Summary And Conclusion
5. SUMMARY AND CONCLUSION

The first year of life is a period of very rapid growth. An infant’s birth weight doubles after about five months and triples by the first birthday, by which time the infant’s length increases by half. Adequate and appropriate nutrition is essential during this period, for infants that do not receive sufficient calories, vitamins and minerals will not reach their expected growth. Mental and motor development during the period 0-2 years (Sensorimotor intelligence) is the ability to solve problems from activities requiring the intervention particularly of perception, posture (tonus) and movements, without symbolic intervention (that is before the appearance of language). The care and attention a child receives in the first year of life is critically important and influences him or her for life. Infants learn rapidly from the moment of birth. They grow and learn fastest when they receive affection, attention and stimulation in addition to good nutrition and proper health care. Children have the right to a caring, protective environment and to nutritious food and basic health care to protect them from illness and promote good mental and motor development.

Based on the review of related literature the methodology of the study was designed. The research design adopted for the present study was the ex post facto research design.

Selection of subjects for the study was done by purposive random sampling method and the area of the study was the out patient department of Kilpauk Medical College and Hospital, Chennai. A total of 1200 subjects were chosen for the study from the Kilpauk Medical College and Hospital, Chennai. The 1-12 month old infants and their mothers were covered except for twins and infants born with a cognitive problem. Thus
a total sample of 1200 infant mother dyads was obtained for the study. The tool used to assess the care giving practices of mothers in the interview schedule was prepared by the researcher. Anthropometric measurements like height and weight were used to assess the nutritional status of the infants. The infants mental and motor development was measured using the Developmental Assessment Scales for Indian Infants (DASII) which is a revision of 1970 Baroda norms from birth to 30 months on Bayleys Scales of Infant Development (BSID). The mothers who bring their infants for immunization to the paediatric outpatient department of the Kilpauk Medical College and Hospital were contacted personally by the investigator. A short informal discussion was made and the purpose of the investigation was explained to them. The information was obtained from the mothers verbally and entered in the schedule. Details regarding the birth weight of infants and immunization details were noted down from their case history which the hospital maintained. The anthropometric measurements were estimated and the mental and motor development of the infants was measured.

This procedure involved dealing with the mother infant dyad for a minimum of one hour each. As the speed and efficiency of the investigator increased the time limit came down. A good rapport was first developed with the mother by giving her snacks and a cup of tea. She was asked to breastfeed her child and then brings it for testing. In some cases the baby slept after being breastfed. In such cases the investigator had to wait for the infant to awaken and become alert. Only then was the study conducted. After the study the mother was thanked for her cooperation. Thus a total of 1200 mother infant dyads were included in the study.
The data thus collected was processed by coding and tabulation. A statistical evaluation was conducted to analyze and interpret the data to find the outcome of the study.

**THE OUTCOMES OF THE STUDY ARE AS FOLLOWS:**

**CARE PRACTICES**

**Details of care given to the mothers:**

- There were more mothers (67.9%) who were less than 20 years and 69.6% of the mothers did not attend school or had discontinued schooling.
- Practically all the mothers (99.5%) attended prenatal care.
- Majority of the mothers (99.1%) reported of some illness or the other during pregnancy and 98.8% had their meals after everybody had finished eating at home. 98.2% of the mothers were not given any special foods during pregnancy and 98.9% of their husbands had smoking habit.
- None of the mothers had any postnatal complications.
- Majority of the infants (99%) were below normal weight.
- Practically most of the mothers (98.4%) fell sick once or twice a month after delivery.

**Work Details of the mothers:**

- Majority of the mothers (95.1%) were working when they were pregnant, 86.4% had less than 40 days leave after delivery and 81.6% continued to work after delivery.
- 82.5% of the mothers worked more than 4 hours per day, most of their children (77.2%) were taken care by mothers in law/other in laws/husband/work place/older children.
• Majority of the mothers (98.2%) had no help in household chores from anybody in the house.

