Chapter One: Background Literature

Introduction

Rationale of the study. The problem of India is malnutrition among children. India is home to almost one third of world’s total malnourished children. In the early stage of child development brain develops and various vital mental activities took place. The children suffering from malnutrition have various developmental deficits. The deplorable condition of children in early childhood due to malnutrition, micronutrient deficiency, poor health facility and worse hygiene and sanitation increases the Infant Mortality Rate. The child if survive have less cognitive development, poor academic achievements and poor performances in profession in adulthood. This all may lead to poor man power affecting the economy of the country. The malnutrition may affect the mental development of child which weakens the cognition of children right from the infancy. The child growth and development encompasses various vital factors like parenting behavior, SES of family, mother education, micronutrient deficiency at critical stages, maternal depression and brain development. The nutritional knowledge of mother helps in providing balanced nutritional diet to their children. The educated mothers tend to avoid having their first child at undesirable early age which entails less risk of Infant Mortality Rate. Besides this, lack of attention to child nutrition and pre and postnatal nutrition of mother had a major impact on health and cognition of child. More than billions of people are suffering from malnutrition and most affected are the children of vulnerable age group. These children shows developmental deficits in all aspects if survive. At this age as they depend on their mother for food, their nutrition given by mother helps in their development and tries to eradicate death from malnutrition.

So to eradicate malnutrition in children mother plays an important role and various programmes run by government to eradicate poverty which was second option. How malnutrition can be reduced or completely eliminated? So the researcher with few insights tries to solve the plight of Indian children by asking how, when why and by whom this was achieved. As the term child development had wide scope of all round
development and might include social or psychodynamics, emotional, biological (genetics- genotype and phenotype), behavioural (environmental), ecological, psychosocial, cognitive development etc. An assessment and investigation of all of them were highly involved and may not fall in the scope of this thesis.

**World scenario.** In developing countries every year around 0.9 million children of less than 5 year die (UNICEF, 2007). World’s population was largely affected by hunger and inadequate food supply which had serious consequences on health and wellbeing. It was estimated that 60% of death occurs due to hunger related diseases and malnutrition (UNICEF -2007, 6th report on world nutrition situation). In developing world nearly one third 35% of under five children were stunted and rural children were twice likely to be underweight as those in urban areas (UNICEF Global database-2006-2010). The alarming figure of Global Infant Mortality Rate was 41.61, whereas India recorded 48 in 2010 (World Fact Book-2012). Worldwide over 90% of maternal death occurs in developing countries (CIA World Fact Book-2012) and India ranked 18th in Global Maternal Mortality Rate.

**Health status of children in India.** India presents a grim scenario in this aspect. One in every 20 children dies at national level, one in every 18 children in rural area and one in every 29 in urban area. In West Bengal (eastern part of India), Infant Mortality Rate is 32 and Total Fertility Rate was 1.9 in 2010 and Maternal Mortality Rate was 178 in 2010-2012 (RGI-SRS, 2012). However our country was lagging behind in reaching millennium development goal (MDG) of reaching 75% decline in Maternal Mortality Rate in 2015. In India Maternal Mortality Rate was influenced by other determinants as low literacy, lack of spacing between births, early age at child bearing and marriage, high parity, cultural misconceptions, economic dependency of women etc. besides major cause was haemorrhage (38%), sepsis (11%), and other conditions (52%) (Registrar General of India, Sample Registration System, (RGI-SRS), 2010-2012). In developing countries every year around 0.9 million children of less than 5 year die (United Nations Children’s Fund,UNICEF, 2007). World’s population was largely affected by hunger and inadequate food supply which had serious consequences on health and wellbeing. It was estimated
that 60% of death occurs due to hunger related diseases and malnutrition (UNICEF, 2007). Malnutrition was considered as silent emergency by UNICEF which endangers children, society, women and future of mankind. In developing world nearly one third 35% of under five children are stunted and rural children were twice likely to be underweight as those in urban areas (UNICEF Global database, 2006-2010). India presents a grim scenario which lacks in various aspects inflicting sufferings on children below 5 years of age. The main reasons for IMR as per RGI of India (2001-2003) are perinatal conditions (46%), diarrhoeal diseases (10%), infectious and parasitic diseases (8%), congenital anamolies (3.1%) and respiratory infections (22%). For improving mother and child health outcomes, awareness and education of Mother plays important role.

