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REVIEW ARTICLE

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INTRODUCTION

"Children are the wealth of tomorrow. Take care of them if you wish to have strong India. Everyday to meet various challenges"
- Jawaharlal Nehru
"Children are a gift from the LORD; they are a reward from Him."
-Psalm 127:3

Background of THE Study

The term **developmental delay** refers to when a child does not achieve developmental milestones within the normal age range. Simply put, it is a delay in a child's development. Having a developmental delay is not the same thing as having a developmental disability, though it is possible for a developmental delay to develop into a developmental disability if left untreated. Furthermore, a developmental disability is a long-term issue, while a developmental delay may improve with intervention and can disappear altogether once the child catches-up in his or her development**. Dorothy.R.Marlow (2000).**

Delayed milestone, also called **developmental delays**, is used to describe the condition where a child does not reach one of these stages at the expected age. However, in most cases, a wide variety of ages can be considered normal, and not a cause for medical concern. Milestones are often measured using percentiles, and for many milestones a value between the 5th and 95th percentile does not require intervention, though values towards the edges of that range can be associated with other medical conditions. It is not possible to treat. It has been suggested that measurement of posture sway may be an early indicator. There is lots of variation around what age a child should learn specific developmental skills, such as walking or talking. Most children develop these skills during the normal time period without any issues. However, some children don't attain these skills at the appropriate age. For example, some children learn how to walk well after their second birthday. When this happens, it may be a sign of developmental delay.

A developmental delay is any significant lag in a child's physical, cognitive, behavioral and social development in comparison with normal 8% of all children from birth to 6 years have developmental problems. Motor developmental delay occurs during the first 6 to 18 months of a child's life. The various developmental problems in infant and young child which includes repetitive behavior, learning disabilities, attention deficits hyperactive disorder, autism spectrum disorders (autistic disorder, asperser's disorder and pervasive developmental delay), speech. Assessing child's development is a team effort, family plays an important role. Mother can identify the milestone development of infant by observations. Mothers can tell about the infant's doctor about any worries or concerns she may have. Pediatrician may also use developmental screening. Screening involves a series of questions and observations that gets at your child's ability to perform certain age-appropriate tasks using developmental milestones as a guide can helps to identify infants who may be at risk for developmental delay.

Over the past decade there has been a growing recognition of the involvement of the home in several public health and hygienic issues. Perhaps the best understood of these issues is the role of mother in preventing the delay in growth of infant impairment. It is important to recognize severe developmental disorder early in infancy.

Need For the Study

"Life isn't a matter of Milestone, but of moments"
-Rose Kennedy

Need for the study means scientific method which refers to a body of technique for investigation phenomena, acquiring new knowledge or collecting and integrating previous knowledge to be termed scientific method of enquiry must be based on gathering empirical and measurable evidence subject to specific principles of reasoning.

Study of child development had been the curiosity of man since the end of 18th century. The first detailed record of development of a child was published by Tiedemann in Germany (1787). Almost a century later, in 1872, Charles Darwin published a detailed account of

the development of his own child up to 18 years of age. He described the cephalocaudal sequence and the continuous developmental process in a child.

In **1912, Stern and kuhlman** suggested that the child's relative status could be indicated by a ratio between his mental age and his chronological age the Intelligence Quotient (IQ). Arnold Gesell in 1925 established norms of development in a series of children (Marchese, 1995). In 1933, Bayley established norms for cognitive development on a large number of children. In 1954, Ruth Griffiths published the Denver Study based on a sample of 1000 children for developmental assessment. franbenberg et al (1981) later described a revised and abbreviated Denver Screening Test. In 1977, Prechtl in his book "The neurological examination of the full-term newborn infant" described various reflexes such as rooting, moro'sreflex and the information which they provide about the biological condition of the neonate. The Bayley scale was standardized for Indian population by pramilapathak in 1963.

Developmental delay occurs when a child exhibits a significant delay in the acquisition of milestones or skills in one or more domains of development. A significant delay has been traditionally defined as discrepancy of 25% or more from the expected rate or a discrepancy of 1.5 to 2 standard deviation from norm.

The above studies, the investigator identified that children with developmental disabilities are more prone to develop poor nutritional status and growth failure. In unit of hope, stjohns national academy of health sciences, approximately 1690 children registered with various developmental disabilities and congenital orthopedic abnormalities. Out of which 417 children are diagnosed with cerebral palsy and 150 children are diagnosed with mental retardation. The investigator identified that incidence of malnutrition are very common among those children and there is no nutritional guideline available for children with developmental disabilities. This nutritional guideline can be used by the parents as an immediate reference in home setting. The health care team members can also make use of this guideline, while giving health education to the caretakers of developmentally delayed children. **Pramilapathakin (1994).**

Each child is an individual and will grow and develop at her own rate. However, broad guidelines for development can be helpful in understanding what is realistic to expect a child to accomplish by certain ages.

Infants grow more physically in their first year than any other time in their lives documented the physical changes a baby goes through in the first year chart, the normal motor development milestone of infant through their first year both large and fine. Language development - explore the way infants learn language all over the world. English speaking parents introduce language to their infants with other cultures. There are some universal similarities and some very unique differences. Study language delays and the therapies and techniques available to help children with these developmental delays explore several different early childhood class rooms to development as well as interventions available for developmentally delayed infants. **Collins WA, Maccabee, Steinberg L, in (2000).**

Observe a preschool child class room in a child care center and discuss the activities to help children meet these milestones in a timely manner. Discuss road blocks to development as well as interventions the curriculum and the daily plan of a typical pre-school class room. Early head start is for low-income babies, toddlers and pregnant women and their families and this programme enhances children's physical, social, emotional and intellectual development, support, mother's effect to fulfill their parental role and help mothers move towards self-sufficiency.

Centre for disease control and prevention national center on birth defects and developmental disabilities child development home page and learn the signs Suggests, -"Act Early", -in developmental delay.

Delayed milestone, also called developmental delays, is used to describe the condition where a child does not reach one of these stages at the expected age. However, in most cases, a wide variety of ages can be considered normal, and not a cause for medical concern. Milestones are often measured using percentiles, and for many milestones a value between the 5th and 95th percentile does not require intervention, though values towards the edges of that range can be associated with other medical conditions.

Children are said to be developmentally delayed if they fail to reach developmental milestones at the expected age. Developmental delay is considered as a disability, which the child displays either due to biological or environmental factors. This affect child's speech, language, fine and gross motor skills and cognitive development is so delay or abnormal development may affect individual areas of development or child's overall development.

Researcher felt that by assessing the contributing factors leading delay mile stone we can provide proper guidelines to minimize the complication and provide better health and growth and development of the children leading by delayed mile stone. Because children are the future of our nature.

Problem Statement

"A study to assess the effectiveness of structured teaching programme on knowledge regarding delayed mile stones among parents of children (0-2 years) in selected rural community area of somni, Rajnandgaon, Chhattisgarh."

Objectives of the Study

- To assess the pre-test and post-test knowledge about delayed mile stone among parents of children.
- To compare the pre-test and post-test knowledge regarding delayed mile stones among parents of children.
- To assess the effectiveness of structured teaching programme on delayed mile stones among parents of children.
- To find out the association between pre-test knowledge scores on delayed mile stones with selected demographic variables.

Operational Definition

- **Assess -** Assess is defined as evaluate or analyze.
- **Effectiveness** - It is the capacity to bring about improvement in the knowledge of parents of children regarding delayed mile stones as evident by increased knowledge scores.
- **Knowledge -**Knowledge is a detailed range of information about delayed mile stone.
- **Structured teaching programme**- Structured teaching programme is systematically developed teaching aids designed for parents of children to provide information regarding delayed mile stones.
- **Rural community** -is an area which is under development and not civilized. It refers to rural community somni, Rajnandgaon, Chhattisgarh.
- **Delayed mile stones**-Delayed mile stone also called as developmental delay. It is used to describe the condition where a child does not reach one of these stages at the expected age.

Hypothesis

- H1- There is a significant difference in pre-test and post-test knowledge scores of parents of children (0-2 years) on delayed mile stones at <0.05 level.
- H2- There is a significant association between demographic characteristics and the pre-test knowledge among parents of children (0-2 years) at >0.05 level.

Delimitation

The study will be limited to

- The parents of children in (0-2 years) of age.
- Those who are willing to participate in the study.
- Those who are present during the study.

Conceptual Framework

According to Polit and Hungler (1995), Conceptual framework refers to inter-related concepts of abstractions that are assembled together in some rational scheme by virtue of their relevance to a common theme . They serve as a spring board for the generation of hypothesis to be tested.

A conceptual framework can defined in set of concept and assumptions that integrate them into meaningful consideration **(FowoettJP) 1994**.

Model attempts to represent reality with a minimum use of words. A visual or symbolic representation of theory or conceptual framework often helps to express abstract ideas in a more readily understandable or precise form than the original conceptualization.
(Polit and Hungler, 1999)

The conceptual model in this study is based on General System Model adopted from Von Bertalanffy (1968). It provides guidance for development, utilization and evaluation of a structured teaching programme. The conceptual model consists of three phases:

Input: refers here to the target group (i.e.) parents of children in (0-2 years) of age of selected rural community area of somni, Rajnandgaon, Chhattisgarh and their existing characteristics (i.e.) their age, gender, religion, education occupation of parents, family monthly income type of family number of children, source of information, any child effected with delayed mile stones, mode of delivery, These are indicative of the characteristics of the parents of children in (0-2 years) in the study group to assess their background data on delayed mile stones. The subject characteristics would serve as a guide for developing the structured teaching programme for parents of children on delayed mile stones.

Process: refers to the different operational aspects of the development and implementation of a structured teaching programme to the parents of children in (0-2 years). Different aspects in the development of the structured teaching programme include:

- To assess the pre-test and post-test knowledge about delayed mile stone among parents of children.
- To compare the pre-test and post-test knowledge regarding delayed mile stones among parents of children.
- To assess the effectiveness of structured teaching programme on delayed mile stones among parents of children.
- To find out association between pre-test knowledge scores on delayed mile stones with selected demographic variables.

Output: refers to the evaluation of performance of parents of children in (0-2 years) after the parents are exposed to a structured teaching programme to find out whether there is any evidence of the desired change in the knowledge of parents of children in (0-2 years) of age. If parents of children acquire adequate knowledge, they will have improved knowledge and will have change knowledge toward the child who have delayed mile stones. On theother hand, if they have inadequate knowledge, they will not able to contribute on delayed mile stones.

Feedback: Emphasizes the need to strengthen the input and process.

Environment: Where the study has been conducted.

REVIEW OF LITERATURE

"A classic is a book that has never finished saying what it has to say."
- ItaloCalvino

INTRODUCTION

Review of literature is a broad comprehensive in depth, systematic and critical review of scholarly publication, unpublished scholarly print materials, audio visual materials and personal communication. **(Polit and Hungler 1999).**

According to Nancy burns, Review of literature is a key step in research process. The review of literature is a research report and it is a summary of current knowledge about a particular problem and includes, what is known and not known about the problem. The literature review is received to summarize knowledge for use in practice or to provide basis for conducting research.

Review of literature is an essential step in the research project. It provide basis for future investigation justifies the need of the study, throws light on the feasibility of the study, reveals constrains of data Collection and relates the findings from one study to another with a hope to establish a camp comprehensive study of scientific knowledge in a professional discipline, from which valid and pertinent theories may be developed. The investigator did an extensive review of the research and non-research literature related to the present study and made an attempt to contribute new knowledge.