**Food Preparation:**

• Majority of the mothers (98.2%) spent more than 2 hours for cooking.
• 95.8% of the mothers used firewood as a fuel for cooking.

**Details of hygienic practices followed by the mothers:**

• With regard to hygienic practices majority (98.4%) of the mothers discarded the infant’s faeces in the dustbin, 98.7% did not wash their hands after contact with faeces and 98.9% of the mothers did not wash their hands before touching food to feed their infant.
• Majority of the mothers (98.8%) bathed their infants once in two or three days.
• About 95.8% of the mothers threw the household refuse in the dustbin.
• Majority of the mothers (98.9%) swept their house only once a day.

**Details of home health care given to the infants:**

• The infants also quite frequently suffered from common ailments like cold, fever and diarrhoea.
• Majority of the mothers (95.8%) had immunized their infants correctly according to the immunization schedule.
• About 65.4% of the infants fell sick either once a week/fortnight or once a month.
• Practically all mothers (99.3%) consulted the private or government doctors when their infants fell sick.

• About 96.8% of the mothers regularly checked their infant’s weight but 63.8% of them were not aware of the growth chart.

• 61.2% of the mothers used no protection against malaria.

• Almost 95.6% of the infants had not met with any accidents.

• About 63.8% of the mothers had either no protection or just kept the food covered against flies.

• 63.8% of the mothers took no protection against rats.

• With regard to diarrhoea management and ORS about 98% of the mothers were not aware of the seriousness of diarrhoea, about 57.6% of them had stopped breastfeeding during diarrhoea and 62.8% of them were not aware of ORS. 61.3% of the mothers were not in the habit of giving ORS to their infants when they had diarrhoea.

• When asked about the type of feeding devises used 58.5% of them said that they were using the feeding bottle, 33.2% were using either paladai or spoon.

• About 58.8% of the mothers were not washing and sterilizing the bottles after each feed. They were also in the habit of using the leftover milk for the next feed.

Details of psychosocial care given to the infants:

• A majority of the mothers have given a lot of love and affection to their infants by attending to crying infants (99.7%) fondling and hugging them (98.8%), kissing them (99.8%), talking affectionately to them (97.7%), looking at them lovingly (99.6%),
smiling and talking to them while feeding (99.3%), smiling and laughing while talking to them (99.5%), have spoken slowly and clearly so that the infants learn from them (99.3%), have encouraged them to play (94.3%) and have taken them out along with them when they go out (99%).

- About 99.3% of the mothers have said that they do not sing lullabies to their infants and 94.2% of them do not spend time playing with them.
- 99.6% of the mothers did not show their anger to their infants.
- 99.2% had not shouted or slapped their infants.

**Details of breastfeeding and complementary feeding practices followed by the mothers:**

- The results of the present study clearly indicate that feeding practices adopted by mothers were not adequate for proper growth and development of their infants.
- About 95.3% of the infants were fed colostrum and about 96.5% of the infants were given some prelacteal feed or the other.
- 99.5% of the mothers had started breastfeeding their infants either immediately or on the first day itself.
- A majority of the infants (99.2%) were breastfed on a time schedule.
- About 96.3% of the mothers reported that the breast milk was insufficient.
• 98.9% of the mothers burped their infants after breast feeding them and were still continuing to breastfeed their infants.

• Only 0.9% of the mothers had reported that they had stopped breastfeeding within 6 months and 0.2% had stopped breastfeeding after 6 months.

• About 90.9% were giving their infants either cow’s milk, buffalo’s milk or aavin milk besides breast milk. All of them reported that they dilute this milk by adding water.

• 98.9% of the mothers are still continuing to breastfeed their infants.

• As regards complementary feeding about 75% of the mothers had started complementary feeding before 6 months.

• About 74.4% of them give the complementary feed only once a twice a day and only 0.6% give them five times daily.

• 74.3% of the mothers give their infants homemade and 0.7% of the mothers give them commercial preparations.

• Majority of the mothers (74.4%) were not in the habit of giving their infants tea or coffee.