India being a developing country lacks in various aspects inflicting sufferings on children below 5 years of age. Mother was regarded as primary caregiver for child development and growth and her health, education, socio economic status and relevant awareness about child development seem to play a great role. If the mother was uneducated and unaware of proper health techniques, care and required nourishment of the child, she might not be able to play a complete and ideal role of child rearing. The schooling provides women a basic knowledge of health, hygiene, nutrition and nutrients, awareness of various social issues, child care and health care services. She, if educated, knows the urgency of immediate medical consultation when the child falls ill. The most affected population of children from various aspects was from developing countries. The schooling provide woman knowledge about health issues, hygiene, nutritional awareness and increase their power in intra household decision and helps in effective use of health care services. The education level of woman had causal effect on health of next many generations. To facilitate understanding of various aspects of the present study a brief relevant description was given-

**Maternal education and child development.** Mother provides primary care to her child during the early years and this care was mostly influenced by her knowledge and understanding of basic nutrition and child health. It was apparent that her education plays
an important role in her child care practices. The educated mothers tend to avoid having their first child at undesirable early age which entails less risk of Infant Mortality Rate. Educated mother play assertively a greater part in intra family decisions affecting the child’s needs and also provide early and effective use of health services to their child. Thus, mother’s education and child development were highly associated. In India various commissions and committees had been appointed to consider issues of education in general and girls’s education in particular and the girl education was important not only to create gender based equal educational opportunities but also for various social, economic, and political returns. These gains might be in the form of higher income level for women, better education and healthier children, women’s empowerment and economic independence, increased women’s work participation, in the organised sector and above all, overall national development (Kaur & Pal, 2007).

Generally, the household as considered to be women’s domain and entire domestic work was shouldered by women. They were also responsible for making food available to their families. In most Indian families, as the mothers spend more time with the child than father, she was more close to child and aware about every needs of child. So women played very important role in child’s nutrition and health. In fact mother’s education was important not only for child but for entire family. In a way she looked after every one in a family by way of managing and taking in many domestic affairs tuned to income. Her right decision at right time helped to run the family smoothly. As a result, more educated mother had better nourished child. There were various evidences which showed that survival of children improved as the mother’s level of education increased. The literacy of mother was strongly associated with infant mortality rate (Devdas et al., 1991; Gokhale, Rao & Garole, 2002) but its association with child mortality (0-5years) was not understood properly. Mothers were primary caregivers to the children and their characteristics exert significant influence on child health. There was a study which covered 5 south Indian states which showed low female literacy. These states had low proportion of healthy children, high morbidity and high proportion of nutritional deficiency signs –under nutrition and anaemia was most common (Devdas et al., 1991). It was observed that maternal education was a major factor which was associated with
child’s survival even after controlling social class and economic variable (Dasgupta 1990; Devdas et al., 1991). It was therefore, worthwhile to examine whether maternal literacy could influence nutritional status of children and thereby helped in reducing child mortality. Webb in 2006 had carried out a study on the influence of maternal schooling, cognitive skills and general cognitive abilities on child care behavior among women in rural Guatemala. The significant associations were found between measures of maternal schooling, cognitive abilities and child care practices with child health outcomes. These relationships were influenced by SES, and years of schooling too. The findings support interventions to improve child care practices by providing formal schooling of girls and the promotion of cognitive skills such as literacy and numeracy.