A thorough review of the literature provides a foundation upon which to base new knowledge **(Polit and Hungler 1991)**

The literature reviewed related to the present study is organized and presented under the following headings-

a) Studies Related to Developmental problems in under five age group
b) Studies Related to Knowledge on developmental screening among anganwadi workers.
c) Studies Related to Structured teaching programme among anganwadi workers.
d) Studies related to general health information of infants in India & Abroad
e) Studies related to maternal knowledge on growth and development of infants
f) Studies related to maternal role in promoting normal growth and development of infants

a) Studies Related to Developmental problems in under five age group

1. HetalVora et al. (2013) A Study on Developmental Delay among Children Less Than 2 Year 1084 International Journal of Medical Science and Public Health | 2013 | Vol 2 | Issue 4 A study on developmental delay among children less than 2 years attending well baby clinic –prevelence and antecedents factors HetalVora, Priti Shah, SH Mansuri Smt. NHL Municipal Medical College, Ahmedabad, Gujarat, India Correspondence to: Accepted Date: 06.09.2013 ABSTRACT Background: Early detection of neurodevelopmental abnormalities is important because of possibility of instituting early intervention program for that child. Trivandrum developmental screening test (TDSC) has sensitivity of 66.7% and specificity of 78.8%. This makes it a reasonably good test to screen children. Aims and Objective: To study the prevalence of developmental delay among children less than 2 years attending well baby clinic using TDSC and antecedents factors of developmental delay. Material and Methods: This cross sectional study was conducted on 200 patients visiting well baby clinic starting from age of 1 month till 2 years. Study was conducted for a period of 3 months from February 2013 to May 2013. Details pertaining to exact age, term or preterm status, maternal and paternal h/o was taken. Developmental screening was done using TDSC chart. Bell, pen, keys were used for assessment along with chart. Results were analyzed using SPSS 16.0. **Results:** Total of 200 patients was screened.181 children were found to be normal with 85.6%- 94.2% CI.

In 19 children, delay was found with 5.8%-14.4% CI. Preterm, IUGR, respiratory distress, sepsis, seizures in neonatal period showed significant p value for developmental delay. Microcephaly patients when screened for TDSC showed developmental delay with p value less than 0.05. All growth parameters (head, weight and length) when less than third centile showed significant association to developmental delay. The study also showed linear regression curve significant for awareness of developmental as maternal education improves. Conclusion: Developmental screening with TDSC showed developmental delay prevalence 9.5%. All children should be screened in well baby clinic for developmental delay. In India, sources have found prevalence of 1.5-2.5% of developmental delay in children less than 2 years of age. High incidence of our study can be due to study done at tertiary care centre. Preterm and IUGR were found to have developmental delay with significant p value. Various antecedents' factors responsible for early brain injury showed significant p value. Hence every child attending well baby clinic should be screened for developmental delay with effective screening method such as TDSC. Key-Words: Developmental Delay; Trivandrum Developmental Screening Test (TDSC); Developmental Screening; Well Baby Clinic Introduction The value of early identification of children with developmental delays has been well documented. Pediatricians, unfortunately, frequently postpone referring eligible children and their families for early intervention services, and even more experienced clinicians have demonstrated difficulty.

2. WHO in India, (2010) "Conducted a study that is national sample of 9854 2-3 year old studied in India showed has a delay rate of 8.9% in a population based survey of 5478, 2-9 year old in Jamaica and overall prevalence of 9.4% were reported using a 2 face design survey of 22 thousand 2-9 year children, Durkin et al., the reported childhood delay

prevalence of 15.2% in Jamaica, 14.7% in Pakistan and 8.2% in Bangladesh statistics from the different sources indicate that in India 3.8% of population has sum from of delay and the same was found to be more common among the children of the lowest socio economic class families were compared with the next two lowest class families a nationwide survey under NSSO-2002 in India showed a prevalence rate of **1.77%** delays among all age groups in a house to house survey of 3560 children 0-6years of age at Delhi delay was identified in 6.8% of those assessed. Infants with Neurodevelopmental abnormalities need early therapy.

3. Delhi (2010)" Acrosssectional study conducted they screened infants in slums of Delhi for psycho social development. In these cross sectional study 202 infants and their mother included psycho social development screening test developed by ICMR was used to assess the developmental status of infants mothers were interviewed for social demographic details infants who achieved milestones in time were 92.5% for personal skills, 91.8% for hearing and language concept development and 90.6% for gross motor milestones, respectively these percentages were lower for vision and fine motors(88.6) and social skills (81.4). Sex of infant and socio economic status of their families significantly influences the few domains of development. Other factors like age of infant's literacy of their mothers were not significantly influencing the development of infants.

4. Kerala (kottayam, Kozhikode, thrivanthapuram) India, (2009) "A study conducted in anganwadi of 3 districts of Kerala (kottayam, Kozhikode, thrivanthapuram) India, toddlers 1.6-3years of age where 429. The result of that study that data scores between 33and 28 suggested at risk for developing developmental delays. A score of less than or equal to 27 suggested already delayed milestones. a score of 27-16 suggested a mild delay, a score of 5-15 suggested a moderate delay and less than or equal to 4 suggested severe delay in development.

b) Studies Related to Knowledge on developmental screening among anganwadi workers.

5. McCormack et al. (2011)A study conducted by National institute of health and family welfare under government of India – it is a study to find out knowledge and practice about the developmental screening among anganwadi workers and auxiliary nurse midwives those who are working under ICDS scheme among these survey 94.44% are participated. among these only 55.55% anganwadi workers have knowledge that were for the developmental screening in children the report was average knowledge and practice of developmental screening was adequate 20% of those who surveyed scored higher than 15 and 74% scored between 20& 25 and 66% scored less than 10 out of 20. In their study pre test revealed that 11.11% of the participants got very good scores, 6388% got good, 19.44 got average and 5.55% got below A study conducted on the anganwadi workers of ICDS scheme Jamamajid, Delhi the objective of the study is to assess the fulfillment of criteria of selection of anganwadi workers, the adequacy of training undergone by workers, the type and frequency of services provided by the anganwadi workers, the extent of coverage of population and perception f the beneficiary about the anganwadi workers the study was carried out at the urban integrated child development scheme they assessed 65 anganwadi workers among 65 workers 43.5% having adequate knowledge about the developmental problems associated with the children, and 26.5% are having an average knowledge. 19.5% below average knowledge a workshop conducted about the developmental screening in children and the post test knowledge improved by 72.5% instead of 43.5%.

6. Gondi district, (2008) "A study conducted include the knowledge and practice of anganwadi worker about infant development in Gondi district a total of 36 average scores.[12] female anganwadi supervisorsare registered and included in the study group before the trailing the score of the participants are as followed- very good-23,(63.88%), good-7(19.44%), average-and 2(5.5%) below average scores. The lowest pretest score was 11(55%), the highest was 18(90%) which was out of a maximum score of 20% the lowest post test score was 14(70%) while the highest was 20(100), which was out of a maximum score of 20, 16 (14.44% of the participant got very good scores, 19 (52.77%) got good, and 1 (2.77%) got an average score. There were no below average scores in the post test all almost all 100% of the supervisors have correct knowledge about development assessment in infants.

c) Studies Related to Structured teaching programme among anganwadi workers.

7. Jyotsnadevipatil pediatrics center medical college, Jabalpur, Madhya Pradesh India. Carson et al. (2011)" A study conducted from India. The aim of the study is to teaching of non-professional health workers in a simple technique of developmental screening of infants and young children 20 anganwadi workers were trained for developmental screening of infants and young children (6 weeks-2years) and there results compared with that of trained medical practitioner.

8. Rachal F. Schiffman et al. (2011) The screening tool was used the wood side system screening a reference test (GESCLL'S Developmental schedule) was give to 56.5% of the sample. That tester reliability worked out on 50% of testers was comparable. The results of the tester reliability worked out on 150 children were statically comparable. A high level of proficiency of

workers were retrained throughout the study through constant supervision and cross checked y the author the successfully training of insufficiently used paramedical manpower for decreasing the cost of medical care and improving the utilization of the health delivery system was highlighted in these cross sectional study 619 children were assessed by the anganwadi workers.

9. UNICEF (2010) "A study conducted by Health and Family welfare under Government of India with the help of UNICEF arranged health training program of (teaching program) on developmental screening in preschool children among anganwadi workers the units were schedule in flexible way attendance rated workshop and ability to complete the assignment. A checklist of skills is provided for each unit and the trainees were expected to acquire pre-established minimal level although each unit may be completed in three months more time is given to the trainee so that failures can be avoided and the minimal levelof skill acquisition may be achieved. The finally evaluation is performed by a committee of specialized, supervisors and the trainees, rating consists of a 5 point scale divided into observation of field work (50marks) individual assessment (20marks) written examinations(15marks) and viva (15marks) among 34 workers, 82.6% go**t** higher score and 17,.4% got an average knowledge .

10. Bergen, 2002; Garvey, 1993; Vygotsky, (1976), The Physical Play and Motor Development of Young Children: A Review of Literature and Implications for Practice Center for Early Childhood Education Eastern Connecticut State University Author: Dr. Jeffrey Trawick-Smith 2 What you have to do is run real fast up the hill and then down the hill, and if You fall the wolves will eat you. But they aren't real wolves, it's just pretend, so don't be scared. (A four-year-old child teaching a three-year-old peer how to play) Decades of research have shown that play is an important mediator in the physical, social, cognitive, and language development of young children. In spite of this, play faces threats from many directions in modern American life.

11. Rosenberg et al. (2011) A study to know the prevalence of neurobehavioral developmental delay among children aged three years residing in rural communities of India using Guide for monitoring child development (GMCD). About **530** children at three years were assessed for developmental delay. The GMCD was administered to mothers by a trained interviewer. Prevalence of neurobehavioral developmental delay was estimated and validity of GMCD screening tool was monitored in Indian children. Chi-square test was used to compare categorical variables. Differences were considered significant at $P<0.05$ level. The results showed that the prevalence of developmental delay assessed by GMCD was 48.5%. Children displayed delay in activity for self (46.8%), communication (39.2%) and understanding skills (13.2%). The results suggest a high prevalence of neurobehavioral developmental delay and poor child health in this rural population. Implementing early intervention programs may ameliorate the long term consequences of these developmental disorders. In the present study GMCD showed as a better validity screening tool for assessment of neurobehavioral developmental delay in children.

12. WHO (2009) The physical activity recommendations were produced in part to provide WHO Member states with the evidence base needed to make policies for physical activity programs to promote good health. Infant mortality rate (IMR) has dropped by three points from 53 during 2008 to 50 infant's deaths per 1000 live births during 2009 as per the latest sample registration systems (SRS).

13. N.L. Ellott in (2008) "A study on milestone about mother's judgment by N.L. Ellott in 2008 on Milestone development. The study thronged the light that there is still a sizable percentage of mothers who remains uninformed about the developmental milestone and its possible fetal consequences. Every year 1.9 million children under five years of age die due to various diseases. The millennium development goal target of reducing the under five mortality rate by two third by 2015 has renewed interest in accurate assessment of the number of infant affected and underlying causes.

14. National Institute of Child Health about child development, (2002) The study about infant and new born development conducted by National Institute of Child Health about child development, language development on June 2002. 494 children examined cognitive development for baby means the learning process of memory, language, thinking and reasoning. Baby is learning to recognize the sound of mother's voice infant is also learning to focus vision from periphery or the corner of eye to the center. The way you cuddle, hold, and play with your baby will set the basis for how infant will interact with mother and others. It is easier to improve the development of infant physically, mentally and emotionally by positive, loving parent. So positive parenting is an important factor in development of infant. According to World Health Organization nurses and midwives play a central role in health service delivery - promotion prevention treatment and rehabilitation-in areas of great healthy need, where they may be the only frontline providers of health. The number of resolutions on nursing adopted by WHO. World Health Assembly demonstrate the importance of WHO member states attach to nursing, as means of achieving better population health outcomes.

