55.3)	54 (72)	9 (100)	3 (100)	139	0.001*
No	40 (52.6)	15 (57.7)	21 (44.7)	21 (28)	0 (0)	0 (0)	97	
TOTAL	76 (100)	26 (100)	47 (100)	75 (100)	9 (100)	3 (100)	236	

*SIGNIFICANT

Among the 97 mothers who had not registered their pregnancy, 40 (41.3%) were illiterate while among the 139 mothers who had registered their pregnancy only 36 (25.8%) were illiterate. The practice of registration of pregnancy increased with the education level of the mother and this association was statistically significant.

TABLE 23 : RELATIONSHIP BETWEEN MOTHER'S EDUCATION AND UMBILICAL CORD CARE PRACTICES.

UMBILICAL CORD CARE PRACTICES.		MOTHER'S EDUCATION			P
		Illiterate	Literate	Total	
Cord application	No	37 (48.7)	64 (40)	101	0.001*
	Yes	39 (51.3)	96 (60)	135	
	TOTAL	76 (100)	160 (100)	236	

*SIGNIFICANT

Table shows that among 160 literate mothers, 64 (40%) had not applied any substance to umbilical cord stump while 96 (60%) mothers had applied one or other substance. Of the 76 illiterate mothers, 37 (48.7%) had not applied any substance while 39 (51.3%) mothers had applied one or other substance. This is an interesting finding wherein literate mothers had applied one or other substance to umbilical cord stump than illiterate mother. This association was found to be statistically significant.

TABLE 24: RELATIONSHIP BETWEEN SOCIO-ECONOMIC STATUS OF FAMILY AND ANC SERVICE UTILISATION.

REGISTRATION OF PREGNANCY		SES			P
		MIDDLE CLASS (Class II & Class III)	LOWER CLASS (Class IV & Class V)	Total	
Registration of pregnancy	Yes	94 (72.8)	45 (42.1)	139	< 0.001*
	No	35 (27.2)	62 (57.9)	97	
	TOTAL	129 (100)	107 (100)	236	
No. Of ANC check-ups (n = 139)	1 check up	25 (26.6)	12 (26.7)	37	-
	2-3 check ups	48 (51.1)	31 (68.9)	79	
	> 3 check ups	21 (23.3)	2 (4.4)	23	
	TOTAL	94 (100)	45 (100)	236	

None of the mothers belonged to Upper class (Class I)

*SIGNIFICANT

From the above table it is evident that of the 129 mothers belonging to middle class majority (94, 72.8%) had registered their pregnancy while of the 107 mothers belonging to lower class only 45 (42.1%) mothers had registered their pregnancy. This implies that higher the socio-economic class of the mother, higher is the practice of registration of pregnancy and this association was statistically significant.

Utilization of ANC checkups was almost equal among the mothers of middle and lower class. Among 94 mothers of middle class who had registered their pregnancy,

69 (74.4%) had >1 ANC check up. Of the 45 mothers belonging to lower class who had registered their pregnancy, 33 (73.3%) had >1 ANC check up. This shows that SES of mother does not have an impact on utilization of ANC checkups.

TABLE 25: RELATIONSHIP BETWEEN SOCIO-ECONOMIC STATUS OF FAMILY AND PLACE OF DELIVERY

PLACE OF DELIVERY		SOCIO-ECONOMIC STATUS			P
		MIDDLE CLASS (Class II and Class III)	LOWER CLASS (Class IV and Class V)	Total	
Home Delivery		12 (9.7)	34 (31.8)	46	< 0.001*
Institution Delivery	Govt. Hospital	83 (64.3)	58 (54.2)	141	
	Private hospital	34 (26.4)	15 (14)	49	
TOTAL		129 (100)	107 (100)	236	

None of the mothers belonged to Upper class (Class I)

*SIGNIFICANT

Majority of the mothers (117, 90.7%) belonging to middle class chose to deliver in an institution while only 73 (68.2%) mothers belonging to lower class chose to deliver in an institution. This shows that institutional delivery is more commonly practiced among women of higher socio-economic class. The relationship between socio-economic status of the mother and place of delivery was statistically significant.

TABLE 26: RELATIONSHIP BETWEEN SOCIO-ECONOMIC STATUS OF FAMILY AND EXCLUSIVE BREAST FEEDING PRACTICES.

EXCLUSIVE BREAST FEEDING	SOCIO-ECONOMIC STATUS		
	MIDDLE CLASS (Class II and Class III)	LOWER CLASS (Class IV and Class V)	Total
Yes	36 (27.9)	28 (26.2)	64
No	93 (72.1)	79 (73.8)	172
TOTAL	129 (100)	107 (100)	236

None of the mothers belonged to Upper class (Class I)

The practice of exclusive breast feeding was very low in this area. From the above table it is seen that 72.1% mothers belonging to middle class and 73.8% mothers belonging to lower class had not practiced exclusive breast feeding. This shows that socio-economic status of the mother does not influence the practice of exclusive breast feeding.

TABLE 27: RELATIONSHIP BETWEEN PLACE OF DELIVERY AND FAMILY TYPE.

FAMILY TYPE	PLACE OF DELIVERY			P
	Home	Institution	Total	
Nuclear	2 (5.9)	32 (94.1)	34 (100)	0.03*
Joint / Three generation	44 (21.8)	158 (78.2)	202 (100)	
TOTAL	46	190	236	

*SIGNIFICANT

It is to be noted that majority women (94.11%) belonging to nuclear families delivered in an institution compared to (78.2%) women belonging to joint or 3-generation families. A statistically significant relationship was found between type of family of mother and place of delivery.

TABLE 28: RELATIONSHIP BETWEEN PLACE OF DELIVERY AND PLACE OF REGISTRATION.

