CHAPTER II
REVIEW OF LITERATURE

After the formulation of research problem, the researcher undertook an extensive literature survey related to the problem. The earlier studies, which are relevant to the present study, were carefully reviewed. This indeed helped the researcher to have a better understanding of the various aspects of the research problem. By reviewing various theoretical works and empirical studies, the researcher was able to identify the research gaps in order to fill those gaps of information in the present work. In this regard, the researcher made an attempt to review various theoretical and empirical studies to facilitate the present study. The highlights and major findings of those studies have been summarized in this chapter.

Hedberg and Holmdahl (1970) examined the relationship between maternal health and intrauterine growth of the foetus after studying 11417 pregnant women. All infants of low birth weight and a subgroup of growth retarded infants were compared with a control group of normal weight infants. It became evident that the characteristics and complications of pregnancies resulting in infants of low birth weight differed from those of a control series.¹

Howard and Edward (1981) reveal that, in the recent years, there has been an increased interest in the recent years in the effects of maternal nutrition on the outcome of pregnancy and infant development. Laboratory and clinical studies have yielded results

that indicate the importance of the quality and quantity of nutrient intake during pregnancy. Medical groups and national leaders have issued policy statements about the crucial role of nutrition and the necessity to make good diets available to all pregnant women.²

Ruffing and Smith (1984) analyzes the obstacles to improve maternal and child health care in Ecuador and examine the steps that have been followed to alleviate these problems. The principal factors hindering maternal-child health program effectiveness are the lack of a grassroots program and insufficient organization development. This analysis has value for developed and developing countries interested in improving the delivery of maternal-child health services.³

Jena and Pati (1989) aim to focus the problems of maternal and child health services, causes of under utilization of services both from the demand side and the supply side and suggest measures for improvement of the same. Though the Crude Death Rate (CDR) (deaths per 1000 population) and Infant Mortality Rate (IMR) (infant deaths per 1000 live births) are declining in India, the rates are quite higher, when compared with many developing countries. Most of these pre-mature deaths and sufferings of the innocent lives could be prevented by proper education, ante-natal care and immunization. These are very simple and very cheap. The main reasons for under-utilization of health services are ignorance, superstition and poverty. The medical infrastructure in the country is inadequate and it is not in a position to render the maximum services. The main


reasons are inadequate staff, lack of regular supply of medicine and lack of proper and rational administration without reward and punishment. The remedies for improvement are: proper education not only of mothers but also of the elders in the family, nutrition supplementary, part-time doctors, proper incentives, expansion of sub-centres and mobile unit, decentralization of administration, involvement of voluntary organizations and private practitioners.\(^4\)

Weininger and George (1990) state that three different dietary patterns could predispose women to the two most common nutritional problems in pregnancy are energy imbalance, iron deficiency and anaemia. These three dietary patterns are due to insufficient food intake, poor food selection, and poor food distribution throughout the day.\(^5\)

Reddy and Reddamma (1990) explain that the maternal morbidity in developed countries is the least while in most of the developing countries it is still phenomenally high. The rate of maternal morbidity per 100000 live births was estimated to be 640 in Africa, 572 in south Asia, 270 in Latin America, whereas it was 55 in East Asia and 20 in North America and Europe. Among women in child bearing age, one-fourth of all deaths are maternal deaths in developing countries compared to less than 1/1000 in USA. Although maternal morbidity has been declining in India since the last two decades, it is considerably high compared to several other developing countries. According to World Health Organization, the maternal mortality rate is 340 in India as against only 50 in


Thailand, 60 in Sri Lanka and 90 in Burma. Significant variations in maternal morbidity are also observed among the different states in India in accordance with the socio-economic status of the people, their attitude in utilizing the available health services and the standard and degree of availability of domiciliary as well as institutional obstetric care. The studies conducted so far in India are mostly on maternal mortality which are retrospective in nature.6

Chatwin and Macarthur (1993) examined maternal perceptions of their low birth weight infants, the neonatal hospital environment and attitudes toward general parenting during the perinatal period. It has long been realized that preterm birth precipitates a series of adjustments for the mother. The sample population consisted of thirty mothers whose infants fell into low birth weight (1501-2000 grams) and very low birth weight (1500-1000 grams) categories. The variables, maternal age and socio-economic status, were associated with maternal perceptions of the neonatal hospital environment. When changes in perceptions over time were assessed, mothers suggested that the medical variables (birth type, gestation and maternal health problems) and the psychosocial variables (maternal smoking and length of infant hospitalization) contributed significantly to the way they responded to the infant and birth experience. In the area of general parenting also, analyses revealed that the psycho-social variables ordinal position in the family appeared to influence variations in maternal attitudes.7


Higgins and others (1994) made an attempt in the United States to allow women to identify their own health behaviors. A sample of 115 women was interviewed during their pregnancy. Of them over 49 per cent of the women made changes in their diet, exercise pattern, smoking habits, vitamin intake and alcohol use.\(^8\)

Forsyth (1995) says that advocacy for the practice of breast-feeding is not a recent phenomenon. Reference to the importance of breast-feeding is recorded in several historical and religious texts including the Koran and the writings of Hippocrates. The benefits of breast-feeding which are most frequently stated in the literature are that human milk protects against infection and allergic diseases and will also enhance the child’s intellectual potential. These are impressive claims and if thoroughly proven would surely influence the most sceptical parents in favour of breast-feeding.\(^9\)