The wellbeing of a child depends upon mother as they rely on them for nourishment and various societal services like healthcare, socialization, or perception. How well mothers did this depends on their access to resources. If mother was unable to access resources, it threatens not only her wellbeing but also the wellbeing of her dependent children. In developing countries some threats were linked to women’s poor access to health services, education, inadequate food resources, limited productive assets and employment opportunities. WHO estimated nearly about 1500 women die daily from avoidable pregnancy related complications worldwide. Many of these deaths were often due to poor access to health services or failures in the health systems (dept. of international development 2007). In developing countries child’s health and nutrition was mostly neglected due to poor economic conditions and less awareness of mother regarding child health. The height of the child indicated its health status and was correlated with child cognitive development, adult health, educational attainment, and even wages during adulthood (Thomas, Strauss, and Henriques, 1991). The mother’s education was strong determiner of child health and thus investment on women’s education leads to provide better health and quality of life for next generation. Thus mother’s education becomes necessary not only for present generation but also for future generation with well equipped, nourished, better informed and healthy child.
It was found that mother’s year of schooling provide her child better environment and nutritious food. This induces in the child developing better food habits by eating quality food which was nutritious and conducive to a good health. The healthy dietary pattern established in childhood keep various diseases away and this habit builds up throughout till adolescence and adulthood. Thus healthy childhood promises healthy adulthood. Maternal education play important role for child development and wellbeing. The children whose mother had more education tend to fare better academically than those who had mothers with less education (Haveman & Wolfe 1995; Hofferth & Sandberg, 2001). It was earlier proved that education provides more knowledge to mother to help their children succeed academically (Davis- Kean, 2005). Indirectly maternal education influenced child’s educational achievement through its impact on a parent’s belief and values surrounding achievement. This in turn was believed to influence how they interact with their children and their ability to provide a more stimulating home environment for them (Davis- Kean, 2005).

Malnutrition was considered as silent emergency by United Nations Children’s Fund (UNICEF) which endangers children, society, women and future of mankind. Disorders of malnutrition remain the most common insult to society affecting the nervous system (Winick, 1976). In mid-1960’s it was investigated that how malnutrition experienced in early childhood could affect brain development? Various studies on animal had shown that malnourishment can cause decrease in brain volume, number of neurons, synapses, dendrites and reactive zones. These factors were important for cell to cell communications and specifically these alterations in hippocampus (associated with short term memory) and cerebellum (responsible for fine motor control and balance) were permanently affecting even adulthood (Levitsky & Strupp, 1995).

Generally, the various problems among malnourished children were attention dysfunction, diminished ability to adapt to stressful situations, susceptibility to affective disorders like anxiety, diminished motivation, and exploratory behaviours. All of these problems may result in lower school performances and social and emotional development. As explained, during early childhood malnutrition affects cognitive and
behavioral development of the child. An infant’s brain triples in size during the first year of life from 350gm to 1000gm and develop rapidly during the 2-3 years of life. At 2-3 years of life the brain develops 80% of its life and has the foundation for intelligence, vision, memory and language was established. The vulnerable period of brain development was 45 months i.e. 9 months of prenatal life plus first 3 years of life. If there was any injury in brain during these 45 months, then it would have negative effect on brain development, cognition, and behavior.

The child’s poor growth was associated with impaired development of brain which ultimately affects school’s achievement and performance. The poor growth may be due to malnutrition. If child was malnourished due to possibly low SES of family, the child was constrained due to various impairments in adequate participation in school activities and progress. Inadequate nutrition during pregnancy retarded human foetal growth and it also increased the risk of delivering low birth weight (LBW) infant (Bergner et al., 1970). LBW was the measure of infant morbidity and mortality, increases the incidence of mental retardation, cerebral palsy, learning disability, visual hearing and neurological defects and poor growth development. The 2500 gm. to 3000 gm. weight infants were also at risk for the same morbidity problems associated with those weighing less than 2500gm (Bergner & Susser, 1970, United States Public Health Service, 1982). Children born in poverty were at a higher risk of death from infections and parasitic diseases, drowning or accidents (Puckett & Black, 2001). Children in poverty were also more likely to be premature, and exhibit low weight for their height which could affect brain growth and development. Families could face many stressors as a result of poverty. Thus, besides maternal education the nutrition provided by mother to child also determine the cognitive development of the child.

**Nutrition and child cognitive development.** It was recognized by earlier findings that nutrition plays a major role in development of nervous system; Studies showed that its deficiency causes a variety of life long cognitive and behavioral deficit. The balanced nutrition with adequate amount of micronutrients at appropriate time helped in normal brain development. Thus first few years of life was important in laying the foundation of
good health for the children. The under nutrition was measured by stunting which shows deprivation of nutrition for long time in combination with underlying infection. It also showed a long time deprivation of proteins, energy, frequent infection and sustained inappropriate feeding practices (Cogil, 2003). The reproductive performance of stunted girls showed greater risk of obstetric complications (Matorell, 1996). It contributes to burden of under nutrition in sub-Saharan Africa with highest rate found in eastern Africa 4.5% (Onis, Blossner, & Borghi, 2010).