PLACE OF REGISTRATION (n = 139)	PLACE OF DELIVERY			Total
	Home	Government hospital	Private hospital	
Government hospital	0 (0)	100 (99)	1 (1)	101 (100)
Private hospital	0 (0)	5 (13.2)	33 (86.8)	38 (100)
Total	0	105	34	139

All women (100%) who had registered their pregnancy either in Government or Private hospital had delivered in an institution.

TABLE 29: RELATIONSHIP BETWEEN PLACE OF DELIVERY AND UMBILICAL CORD CARE PRACTICES.

UMBILICAL CORD CARE PRACTICES		PLACE OF DELIVERY				P
		Home	Government hospital	Private hospital	Total	
Instruments used to cut cord	Unsterile instruments	9 (19.6)	0 (0)	0 (0)	9	<0.001*
	New blade	37 (80.4)	10 (7.1)	0 (0)	37	
	Surgical blade	0(0)	131 (92.9)	49 (100)	190	
	TOTAL	46 (100)	141 (100)	49 (100)	236	
Cord tie	Cord clamp	0 (0)	136 (73.5)	49 (26.5)	185 (100)	<0.001*
	Cotton thread	46 (90.2)	5 (9.8)	0 (0)	51 (100)	
	Total	46	141	49	236	

*****SIGNIFICANT

The above table shows that in 37 (80.4%) of 46 home deliveries new blade was used to cut umbilical cord but in remaining 9 (19.6%) home deliveries unsterile instrument was used. Sterile surgical blade was used in 100% deliveries conducted at private hospital and in 131 (92.9%) deliveries conducted at government hospital. This implies that in majority of institutional deliveries sterile instruments were used to cut umbilical cord and this was statistically significant.

With regard to cord tie, cotton thread was used to tie the cut ends of umbilical cord in 90.2% of deliveries conducted at home while only in 9.8% institutional deliveries (Government hospital). This result was statistically significant.

TABLE 30: RELATIONSHIP BETWEEN PLACE OF DELIVERY AND BREAST FEEDING PRACTICES.

BREAST FEEDING PRACTICES		PLACE OF DELIVERY			P
		Home	Institution	Total	
Feeding colostrum	Yes	14 (30.4)	154 (81.1)	168	<0.001*
	No	32 (69.6)	36 (18.9)	68	
	TOTAL	46 (100)	190 (100)	236	

*SIGNIFICANT

Among 190 institutional deliveries, 154 (81.1%) mothers gave colostrums to their neonate while only 36 (18.9%) had not given colostrum. Of the 46 home deliveries, 32 (69.9%) mothers had not given colostrum to their neonate. The practice of feeding colostrums is higher among mothers who had delivered in an institution compared to home and this was statistically significant.

TABLE 31: RELATIONSHIP BETWEEN PLACE OF DELIVERY AND BATHING PRACTICES.

BATHING PRACTICES		PLACE OF DELIVERY				P
		Home	Government hospital	Private hospital	Total	
Timing of first bath	< 1hr	29 (78.4)	8 (5.7)	0 (0)	37	<0.001 *
	1 - 4hrs	17 (34.7)	28 (19.9)	4 (8.2)	49	
	4 - 12hrs	0 (0)	34 (24.1)	11 (22.4)	45	
	12 - 24hrs	0 (0)	40 (28.3)	8 (16.3)	48	
	> 24hrs	0 (0)	31 (22)	26 (53.1)	57	
	TOTAL	46 (100)	141 (100)	49 (100)	236	

*****SIGNIFICANT

Among the 46 home deliveries, 29 (78.4%) neonates were bathed within 1hour of birth while only 8 (5.7%) neonates born in government hospital and none of the neonates born in private hospital were bathed within 1 hour of birth. Delaying first bath beyond 24 hours was not followed for any neonate born at home but this was practiced among 31 (22%) neonates born in government hospital and 26 (53.1%) neonates born in private hospital. The appropriate timing of first bath of the neonate (after 1 day) was practiced in institutional deliveries and this relation was statistically significant.

As per WHO guide lines, first bath should be given between 12-24hrs after birth of neonate. In our study, of the 190 institutional deliveries 105 () neonates were given first bath between 12 -24 hrs while among home deliveries, all neonates were bathed within 4hrs. This difference was statistically significant.

DISCUSSION

A community based cross sectional study was conducted in rural area of Shivanagi to assess knowledge, attitude and practices of mothers related to neonatal care and also the socio-demographic profile of these families.

A. SOCIO-DEMOGRAPHIC PROFILE

- AGE OF MOTHER

  Majority mothers (67.8%) were aged between 21-25 years which is high compared to studies done in Bangalore (60% and 44.2%) [21] [22] Punjab (57%)[24] and Pondicherry (30%)[49]

- RELIGION OF MOTHER

  74.2% families were Hindu by religion. Studies done in Nepal (81.7%) [29] and Delhi (93.9%) [17] show higher figures compared to our study whereas study done in Lucknow (70.6%) [26] show a lower figure.

- EDUCATION OF MOTHER

  In our area, 32.2% mothers were illiterate. This observation is low when compared to other studies done in Bangalore (52%),[21] Lucknow (59.5%)[26] and Aligarh (56.6%)[23] while higher when compared to studies done in Nainital (16.5%)[59] and Pondicherry (31%).[56]

- OCCUPATION OF MOTHER

  46.6% mothers in this area were employed (agriculture labourers) which is higher compared to other studies done in Bangalore (31%)[21] Puducherry (33% and 27.2%).[25] [56]

- FAMILY TYPE

  Nearly 87% mothers lived in either joint or three-generation families. This shows that in rural areas still the joint family concept is prevalent. This scenario was common in other studies done in Delhi (75.6%),[17] Nainital (57.2%)[59] and Puducherry (53%).[25] But nuclear families were more prevalent in studies done in Chandigarh (64.1%),[20] Lucknow (70%)[26] and Aligarh (60.9%).[23]

- SOCIO-ECONOMIC STATUS

  In our study majority families (54.7%) belonged to middle socio-economic class (Class II & Class III) which is almost similar to study done in Bangalore (55%),[21] more compared to studies done in Puducherry (12.1%)[25] and Lucknow (14.3%)[26] less compared to study done in Nainital (80.5%).[59]

B. STUDY OF OBSTETRIC FACTORS

- AGE AT MARRIAGE AND AGE AT FIRST PREGNANCY

  In our study it was noted that 170 (72%) women were married before attaining 18 years of age. 76 (32.2%) women had their first pregnancy before attaining 18 years of age. This can be attributed to prevalence of traditional practices of early marriage in this area. Majority of these women belong to joint or three-generation families wherein traditional practices are emphasised.