Clark (1995) examined household health production experiences from the perspective of poor women living in the southwestern United States. Maternal responsibility for household health is a fusion of love and labor; affective concern for health coexists with health-related activities. In comparison, Anglo American women stated that they were responsible for prevention and minimized their health responsibilities outside their household. Negotiation of maternal health responsibility

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among household members generated conflict and divisiveness. Poor and minority women's experiences expand the traditional concept of self-care.\textsuperscript{10}

Carmichael and others (1998) use U.S. vital statistics data to describe national trends in the major causes of neonatal mortality among black and white infants from 1980 to 1995. Large declines in neonatal mortality have been achieved in recent years, but not in the black-white gap, which has increased. Declines were slower for black infants than white infants overall and for almost all causes. Prevention of preterm delivery and low birth weight continue to be a priority for reducing neonatal mortality, particularly among black infants. Although congenital anomalies do not contribute substantially to the black-white gap, their diagnosis, treatment, and prevention is critical to reducing overall neonatal mortality.\textsuperscript{11}

According to Weissman Eva and others (1999), the Ugandan government is implementing a comprehensive safe motherhood programme in an effort to reduce high levels of maternal and neonatal morbidity and mortality in the country. This study assisted national authorities, donor governments, and other partners at the national level in considering the substantial recurrent cost implications of providing higher quality maternal and newborn care, and in doing so it has facilitated an important dialogue on maternal and newborn health care financing and sustainability issues.\textsuperscript{12}


Verhoeff and others (1999) presented the data of 4104 pregnant women attending the antenatal-care facilities of two hospitals in a rural area in southern Malawi. In this area, malaria transmission is perennial and there is a high prevalence of HIV infection. The local women are exposed to drought and food shortages but experience high fertility rates. The basis of anaemia prevention in pregnant women is malaria control and haematinic supplementation, one of the most serious drawbacks being non-compliance. Although the data are presented according to the World Health Organization's definitions of anaemia, the corresponding cut-off values for Hb were not associated with malaria, suggesting that these Hb levels would be less useful indicators in malaria interventions. It is argued that an Hb value might be considered for identifying the pregnant women at the highest risk, for selective health education to reduce non-compliance.13

Pendse (1999) examines changes in the profile of women dying in childbirth in Zanana Hospital, a specialist hospital in Udaipur, Rajasthan, India, based on information about 100 consecutive maternal deaths in the hospital during 1983-85 and 1994-96. The women who died in childbirth in the hospital in 1994-96 were poorer and in poorer health compared to women who died in childbirth in the hospital during 1983-85, and most of them belonged to socially disadvantaged groups. Almost the same proportion had been attended by a trained midwife during the initial stages of delivery. Many had traveled longer distances and spent more money getting to the hospital in 1994-96 than in the previous decade, and many had arrived at the hospital in a moribund condition that could

not be saved. Lastly, many of them succumbed to preventable causes of death than in the previous decade complications resulting from illegal abortions, severe anaemia and malaria. Most of the women who died in hospital in 1994-96 would have died at home in the earlier decade, and their deaths would never have been recorded. To that extent, the changes over the decade may be viewed as positive. However, poverty, gender and social inequalities and lack of access to care and treatment at a point when their lives could have been saved are still bringing as many women to die in the hospital as ten years ago. Until these problems are addressed, women will continue to die needlessly in childbirth, within and outside hospital.  

The Indonesian Ministry of Health has addressed the problem of Safe Motherhood with great energy and many activities, in line with World Health Organization recommendations, but the maternal mortality rate has not yet dropped. Modern midwifery is the mainstay of the programme, but traditional birth attendants are still preferred by the community. Midwives need more skills for the tasks expected of them. Referral is confounded by property, geography and climate, and health centers and district hospitals often have inadequate resources for supervision or emergency care. Central policy decision and action are still required to develop an integrated approach, give senior midwives more responsibility at health centre level, improve record keeping, provide community education about pregnancy and its complications, make a concerted effort to contain costs of maternal and child health, and reduce poverty and illiteracy. Projects in overlapping departments could be integrated and decentralization made more effective. Initiatives to improve the training of midwives will eventually bear fruit, but

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maternal mortality cannot be made to disappear through midwifery training alone. Even with the substantial efforts being made, safe motherhood will remain a task for the next century.15

Bajpai and Centre for Health Education, Training and Nutrition Awareness (CHETNA) Team (2001) presents that during 1987-95 Lok Swashtya Parampara Samvardhan Samiti (LSPSS)-CHETNA conducted a study on traditional practices during pregnancy, childbirth, after childbirth and childcare, with the help of 26 NGOs in 12 States of India. 2600 women, Dais and mothers-in-law were interviewed. The study indicated the Dai tradition of indigenous midwifery is perhaps the best example of woman-centred health care and to some extent it enables women to keep childbirth within their control. Ayurveda, at certain places, reaches an extraordinary level of sensitivity to women’s inner physical and emotional experience of pregnancy and childbirth. Ayurveda has a wealth of knowledge that would promote and sustain the health of women particularly during childbearing.16

Whitworth and Stephenson (2002) examine the impact of the length of the preceding birth interval on under-two mortality in India, and examine the pathways through which short preceding birth intervals may lead to an increased risk of mortality. There is evidence to suggest that sibling rivalry is a pathway through which short birth intervals influence mortality. The greatest risks of an infant following a short birth


interval are among those whose previous sibling died, high parities, those with young mothers, and those whose previous sibling was breastfed for a short duration.\textsuperscript{17}