The brain inside foetus was started growing rapidly from 10th to 18th week of pregnancy, so mother must have nutritious diet during this period. There are various factors associated with infant birth weight. One of them was mother’s nutritional status before and during pregnancy which may be a good predictor of infant’s neurodevelopmental status. The other factor was Body Mass Index (BMI) of mother before pregnancy which was best indicator of neonatal measurements. The brain grows rapidly till 2 years of age after birth. As stated earlier, mother who had poor nutrition during these months might have some form of mental retardation and or behavioural problems. Thus, malnutrition in the crucial period during pregnancy and immediately after birth till 2 years solely determined the occurrence of any impairment later on. Women were sole responsible for proper growth and development of child within a womb and after the womb. The developing foetus may encounter with various problems if mother lacks various nutrients during pregnancy period. Mother must be educated to have enough nutritious food to eat for them and for developing foetus during pregnancy. The pregnant mother was mainly responsible for nourishing the foetus by its own diet. The prolonged under nutrition hinders foetal brain development leading to lower Intelligent Quotient (IQ). The undernourishment of Mothers during pregnancy results in low birth weight babies. The low birth weight directly relates to adult intelligence. After birth the growth of brain depends critically on child’s nutrition. Breast milk provide best mixture of nutrients for performing brain growth and some form of iron supplementation may start around 6 months of age. Iron deficit leads to cognitive deficit in young child. The human brain took time to develop, so nature had insured the circuits responsible for most important functions like breathing, circulation of heart beat, sleeping, swallowing,
and sucking were up and running, crying, communicating and other vital functions when the baby emerge out from the womb. The language development in child after one year started and was facilitated when adult engage toddlers in conversations about the names of objects and activities that are engaged in. It was also clear that speaking more to young children and reading language development in child was facilitated by when adult engage toddlers in conversations about the names of objects aloud to them also foster cognitive development (Ricciuti, Thomas & Ricciuti, 2006). Besides nutrition, micronutrients also play major role in brain development which leads to better cognition.

It had been found that deficiency of various trace elements lead to long term effect on cognitive development of child in developing countries. Iodine was required in trace element but absence of it during critical period hampered brain development, which showed reduced intellectual ability later on. Similarly iron deficiency in early life hampered brain development which may hamper cognition of child. Thus mother must have healthy nutritious diet conducive to giving birth to children mentally, socially, and psychologically sound for excellent social and intellectual performance. Iron deficiency or anaemia was a global problem across all age group and particularly among children and pregnant women. Anaemia hampered the child growth, physical activity, immunity and cognitive development. The children with anaemia may be lethargic and interact less in social as well as work activities. The iron deficiency during pregnancy results in low birth weight and contributes to maternal mortality in developing countries. Darnton-Hill, et al. 1999; Jacksonin, (2004) had observed in a national survey of 540 non pregnant women of Lebanon and found that 33% of the non-pregnant woman in Lebanon had iron deficiency and 13.5% had iron deficiency anaemia, and 8% were anaemic with pf value > then 15 microgram per litre and they also discussed various strategies to improve iron and anaemia status. It was also shown that anaemic mother spent less time holding and caring for their infants than non anaemic mother(Cgrari et al., 2004).

The close relationship was found among maternal nutritional factors, infant characteristics and care giving behavior. The anaemic status of mother and post-partum weight change showed clear association with the quality and quantity of maternal infant
interaction. It also showed maternal anaemia not only affect the wellbeing of mother but also welfare of the children. This was particularly important because of wide spread presence of maternal anaemia in both developing and developed countries (Tegman, 1985). Iron deficiency anaemia was well recognized nutritional disorder of the world and was especially prevalent among pregnant women (WHO, 2002). In developing countries iron source availability waslow and during pregnancy the demand of iron increase from 0.5mg to 7.5mg of iron absorbed per day. (WHO, 2002) also showed that in developing countries iron deficiency is prevalent in woman due to diet low in iron, blood low from parasitic infections and frequent and closely spaced pregnancies. It has been shown that anaemia weakens immune status and resistance to infections to lower work capacity, and also possibly repress child growth. Infants with anemia showed slower psychomotor and mental development. Even infant and adolescent with iron deficiency (without anaemia) show poor cognitive and motor development. The Short Gestational Age (SGA) was also one important factor for child cognitive development which showed developmental deficits.