  According to NFHS II, 69% women in rural India and 64.8% women of Bijapur district were married before attaining age 18 years.[32] which is almost similar to our findings.

According to DLHS-3[36], 25.7% women in rural Karnataka were married before attaining age 18 years and in rural North India[53] 31.6% women were married before age of 18 years which is low compared to our findings.

- REGISTRATION OF PREGNANCY

  Of the 236 mothers in our study, 139 (58.9%) had registered their pregnancy. Of these 139 mothers, 101 (72.6%) had registered in a Government hospital. This shows that majority of the people in rural areas rely on Government services. This practice of registration is low compared to studies done in Jammu (98.4%), [27]Chandigarh (92.6%)[55] and Madhya Pradesh (91.1%).[54]

- ANC CHECK UPS

  Of these 139 mothers who had registered their pregnancy, only 23 (16.6%) had more than 3 ANC check ups which is more compared to result of studies conducted in Uttar Pradesh (1.4%)[38] and western Nepal (10.4%)[29] while our study figures are far below compared to studies done in rural areas of Jammu (80.8%)[27] and rural Madhya Pradesh (31.4%)[54].

  According to NFHS II only 27.2% women in Bijapur district receive more than 3 ANC check ups.[32] The disparity between this NFHS II report and our study can be attributed to the fact that Bijapur district comprises both urban and rural areas but our study depicts findings only from a rural area of Bijapur district. Also people in rural areas are economically poor and migration in search of work is a common phenomenon.

- UTILISATION OF ANC SERVICES

  During their antenatal period 58.3% mothers had received 2 doses of TT injection and 19.9% mothers had consumed 90 or more IFA tablets. These findings are low compared to studies done in Jammu (94.4% and 48% respectively), [27] Chandigarh (91.2% and 90.4% respectively), [55] Uttar Pradesh (75% and 23.6% respectively) [38] and DLHS-3 (86.9% and 64.1% respectively). [36]

C. POST NATAL CARE

- SEX OF NEONATE

  In our study area, female neonates outnumbered male neonates. The ratio being 1.46:1 whereas in a study conducted in Chandigarh male newborns outnumbered females in both urban and slum area. The ratio was 1:1.4 in urban and 1:1.5 in slum area. [20]

- PLACE OF DELIVERY

  In this area 80.5% women opted for institutional delivery. This is a positive practice among these women and should be encouraged. Other studies done in Bangalore (90%),[51] Pondicherry (95.7%)[56] and Adilabad (74.1%)[39] revealed similar findings.

IMMEDIATE NEWBORN CARE

- CARE OF RESPIRATORY PASSAGE AND EYES

  Majority neonates in this area had received appropriate immediate care. Practices regarding cleaning respiratory passage (73.7%) and cleaning of eyes (66.9%) immediately after bath was better in our study area compare to study done in Delhi (30.4% and 32.6% respectively).[17]

- THERMAL CARE

  Steps to prevent hypothermia were adopted more in our study like wiping baby immediately (77.1%) and covering baby (100%) compared to study done in Lahore (23.5% and 18.8% respectively).[41]

- CORD CARE

  Regarding cord care in our study, in 80.6% deliveries sterile surgical blade was used to cut umbilical cord which is higher than study done in Delhi (78.3%)[17] but low compared to study done in Western Nepal (90.4%).[29] In our area in 57.3% neonates some substance was applied to cord stump which is high compared to studies done in Delhi (13.9%),[17] Western Nepal (26.2%)[29] and Bangalore (33%).[21] This inappropriate practice of substance application to umbilical cord stump may be due to lack of knowledge among the people regarding its harmful effects, ignorance or due to traditional practices.

BREAST FEEDING

- INITIATION OF BREAST FEEDING

  Breast feeding is an important determinant of child health and survival. Initiation of breast feeding should be at the earliest as it helps to develop mother-child bonding and lactation. In our study only 42.8% mothers initiated breast feeding within 1 hour which is higher than results of other studies in Uttar Pradesh (36.6% and 37.5% respectively)[26] [38] but low compared to study done in Western Nepal (57.9%).[29]

- FEEDING COLOSTRUM

  Feeding colostrums to neonate is very essential as it contains good amount of proteins and anti-infective factors which protect neonate against respiratory and diarrhoeal diseases. In our study area, 72% neonates were given colostrums but this is low compared to studies done in Uttar Pradesh (86.1%),[38] Western Nepal (84.6%)[29] and Bangalore(81%).[21]

- PRELACTEAL FEEDS

  Prelacteal feeds were given to 66% neonates in our study which is low compared to studies done in a rural area of South India (71.8%)[57] and Uttar Pradesh (68%)[38] but high compared to studies done in Bangalore (19%),[21] Western Nepal (23.3%)[29] and Delhi (47.6%).[17]

Harmful practices like delaying initiation of breast feeding and giving prelacteal feeds to neonate can be attributed to traditions.

- BATHING PRACTICE

  Delaying first bath of neonate beyond 24 hours was practiced among 24.2% neonates in our area which is better compared to studies done in Chandigarh (22.9%),[20] Uganda (18%)[31] and Lahore (4.2%), [41] but low compared to study done in a rural area of South India (69.6%).[57] Rural women must be educated regarding importance of delaying first bath of neonate in order to prevent hypothermia.