Andersen et al. (2002) aim to study pregnant women’s diet, nutrient levels and how these match recommendations. It also attempts to describe how factors such as education level, economy and folk dietetics influence the women’s food choice and to give suggestions for the improvement of nutrition education in the existing antenatal care systems. Eating customs and economy appear to influence the women’s food choice negatively in relation to recommendations while factors such as education level, family type, pregnancy number and folk dietetics do not seem to have a negative effect. The amounts of foods recommended, especially green leafy vegetables, must be shown to the women. The nutrition advice given by all levels of health providers must be the same and based on cheap, local, commonly consumed foods.\textsuperscript{18}

Ramachandran (2002) analysis that during the first half of the 20th century, chronic energy under nutrition due to low dietary intake, repeated infections, and rapid succession of pregnancy were the factors most responsible for maternal under nutrition and consequent adverse outcomes of pregnancy. Efforts to improve dietary intake, treatment of infections, and provision of contraceptive care were the major focuses of intervention from 1950 to 1990. These interventions resulted in reduction in severe

\textsuperscript{17}Whitworth Alison and Stephenson Rob, “Birth Spacing, Sibling Rivalry and Child Mortality in India.” \textit{Social Science and Medicine} 55. 12 (2002): 2107-2119.

grades of under nutrition. However, there was no reduction in mild and moderate degrees of under nutrition and anaemia during pregnancy and there was no significant improvement in the course and outcome of pregnancy, or in the birth weight.¹⁹

Mala (2002) in her study on “Reproductive and Child Health Issues in Kerala” clearly states that Kerala has impressive record in the area of reproductive and child health when compare to the rest of India. It enjoys low infant mortality rate and child mortality rate. This State has the lowest effective reproductive span for women in the country. High age at marriage and potential for short birth intervals independently contribute to low birth weight.²⁰

Barathi and others (2002) conducted a study in Thanjavur Medical College hospital from Jan. 2001 to April 2001. The weight, height, head circumference, chest circumference and mid arm circumference were determined for 4000 mothers and their newborn within 24 hours of delivery using the standards prescribed by WHO to access the influence of maternal anthropometry on neonatal anthropometry and to arrive at a formula to calculate the expected birth weight from the maternal anthropometry. Maternal and neonatal anthropometry was statistically correlated. It was found that the maternal weight has direct positive correlation with all the neonatal parameters. Maternal height directly influences neonatal Head Circumference (HC), Midarm Circumference (MAC) and height. So weight gain in pregnancy is to be promoted by proper health

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education, dietary device and supplements of nutrition and Iron Folic Acid (IFA). High-risk approach of pregnant mothers will be possible even at field level.\textsuperscript{21}

Kapil (2002) mentions that the Integrated Child Development Services (ICDS) scheme is the largest program for promotion of maternal and Child health and nutrition. As per the findings the program services are coordinated at the village, block, district, state and central government levels. The beneficiaries are children below 6 years, pregnant and lactating women and women in the age group of 15 to 44 yrs. The beneficiaries of ICDS are, to a large extent, identical with those under the maternal and child health program. The program provides an integrated approach for converging all the basic services for improved childcare, early stimulation and learning, health and nutrition, water and environmental sanitation aimed at the young children, expectant and lactating mothers, other women and adolescent girls in a community.\textsuperscript{22}

Vibha (2002) insists that in India the care provided to women through the health services has focused on antenatal care, delivery, and contraception. In big city hospitals where antenatal and delivery services are utilized by many, there are very few women attending postnatal clinics. Postnatal morbidity is common among Indian women and complications like postpartum hemorrhage and puerperal sepsis are important causes of maternal deaths. As per the findings it is therefore imperative that health providers take


note of the situation and ensure that women receive information on the need and importance of postnatal care and also get accessible and acceptable postnatal care.\textsuperscript{23}

Hadad and others (2002) used a qualitative method to analyze the discourse of mothers from Greater Metropolitan Belo Horizonte, Minas Gerais, Brazil, whose infants had died from what were considered avoidable causes (diarrhea, malnutrition, and pneumonia), seeking to elucidate the factors associated with utilization of health care services. The study group showed a variety of interpretations of illness, often distinct from the corresponding biomedical concepts. The fact that attending health care personnel overlooked or underrated the mother's perception of the illness and the lack of communications between them and the child's family had an impact on the child's development and subsequent death.\textsuperscript{24}

Emond and others (2002) evaluate the effectiveness of a community based intervention project aimed at reducing maternal and infant mortality in a poor urban district in the city of Natal in the Northeast of Brazil. During 1995 there were four maternal deaths from 1195 pregnancies (maternal mortality of 335/100 000); three of them were related to hypertension and one to uterine perforation after an illegal abortion. During 1998 (post-intervention), there were no maternal deaths during pregnancy or childbirth. A mortality survey carried out in 1993-1995 estimated the infant mortality rate to be 60/1000 live births. By 1998, using data collected locally by active surveillance, the infant mortality rate was 37/1000 live births. The causes of infant death in both those


periods were dominated by respiratory infections and diarrhea disease. Post-intervention and significant improvements were documented with respect to the mothers' understanding of basic hygiene, their knowledge about the causes of common diseases, their management of acute respiratory infections and diarrhea among children.\textsuperscript{25}