• Most of them (74.5%) included liver, meat, egg, fish, vegetables and greens in the infant’s diet while 0.5% of them did not do so.

• 81.8% of the mothers used iodized salt at home.

**CARE GIVING PRACTICES OF MOTHERS:**

• 71.8% of the mothers had inadequate care giving practices and 28.2% had moderate care giving practices.
A majority of the mothers who had inadequate care giving practices were less than or equal to 20 years. Most of the mothers (64.6%) with inadequate care giving practices had not attended school or had discontinued schooling. There were more males infants (37.6%) who had mothers giving them inadequate care practices than females (34.3%).

**NUTRITIONAL STATUS OF THE INFANTS:**

- About 63.8% of the infants were underweight and 63.5% of them were stunted.
- 63.7% of the infants who were underweight had inadequate care practices.
- 63.4% of the infants who were stunted had inadequate care practices.
- There were more males who were underweight (67.5%) than females (59.8%).
- More male infants (67.2%) were stunted than female infants (59.7%).
- In the age group 1-3 months 65% (195) of the infants were underweight and only 31.3% (94) of them had normal weights. This could possibly be because the mothers were successfully breastfeeding their infants. Therefore even though the care giving practices were inadequate 31.3% (94) of the infants had normal weights. With moderate care giving practices 3.7% (11) of the infants had normal weights. In the subsequent age groups it can be seen that only if the care giving practices of the mothers were
moderate a substantial number of infants had normal weights. Thus it is seen clearly here that care giving practices of the mother has a definite impact on the weights of the infants and it is significant at the 99.9% level of significance.

- As far as the heights of the infants (1-3) months with inadequate care giving practices are concerned 64% (192) of the infants were stunted and only 32.3% (97) of the infants had normal heights. Here again this could have been possible because the mothers were successfully breast feeding their infants. Therefore even though the care giving practices were inadequate 32.3% (97) of the infants had normal heights. With moderate care giving practices 3.7% (11) of the infants had normal heights. In the subsequent age groups it can be seen that only if the care giving practices of the mothers were moderate a substantial number of infants had normal heights. Thus it is seen clearly here that care giving practices of the mother has a definite impact on the heights of the infants and it is significant at the 99.9% level of significance.

- In all the age groups when both the genders are compared it is seen that the weights and heights of the female infants is better than the male infants.

**MENTAL AND MOTOR DEVELOPMENT OF THE INFANTS:**

- 73.2% of the infants had a lower mental performance and only 26.8% had a mental performance on par with the DASII standards.

- About 73.4% (881) of the infants had lower motor performance and about 26.6% (319) of the infants had a performance which is on par with the DASII standards.
• About 70.6% (847) of the infants who show lower mental performance have had inadequate care giving practices and only 1.2% (15) of the infants is on par with the DASII standards. With moderate care giving practices 25.5% (306) of the infants show a mental performance on par with the DASII standard and only 2.7% (32) of the infants show lower mental performance.

• 69.9% (839) of the infants who show lower motor performance have had inadequate care giving practices and only a very small percentage 1.9% (23) of the infants with inadequate care giving practices had motor performance on par with the DASII standards. It can also be inferred that with moderate care giving practices about 24.7% (296) of the infants show a motor performance on par with the DASII standards while only 3.5% (42) of the infants show a lower motor performance.

• The correlation between the care giving practices of the mother and the mental and motor performances of the infants are significant at the 0.01% level of significance.

• The percentage of male infants with inadequate care practices and a lower mental performance is more (73.8%) than female infants (67.3%).

• The percentage of male infants with inadequate care practices and a lower motor performance is more (73.3%) than female infants (66.5%).

• In all the age group (1-3 months, 4-6 months, 7-9 months, 10-12 months) with inadequate care giving practices of the mothers the infants show a lower mental and motor performance.
With moderate care giving practices of the mothers the infants show a mental performance on par with DASII standards and it is significant at the 99.9% level of significance.