15. Phoebe Dauz, Marcelo Lopez et al. in (1998) A study conducted by Phoebe Dauz, Marcelo Lopez et al. in 1998 aimed to investigate the developmental timetable of rural mothers in Central Vishay's, Philippines. Mothers' expectations for children's development (physical/ perceptual- motor cognitive and psychosocial) and their child rearing practices, as influenced by four

selected variables (child's gender and ordinal position, mother's education, and rural or urban residence) were examined. The total sample size was 303 mothers (153 of rural residence and 150 urban) in two provinces. Mothers responded to a structured questionnaire which was read to them aloud by interviewers who then recorded the responses. All the mothers had children between 3-6years of age. MANOVA results showed significant effects of all four variables on maternal expectations of child development and on maternal child rearing practices. Also, significant interaction effects of residential location and maternal education on mothers' expectations of children's physical/ perceptual motor development were found (F (2,256) =3.05, P=0.05). Significant interaction effects also were found of maternal education and the child's ordinal position (F (4,256) =2.95, P=0.02) on maternal expectations of children's psychosocial development.

16. Virginia in February, (1995) A study conducted by department of psychology, west Virginia in February 1995 on the adolescent mothers of 8 to 14 month- old infants on Adolescent mothers' knowledge of child development and expectations for their own infants gave fewer correct responses on the developmental milestone survey and was less accurate in predicting whether or not their infants would pass Bayley items than adult mothers of same-aged infants. Adolescent mothers Were more likely to underestimate their infant's performance, if the mothers received lower scores on the DMS, especially if they were likely to guess too young an age when they missed DMS items. Adult mothers, on other hand, were more likely to underestimate their infant's performance if the mothers were likely to guess late from their own infant and too soon from the average infant. These mothers may fail to encourage their infant's development and may perceive their infant as less competent than other infants because of these expectations.

17. Shibi. Thomas, Chellarani, Rajeshwari (2011) A cross sectional study conducted by Shibi. Thomas, Chellarani, Rajeshwari on the knowledge, attitude and practice of mother regarding parenting of children less than 3 years of the age was conducted with 120 mothers both rural and urban areas of south India. Mothers were interviewed in their homes using a structured questionnaire. The nutritional status of their children was assessed by Anthropometry (IAP classification. The Thiruvananthapuram Development screening chart (TDSC) was used to assess the children's development. Majority of mothers had moderately adequate knowledge regarding parenting. The level of education had a significant association (P<0.05) with their practice and attitude. The study brought out the association between socio-demographic variable and knowledge, attitude, and practice of mothers and its impact on growth and development of their children. Results provide direction for nurses in developing better life style education and parenting training programme.

18. Turkey et al. (2010), A study conducted by department of psychology in Turkey on the mother's knowledge of young child development in a developing country aimed to determine maternal knowledge about child development in Turkey. The Caregiver Knowledge of Child Development Inventory (CKCDI) developed for this study consisted of questions on when children begin to demonstrate developmental skills and when caregivers should provide opportunities for developmental stimulation. **Results -In** total, 1200 mothers of children aged ≤3 years chosen by random population-based sampling were administered the CKCDI in their homes. Of the 1055 mothers with complete data (88%), 64% had at most secondary school education and 11% were employed. The median CKCDI questionnaire score was 19 (highest possible score 40). Mothers believed that most developmental skills and activities should occur at later than normative ages and most mothers did not know that sight (52%), vocalization (79%), social smiling (59%) and overall brain development (68%) begins in the early months of life. In a linear regression model with CKCDI score as the dependent and age of child, number of children, maternal and paternal age and education as the independent variables, higher maternal education and lower number of children were found to be independent predictors of higher CKCDI scores ($P < 0.001$). These results illustrate the degree to which caregivers from Turkey may be lacking information on early childhood development and that caregiver knowledge needs to be further investigated so that culture-specific and effective interventions can be planned.

19. Seymore C. et al. (2005) A study conducted by department of psychology and human development in south Nashville on maternal knowledge of child development in 2005 showed, mother lacked the most knowledge about infant sleep patterns and developmental abilities. Maternal education and number of children was significantly related to maternal knowledge.

20. Thomas S, Vijayakumar C, Siva R in (2007), "A study conducted on "Parenting children under three years of age in a south Indian setting" to assess the knowledge, attitude, and practice of mothers regarding parenting of children and children growth and development less than 3 years of age was conducted with 120 mothers from both rural and urban areas of South India. The nutritional status of their children was assessed by Anthropometry IAP (Indian Academy of Pediatrics') classification and Waterloo's classification were used to assess their children's nutritional status, and the Thiruvananthapuram Development Screening Chart [TDSC] was used to assess the children's development. The majority of mothers had moderately adequate knowledge regarding parenting. The mother's level of education had a significant association ($p < 0.05$) with their practice and attitude. The study brought out the association between sociodemographic variables and knowledge, attitude, and practice of mothers and its impact on growth and development of their children. Results provide direction

for nurses in developing better life style education and parenting training programs.

21. JAetal in (2010) In a study conducted by Cesar on"Maternal knowledge on child survival in the poorest areas of North and Northeast Brazil". 2010; 26(8) shown that among the 752 mothers studied, 386 were visited by Pastorate of the Child volunteers and 366 were not visited. Mothers visited by the Pastorate of the Child, although poorer, showed better knowledge on monitoring child growth and identifying child development difficulties as compared to mothers from the control areas.

22. Sutham Nanthanongkolchaietal in (2010), Conducted a study on "Effect of a training programme to enhance knowledge and practice of mothers and the development of children age one to three years". Shown that the mean score of the experimental group increased significantly, while the mean score of the comparison group was not different from before the intervention and the study concluded and suggested that public health officers can use child development enhancement programme for children age 1 to 3 years as a guideline for helping mothers to improve the delayed development of their children.

23. S. Kumar. (2009), In a study conducted on what do mothers know? Maternal knowledge of child development shown that overall 65% of mothers correctly answered for the criterion referenced knowledge questions and mothers lacked the most knowledge about infant sleep pattern and development of infants. Maternal education, race, number of children, and assistance with childcare were significantly related to maternal knowledge. The study concluded that identifying gaps in maternal knowledge and characteristics that correspond to knowledge deficits provides insight into how best to tailor educational interventions for mothers.

24. Fulton AM, Murphy KR, Anderson SL in (1991) Conducted a study on "Increasing adolescent mothers knowledge of child development: an interventionprogramme" focused upon an intervention program that allowed adolescent mothers to have major input in identifying knowledge they needed concerning their children's growth and their own parenting skills. Seventy-six females participated in the 4-month program. A pretest-posttest design was used to measure changes in self-esteem, knowledge of child development, and tendencies toward inappropriate interactions with children. Analysis of effectiveness of this program indicated that it had been effective. Results revealed significant differences between pre- and posttest measures of child development knowledge in the areas of infant and toddler development. The results support the importance of short-term intervention programs for adolescent parents.

25. Aruna M, Vazir S, Vidyasagar P in (2001), "Conducted a study on "Child rearing and positive deviance in the development of preschooler: a micro analysis" shown that Stepwise multiple regression with psychosocial development as dependent variable indicated significant associations between specific maternal behavioral categories and psychosocial development of 1-5 year old children. Children, whose mothers were responsive to their needs, were consistent in their interaction with them and were also emotionally stable during specific child rearing situations were those identified as "positive deviants" with regard to their development. Significant differences were observed between genders and study concluded that the data generated from the study could identify the important factors that were associated with "positive deviance" in the development of children. These factors can be useful components for parental counseling in clinical practice and as educational material in community programmes such as the ICDS and self-help groups at the village level.

26. Arumbaruthi village, Thiruvanamalai district, Tamil Nadu. (2010) The study conducted child rearing practices among migrate mothers, using non experimental descriptive correlational design for 50 migrant mothers in Arumbaruthi village, Thiruvanamalai district, Tamil Nadu.

The study was carried out on small sample size (50 migrant mothers) from 1 particular group of people of the same village and selected by non probability convenient sampling technique. The over all knowledge on child rearing practices among migrant mothers' shows 34% of the mothers had in adequate knowledge and 52% of the mothers had moderately adequate knowledge, 14% of the mothers had adequate knowledge with the mean score of 59.79% with S.D 8.70.

27. World Health Organization [WHO] (2009), "A study was conducted in Oman with an objective to describe world wide growth faltering patterns by using the new World Health Organization[WHO] standards, and they analyzed information available from the WHO global data base on child growth and malnutrition of 54 countries& the samples used for this study was ranges from 1000 to 470000 children. By this study they come to conclusion that comparison of child growth patterns in 54 countries with WHO standards shows that growth faltering in early childhood is even more pronounced than suggested by previous analyses based on the National Center for Health Statistics Reference. These findings confirm the need to scale up interventions during the window of opportunity defined by pregnancy & the first 2 years of life, including prevention of low birth weight and appropriate infant feeding practices.

28. Ross S Erin, K et al in (2009), "Conducted a study on "Early Growth Faltering in Healthy Term Infant Predicts Longitudinal Growth" aim to determine whether

a slowing in early weight-for-age could be used to identify children at increased risk of later growth faltering. The population of this study infants aged birth to 2 years were analyzes for 1978 healthy, term infants born between 1999-2001. The result of this study was the period prevalence of underweight was 24%. By the end of this study, they come to conclude that during early infancy when well- child visits are most frequent can be used to identify children at risk of later poor growth.

29. World Health Organization WHO (2008), A descriptive cross-sectional study of nursing mothers and their children attending well-baby clinics in Ibadan was designed. Two hundred and forty nursing mothers and their children were recruited from three types of well baby clinics (university teaching hospital, state maternity hospital and primary care health centers) in the Ibadan North local government area of Oyo state, Nigeria. Result of the analyses showed that majority of the mothers 74% were married, 31.3% had completed primary and/or secondary education, 16.7% had no formal education while 51.8% had tertiary education. Timely and complete immunization was practiced by 93.8% for BCG, 80.4% for one dose, 60.4% for two doses and 49.2% for three doses of DPT and oral polio vaccines, 53.8% for measles and 12.1% for hepatitis B. Sixty-three percent of the children were underweight, 68% were stunted and 23% were wasted. This study reaffirms the importance of female education in the practice of CSS and good nutritional outcomes in children. Basic knowledge of child health, nutrition and related issues should continue to be made available to women and be included in the school curriculam.

30.Yin SA, Li N, Yan ZY, Pan L, Lai JQ, Zhao XF in (2009), "Conducted a study on Effects of nutritional education on improvement of nutritional knowledge of infant's mothers in rural area in China shown that the educational background had significant effect on scores: scores of the mothers with primary education or less were significantly lower than that of the mothers educated with high school and university. The percentage of correct answer on nutrition knowledge in the intervention groups was significantly higher than that of the control group. At six months of intervention, the scores of intervention group I 12.0 and intervention group II 11.6 were higher than that of the control group 10.5. The study concluded that providing nutritional and growth and development health education to the infant's mothers should be helpful for improving infant's feeding pattern and ensuring the adequate growth and development of infants.