Gokhale and others (2002) explain the slow reduction in infant mortality rate in the last couple of decades. State-level aggregate data from the National Family Health Survey, 1992 and micro-level data on 317 rural mothers were used for examining the influence of female literacy on reduction of infant mortality through increased use of Maternal and Child Health (MCH) services. Illiteracy of women was strongly associated with all variables relating to maternal care and infant mortality rate. Use of maternal health services increased in the worst to become the best groups, for tetanus toxoid, iron and folic acid tablets, hospitalized deliveries, and childcare services (vaccination). Illiteracy of women had a more detrimental impact on rural than on urban areas. Programmes, like providing free education to girls, will yield long-term health benefits.\textsuperscript{26}

Vatta (2003) in her study “Awareness about the problems in pregnancy” found that 73.3 per cent of respondents acknowledge nausea and vomiting as the major problems of pregnant women. The results were almost similar in the post test (86.6 per cent) and retention test (73.3 per cent). Other problems like heart burn, anaemia, tetanus, abortion, high blood pressure, cramp in muscles and constipation were mentioned by more or less one-third of the respondents. Regarding the preventive measures, the


respondents knew that the women should be immediately taken to hospital. Post test and retention test results indicate that they gained as well as retained knowledge about bed rest and medicine to be given to patient to get relief from the pain immediately.\textsuperscript{27}

Edwards (2003) finds that stress and distress hinder foetal growth and short term pregnancy; while social supports and fulfilling intimate relationships buffer the impact of stress on pregnancy outcome. Socio-economic status is the strongest and the most consistent predicts of both fetal growth and preterm delivery. Pregnancy puts physiological stress on the body with complications of chronic diseases.\textsuperscript{28}

Kramer (2003) found that for at least 65 years, nutritionists, physicians, and public-health policy-makers have studied the impact of food supplementation to pregnant women who are under-nourished or otherwise at risk for adverse pregnancy outcomes. Most of these studies on feeding supplementation have targeted an increase in the birth-weight of the offspring, based on the well-established relationship between the higher birth-weight on the one hand and increased survival, reduced morbidity and lower risk of long-term chronic diseases of adults. The randomized trials have not shown any benefit of maternal food supplementation on long-term growth or functional outcomes in children.\textsuperscript{29}

Okoro and others (2004) in their study look at the combined effects of maternal age, foetal sex and parity in a specialist hospital setting and compared it with already


published figures obtained from public health-care data in Nigeria. The results show that a relationship exists with bivariate analysis between these variables and birth weight, but with multivariate analysis the relationship proves to be spurious. Socio-economic status and maternal health are felt to be the most important considerations within the specialist hospital setting, as patients are more likely to be of high socio-economic status. Therefore high income and high educational qualification have made an impact on maternal health and a positive outcome on birth weight.30

Minamisava and others (2004) aim to determine the factors associated with LBW in children born alive in the State of Goias, Brazil. In Goias, the prevalence of LBW was 5.96 per cent and the most important factors associated with LBW were prematurity, young and older mothers, unmarried women, mothers’ illiteracy, mothers who had less than seven prenatal care visits, non-hospital delivery, and female infants. Local public health actions are necessary to reduce discrepancies in infant and maternal care.31

Pallikadavath and others (2004) made an attempt to examine factors associated with antenatal care in rural areas of north India. They also attempted to investigate the access of those factors to specific critical components of care. They also brought out differences in the pattern of services received via health facilities and home visits. There was significant under-utilization of nurse/midwives in the provision of antenatal services


and doctors were often the lead providers. The average number of antenatal visits reported in this study was 2.4. Higher socio-economic status is associated with increased chances of receiving an antenatal check-up, and of receiving specific components including blood pressure measurement, a blood test and urine testing but not the obstetric physical examination, which is however linked to ever-use of family planning and the education of women and their husbands. Thus, pregnant women from poor and uneducated backgrounds with at least one child are the least likely to receive antenatal check-ups and services in the four large north Indian States. Basic antenatal care components are effective means to prevent a range of pregnancy complications and reduce maternal mortality.\footnote{Pallikadavath Saseendran et al., “Antenatal Care: Provision and Inequality in Rural North India.” Social Science and Medicine 59.6 (2004): 1147-1158.}

Mehra and Agrawal (2004) stress that adolescents among the urban and rural poor have a high incidence of Chronic Energy Deficiency (CED) and anaemia, more so in girls than in boys. Adolescent pregnancies (15-19 years) contribute to 19 per cent of total fertility in India and record the highest maternal mortality rates. Besides maternal age, lack of education, low socio-economic status, maternal under nutrition and limited access to maternal health services are important determinants of poor pregnancy outcomes. Low birth weight is the major adverse outcome for the infant and an important determinant of increased child mortality.\footnote{Mehra Sunil and Agrawal Deepti, “Adolescent Health Determinants for Pregnancy and Child Health Outcomes among the Urban Poor.” Indian Pediatrics 41.2 (2004): 137-145.}
Fowles and Gabrielson (2005) proposed to test a model describing the relations of various biopsychosocial, behavioral, and cognitive factors (on the health outcomes of nutritional adequacy and infant birth weight in low-income pregnant women). Most low income women do not meet the nutritional requirements of pregnancy. The result is that the careful monitoring of dietary quality may help the target women, who are in need of additional nutritional education. Providing nutritional education throughout pregnancy may lead to improved dietary patterns that may reduce low birth weight.  