- In the age group 1-3 months a majority of the infants show a mental and motor performance below the DASII standard. In the subsequent age groups the infants mental and motor performances have improved possibly because of better psychosocial care.
- In all the age groups when both the genders are compared it is seen that the mental and motor performances of the female infants is better than the male infants.

**IMPLICATIONS OF THE STUDY:**

The results of the study imply the following:

- More mothers had inadequate care giving practices than moderate care giving practices.
- Most of the mothers with inadequate care giving practices were either equal to or less than 20 years.
- Many of the mothers had not attended school or had discontinued schooling.
- Many of the infants were underweight and stunted due to inadequate care giving practices of the mothers.
- More male infants than female infants were underweight and stunted.
- Many of the infants had lower mental and motor performances due to inadequate care giving practices of the mothers.
• More male infants than female infants had lower mental and motor performances.

• The single most important finding of the study is that care giving practices of the mothers is very essential for attaining proper nutritional status and for proper mental and motor development of the infants.

• In India, the main and most important resource is its population. The country spends crores of rupees on medicines and treatment of the sick. If the people of our country are healthy, the government can move on towards other developmental issues, to push the country to higher scales and compete on several issues on an international level.

• Ironically there are high rates of malnutrition due to delayed and improper breastfeeding, early introduction of water and liquids and delay in complementary feeding, which leads to poor growth and development among children. The care a child receives during the first year of its life is critically important for its mental and motor development. Improper care of the pregnant mother gives the newborn a handicap before he has given started the race of life.

• Therefore care for a woman before she becomes pregnant and during her pregnancy should be emphasized.

• Family support is important in reproductive health, including helping the adolescent girl delay her age at marriage and supporting women in family planning. During pregnancy the
family should support the women in obtaining extra and higher quality foods, reducing workloads, attending antenatal clinics, obtaining safe birthing and receiving adequate postpartum rest. Workload during pregnancy has a significant effect on birth weight of the infant. Support in sharing the workload is also a domain of care for girls and women. The family’s ability to assure girls’ equal access to school and women’s access to continuing education is extremely important both for the current and for the subsequent generation.

- Mothers should be taught to spend minimum time in cooking and also to avoid indoor pollution.
- Mothers should be taught to use safe water, proper sanitation and hygiene.
- Mothers should be taught on home management of illness, the prevention of illness, its diagnosis and subsequent home treatment. Recognize and diagnose diarrhoea and provide home remedies including oral rehydration solution, to increase feeding during illness and convalescence and utilization of health services, including growth monitoring and immunization. Home-based protection including control of pests (e.g. Insects, rats) and avoiding accidents (burns, falls, poisoning) should also be taught. Prevention of mosquito bites through use of bednets and prevention of accidents should also be taught.
- Mothers should be taught that social, emotional, and cognitive interactions between them and their infants influence both growth and development of their infants.
• Mothers should be taught on importance of breastfeeding and complementary feeding.

LIMITATIONS OF THE STUDY:

• Haemoglobin estimation to see the effect of iron deficiency on the mental development of infants could not be done due to non cooperation of the mothers.
• Effect of iodine deficiency on the mental development of infants could not be done due to the same reason.

RECOMMENDATIONS FOR FURTHER RESEARCH:

From the results of the present study the following recommendations are made.

• The findings of the present study clearly demand the crucial need for conducting child care awareness programmes among mothers.
• More studies are needed to look at other issues such as the quantity and quality of supplementary foods, the macronutrient and micronutrient availability from these foods.
• An in depth study about mother infant interaction while feeding and the home environment in which the infant is growing is required.
• The study can be done on an experimental and a control group with an intervention programme.
• A comparison between care giving practices of rural mothers and urban mothers and its effect on the nutritional status, mental and motor development of their infants needs to be researched.
• A longitudinal study from birth to 12 months can be undertaken to study the effects of care giving practices of the mothers on the nutritional status mental and motor development of their infants.

• Additional information is also needed on “functional gastric capacity” (i.e., the amount of food that can be consumed at a single meal) of infants consuming various types of complementary foods.