- TRADITIONAL PRACTICES

  In our area traditional practices were predominant with 83.9% women putting oil in ear and 88.1% women applying kajal to eyes of neonate whereas in a study conducted in slums of Chandigarh[20] practice of applying kajal (Black substance used for beautification of eyes) was found to be 94.7% as compared to 28.3% in urban areas.

D. ANALYSIS OF FACTORS AFFECTING NEONATAL CARE PRACTICES.

- In our study area it is seen that practice of registration of pregnancy was higher among those mothers who were literates and those belonging to higher socio-economic class. Similar findings have been reported in other studies. [24] [27]

- In our study we could not find any significant association between education status of mother and no. of antenatal visits whereas there was a significant association between socio-economic class and no. of antenatal visits. Similar

relation between socio-economic class and no. of antenatal visits were reported in other studies. [56] [58]

- In our study we did not find any association between education level of mother and place of delivery while a significant association existed between socio-economic status and place of delivery. Many studies have reported similar findings with relation to socio-economic status. [59] [56] [23]
- Giving prelacteal feeds is a cultural practice that is practiced irrespective of education of mother or socio-economic status of the family.
- In our study it was found that home deliveries were significantly more common in three generation and joint families compared to nuclear families. Similar finding was seen in a study conducted in Maharashtra. [60] Reason for more institutional delivery among nuclear families may be due to reason that nobody will be present at home to assist delivery or care for mother and neonate. Three-generation and joint families are deeply influenced by the elders in the family who follow traditional practices which may be a reason for increased home deliveries among these families.
- In our study area unsterile instruments like kitchen knife, broken glass and sickle were used to cut umbilical cord in home deliveries. Unsterile material (cotton thread) was used to tie cut end of umbilical cord in all home deliveries. Such practices are harmful to the neonate as it poses high chance of infection. Similar findings were seen in other studies. [21] [23]
- Good no. of women gave colostrums to their neonates in our study compared to studies done in Aligarh [61] and Delhi [62].

- In our study area it was observed that among the home deliveries bathing neonate within 1 hour was practiced in 78.4% neonates. Similar practice was seen in other studies. [29] [40] [63]

SUMMARY

Study was conducted at village Shivanagi which comes under Rural Health Training Centre (RHTC) of Shri B. M. Patil Medical College during 1st January 2011 – 5th January 2012. A total of 236 mothers having neonates were interviewed regarding their socio-demographic profile and neonatal care practices. The highlights of this study were as follows.

A. SOCIO-DEMOGRAPHIC PROFILE

- Mean ± S.D. of age of mothers was 23.11 ± 2.78 years and ranges between 17 – 30 years.
- 68% mothers were literate and 53.4% mothers were housewives.
- Majority mothers (74.2%) belonged to Hindu religion and 85.6% belonged to joint or three generation families.
- 54.7% mothers belonged to middle class (Class II and Class III)

B. OBSTETRIC FACTORS

- 72% mothers were married before attaining 18 years.
- Age at first pregnancy was less than 18yrs in 32.2% mothers.
- Majority mothers (75.8%) are multipara.

- 58.9% mothers had registered their pregnancy and 72.6% of them had registered in government hospital, 16.6% of them had more than 3 ANC check ups, 58.3% had received 2 doses of TT injection and only 19.9% of them had consumed more than 90 IFA tablets.
- 80.5% mothers had delivered in an institution.

C. POST NATAL CARE

IMMEDIATE NEWBORN CARE

- Respiratory passage was cleaned in 73.7% neonates. Suction apparatus was used for this purpose in 85% neonates who were born in institution.
- Eyes of 66.9% neonates were cleaned and in 87.3% of them sterile material was used.
- All neonates were covered with a clean dry cloth soon after birth.
- Sterile surgical blade was used in 80.6% neonates. Unsterile instruments were used in 3.7% neonates who were born at home.
- Irrespective of home or institutional delivery 57.2% mothers had applied some substance to umbilical cord stump.

BREAST FEEDING

- Only 42.8% neonates were breast fed within 1hr of birth.
- 66% neonates were given prelacteal feeds and 28% neonates were not given colostrums.
- Exclusive breast feeding was not practiced in 72.9% neonates.
- In 91.1% neonates demand feeding was practiced.

BATHING PRACTICE

- 15.7% neonates were bathed within 1 hour of birth and 24.2% neonates were bathed after 24hrs of birth.

TRADITIONAL PRACTICE

- 83.9% women practiced putting oil in ears of their neonates and 88.1% women practiced applying kajal to eyes of neonates.

D. FACTORS AFFECTING NEONATAL CARE PRACTICES.

- The practice of registration of pregnancy was higher among those mothers who were literates and those belonging to higher socio-economic class.
- Higher socio-economic class of mother higher the utilisation of ANC services (no. of antenatal visits) by mother.
- No association was present between education status of mother and no. of antenatal visits.
- Irrespective of education or socio-economic status, the mother practiced age old method of giving prelacteal feeds to their neonates.
- Selection of place of delivery was influenced by socio-economic status of family and nature of family but it is not influenced by education status of the mother.

CONCLUSION

Nearly 60% of mothers in our study had registered their pregnancy and of them only 17% had more than 3 antenatal visits. Only 19.9% mothers have consumed 90 or more IFA tablets. There is an urgent need to strengthen ANC services provided by health workers.

It is heartening to note that about 80% of rural women had opted for institutional delivery. Good number of mothers will return to their home within 24hours of delivery. These mothers are influenced by traditional practices of newborn care like applying some substance to umbilical cord stump, putting oil in ears, applying kajal to eyes, giving bath every day, not initiating breast feeding early, not giving colostrums and follow it especially in joint families. These practices are harmful to the newborn so there is an urgent need to initiate IEC activities regarding newborn care, supervising visits and activities of health workers and ASHA workers.