Baker and others (2006) aim to demonstrate that the breastfeeding practices, can be improved to a level in developing countries. About one-fourth to one-half of all infant deaths in developing countries occurs in the first week of life. Immediate breastfeeding within the first hour, followed by early exclusive breastfeeding, improves the health and survival status of newborns. Breastfeeding is an entry point to work at all levels of the healthcare system. Hence, within communities, a comprehensive training for health care workers and also the community members is essential.

Bisai and others (2006) compare several maternal risk factors of low birth weight (LBW) between 204 normal birth weight (NBW) and 133 LBW newborns from Kolkata, India. Based on their birth weight (BW), new born are classified as LBW and NBW. The results reveal that means for maternal age, gestational age, hemoglobin concentration and per capita daily income are significantly higher among mothers of NBW. Since the

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gestational age is not modifiable in pregnant women, there is a need to increase their hemoglobin concentration level. Most importantly appropriately targeted preventive strategies, including iron supplementation, need to be implemented for health promotion.36

Mony and others (2006) focus on the demographic and domestic environmental status, and maternal health care services in two slums of Vellore town, Tamilnadu, in 2001. There were 3334 families settled in the two slums and their population was 15280. Their sex ratio was 965: 1000. Among the antenatal women, 87 per cent took iron tablets and 94 per cent took tetanus toxoid. Of them, 85 per cent had normal vaginal deliveries. The crude birth rate was 25.7/1000. A sizeable proportion had inadequate access to high-quality antenatal and obstetric care services. They observe that reliable, local information is essential for managing a decentralized health care system.37

Cheng and others (2006) aim to identify major and influential components of, problematic tasks performed by pregnant women employed in education, health care and service areas. About 60 per cent of them had problems on performing at least one work task. They reported that 105 tasks are problematic. For instance reaching above the head, bending forward, bending and twisting, pushing, repeating actions and working at a fast pace are identified as the task components requiring the greatest level of effort. Excessive


effort, excessive time, getting tired, repetitive actions, stress and fear of injury are identified as factors that have strong associations with the six major task components.\textsuperscript{38}

Agarwal and others (2006), in their study reveal the prevalence of anaemia during pregnancy. The lactation was significantly lower as disclosed in the National Family Health Survey 1998-1999 when compared to earlier surveys. The contributing factors found on multiple regression analysis for anaemia in pregnancy and lactation are: literacy, occupation and standard living index of the study women; their awareness about anaemia, its prevention by regular consumption of iron folate tablets and increase in food intake. Maternal height, age at marriage, parity and foetal loss also contribute to hemoglobin level. There are interstate differences; lower fertility, higher literacy and better diet were observed in Himachal Pradesh as compared to that of Haryana. The literacy and nutritional status of women in Tamilnadu is lower than that in Kerala. The remaining 3 states have poor fertility, lower social living index and nutritional status with 90 per cent women being anaemic during pregnancy and lactation. Low prevalence of severe anaemia in Orissa as compared to Assam greatly owes to availability and consumption of iron folate tablets. The antenatal services in the first trimester and checkup by a doctor, along with availability and consumption of iron folate tablets over 3 months in all the States has influenced hemoglobin levels.\textsuperscript{39}


Elizabeth and others (2007) stress Low Birth Weight (LBW) is a key determinant of neonatal mortality, morbidity, subsequent growth and development as well as early onset of adulthood diseases. Preterm and term LBW babies are born with significantly lower nutrient reserves at birth compared to term-normal babies. As this reserve may be further lowered by recurrent infections and inappropriate feeding habits, there is a need for special feeding and nutrient supplements in this group. Specialized nutritional surveillance and supplements are recommended for LBW babies to promote optimum growth and prevent sub-clinical nutrient deficiencies. Infant feeding practices should be strengthened and integrated with the existing health care programs to reach all the beneficiaries. Along with the existing special supplementation programs like iron, folic acid, vitamin A, iodine etc., calcium supplementation should also be considered. It is also essential to concentrate on the girl child, the adolescent girl, prospective mother and prenatal mother to ensure optimum nutrition and nutrient transfer to future offsprings.40

Tsui and others (2007) examines the objects, causes, and manifestations of maternal fears and their associated demographic factors in a sample of Hong Kong Chinese pregnant women. Women's fear toward pregnancy and childbirth is a common and important health concern. All participants report that they have some degree of fear. The main objects of fear are fear of childbirth and child's and mother's wellbeing. The first factor identified for causes of fear is all about negative stories, followed by negative attitude or mood. Regarding various manifestations of fear, stress symptoms, wish to avoid pregnancy and childbirth are ranked high. Over one-fifth of participants consider

cesarean due to fear of childbirth. Even in a group of low-risk pregnant women, fear towards pregnancy and childbirth is frequently experienced. Better strategies to address women's psychological needs during pregnancy are warranted.41

Sarma and Rempel (2007) reveal with the data from the government organization (India’s National Sample Survey). It utilized to analyze the determinants of women's decisions to register for pre and postnatal healthcare, utilize maternal healthcare and select a place for childbirth. The data show that the level of schooling mothers has a significant positive effect on decisions to register and utilize these healthcare services in rural and urban areas. In contrast, distance to a maternal health facility centre inhibits decisions to register for and utilize these services in rural India. The findings demonstrate that the health status of women and children in India can be improved significantly by strengthening IEC (information, education and communication) efforts on the demand side and reducing access barriers on the supply side.42