In a large British cohort study, subjects born Short Gestational Age (SGA) had significantly lower scores on a number of different cognitive tests at ages eight, eleven and fifteen years. At age twenty-six, they showed poor reading comprehension and less likely developed professional competency or managerial jobs, than those born with appropriate birth weight for gestational age. In infant LBW (low birth weight) was a major risk factor in developing country. The mother infant relationship particularly for lbw was vulnerable and it affects parenting skill. Linley & Fawcus, (2004) conducted a study on lbw infants of Capetown, South Africa and compared the effect of SSC (skin to skin contact) from birth and incubator care on the infants in the first 6 hrs of life. They found that SSC was superior to incubator care for infants thermal and cardio respiratory stability. During infancy period motor and cognitive abilities of child was the basis of subsequent development which were influenced by biological and environmental factors. The infants who suffer nutritional deficit in womb and were born small for gestational age showed risks of cognitive deficits, which ultimately hamper their performance in school age, adolescence and adulthood. There had been little attention given to
mechanisms that may affect cognitive and motor deficit in SGA children, who were more prone to nutritional deficit mainly of zinc, which was essential trace element, affect growth, cell division, maturation and function of many organ system including neurological system. Besides nutritious diet eating habits also play a role in child development. The children’s good eating habits improved school performance. They showed excellence in school attendance, behavior at school, intellectual and academic performances as their mother provide healthy and nutritious food to eat. Although, overall view clearly indicates that what children eat likely to improve school performance, thus education of mother with resources helps in better health of child.

**Children health and maternal education.** There was the need of love and care for a child which was the base of child growth and development. The most nearest person who take care of child was mother or the caregiver. Thus mother plays an important role for children’s proper growth. The mother looked after the child and developed a bond of love and emotion. The children got the happiness when mother was near to them, and felt secure. They grow as social human beings as they received proper guidance, love, care, and attention from mother during childhood days. Their personality was stronger when they grew in an environment which was safe, cozy and caring, for this mother was responsible with having a good personality. When the children were under the company of their mother, they develop a trust relationship as they got from their mother. They learn many characteristics by watching and imitating their mother. The good characteristics were appreciated and bad ones were removed by scolding. Thus, mothers nearness and affection had reflection on the mind of children and their total development.

Those children who got stimulating environment and social interaction early have various expressions for every people they met, play with toys, or any known people whom they like the most. The personal contact between caregiver and children was made possible by reducing caregiver ratio from 35: 3 to 10: 3. The caregiver develops strong emotional attachment to their children which strengthened their sensitivity to the children’s needs and initiatives (Hunt, 1991). Thus, we could say that child requires psycho social and physical care for the optimum development. These were given by their
mother who did not require any training but comes naturally to them as it was a part of their cultural heritage. So education of mother enhances the child rearing skill of mother and played very important role in the growth and development of the child. If mother knew more about the child then it was boon to clinicians who rely on mother’s observation and knowledge about the health of the child (Glascoe & Dworkin, 1995). The various programmes and any intervention help in enhancing the health or development of the child depend upon the preliminary information what mother or caregivers know about their child. The minute observation of mother helps the child in early detection of any congenital disease or any activities which are not normal at that particular edge. Many researchers, in general have shown that mothers with more knowledge of child development were more likely to provide developmental stimulation to their children and that their children in turn had better developmental outcomes (Dichtellmiller et al., 1992).