RECOMMENDATIONS

- IEC activities regarding enhancing age at marriage, registration of pregnancy, utilisation of services, institutional delivery as well as newborn care like establishing airway, care of eyes, breast feeding and hypothermia should be conducted.
- Regular re-orientation of health care facilitators regarding antenatal, intranatal and post natal services should be conducted.
- Encouraging the health workers by appreciation, issue of certificates or monetary benefits to be done once a year at PHC level.

LIMITATIONS OF STUDY

- Information regarding duration of stay in the hospital after delivery was not collected.
- Advice given by the hospital staff regarding newborn care at the time of discharge was not obtained.
- Details regarding no. of postnatal visits by the health worker were not collected.

BIBLIOGRAPHY

1. Parlato RP, Darmstadt Gl, Tinker A. Saving newborn lives, Initiative. Washington, D.C. 2005.
2. SRS. Registrar General of India. Statistical Report. 2000.
3. Lawn JE, Cousens S, Zupan J. 4 million neonatal deaths: when? Where? Why? Lancet 2005;365:891-900.
4. Kerber KJ, de Graft-Johnson JE, Bhutta ZA, Okong P, Starrs A, Lawn JE: Continuum of care for maternal, newborn, and child health: from slogan to service delivery. Lancet 2007, 370
5. WHO. Global Burden of Disease, 2000. version 2. Geneva, Switzerland: WHO, 2003.
6. World Health Organization. Report of the Division of Child Health and Development 1996-97. WHO: Geneva; 1998
7. Basic Guide to Reproductive and Child Health Programme. Department of Family Welfare, Government of India.
8. Bang AT: Effect of home-based neonatal care and management of sepsis on neonatal mortality: field trial in rural India: The Lancet, 1999; 354: 1955-1961.
9. Dadhich J, Paul V: State of India's newborns New Delhi, National Neonatology Forum and Washington DC, Save the Children US; 2004.
10. Meharban Singh: Care of Newborn: 5th edition: Sagar Publications.
11. Park K: Park's Textbook of Preventive and Social Medicine, 21st edition. M/s Banarsidas Bhanot Publishers, Jabalpur, India; 522:112:409:411:484:490.

12. National Neonatology Forum of India Blog: 2011.
13. Editorial in "The Times of India", September 16th, 2009.
14. Haws RA, Thomas AL, Bhutta ZA, Darmstadt GL: Impact of packaged interventions on neonatal health. A review of the evidence Health Policy and Planning 2007;1-23.
15. Bang AT; Bang RA; Baitule SB; Reddy MH; Deshmukh MD: Effect of home-based neonatal care and management of sepsis on neonatal mortality-a field trial in rural India: The Lancet; Dec 4, 1999; 354.
16. A Coverage Evaluation Survey: All India Report 2009.
17. Rahi M, Taneja DK, Misra A, Mathur NB, Badhan S. Newborn care practices in an urban slum of Delhi. Indian J Med Sci 2006;60:506-13.
18. Agarwal S, Srivastava K, Sethi V. Maternal and Newborn Care Practices Among the Urban Poor in Indore, India: Gaps, Reasons and Possible Program Options. Urban Health Resource Center (New Delhi): 2007.
19. Arokiasamy P, Gautam A. Neonatal mortality in the empowered action group states of India: trends and determinants. J Biosoc Sci.: 2008; 40(2);183-201.
20. S. Puri, V. Bhatia, M. Sharma, H.M. Swami, C. Magnat: Comparison Of Prevalent Newborn Rearing Practices, In Urban And Slum Population Of Chandigarh, Ut, India: The Internet Journal of Pediatrics and Neonatology: 2008: 9 (1).
21. Madhu K, Chowdary S, Masthi R. Breast feeding practices and newborn care in rural areas: A descriptive cross-sectional study. Indian J Community Med 2009:34;243-6.

22. A.J. Kesterton, J. Cleland, Neonatal care in rural Karnataka: Healthy and harmful practices, the potential for change; BMC Pregnancy Childbirth.2009;9:20.
23. Khan Z, Mehnaz S, Khalique N, Ansari MA, Siddiqui AR. Poor perinatal care practices in urban slums: Possible role of social mobilization networks. Indian J Community Med 2009;34;102-7.
24. Satija M, Singh J, Singh A: Utilization Pattern of Antenatal Care Services among the Pregnant Women in an Urban Area of Punjab: Indian Journal Of Maternal And Child Health: 2010;12(2).
25. Padiyath M A, Bhat B V, Ekambaram M: Knowledge attitiude and practice of neonatal care among postnatal mothers: Curr Pediatr Res: 2010;14(2):147-152
26. Gupta P, Srivastava VK, Kumar V, Jain S, Massod J, Ahmad N, Srivastava JP: Newborn care practices in urban slums of Lucknow City, UP: Indian Journal Of Community Medicine: 2010; 35(1).
27. Kumari R, Mengi V, Bahl R, Kiran: Antenatal care seeking behaviour of Pregnant women in a rural area of Jammu: Indian Journal Of Maternal and Child Health: 2011: 13 (3).
28. Yasmin S, Osrin D, Paul E, Costello A: Bulletin of the World Health Organization: 2001; 79; 608–614.
29. Sreeramareddy CT, Joshi HS, Sreekumaran B V, Giri S, Chuni N. Home delivery and newborn care practices among urban women in western Nepal: a questionnaire survey. BMC Pregnancy and Childbirth: 2006; 6;27.
30. Khan MH, Khan FR, Noman N, Hashmi G: Essential newborn care practice in hospital versus home deliveries: Gomal Journal of Medical Sciences Jan–June: 2006; 4;1.