Chakrabarti and Chaudhuri (2007) examine the role played by the various socio-economic and community level factors in determining the antenatal and maternal health care utilization pattern using the data from the National Family Health Survey carried out in India during 1998-1999. Their analysis document that autonomy enjoyed by women and exposure to media has a significant impact on maternal health care utilization even after controlling other attributes, particularly their education and household economic


status. Availability of a rural health facility in the village and other community level programme propagates the utilization of health care.\textsuperscript{43}

Johns and others (2007) in their study on “Estimated global resources needed to attain universal coverage of maternal and newborn health services” specify that an estimated 15 per cent of pregnant women in developing countries experience pregnancy related complications, 7 per cent of them require care at centers with surgical capacity (referral care) and 2-3 per cent require surgical care. Nearly 530 000 women die annually from pregnancy complications. Furthermore, each year an estimated 4 million babies die within the first 4 weeks of life, around three-quarters during the first week of life. Deaths among neonates account for almost 40 per cent of deaths occurring among children aged below 5 years and for more than half of all deaths are among infants. An additional 3.3 million babies are stillborn, a quarter of them dying during birth.\textsuperscript{44}

The Government of India proposes to include Hepatitis B in the schedule under the National Immunization Programme. The Hepatitis B disease does not have any effective treatment, but there is a highly safe and effective vaccine, which can prevent Hepatitis B infection and its serious consequences like liver cirrhosis and liver cancer. Administrating the Hepatitis B vaccine to all infants in the National Immunization Programme would save more tan 1.5 million chronic Hepatitis B infections and more


than 0.2 million deaths due to Hepatitis B. To vaccinate all the infants, the country would require approximately 100 million doses of Hepatitis B vaccine.45

Techasena and others (2007) attempt to study maternal and cord blood measles antibody, the kinetic change of infant measles antibody from 0 to 9 months and the response to measles vaccine at the age of 9 and 18 months. The primary reason for these outbreaks is inadequate vaccine coverage. Another reason is primary vaccine failure. The demographic data of mothers and infants were recorded at each visit. Maternal and cord blood measles antibody were high. The authors found a higher level in cord blood than in maternal level. Measles antibody level in infants declined significantly from the age of 4 months to their lowest level at the age of 9 months. After the first dose of 9-month measles vaccination, the authors found the zero conversion rates of 82.2 percent. The zero conversion rates were significantly higher (99.6 percent) after the second dose at 18 months.46

Amir and Donath (2007) examine the relationship between maternal overweight and obesity and breastfeeding intention and initiation and duration. Breastfeeding behaviour is multifactorial, and a wide range of socio-cultural and physiological variables impact on a woman's decision and ability to breastfeed successfully. An association has been reported between maternal obesity and low breastfeeding rates. This is of public health concern because obesity is rising in women of reproductive age and the apparent association with increased artificial feeding will lead to a greater risk of obesity in

45Health for the Millions- Nutrition Food Security Lok Sabha, Unstarred Question No. 1441, 33.3 (22 August, 2007).

children. There is evidence from epidemiological studies that overweight and obese women are less likely to breastfeed than normal weight women. The reasons may be biological or they may be psychological, behavioral and/or cultural.\textsuperscript{47}

Ramos and others (2008) identify the risk factors for infant mortality (< 1 year of age) in Salvador, Bahia State, Brazil, by means of data bank linkage. A case-control study was performed by selecting individuals from the Mortality Information System (SIM; 2000 and 2001) and the Information System on Live Births (SINASC; 2000). It was realized that prematurity, maternal occupation as a domestic servant, housewife, or student, delivery in public health services, insufficient number of prenatal visits, and low birth weight were predictors of infant death.\textsuperscript{48}

Julie and others (2008) assess the effects of duration of intervals between pregnancy outcomes on infant and child mortality and how these effects vary over sub-periods of infancy and childhood and by the type of outcome that began the interval, by using high-quality longitudinal data on 125,720 singleton live births in Matlab, Bangladesh. Controlling for other correlates of infant and child mortality, it is found that shorter intervals are associated with higher mortality. Interval effects are greater if the interval began with a live birth than with another pregnancy outcome. In the first week of the child’s life, the effects of short intervals are greater if the sibling was born at the beginning of the interval and had died; after the first month, the effects are greater if that sibling was still survives. Many relationships are found to be consistent with the maternal


depletion hypothesis, and some with sibling competition. Some appear to be due to correlated risks among births to the same mother.49

Faruque and others (2008) by making use of the data from the World Health Organization show that about 60 per cent of all deaths, occurring among children aged less than five years (under-five children) in developing countries, could be attributed to malnutrition. Infant and young child-feeding practices (breastfeeding and complementary feeding) have been identified as a major cause of malnutrition. In Bangladesh, although the median duration of breastfeeding is about 30 months, the rate of exclusive breastfeeding until the first six months of life is low, and practice of appropriate complementary feeding is not satisfactory.50

As per the United Nations International Children’s Emergency Fund (UNICEF) report on, “The State of World’s Children, 2008”, the mortality for children under the age of five in India is 76 per thousand. Based on the estimates made by the Registrar General of India (RGI), the Maternal Mortality Ratio (MMR) has declined from 398 per one lakh live births (1997-1998) to 301 per one lakh live births in 2003. As per the NHFS-III report 2005-2006, 36 per cent of women (15-49 ages) in the country has Chronic Energy Deficiency (Body Mass Index below 18.5).51

According to the same report, every day on an average more than 26,000 children under the age of five die around the world, mostly from preventable causes. An Appraisal