31. Enel Catherine, Pinchinat, Pison Gilles, Simon don B Kristen in (2006), "A study on assessment of 24 years of infant growth monitoring, was conducted in Senegal, they assess 24 years of infant growth by growth monitoring between1960-1964 & 1990-1994 total 4636 infants were weighed, and weights were recorded in a register. All weights were plotted on growth charts kept by mothers. The nurse provided nutrition education messages, advice on illness management, importance of vaccination etc. From 1975, they distributed free chloroquine during malaria transmission. At the end of 1980 infant and child mortality level decreased. By the end of this study, they come to conclude that the rapid transition towards lower childhood mortality observed in this rural area was not concomitant with any improvement in infants nutritional status from 1969 through 1992. Focused public health interventions such vaccination and malaria prevention probably didn't improve the nutritional status. Paradoxically, growth monitoring may have been more helpful in improving health than growth. Targeted specific nutritional interventions are needed to significantly improve growth of children in this community.

C) Studies related to general health information of infants in India and Abroad

32. Hossain S.M. et al. (2005), Researchers conducted a survey on evaluation of the impact of nutrition program in Bangladesh. A sample consisted of 4,554 in the project area and 2,266 in the non-projected area children aged 6-23 months. The study revealed that there was urgent need to review the evidence behind investments based on growth monitoring and promotion.

33. Deekshakapur. et al. (2005) A study was conducted on intake and growth pattern of children 9-36 months of age in an urban slum. A sample consisted of 545 children 9 – 36 months of age. The results showed that 74% of children have short stature with 39% severely stunted. The evidence from the study provides a strong basis to suggest that malnutrition and growth retardation in early childhood is common in poor communities.

34. Malhotra S.(2001) A study was conducted on child survival; current status and future perspectives. The result showed that 12% of below 6 months old were underweight and 59% were underweight in the age groups of 12-23 months.

35. Aneja B .et al. (2001) A study was conducted on etiological factors of malnutrition among infants in two urban slums of Delhi. The study findings showed that majority of children's growth faltering starts at four to six months and it continues up to 2 years. Around 50 to 60% of children are malnourished by the age of two years.

36. Nair MKC. et al. (2004) A study was conducted on developmental delay in children below 2 years of age conducted at the Child Development Centre. The study results showed that about 50% of the babies had one or other form of cerebral palsy; 3% prevalence of developmental delay among babies of less than 2 years of age. A statistically significant difference in prevalence was also observed among different age groups with a maximum prevalence of 8.3% in the 3-6 months age group.

37. Bamji and Mahtab. (2000)A study was conducted on health and nutrition problems and health care seeking practices of rural women. The sample consisted of 289 mothers with their children aged 6 –60 months. The results revealed that 20% had moderate and severe mal nutrition as judged by Indian Association of Paediatric using National centre for Health statistic standards.

c) Studies related to maternal knowledge on growth and development of infants

38. Bornstein M.H. et al. (2004) A study was carried out on "Who is sitting across from me"? about Immigrant mothers' knowledge of parenting and children's development. The study investigated parenting knowledge in two groups of mothers who had immigrated to the United States. The majority of immigrant mothers did not know the correct answers for 25% of the items and their incorrect answers were mostly to questions about normative child development. The study revealed that gaps in parenting knowledge have implications for clinical interactions with parents, child diagnosis, paediatric training and parent education.

39. Tchibindat et al. (2004) A study was conducted on bringing together viewpoints of mothers and health workers to enhance monitoring and promotion of growth and development of children. The study was carried out to explore perceptions and practice of mothers and health workers regarding child growth, health and development. The sample consisted of 174 mothers. The study findings showed that strategies encompassing anthropometrics, developmental milestones and acquisition of social skills were elaborated to enhance communication between health workers and mothers.

40. Prabhjot Malhi.et al. (2002) A study was carried out on the role of parents' evaluation of developmental status in detecting developmental delay in young children. The sample consisted of 79 parents seeking well child paediatric services in the outpatient department of a tertiary care teaching hospital. The result showed that parents were not informed about normal growth and development and they were hesitant to discuss with non - medical concerns.

41. Ruchala P.L. (1997) A study was conducted on the knowledge of infant development and maternal confidence between adolescent mothers (13 to 19 years) and adult mothers (20 to 41 years). The study results showed that an adolescents knowledge of infant's development was significantly affected her confidence in providing infant care and nurses must need to adjust content and teaching methods for all new mothers, especially to meet the learning needs of adolescent mothers.

42. Jon E Rohde et al. (1990) A study was conducted on whether illiterate mothers can understand the growth charts. The sample consisted of 100 illiterate mothers. The study sample expressed more accurate results. The study result revealed that the illiterate mothers could interpret the growth curve correctly with individual teaching times saying from 3 to 15 mints.

43. Stevens J.H. (1998) A study was conducted on shared knowledge about infants among fathers and mothers. The results revealed that mothers had more accurate expectations for normative development than fathers and researches must consider the exchange of information when studying the socialization of parenting among fathers in the life cycle of the family.

44. Ranjanmal P Devdas et al. (1986) A study was carried out on monitoring the growth of children. The sample consisted of 250 mothers with children from 6 – 36 months. The study results revealed that the mother needs to be trained to plot the curve of her child every month and to interpret the curve bearing namely a rising line indicates healthy children, levelling line is a warning signal and falling lines is a very dangerous signal calling for nutritional & health care of the child.

d) Studies related to maternal role in promoting normal growth and development of infants

45. Powell C Baker. et al. (2004) A study was conducted on feasibility of integrating earlystimulation into primary care for under nourished Jamaican children. The sample consisted of 139 children aged 9 – 30 months and their mothers also enrolled in intervention. The study design was cluster randomized controlled trial. This study revealed that integrating parenting skills and early psychosocial stimulation were feasible and effective in improving the children's development and mothers' knowledge and practices of child rearing.

46. Kolobe T H. (2003) A study was conducted on child rearing practices and the developmental status of their infants. The sample consisted of 62 Mexican-American mothers. The results revealed that there was an association between mother's child rearing behaviours and their infant's cognitive developmental status. The association appeared stronger with motor developmental status with maternal child rearing behaviors.

47. Shamim A Quazi (2003) A study was conducted on longitudinal growth patterns of infants and clinic based growth promotion program. The sample consisted of 553 in the first 6 months of life. The results showed that children at risk of under nutrition should be identified at an early stage and through effective interaction between health workers and the family their growth should be improved.

48. Rachel F Schiff man et al (2002) A study was carried out on the mother- infant interaction in low-income families. The research consistently demonstrated the influence of the parent child relationship on the child's developmental outcomes. Results showed that there was an association between mother – infant interaction and maternal age, marital status, race / ethnicity and educational level of the mother.

49. Ramona T Mercer. (1995) A study was conducted on experienced and inexperienced mothers maternal competence during infancy. The sample consisted of 136 multiparas and 166 primiparas. The study results revealed that the experienced mothers [multipara] were more competent in the mothering role and in need of less help and inexperienced mothers [primipara] maternal role competence indicated that of greater importance in learning initial skills to care for an infant was required.

50. Seymour et al. (1990) A study was conducted on child development knowledge, child rearing attitudes and social support among adolescent mothers. The sample consisted of first time adolescent mothers and 25 second time adolescent mothers. The study results revealed that increased paternal involvement and completion of high school might enhance adolescent attitudes toward child rearing and improve mother child relations.

Summary

The review of the related literature mentioned on this chapter has helped the investigator to justify the need for the present study, development of conceptual framework and as an instrument for data collection.

The review has also helped investigator to design the study, plan for data collection and develop a structured teaching community area of parents of children based on the selected aspects of delayed mile stones.

Research Methodology

"Systematic way to solve the problem"

Introduction

The system of collecting data for research projects is known as research methodology. The methodology of research indicates the general pattern of an organized procedure for gathering valid and reliable data for the purpose of investigation.

Methodology research refers to investigations or the ways of obtaining, organizing and analyzing the data. Methodology studies address the development, validation and evaluation of research tools or methods **(Polit hungler).**

The chapter deals with the methodology adopted for determining the effectiveness of structured teaching programme on cord blood and stem cell banking among staff nurses. It includes approach, research designs, sample and sample technique, development of tools, development of structured teaching programme. The present study was carried out to develop and evaluate a structured teaching programme for parents of children in (0-2 years) on delayed mile stones.

Research Approach

The selection of research approach is the procedure for conducting of research enquiry. Research approach tells the researcher about what data has to be collected and how to analyze. It also suggests possible conclusions to be drawn from a data.

An pre-experimental quantitative evaluative research approach using pre- experimental design one grouppretest and post-test was adopted. Evaluative research approach deals with the question of how well the program is meeting the objectives. The primary objective of the evaluative research approach is to determine the extent to which a given program or procedure is effective, hence the evaluative research approach was considered most appropriate. The study is aimed at assessing the effectiveness of structured teaching programme on knowledge regarding delayed mile stones among parents of children (0-2 years) in selected rural community area of somni, Rajnandgaon, Chhattisgarh."

Research Design

According to Polit and Hungler (1999), Research design is an investigator over all plans for obtaining answer to the research questions.

The research design selected for the study was pre-experimental in nature i.e. one group pre-test post-test design. This study was intended to find out the gain in knowledge by the parents after administering structured teaching program, who was subjected for the study. The pre-experimental group is observed twice.

The effect of treatment would be equal to the level of phenomena after the treatment minutesthe level of the phenomena before treatment, in the study a pre-test was administered by the means of a structured knowledge questionnaire and, the structured teaching program **on knowledge regarding delayed mile stones among parents of children (0-2 years)** was planned and implemented for 1 hrs. with the help of power point slide as av aids. After 7 days a post test was conducted by using a same structured knowledge questionnaire collected data were analyzed by using descriptive and inferential statistics.

Kerlinger, (1983), revealed that in one group pre-test post-test design group is measured on the dependent variable before any experimental manipulation. After the intervention the dependent variable are again measured, differences of scores is examined for changes.

Group	Pretest	Intervention	Post-test
1	O1	X	O2

The symbols used: Group 1: the parent stay at rural community area of somni, Rajnandgaon, Chhattisgarh.
O1: pre-test collection of demographic data, assessment of pre- existing knowledge scores of parents regarding delayed mile stone (0-2 years).
X: structured teaching programme on delayed mile stones in (0-2 years) of children.

O2: post- test, assessment of knowledge scores of parents regarding delayed mile stones in (0-2 years) of children.

Variables
Variables are qualities, properties or characteristics of person, thing or situations that change or vary. **Chinn and Cramer** stated that "variables are concepts at different level of abstraction that are concisely defined to promote their measurement or manipulation within study."

Independent Variable
It is a stimulus or activity that is manipulated by the researcher to create the effect on the dependent variable. They are the conditions or characteristics that investigator manipulates or control to ascertain its relationship with observed phenomena. In this study independent variable is the structured teaching programme on delayed mile stones among parents of children in (0-2 years) of age.

Dependent Variable
According to Polit and hungler (1999), "condition of characteristics that appear or disappear or changes as the experimental, introduces, removes or changes in independent variable." It is outcome or response due to the effect of the independent variable, which researcher wants to predict or explain. In this study, dependent variable is the knowledge of parents of children.

Setting of the Study
According to Polit and Hungler (1995), setting is the physical location and condition in which data collection takes place in a study. In this study setting was selected for pilot study Shankarpur, rajnandgaon urban community and for main study rural community area of somni, Rajnandgaon, Chhattisgarh.

Criteria for the selection of setting of the study
- ❖ Familiarity with the setting.
- ❖ Easily permission of the setting.
- ❖ Geographical proximity of settings
- ❖ Feasibility of conducting the study.
- ❖ Co-operation and availability of subjects.
- ❖ Adequacy of sample size.

Feasibility
The primary reasons for the selected setting were
1. Geographical proximity and ethical clearance.
2. Economy in terms of time.
3. Corporator approval.
4. Co-operation and availability of subject.
5. Adequacy of the sample size.