31. Waiswa P, Peterson S, Tomson G, Pariyo G W: Poor newborn care practices - a population based survey in eastern Uganda: BMC Pregnancy and Childbirth: 2010; 10:9.
32. Dr.Arabinda Mishra, Mr.V.B.Annigeri, Mr.Gopal K Sarangi: Reproductive Health Accounts Of Karnataka: A Mapping Exercise To Sketch The Reproductive Health System; p9.
33. World Health Organization website: http://www.who.int/en/
34. Sethi V, Kashyap S, Agarwal S: Contextual Factors Influencing Newborn Care Amongst Rural Poor in Western Uttar Pradesh: Pakistan: Journal of Nutrition 2005: 4 (4): 273-275.
35. Sharma RK: Newborn health among tribes of Madhya pradesh - an overview: Biannual newsletter of Regional medical research centre for tribals Jabalpur: April 2007: 4(1).
36. District Level Household and Facility survey: Fact sheet Karnataka: International institute for population sciences Mumbai: 2007-2008.
37. Jain T, Singh JV, Bhatnagar M, Garg S, Chopra H, Mohan Y: Status of Antenatal Care in Slums of Meerut City: Indian Journal of Maternal and Child Health:2010: 12(4).
38. Singh S, Jain DC, Singh M: Determinants of utilization of Maternal and Child health services in a rural area of Uttar Pradesh, (India): Indian Journal of Maternal and Child Health: 2010; 12(4).
39. Burankar V, Naik D, Madhusudan S: Utilization of Skilled Care at Birth in Urban Slum Area of Adilabad, Andhra Pradesh: Indian Journal Of Maternal And Child Health:2011;13(1).

40. Osrin D, Tumbahangphe KM, Shrestha D, Mesko N, Shrestha BP, Manandhar MK, StandingH, Manandhar DS, Costello AML: Cross sectional, community based study of care of newborn infants in Nepal: BMJ: 2002;325:1063.
41. Aziz N, Akhter S, Kaleem R: Newborn Care Practices Regarding Thermal Protection Among Slum Dwellers in Rachna Town, Lahore, Punjab: Special edition annals: 2010; 16 (1).
42. Giridhar L, Sambasiva Rao R Lakshmi G, Swamy KB: Umbilical Cord Care Practices among the Newborns of Gadaba and Konda Dora Tribes: Indian Journal Of Maternal And Child Health: 2011;13(4).
43. Moran A C , Choudhury N, Khan N U Z, Karar Z A, Wahed T, S F Rashid, Alam M A: Newborn care practices among slum dwellers in Dhaka, Bangladesh: a quantitative and qualitative exploratory study: BMC Pregnancy and Childbirth: 2009;9:54.
44. Srivastava S, Srivastava A: Cooking practices, Nutrition and infant's health- A case study: Indian J. Preventive Social Medicine: 2008;39(1); 21-23.
45. Sinhababu A, Mukhopadhyay D K, Panja T K, Saren A B, Mandal N K, BiswasA B: Infant- and young child-feeding practices in Bankura district, West Bengal, India: Journal of health, population, and nutrition:2010; 28; 294-299.
46. Takalkar A A, Saiprasad G S, Kumar T, Madhekar N S: Breastfeeding Practices in Rural Community of Andhra Pradesh: Indian Journal Of Maternal And Child Health:2010;12(2).
47. Midha T, Nath B, Kumari R, Goyal P, Pandey U: Breastfeeding Practices in Rural Kanpur – A Cross-sectional Study: Indian Journal Of Maternal And Child Health:2010;12(1).

48. Srivastava A, Srivastava P, Shrotriya VP, Martolia DS: Breast Feeding Practices in Women from Urban and Rural Areas - A Comparative Study: Indian Journal Of Maternal And Child Health:2010; 12(2).
49. Senthilvel V, Sumathi S, Singh Z, Jayanthi V: A study of breast feeding practices among non-working women in rural area of Puducherry: Indian Journal Of Maternal And Child Health: 2011;13 (3).
50. Katara PS, Patel SV, Mazumdar VS, Mehta KG, Shringarpure K, Bakshi HN: A Study on Feeding Practices among Infants aged upto 6 months in Urban Slums of Vadodara: Indian Journal Of Maternal And Child Health: 2011;13 (2).
51. Mihrshahi S, Kabir I, S K Roy, Agho K E, Senarath U, Dibley M J: Determinants of infant and young child feeding practices in Bangladesh: secondary data analysis of Demographic and Health Survey 2004: Food and nutrition bulletin:2010; 31;295-313.
52. http://censusindia.gov.in/ ; Census 2011
53. Singh A, Arora AK: The changing profile of pregnant women and quality of antenatal care in rural North India: Indian Journal of Community Medicine: 2007; 32 (2); 135 – 136.
54. Patil R, Mittal A, Kushwah SS, Panigrahi KC: Status of Maternal Health Care Services after Training of Grass Root Health Functionaries: Indian Journal Of Maternal And Child Health: 2010; 12(1).
55. Gupta M, HM Swami: Neonatal Health Care Practices in Rural Chandigarh: Indian Journal Of Maternal And Child Health: 2011;13(1).

56. Nandi P, Agarwal L, Gupta SK, Lokeshmaran A, Prabakaran M: A study on Utilization of Antenatal care services among Rural women in Pondicherry district: Indian Journal Of Maternal And Child Health: 2011; 13 (2).
57. Yerpude P, Jogdand K: A study on delivery and newborn care practices in a rural area of South India : Indian Journal Of Maternal And Child Health: 2010;12(4).
58. Dasgupta U, Naskar S, Haldar A, Mallik S: Antenatal care service utilization and social correlates of beneficiaries: an experience from a teaching hospital of a metropolitan city: Indian Journal Of Maternal And Child Health: 2012; 14 (2).
59. Pandey S, Shankar R, Rawat CMS, Gupta VM: Socio-economic factors and delivery practices in an urban slum of district Nainital, Uttaranchal: Indian Journal of Community Medicine.
60. Mumbare S. S., Rege R: Ante Natal care service utilization, delivery practices and factors affecting them in tribal areas of North Maharashtra: Indian Journal Of Community Medicine: 2011; 36 (4); 287- 290.
61. Khan S, Varshney T, Pandey G, Jahan F: Colostrum Feeding Practices Followed by Women - A Study in Rural Areas of Jawan Block, Aligarh, U.P.: Indian Journal Of Maternal And Child Health: 2010; 12 (2).
62. Khan Z, Mehnaz S, Siddiqui AR, Ansari A, Khalil S, Sachdeva S: All slums are not equal: Maternal health conditions among two urban slum dwellers: Indian Journal of Community Medicine: 2012; 37 (1).
63. Adelaja L M: A Survey of Home Delivery and Newborn Care Practices among Women in a Suburban Area of Western Nigeria: ISRN Obstetrics and Gynecology: v.2011; 2011.