51Health for the Millions - Nutrition Food Security Lok Sabha, Unstarred Question No. 4768, 34.4 (25 August, 2008).
of ‘Three Decades of ICDS’ was conducted by the National Institute of Public Cooperation and Child Development (NIPCCD) in 2006. The study covered 150 ICDS projects from 35 States covering rural, urban and tribal projects. The main findings of the appraisal are 44 per cent Anganwadi centres covered under the study are found to be lacking of kits; distribution of supplementary nutrition is noticed for an average of 46.31 days at the Anganwadi level. The major reasons causing disruption as reported are delay in the supply of items of supplementary nutrition; 36.5 percent mothers have not report weighing of new born children; 29 per cent children are born with a low weight which is below normal(less than 2500gm); 37 per cent anganwadi workers reported the non-availability of materials/aids for nutrition and health education.\textsuperscript{52}

Hajian and others (2008) aim to determine the patterns and factors associated with birth intervals in Multi-Para women residing in Babol, Northern Iran. Birth spacing has become a main strategy within health promotion programs for mothers and their children during the past two recent decades in the Islamic Republic of Iran. Maternal age, parity, duration of breastfeeding, still birth, history of infant mortality, attending family planning clinics and using modern contraceptive methods are shown to be determinants of birth intervals.\textsuperscript{53}

Chowdhury (2008), “Minister of State for Women and Child Development” said that at least 77,000 mothers in India die every year during child birth. He told in the Rajya Sabha that the latest survey report of the Registrar General of India published in

\textsuperscript{52}Health for the Millions - Nutrition Food Security Rajya Sabha, Unstarred Question No. 2932, 34.4 (21 August, 2008).

2006, in that the Maternal Mortality Ratio (MMR) for India is 301 per 100,000 live births. Nearly 60 percent of Indian women are anaemic. Supplementary nutrition to pregnant and lactating women under the Integrated Child Development Scheme has also been given. However, the Economic Survey (2007-08) reports that the country’s MMR was 450 per 100,000 live births. India’s MMR is worse than its neighbours, China (45) and Sri Lanka (58). 54

Guilford and others (2008) points out that health care during pregnancy is a crucial component in ensuring a safe delivery. The surveys consisted of multiple-choice questions designed to assess four specific domains of knowledge in prenatal care: nutrition, danger signs, threats from illness, and acceptable activities during pregnancy. Only the country of origin and educational level were significant factors in determining knowledge of prenatal care. However, the country of origin was a stronger predictor of knowledge of prenatal care than was having completed high school.55

Jeroen and Ginneken (2009) address the important issues in infant and child mortality in Zimbabwe. Their aim was to determine the impact of maternal, socio-economic and sanitation variables on infant and child mortality. Births of order 6+ with a short preceding interval had the highest risk of infant mortality. The infant mortality risk associated with multiple births was 2.08 times higher relative to singleton births. Socio-economic variables did not have a distinct impact on infant mortality. Determinants of

54 Chowdhury Renuka, “77,000 Indian Women die every year at Childbirth,” Thaindian News 10 March 2008.

child mortality were different in relative importance from those of infant mortality. It supports health policy initiatives to stimulate the use of family planning methods to increase birth spacing.\textsuperscript{56}

Marshall and Tracy (2009) examine work and family characteristics and depressive symptomatology among over 700 working mothers of infants. Working mothers who were single or whose infant’s health was poorer than that of other infants, reported greater depressive symptomatology. The effect of job quality on depressive symptomatology was mediated by work-family conflict, whereas infant health and marital status had direct effects on depressive symptomatology.\textsuperscript{57}

Gulati and others (2009) in their study highlights net effects of selected socio-economic, demographic and cultural factors on the prevalence and treatment-seeking behaviour for reproductive morbidity in India on the basis of self-reported reproductive health problems elicited from 84,862 currently married women aged 15-49 in the second National Family Health Survey, 1998-1999 (NFHS-2). Information was elicited on treatment sought, if any, from private or public health service providers from 34,034 women suffering from Reproductive Tract Infections (RTIs). The prevalence of RTIs in India is quite high (40 per cent) and the treatment-seeking is extremely low (33 per cent). Usage of female sterilization and Intra-Uterine Device (IUD) significantly compounds the reproductive morbidity in India.\textsuperscript{58}


Chersich and others (2009) assessed the health status of women; key interventions to improve maternal health could be identified. Throughout the first year after childbirth, women had high levels of morbidity. Interface with health workers at child health clinics should be used for treatment of anaemia, screening and treatment of reproductive tract infections, and provision of family planning counseling and contraception. Providing these services during visits to child health clinics, which have high coverage both early and late in the year after childbirth, could make an important contribution towards improving women’s health. 59

Prakasamma (2009) states that Andhra Pradesh, a large state in southern India, has a high maternal mortality ratio of 195 per 100,000 live births despite the improvements in social, demographic and health indicators over the last two decades. This contrary situation has been analyzed using findings of different studies on maternal mortality, and four factors have been presented for consistently high maternal mortality in the state. First, the disproportionately high focus on family planning towards population stabilization reduced the emphasis on maternal health in the peripheral hospitals, resulting in low use of these facilities for childbirths. Second, the growth of services in primary health centres was not given adequate emphasis, resulting in the weakening of the peripheral health system. Third, there was little emphasis on developing a cadre of midwives who would have primarily focused on maternal health. Lastly, the low status of women in the state has hampered timely referral and access to services. 60