There were various factors which influence maternal knowledge. These may be culture, increased knowledge of children development increased mother child interaction, more stimulating home environment, decreased risk of child abuse, healthy mental state of mother etc. There were also various mediators like mother’s mental health, self-efficacy, competency, perceptions about her child and her social support systems interact with knowledge to influence child outcome were still as unanswered questions (Miller, 1995; Tanis-lemonda et al., 1988; Wacharsin et al., 2003; Reich, 2005.) Besides, that maternal knowledge also includes which skill will emerge at which time and when stimulation should be provided for the social, emotional and cognitive development of young infants, and toddlers. Thus, mother’s knowledge helped in proper growth and development of child. The mothers also imitate the cooing and babbling sound of the babies. Thus babies play with them and develop strong emotional attachment with their mother. This attachment strengthens the sensitivity to their children needs and initiatives. In western countries, cross cultural studies had shown that the mothers from different cultures had different patterns of knowledge of child development (Sistler & Gott Fried, 1990).
Currie & Morettiin (2003) found that maternal education had significant effects on birth weight and gestational age. Maternal education also affects positive channels by which birth outcomes were improved such as maternal smoking, use of paternal care, marital status and spouse's education. More educated mothers had more likely to had better health, which genetically lead to better health for children (Behrman & Wolfe, 1976; Woolfe & Behrman, 1987). The priority of World Bank was to raise the education of girl. According to World Bank one primary reason for this priority was that raising the education of woman can greatly improve the health of next generation. Thus mother’s education had nurturing effect on child health. Research showed that people who grew up in wealthier and more educated families are healthier, more educated and perform better in the job market (Behrman & Rosenzwig, 2002; Case et al., 2002; Plug 2004; Black et al., 2005). This intergenerational transfer of economic status started as early as childhood (Case et al., 2002; Currie & Moretti, 2003; Curie & Stabile, 2003) or even in the womb (Case et al., 2005). Rosenzweig & Wolpin (1994) found that additional maternal education completed during the first three years of child’s life improved his or her later vocabulary and academic skills.

The maternal knowledge regarding breast feeding helped in fulfilling nutritional requirements of the baby, and to reduce neonatal mortality by 20%. Those mothers who were educated and had basic knowledge regarding importance of breastfeeding allow their children to have first milk which was yellow colour fluid called colostrum, later on this milk after 3rd to 5th day after birth has just the right amount of fat, sugar, water, protein, to help the baby to grow. The mother must know that the breast milk was yellow liquid gold and it also contains antibodies which protect babies from illness. The ear infection and diarrhoea are more common among formula fed babies. The mother must had the knowledge of benefits of breastfeeding, which makes life easier as there was no bottles and nipples to sterilize, not to get up in the middle of the night to warm the bottle. The knowledge about breastfeeding provides mother to mother support by providing encouragement and sharing tips of breastfeeding. The educated mother must have the knowledge of how breast milk was made and thus they have no misconception about breastfeeding which affect their figure and look. They must know breast itself was a
gland and made up of several parts like glandular tissue, connective tissue, blood, lymph, nerves and fatty tissue. The child who was deprived of breast feed may have higher risks of Necrotizing, Entercolitis (a disease that affects the gastrointestinal tract in pre-term infants), Atopic dermatitis (a type of skin rash), Asthma, Obesity, Type1 and type2 diabetes, and Childhood leukemia.

These above lines underline the importance of mother awareness regarding importance of breast milk. An analysis of demographic and health survey (DHS) data from thirty-five countries found that percentage of children who were breast fed was lower in urban areas. The low rate of breastfeeding may be due to lack of knowledge about the importance of this practice and working mothers who work outside the home were often unable to breastfeed. Recent studies suggest that breast feeding helped in reducing child obesity to a moderate extent. Devey (2003) showed that out of eleven studies that examined the prevalence of overweight in children older than three years of age that had a sample size of $\geq 100$ per feeding group, eight showed a lower risk of overweight in children who had been breastfed, the three negative studies lacked information on the exclusivity of breastfeeding. Thus, breastfeeding reduces the child obesity later on.

Lack of awareness of mother and deprivation of children from mother’s closeness results in poor development of children. All children were not fortunate to have mothers to look after, there were some infants who were abandoned or separated from their mothers, were living unhappy and depressed life. After long period of separation and isolation they showed symptoms of apathy, withdrawal or restlessness, hyperactivity, inability to concentrate and craving for affection. Thus, these children had socio emotional problems and unable to adjust in socio environment. It was found that better education of mother helps in taking better care of child and following basic child health needs. As their literacy and communication skills developed, they participate in social activities, gather and understand health messages and adhere to various related healthy habits. They are better placed in following the practices like sterilization of water, nutritional awareness, and informed with immunization schedules. During early age
educated mother had good quality interaction with the child. This interaction essentially results in subsequent cognition and linguistic. The children behavior was correlated with mother responsiveness. The more attachment between mother and child the more cognitive performance of the child was observed. This interaction needs further examination at different ages of mother and child.