Population
Population is the aggregation of all the units in which a researcher is interested in other words, population is the set of people or entities to which the results of a research are to be generalized. Population is a group whose member possess specific attribute that a researcher is interested in study.

Target Population
A target population consist of the total number of people or objects which are meeting the designated set of criteria. In this study the target population comprised of Parents of children in (0-2 years) at community area of Rajnandgaon, Chhattisgarh.

Accessible Population
The entire set of individuals or objects having some common characteristics selected for a research study. In this study the accessible population comprised of 300 Parents of children in (0-2 years) age in rural community area of somni, Rajnandgaon, Chhattisgarh.

Sample
Polit and Hungler (1995) states that, sample a subset of population selected to participate in research study. The sample in the present study comprise of selected Parents of children (0-2 years) lives in selected rural community of somni, Rajnandgaon.

Sampling Technique
Sampling technique is a method or process devised for obtaining a sample, which will be a representation of its population. The process of sampling makes it possible to draw valid inference or generalized based on careful observation of variables within a relatively small portion of the population.

Kerlinger (1973), states that choice of sampling technique depends on the nature of the problem, the kind of variables included in the study, the type of research and number of sampling units. In this study the investigator has used a purposive sampling.

Sample Size
Sample size determination is the act of choosing the number of observations included in the statistical sample. The sample size is an important feature of any empirical study in which the goal is to make inferences about a population from a sample. The total sample size for the present study is 300 Parents of children in (0-2 years) at selected rural community area of Somni, rajnandgaon, Chhattisgarh.

Criteria for Sample Selection
Inclusion criteria
- ❖ Those who are willing to participate in the study.
- ❖ Parents of children in (0-2 years) of age.
- ❖ Available during the period of data collection.

Exclusion criteria
- Not willing to participate in the study.
- Parents of children in (0-2 years) of age those who are not available at the time of study.

Development and Description of Research Tool
Based on the conceptual framework and objectives of the study, the following instruments /tools were developed in order to generate data-Structured knowledge

questionnaire to assess the knowledge of Parents of children in (0-2 years) age regarding delayed mile stones.

Development of Self Structured Questionnaire

A self-structured questionnaire was prepared by reviewing literature, personal experience and expert guidance for assessing the existing knowledge of the parents related to delayed mile stones in (0-2 years) of children and the self structured questionnaire consist of 2 sections-

Section 1: included 11 items on demographic data such as age, gender, religion, education, occupation of parents, family monthly income, type of family, no. of children, source of information, any child effected with delayed mile stones, mode of delivery.

Section 2: consisted of 30 knowledge questionnaire items categorized under general knowledge questionnaire regarding delayed mile stones. The item consisted total of 30 multiple choice questions. A score of one was assigned to correct answer and zero assigned to each wrong answer. Total score of the knowledge questionnaire was 30.

Content Validity of Self Structured Tools

Content validity refers to the degree to which an instrument measures what it is supposed to measure. Validity of the structured knowledge questionnaire was established by submitting it to 5 experts. To ensure validity of the tool along with the knowledge questionnaire, criteria checklist, answer key and lesson plan were submitted to the experts from the field of child health nursing. The experts were requested to give their opinion regarding accuracy, relevance and appropriateness of the content which had column for agree, disagree and suggestions. There are 100 percent agreement on all items.

Reliability of Tools

According to wood and haber (1994), reliability is defined as the extend to which the instrument yield the same result on repeated measures. It is then concerned with consistency, accuracy, stability and homogeneity. The reliability coefficient for structured knowledge questionnaire were .91which reveals of reliability of tool acceptable level.

Plan for data Analysis

States that data analysis is the systematic organization and synthesis of research data and testing the research hypothesis using these data.

- The data obtained was analyzed in terms of achieving the objectives of the study using descriptive and inferential statistics.
- Organization of data in master sheet.

1. Descriptive Statistics

- Frequencies and percentage to be used for analysis of demographic characteristics.
- Calculation of mean, standard deviation of pre-test and post-test knowledge and effectiveness scores.

2. Inferential Statistics

- Application of paired t test to assess pretest and post-test values.
- Application of chi square formula to find out association between the pre-test knowledge scores and socio-demographic variables.

Ethical Consideration

- The research problem and objective were approved by the research committee.
- Due permission from authorities was sought and obtained.
- Informed written consent was taken from the participants.
- Anonymity of the participant was ensured.
- Confidentiality of the data was maintained.

Summary

Research methodology is the way of obtaining and organizing data and conducting rigorous research. This chapter include the research approach, research design, setting of the study, variables, sample and sampling technique, sampling criteria, data collection technique and instruments, development of tool, description of tools, content validity, reliability, pilot study, data collection method, plan for data analysis and ethical consideration.

Data Analysis and Interpretation

The term data analysis refers to a number of closely related operations which are performed with the purpose of summarizing the collected data and organizing them in such a manner as would be answered in the research question.

Statistical analysis is a method for rendering quantitative information. Without the aids of statistics, the quantitative data collected in a research project would be little more than a chaotic mass of numbers. Statistical procedure enables the researcher to evaluate, interpret and communicate numeric information. **(Polit and Hungler, 1999)**

Analysis is the categorizing, ordering, manipulating and summarizing of data to obtain answers to research questions the purpose of analysis is to reduce data to intelligible and interpretable forms so that the relations can be studied and tested. **(Kerlinger, 1973)**

This chapter presents the details and interpretation of data collected to determine the effectiveness of structured teaching programme regarding delayed mile stones among parents of children in (0-2 years) age in rural community area of somni, Rajnandgaon, Chhattisgarh. The data analysis was carried out based on the objectives and hypothesis set by the investigator.

The data collected was organized and interpreted by statistically Tables and Graphs.

Objectives

- To assess the pre-test and post test score among parents of children in (0-2 years) of age.
- To give structured teaching programme on knowledge regarding delayed mile stones among parents of children.
- To assess the effectiveness of structured teaching programme regarding delayed mile stones among parents of children.
- To find out the relationship between post-test of knowledge scores of parents of children regarding delayed mile stones in (0-2 years) of age.

Hypothesis

- **H1**- There is a significant difference in pretest and post-test knowledge scores of parents of children (0-2 years) on delayed mile stones at <0.05 level.
- **H2**-There is a significant association between demographic characteristics and the pretest knowledge among parents of children (0-2 years) at >0.05 level.

Organization of the Studyfindings

Analysis and interpretation was done as per the objectives of the study and the hypothesis formulated. Descriptive and inferential statistics were used for the analysis of the data. The data and findings have been organized and presented under the following sections.

Section – I Findings of demographic characteristic of the subjects.
Section – II Findings related to pre-test and post-test knowledge scores parents of children (0-2 years)
Section-III Findings related to effectiveness of structured teaching programme.
Section - IV Findings related to association between pre-test and post-test between post-test knowledge with selected socio-demographic variables.

Findings of Demographic Characteristics of the Subjects

This section describes the demographic characteristics of parents of children sample characteristics included in the study for the purpose of obtaining the descriptive background as age, gender, religion education occupation of parents, family monthly income, type of family no. of children, source of information, any child effected with delayed mile stones, mode of delivery. The sample characteristics are presented in table-1.

Table 1: Frequency and percentage distribution of parents of children sample characteristics N = 300.

S. No.	Variables	Frequency (n)	Percentage (%)
1.	**Age of parents**		
	>21-25yrs	112	37.33%
	26-30yrs	92	30.66%
	31-35yrs	60	20%
	36-40yrs	36	12%
2.	**Gender of parents**		
	Male	110	36.66%
	Female	190	63.33%
3.	**Religion**		
	Hindu	136	45.33%
	Muslim	60	20%
	Christian	10	3.33%
	Others	94	31.33%
4.	**Educational status of father**		
	Illiterate	130	43.33%
	Primary/ secondary	100	33.33%
	High secondary/Higher secondary	45	15%
	Graduation/post graduation	25	8.33%
5.	**Occupation of parents**		
	Government job	95	31.66%
	Private job	120	40%
	Labor work	95	31.66%
	Business	0	0%
6.	**Family monthly income**		
	3000-5000 Rs	74	25.33%
	5000-10,000 Rs	97	32.33%
	10,000-15,000 Rs	77	25.66%
	>15,000 Rs	52	17.33%

7.	**Types of family**		
	Nuclear	110	36.66%
	Joint	150	50%
	Extended	40	13.33%
8.	**No. of children**		
	One	60	20%
	Two	136	42%
	Three	114	34.66%
	More than three	0	0%
9.	**Source of information**		
	Mass media	60	20%
	Health personnel	100	33.33%
	Family	102	34%
	Others	38	12.66%
10.	**Any child effected with delayed mile stones**		
	Yes	94	31.33%
	No	206	68.66%
11.	**Mode of delivery**		
	Normal vaginal delivery	250	83.33%
	LSCS	50	16.66%

Table 1: and figure no. 3 (3a-3k)

1. Depicts in relation to age the maximum subjects 112 (37.33%) belongs to the age group of >21-25yrs, 36(12%) in age group 36-40yrs, 60(20%) in age group 31-35yrs and 92(30.66%) in age group 26-30 yrs. This indicates that maximum parents of children 112(37.33%) belongs to the age group of >21-25yrs.
2. Regarding gender majority of parents (63.33%) were female and (36.66%) were male. This indicates that regarding gender female are in majority.
3. Majority of parents belonged to Hindu 136 (45.33%), 60(20%) belonged to religion Muslim, 10 (3.33%) are of religion Christian, 94 (31.33%) belonged to religion others. This indicates that maximum number of parents of children (45.33%) belonged to Hindu religion.
4. Regarding majority of fathers education had 130 (43.33%) were illiterate, 100 (33.33%) had were primary education, 45 (15%) had high secondary education, and 25 (8.33%) were graduate and above. This indicates that maximum parents of children father education 130(43.33%) were illiterate.
5. Regarding majority of parents occupation had 95 (31.66%) labor work and 0 (0%) in business and 120 (40%) were in private job and other were 95(31.66%) in government job. This indicates the maximum number of parents of children 120 (40%) had private jobs.
6. Majority of family monthly income shows that maximum of subjects belongs to 3000-5000rupees, 76 (25.33%). 5000-10,000 rupees belongs to 97 (32.3%). 10,000-15,000 rupees, 77 (25.66%) and >15,000 rupees were 52 (17.33%).This indicates the maximum number of parents 97 (32.3%) 5,000-10,000 rupees income.
7. Regarding types of family 110(36.66%) of parents of children were from nuclear family, 150(50.0%) were from joint family and 40(13.33%) were from extended family. This indicates the maximum number of parents were from joint family 150 (50.0%).
8. Regarding majority of parents 60(20%) had one children, 126(42%) are had two children and 104 (34.66%) are had three children, 0 (0%) are had more than three children. This indicates the maximum number of parents 126 (42%) had two children.
9. Majority of number of parents got source of information from 60 (20%) mass media, and health personnel 100 (33.33%) and from family 102 (34%) and from others 38 (12.66 %). This indicates that maximum number 102 (34%) of parents of children having information from family.
10. Majority of child not effected with delayed mile stones 206(68.66%) of parents of children are from no, and 94 (31.33%) are from yes.
11. Mothers regarding mode of delivery had normal vaginal delivery 250 (83.33%) and 50 (16.66%) are having from LSCS. This indicates that maximum number of mothers 250 (83.33%) having mode of delivery is normal vaginal.