ANNEXURES - I

PROFORMA

A STUDY ON NEONATAL CARE IN RURAL FIELD PRACTICE AREA OF SHRI B.M. PATIL MEDICAL COLLEGE, BIJAPUR

1. Informant:

MOTHER

2. Name:
3. Age:
4. Religion:
5. Education:
6. Occupation:
7. Address:

NEWBORN

8. Caretaker of newborn:
9. DOB:
10. Age:
11. Sex:
12. Nature of family: Nuclear/ Joint/ 3 generation
13. Total income:
14. Per capita Income per month:
15. Socio-economic class:

HOUSING CONDITIONS

16. Type of house: Kuccha house/ Pucca house/ Kuccha-Pucca house

17. No. of living rooms:

18. No. of people: Adults-

Children-

19. Is there a separate room for mother and baby: Y/N

20. Is there ventilation: Y/N

21. Is there a separate kitchen: Y/N

22. What fuel is used for cooking: Firewood/ kerosene/ LPG/Biogas

23. Is there a smoke vent: Y/N

24. What is source of water: well/bore well/tap water

25. Is there a separate bathroom: Y/N

26. Sanitary facility: Y/N

27. Do they have live stock:

28. Is there a separate cow shed:

OBSTETRIC HISTORY

29. Age at menarche:

30. Age at marriage:

31. History of previous menstrual cycles:

32. Age at 1st pregnancy:

33. OBS SCORE: Gravida-

Parity-

Living-

Abortion-

Dead: Stillbirth-

Neonatal death-

Infant death-

PRESENT PREGNANCY

34. Registered case: Y/N If yes, Registered at:

35. Gestational age at delivery:

36. Place of delivery: Home/Govt. Hospital/Pvt. Hospital/others

If Home, i. Who conducted the delivery

ii. Any complication occurred: bleeding/ delayed labour/others

If Hospital, i. Normal vaginal delivery/ cesarean section/

Instrumental/ assisted

37. Did you have any ANC check-up: Y/N

If yes, i. whom did you consult:

ii. How many consultations:

iii. When were the consultations:

iv. Why did you consult:

v. What services did you receive regularly:

Physical examination: Y/N

BP measurement: Y/N

Weight recording: Y/N

Blood examination for Hb%: Y/N

Urine for albumin, sugar: Y/N

vi. How many TT dose taken:

vii. How many Iron and Folic acid tablets taken:

NEONATE

38. Did baby cry immediately after birth: Y/N

If No, i. What stimulation was given:

Patting back/ turning baby upside down/ oxygen/ AMBU bag/ water sprinkling/ mouth to mouth/ blowing in ear

39. Whether respiratory passage was cleared: Y/N

If Yes, What was used to clear the passage:

Finger/clean cloth/cotton/unclean cloth

40. Whether the eyes were cleaned: Y/N

If Yes, What was used to clean eyes:

Finger/sterile cloth/wet cotton swab/Unsterile cloth

41. Was baby wiped with clean cloth : Y/N

42. Was baby covered in clean cloth : Y/N

43. When was baby put to breast first: <1hr/1-8hrs/8-24hrs/>24hrs

44. Was prelacteal feeds given: Y/N

If yes, What was given: Sugar water/ honey/ cow's milk

Why was it given:

45. Was colostrums given: Y/N

If No, Why:

46. Was rooming-in practiced: Y/N

47. What was used to cut the cord: kitchen knife/ broken glass/ sickle/

scissors/ blade/ others (specify)

48. What was used tie the cord:

49. When was the cord cut:

50. Is cord present now: Y/N

51. Is anything applied to cord: Y/N

If Yes, What is applied-

Why is it applied-

52. When was first bath given:

53. What is frequency of bath now:

54. Is feeding on demand followed: Y/N

If No, How many times a day is feeds given:

55. Is Exclusive breast feeding followed: Y/N

56. Any problem while feeding:

57. Is putting oil in ear practiced: Y/N

58. Is applying kajal to eyes practiced: Y/N

59. Is immunization given: BCG/OPV

60. Do you clean breast before breast feeding? Y/N

61. Do you have immunisation card? Y/N

ANNEXURE - II

ETHICAL COMMITTEE CLEARANCE LETTER

B.L.D.E.U'S SHRI.B.M.PATIL MEDICAL COLLEGE, BIJAPUR-586103
INSTITUTIONAL ETHICAL COMMITTEE

Ethical Committee BIJAPUR-586103 OUT WARD No 123/10 Date 19/10/10 Shri B. M. PATIL Med.Col College

DR.M.S.BIRADAR
CHAIRMAN .I.E.C.
BLDEU'S SHRI: B.M.PATIL MEDICAL COLLEGE
BIJAPUR-586103

INSTITUTIONAL ETHICAL CLEARANCE CERTIFICATE

The Ethical Committee of this college met on 19-10-2010 at 10-30 am to scrutinize the Synopsis/Research projects of post graduate student/undergraduate student/Faculty members of this college from ethical clearance point of view. After scrutiny the following original/corrected & revised version Synopsis of the Thesis/Research project has been accorded Ethical Clearance.