It was observed that the children whose parents are educated, especially, the mother, were more likely to go to school and stay longer in school. On the other hand in case of uneducated parents, children had short span in school and took to working at an early age irrespective of their economic status. The children of poor parents generally start working early for winning bread for family. The duration of poverty of a family affects child physical and mental development. For shorter duration the deficit in cognitive development was less and more for longer duration. It impacts on various behavioural problems. The parents help in educational outcome of the small child. The parental education also provides better care and maintenance of the child development. The social scientist from the past two decades quantifies the influence of parental involvement on educational outcomes of the secondary school children (Mau, 1997; Shanham & Walberg, 1985). Many researchers argued parental involvement was important among urban population due to high family dissolution rates, numerous two parent working family and unique sociological pressure on children (Bauch & Goldring, 1995; Hampton, Mumford & Bond, 1998).

These days high level of mother education allow them to be involved in work outside beside child rearing and caring, so they provide less time with child but spends quality time with child. In the absence of mother the children were preoccupy with various electronic gadgets like computer, TV, Video, Cassette recorder, and various other inventions which preoccupy the children during their playtime. It hampers the socialization of the child. The rapid development and change of time mother herself found difficult in choosing right adequate ways of treating child. The current family structure also associate with children’s behavioural and cognitive development. In addition attendance at school may influence on cognitive development of children in the
disrupted family structure. Alternatively children’s cognitive development may be more influenced by fixed genetic makeup that do not respond to environmental changes, while behaviour was shaped more strongly either by child’s environment, or by interaction between a child genetic endowments and social environments. A growing body of literature suggests that children who experience multiple transition on family structure may have worse development than children raised in stable, two parent family and may be even stable, single parent families.

Parental influence helps in child development and the children’s outcome also depend on other family characteristics like parental education, family income, mother education, environment in which the child lives. Social supports are also important for child growth and development. Parental perceptions of supportive network beyond the family were associated with sensitive and responsive parenting and child development (Cochran & Nieroin, 1995). The most controversial issue concerning the effects of child care was the association between child care in infancy and infant mother attachment security. The time spent in child care, which controls for quality and other parameters of care, was positively associated with some indicators of socio emotional adjustments as given by play school teachers or preschool teachers, mother as teacher in home, caregivers, and mother’s including externalizing problems and conflicts with adults at both ages.

Depressed mother had difficulty in attending the needs of their children as they were preoccupied with her own concerns and problems. They were less responsive and less consistent with their children. They were not able to develop a positive attachment and sympathetic relationship attuned to baby’s temperament and style. They did not provide appropriate responses to their child cues and not aware of appropriate toys and game. They were not able to set limits and did not recognize the importance of consistency. They did not encourage sustained attention to an activity. How children cope depends on the interaction of genetic predisposition and environmental factors which may place a child at increased risk. Maternal depression had been shown to be associated with increased rates of behavioural problems, social/ emotional
maladjustment and deficit in cognitive functioning in children from infancy through adolescence. The pattern of integration between mother and child laid down in early years may have an effect on the development in the school age and adolescent years. If the children had not been able to successfully master developmental tasks at an early age, competencies at the subsequent ages may be affected. The large number of literature showed that children were at risk for a variety of negative outcomes, when mothers were depressed. The child difficulties include changes in brain activity, evident even in the first days of life and continuing through early school age years (Dawson et al., 2003; Jones et al., 1998; Jones, Field, & Davalos, 2000). Hurt et al., (2009) compared cocaine exposed foster care children and cocaine exposed and non-exposed children living with their biological mother and found that foster care cocaine exposed children had lower developmental score at three years age than cocaine exposed and non-exposed children living with their biological mother. It shows importance of mother in child life. Frank et al (2002) moreover reported that children in kinship care attained lower scores at 24 months of age on Bayley scale of infant development as compared to children who remained their biological mother or resided in foster care and yet they warn that assignment to kinship care is not random and the impact of kinship care must be viewed with caution. Here various aspects of mother characteristics help in the development of child, where one more factor SES plays important role.