Hence it is concluded that maximum number of parents of children belongs to the age group of 21-25 years, were female parent are in number, majority of parents belongs to Hindu caste, majority of fathers education were illiterate, majority of parents occupation had private jobs, majority of parents family monthly income is 5000-10,000 rupees, majority were from joint family, majority of parents had two children, majority of number of parents of children got information from family, majority sample were from child not effected with delayed mile stones, majority of mothers regarding mode of delivery had vaginal delivery respectively.

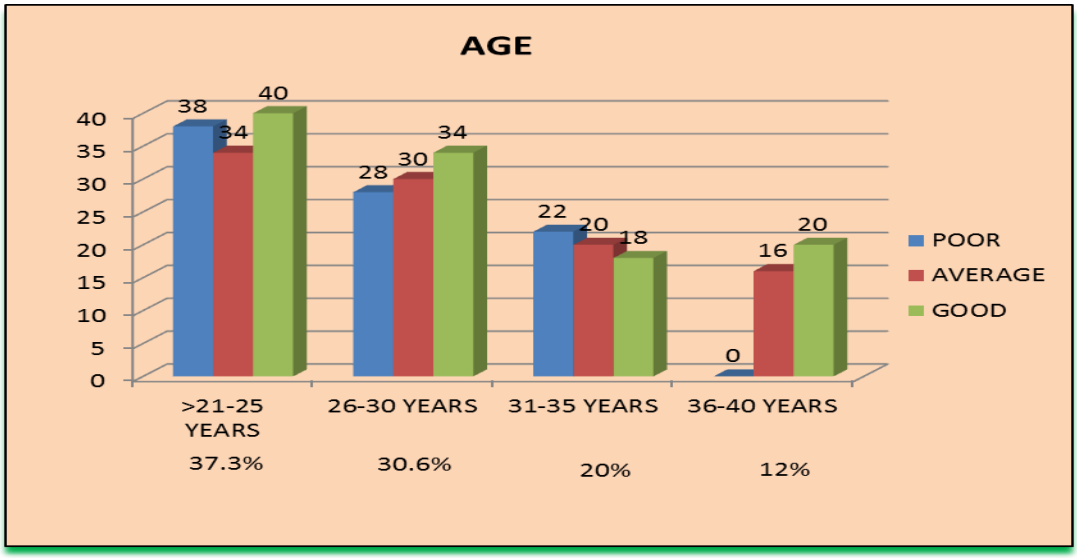

Figure 3a: Bar graph diagram representing percentage distribution of Parents of children according to their Age.

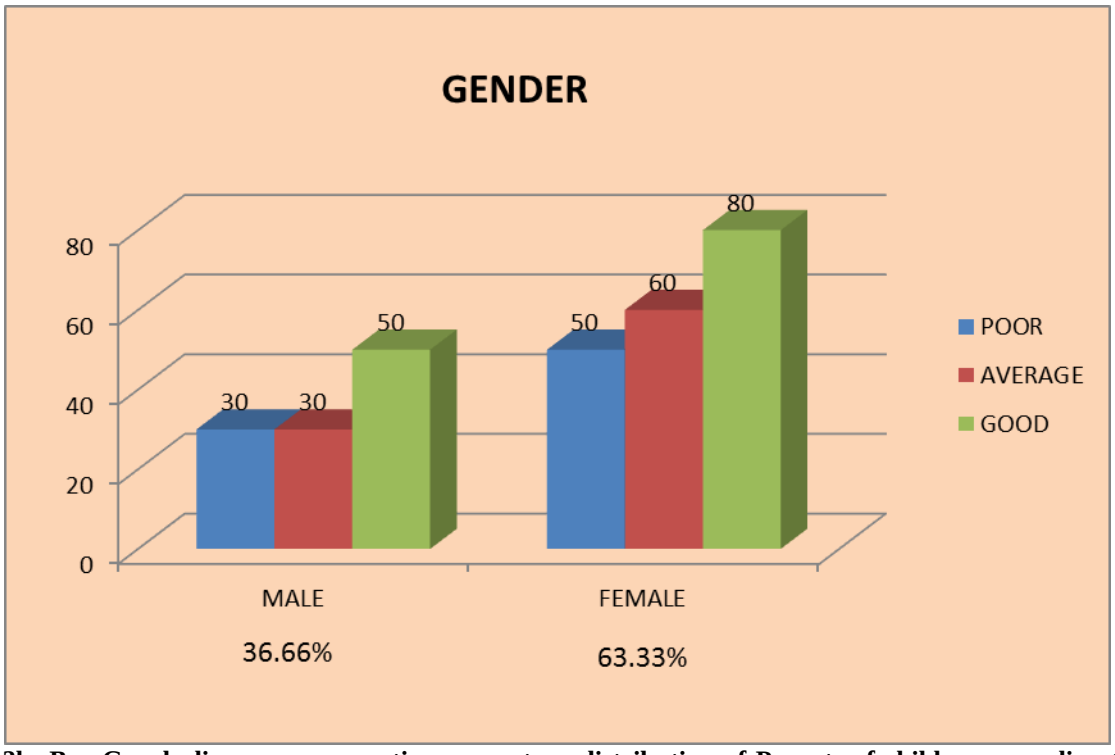

Figure 3b: Bar Graph diagram representing percentage distribution of Parents of children according to their gender.

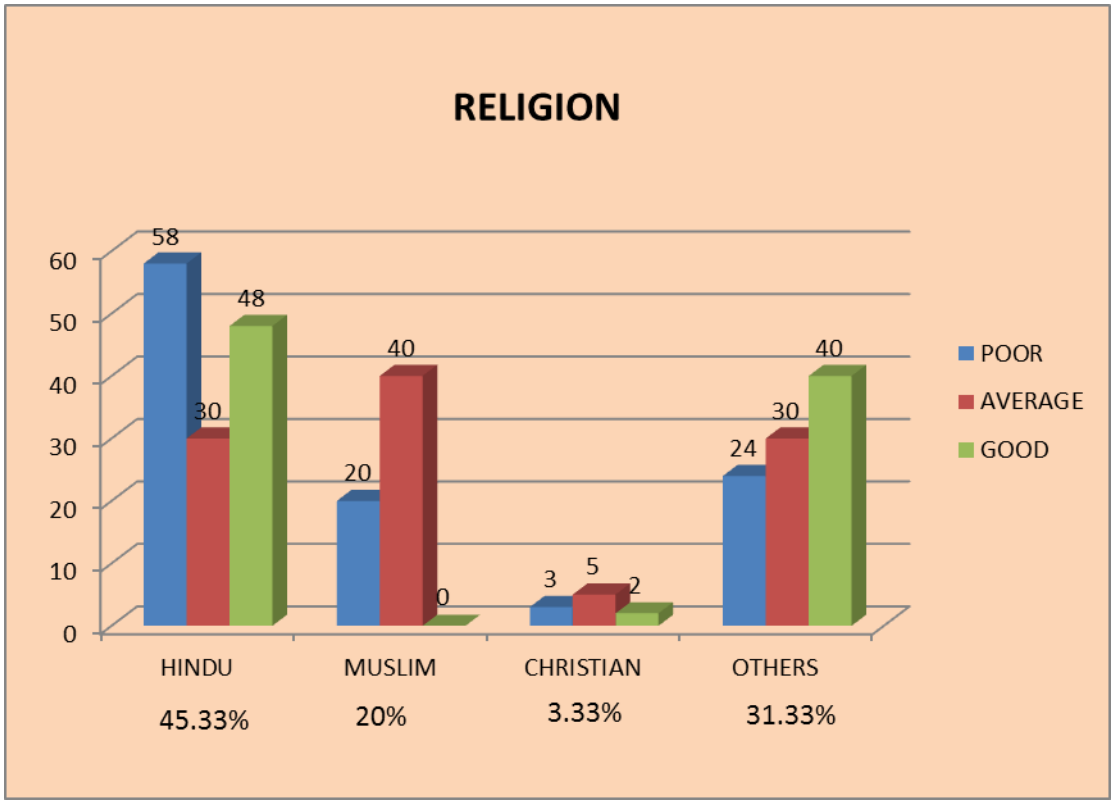

Figure 3c: Bar Graph diagram representing percentage distribution of Parents of children according to their Religion.

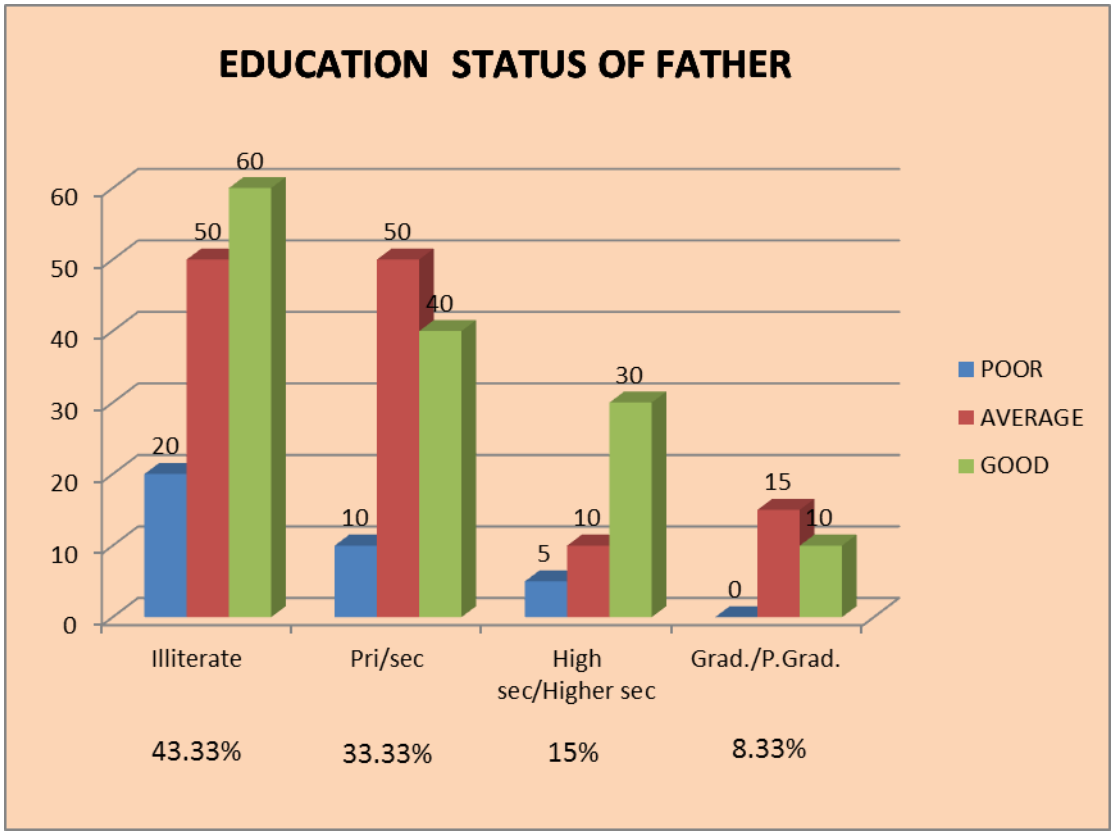

Figure 3d: Bar Graph diagram representing percentage distribution of Parents of children according to their educational status.