Title A Study on neonatal care in rural field practice area of Shri. B.M. Patil Medical college Bijapur

Name of P.G. /U.G.Student /Faculty member Dr. Bhavana Hiremath Dept of community medicine

Name of Guide Dr. M.M. Angadi, Prof & HOD. Community Medicine

DR.M.S.BIRADAR
CHAIRMAN
INSTITUTIONAL ETHICAL COMMITTEE

Following documents were placed before E.C.for securitization:
1) Copy of Synopsis/Research project
2) Copy of informed consent form
3) Any other relevant document's

ANNEXURE - III

SOCIO-ECONOMIC CLASSIFICATION

Prasad's updated criteria for year 2011.

Consumer Price Index (CPI) for year 2011 = 912

SOCIO-ECONOMIC CLASS		**PER CAPITA MONTHLY INCOME (Rs)**
CLASS **I**	**UPPER** CLASS	>4225
CLASS **II**	**MIDDLE** CLASS	4224 – 2112
CLASS **III**		2111 – 1267
CLASS **IV**	**LOWER** CLASS	1266 – 634
CLASS **V**		<634

ANNEXURE - IV

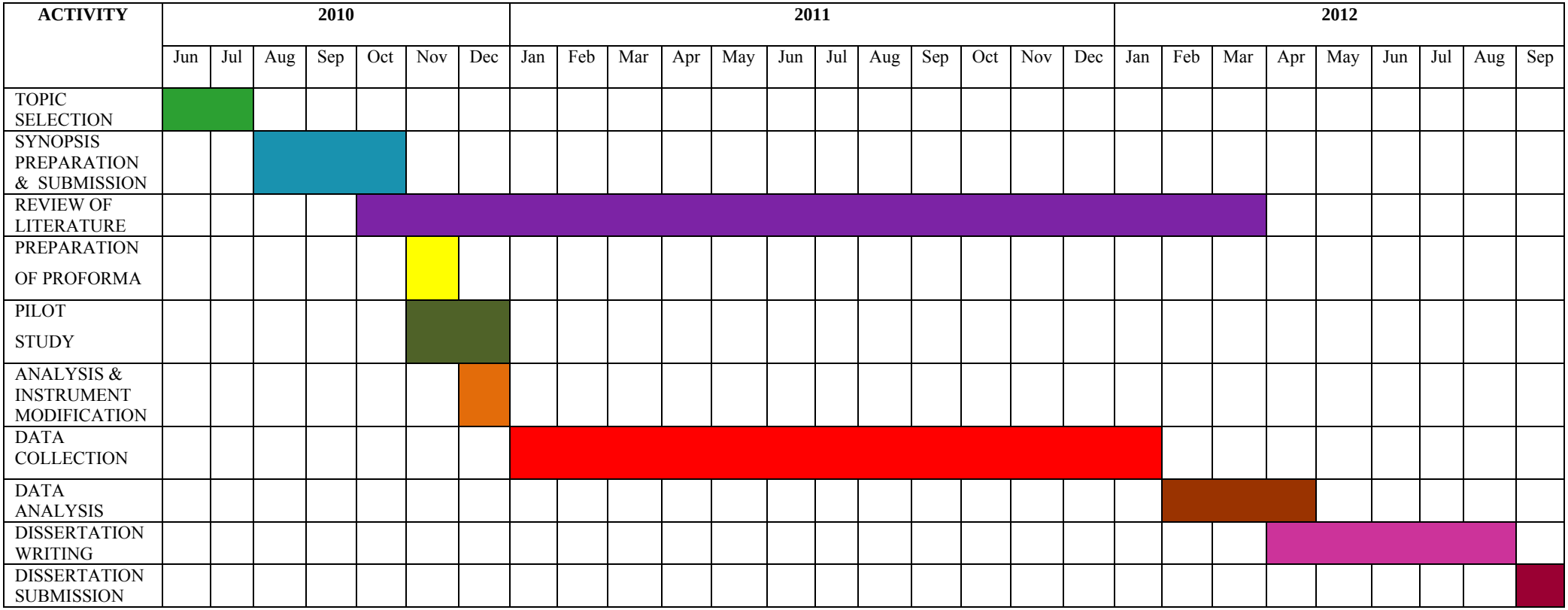
ENVIRONMENTAL CONDITION SCORING

SL. No.	ENVIRONMENTAL CRITERIA	CONDITION	SCORING
1.	TYPE OF HOUSE	KUCCHA HOUSE	0
		PUCCA HOUSE	2
		KUCCHA - PUCCA HOUSE	1
2.	OVERCROWDING PRESENT	YES	0
		NO	2
3.	SEPARATE ROOM FOR MOTHER & BABY PRESENT	YES	2
		NO	0
4.	ADEQUATE VENTILATION PRESENT	YES	2
		NO	0
5.	SEPARATE KITCHEN PRESENT	YES	2
		NO	0
6.	WHAT FUEL IS USED FOR COOKING	SMOKELESS	2
		SMOKE FORMING	1
7.	SMOKE VENT PRESENT	YES	2
		NO	0
8.	SOURCE OF WATER	SAFE	2
		UNSAFE	1
9.	BATHROOM FACILITY PRESENT	YES	2
		NO	0
10.	SANITARY FACILITY PRESENT	YES	2
		NO	0
11.	LIVESTOCK PRESENT	YES	1
		NO	2
12.	SEPARATE COWSHED PRESENT	YES	2
		NO	0

RESULT	TOTAL SCORE
POOR	<8
SATISFACTORY	8 – 15
GOOD	16 - 20

ANNEXURE - V

GANTT CHART - TIMELINE OF ACTIVITIES



ANNEXURE - VI

Photo Graph Showing Interview of Mother and her Neonate

Photo Graph Showing Mother and her Neonate