Mostafa (2009) in his study examines the prevalence of and factors associated with maternal health care service utilization among married adolescents in Bangladesh using the 2004 demographic and health survey data. Both cross-sectional and fixed-effects binary logic models yielded quantitatively important and statistically significant socio-demographic factors for the service utilization which include: place of residence, birth order and region. Women's education and wealth index are the most important determinants in maternity care services utilization.⁶¹

Hajian-Tilaki and others (2009) aim to determine the Patterns and Factors Associated with Birth Intervals in Multiparous Women in Babol, Northern Iran. Maternal age, duration of breast feeding, sex of index child, history of still births, history of infant mortality of the index child, type of contraception used, regular attendance at family planning clinics and parity showed a significant correlation with birth interval.⁶²

Jain and others (2009) explain that early and Exclusive Breast-Feeding (EBF) has been proven to reduce the childhood mortality and morbidity. Data reveal that only 23.4 per cent mothers in India start breast feeding within one hour of the birth. Reports from the developed countries also have shown that up to 25 per cent mothers face problems of starting the breast-feeding in first 7-10 day. However their perception of not enough milk is the single most common predictor of early termination of breast-feeding.

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Problems of lactation are more common in young age and first time mothers. Young age and first time mothers need more counseling on breast feeding and related problems.\(^{63}\)

Narahari and others (2009) attempt to find the pediatric health in terms of feeding practices among 260 ever married women, who have at least a child in their reproductive span. They belong to the Porja, a primitive tribal group of Visakhapatnam District in Andhra Pradesh. About 71 per cent of them squeezed out the ‘colostrum’ (milk) are to start the feeding the baby, thereby depriving of their babies from ‘colostrum’, a thick yellow liquid rich in protein that provides natural immunity. This may be due to illiteracy and lack of awareness about the nutritive and immunity value of the colostrum. The results are discussed in the light of available information on other local tribes besides focusing the relevance of illiteracy, status of awareness etc. on pediatric health care practices.\(^{64}\)

Kitsantas and Pawloski (2009) determine whether maternal pre pregnancy obesity has independent effects on breastfeeding initiation and duration and whether these effects are different for women who experience medical problems during pregnancy or labor/delivery complications in comparison with those who have no medical or labor/delivery complications. The findings indicate that obese women with medical or labor/delivery complications were less likely to initiate breastfeeding in comparison with

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their counterparts of normal weight. They did not find an independent effect of pre-pregnancy obesity on breastfeeding initiation among women with no medical problems.65

Rajesh and others (2009) estimate the situation of breastfeeding in Surat among infants and to determine variables associated to major risks for early weaning. Mothers coming to the well baby clinic for immunization of infants at Government Medical College and Hospital were interviewed using pretested questionnaire. Mothers with their infants who have not completed one year of age. Exclusive breastfeeding practices are not in a better situation than at the national level. The factors related to early weaning denote a weak breastfeeding support given by maternal and infant health services.66

Scott and others (2009) aim to identify the level of compliance with national recommendations related to the timing of the introduction of solid foods and to describe the maternal and infant characteristics associated with the timing of the introduction of solid food. The early introduction of solid foods before 4 months of age has been associated with an increased risk of diarrhea in infancy and a greater risk of wheeze and increased percentage of body fat and weight in childhood. In general, mothers introduced solids earlier than recommended because they perceived their baby to either need them or be ready for them. Infant feeding recommendations need to be evidence-based, uniformly supported by professionals and widely, clearly and consistently articulated if higher rates of compliance are to be achieved in the future.67


Shakur and others (2010) find out the prevalence of anaemia and maternal and infant factors associated with Hb values in infants at 6 months of age in rural Bangladesh. Infants (born to mothers supplemented with Fe-folic acid from mid-pregnancy) were visited at birth and 6 months of age. Mothers’ anthropometric status, and infants’ birth weight, gestational age at birth, weight and Hb concentration at 6 months were measured. They found a season effect on Hb, as it tended to be higher as the study progressed. The high prevalence of anaemia at such an early age needs to be addressed to minimize the disease’s long-term consequences.  

Warren and others (2010) assesses the changes in the quality of care following the introduction of a new postnatal package. Using a pre-test and, post test design to observe client-provider interactions with women 0-6 weeks postpartum for health facilities in a rural district in eastern Kenya. The introduction of new comprehensive postnatal care package improved performance of providers in counseling in maternal and newborn complications, infant feeding and family planning. However, providers would benefit from additional clinical skills for managing maternal and newborn complications during the critical period following childbirth.

Ahmed and Sands (2010) investigate the effect of pre and post discharge interventions on breastfeeding outcomes and weight gain among preterm infants. No

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significant evidence of pre and post discharge interventions on weight gain was found. Pre and post discharge interventions were effective in promoting breastfeeding, exclusivity, duration, and maternal satisfaction among mothers of preterm infants. These findings have important clinical implications that support the need for evidence-based breastfeeding interventions for preterm infants before discharge and vigilant post discharge support. Research to determine more effective interventions to promote exclusive and long-term breastfeeding among preterm infants is required.\textsuperscript{70}

The above studies clearly show that though there are many studies concerning several aspects of maternal and infant health such as incidence, various causes of diseases, treatment methods and related aspects. It is however noted that no serious attempt has been made to study the maternal and infant health from a sociological perspective hence, the need for the present study. For the purpose of the study appropriate objectives have been formulated by the investigator focusing on the study area.