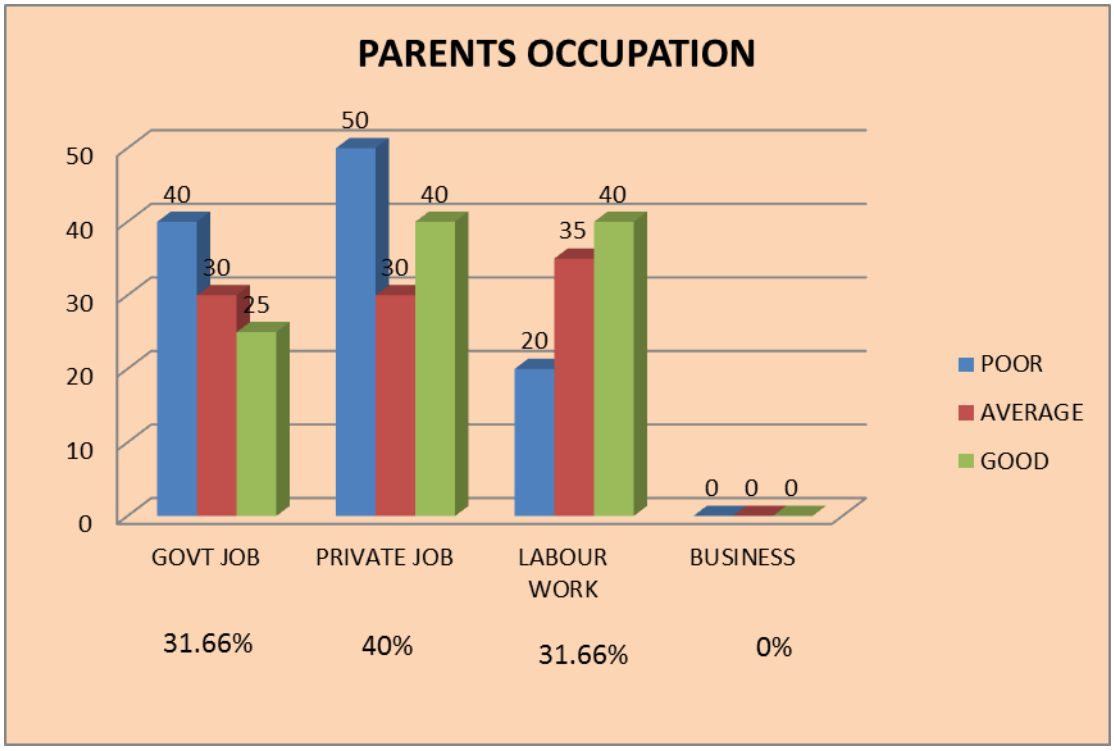

Figure 3e: Bar Graph diagram representing percentage distribution of Parents of children according to their Parents Occupation.

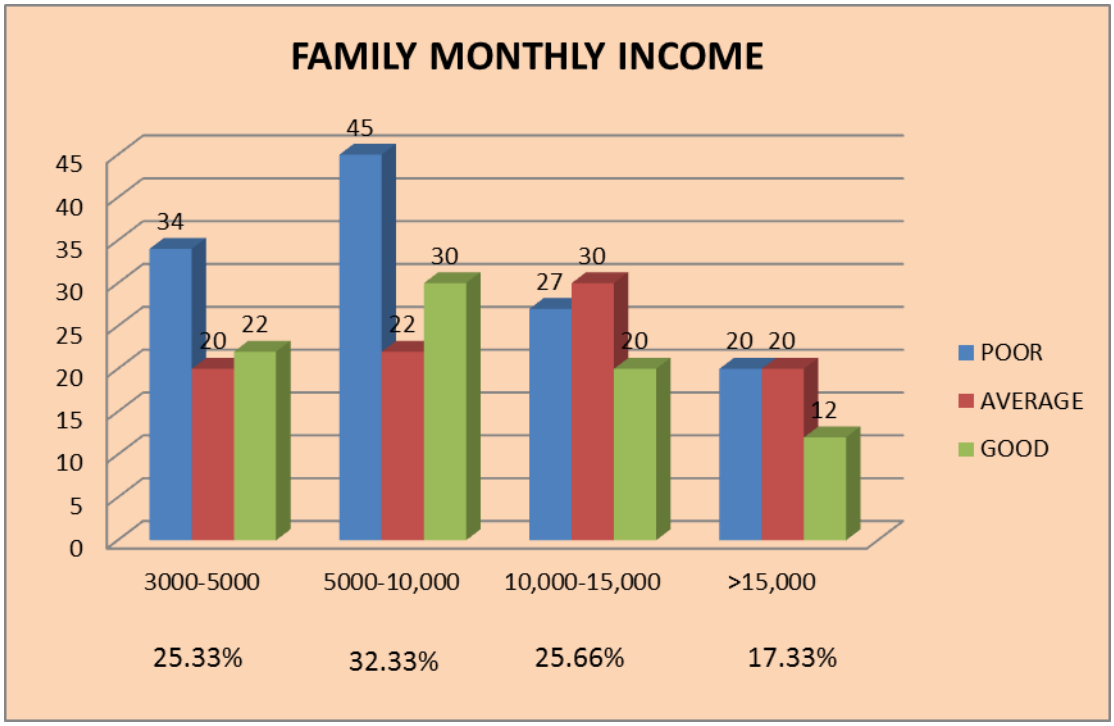

Figure 3f: Bar Graph diagram representing percentage distribution of Parents of children according to their family monthly income.

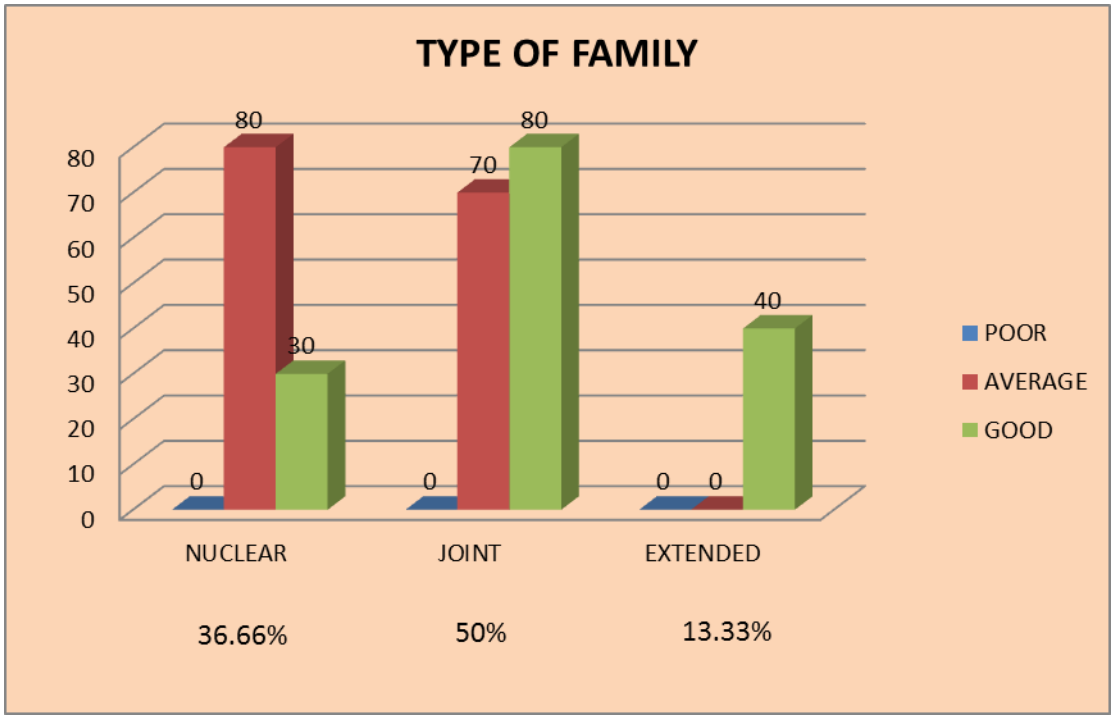

Figure 3g: Bar Graph diagram representing percentage distribution of Parents of children according to their types of family.

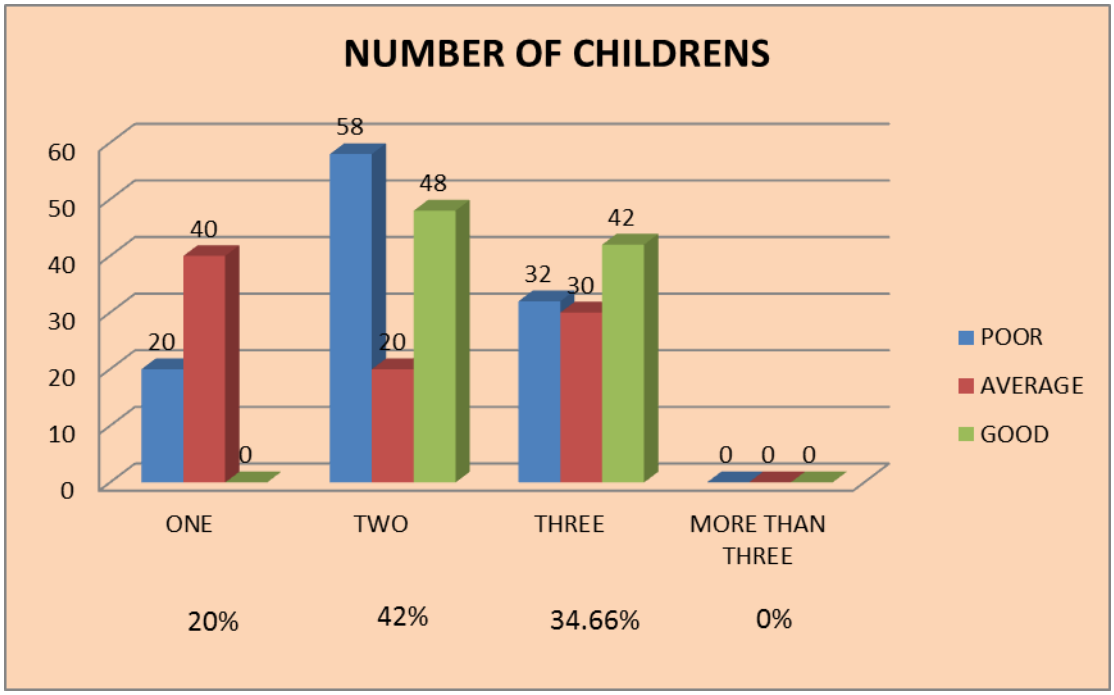

Figure 3h: Bar Graph diagram representing percentage distribution of Parents of children according to their number of children.

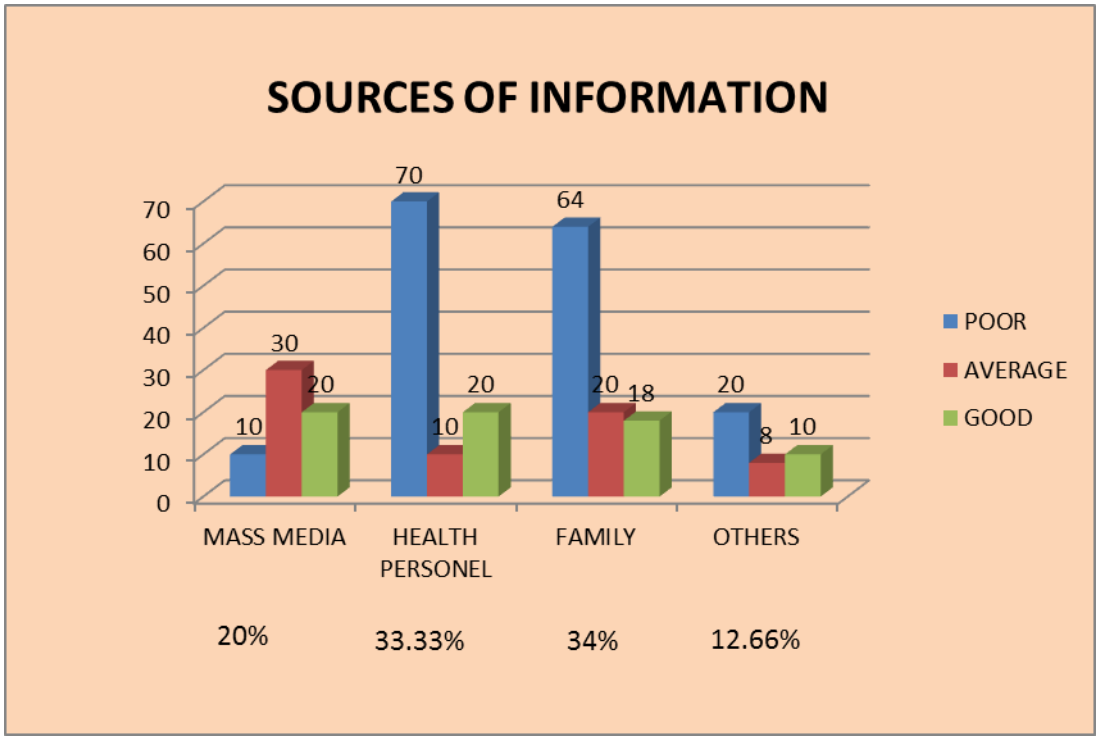

Figure - 3i: Bar Graph diagram representing percentage distribution of Parents of children according to their source of information.