**Socio economic status and child development.** The high SES families afford to their child better health services, nutritious food, parental care, and healthy social connection, unlike children from low SES who do not have access to them. The children belonging to low-SES are more likely to experience growth retardation and inadequate neurobehavioral development in utero (DiPietro et al., 1999). Also children from low SES are more likely to be born prematurely, at low birth weight, or with asphyxia, a birth defect, a disability, fetal alcohol syndrome, or AIDS (Crooks, 1995; Hawley & Disney, 1992; US Dep. Health & Human Services, 2000; Cassady et al., 1997; Vrijheid et al., 2000; Wasserman et al., 1998). During childhood low SES is implicated in many diseases like respiratory illness, dental caries, iron deficiency, stunting, sensory impairment, inadequate nutrition, and exposure to tobacco smoke, failure to get recommended
immunization, and inadequate access to health care. Children born in low SES are likely to suffer health and developmental consequences than their more affluent counterparts. For example premature children who lived in poverty for first 3 years of life are manifested with more problems in growth, health status, intelligence and behavior (Bradely et al., 1994). The importance of parents was well recognized across the country. It was well known that children’s educational output vary with parent SES. More the educated parent more emphasis on child education from preschool level to adolescent period. If income of family was low, the child was unable to continue his study till schooling level. There was significant effect of educated mothers at different levels of early childhood. More educated mother made higher input of time and goods into the production function of child’s cognitive achievement, both in terms of quality and quantity of inputs. To a great extent family income also influences mother’s education.

Basically poverty seems to be at the root cause of many factors that place young children at the risk for behavioral problems. Families with low income had needs for collaborative and comprehensive services, including health care, child care housing, nutrition, mental health, parenting and education. Because lower maternal educational tend to be related to higher level of problem behaviour of their children (Duncan Brooks-Gunn, & Klebanov, 1994). There was enough evidence that children in poor households have generally worse health (Bohrman, Deolaliker, 1988; Strauss & Thomas, 1998). The children from poor family are less likely to make satisfactory progress in learning and acquiring various skills in school.

Many factors such as poverty, unsafe neighborhoods, living arrangements, single parenthood, creates various problems to mother. Mother in these circumstances faces problems dealing in child development as they have little knowledge regarding this. The abstracts of findings of national institute of child health and human development 2000, study of child care and youth development reported that family characteristics had more influences on child development, than experiences in child care. The child social and cognitive development depends on quality of mother and child interactions. Mothers who were very sensitive, responsive, attentive towards their children had better
cognitive development of child. SES was normally measured using about family occupation, education, and income (Hernandaz, 1997). The environment influences the child competencies and development later. It was also noted that the level of child’s performance and cognitive status varies at different ages.

The home environment had important consequences for children’s cognitive ability, later school success and emotional adjustment was demonstrated by various researches on sociology and developmental psychology in United States (Carlson & Corocoran, 2001; Klebanov, Brooks-Gunn & Duncan, 1994; Miller & Davis, 1997). Joshi et al (1999) had also found that human, financial, and social capital mediate the influence of family disruption on children’s cognitive and emotional development. Michael (2003) found that few differences in children’s math and reading test score between children growing up in Great Britain and the United States. In addition, mothers with greater cognitive ability should provide good environment for their child development. Mothers are more sensitive to their child’s ability to inhibit behaviour than fathers.

**Emergence of the Study**

In the drop of the above background and as a consequence of identifying new areas for the present research work seven selected areas was covered in this thesis such as association of nutritional awareness of mother and cognitive development of child, association of SES and cognitive development of child, nutritional awareness of mother and nutritional status of child and so on. A study on nutritional status and cognitive development of school children in the age group 3-4 years was taken up here in context of the following research enquiries:

- How to eradicate malnutrition or how to reduce its effect on cognitive development
- Whether cognitive development of children is at normal level and what is the pattern or statistical distribution of its measures,
- Whether maternal education has any influence on cognitive development,
- Whether mother’s awareness of nutrition and health care affects this development,
- Whether socio economic status plays any role in the cognitive development of the children,
- What is current nutritional status for the selected group of children in the city of Kolkata and
- Whether maternal awareness of nutrition helps to lessen Infant Mortality Rate and Maternal Mortality Rate.