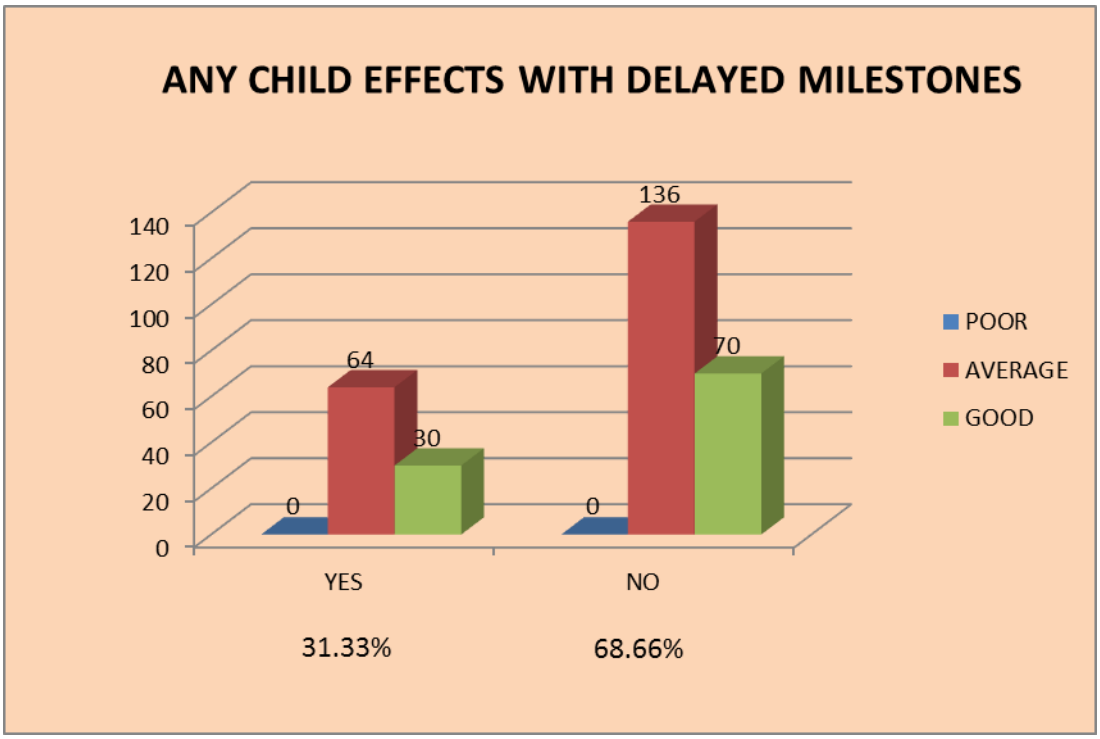

Figure 3j: Bar Graph diagram representing percentage distribution of Parents of children according to their child effected with Delayed mile stones.

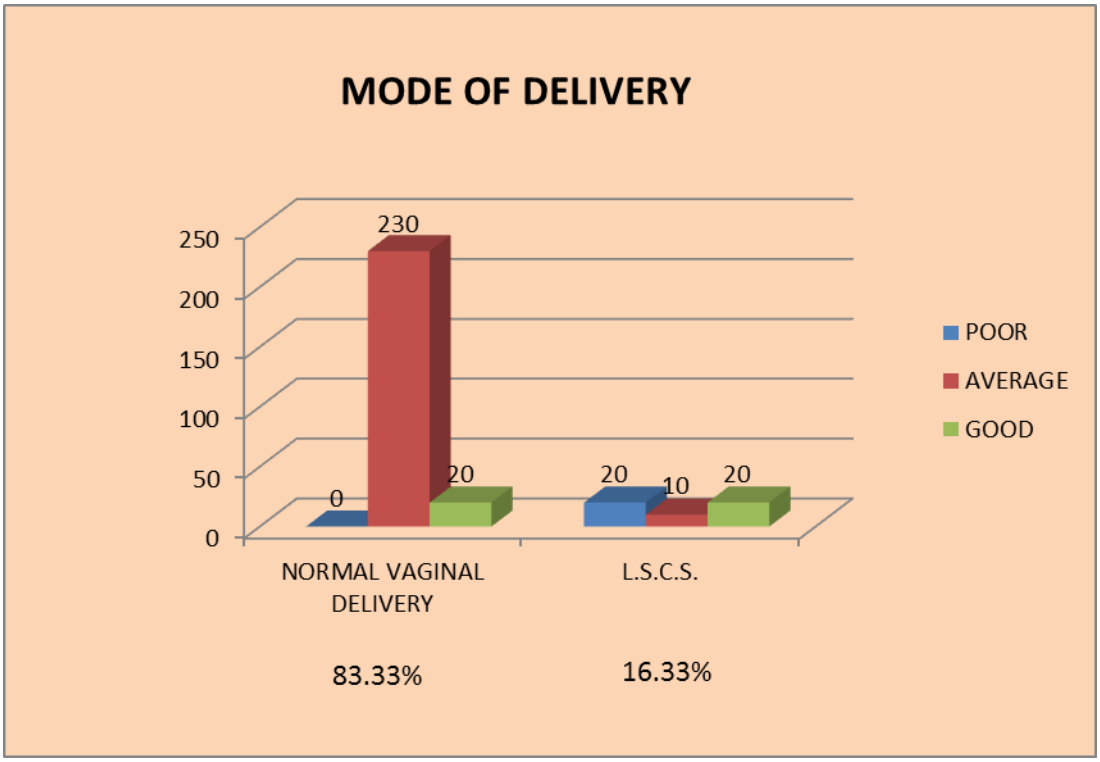

Figure 3k: Bar Graph diagram representing percentage distribution of Parents of children according to their mode of delivery.

Findings related to knowledge of parents of children regarding delayed milestones

1. This section describes the analysis of items for assessing knowledge regarding delayed mile stones.
2. It describes the findings, related to effects of structured teaching programme in terms of knowledge of parents of children students regarding delayed mile stones.
3. The pre-test and post-test knowledge scores obtained through structured knowledge questionnaire are described and analyzed using descriptive and inferential statistics.
4. There were 30 knowledge items with one correct response was given one scores. The maximum possible score was 30. The level of knowledge score was categorized.
5. The mean, mean percentage and standard deviation of pre-test and post-test knowledge scores were calculated and these are presented in table below.

Objective

To assess the pre-test and post test score among parents of children in (0-2 years) of age.

Table 2: Findings related to pre-test knowledge scores regarding delayed mile stones N=300.

S.no.	Level of knowledge	Frequency (n)	Percentage (%)	Mean scores	Mean percent	Standard deviation
1.	Poor	200	66.66%			
2.	Average	100	33.33%	0.0787	0.26233	1.9138
3.	Good	0	0.0%			
	Total	300	100%			

The data presented in table no. 2 and Figure no. 4 depicts that the mean percentage of pre-test knowledge score of parents of children is 0.26233% regarding delayed mile stones. It depicts that maximum score is 66.66% of parents of children have poor knowledge, and minimum scores is 33.33% of parents of children have average knowledge and 0% have good knowledge, regarding delayed mile stones.

Hence it is concluded that the maximum no. of parents of children have poor knowledge, followed by have average knowledge respectively.

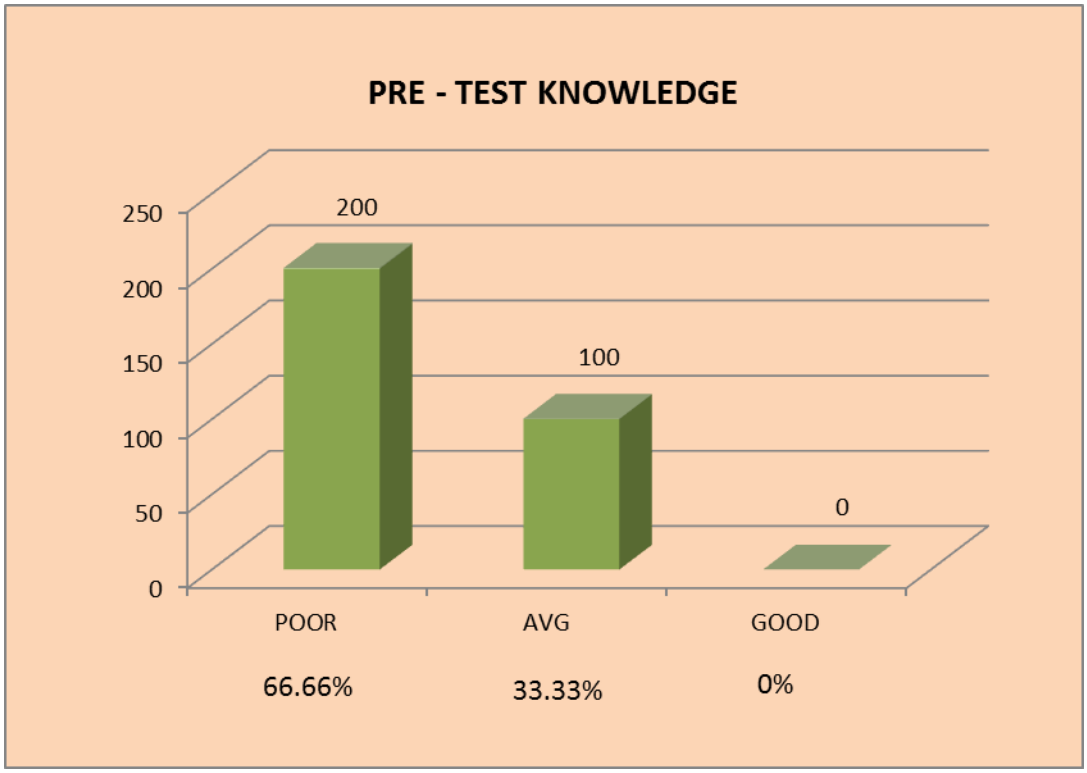

Figure 4: Bar diagram showing percentage distribution of subjects according to pre-test knowledge.

Table 3: Findings related to content wise pre-test knowledge of parents of children regarding delayed mile stones N=300.

S.no.	Content wise	Pre-test		
		Mean	Mean%	S D
1.	Delayed mile stones	0.0787	0.26233%	1.9138

The data in table no. 3 reveal that the highest mean percentage of pre-test score 0.26233% is in the content wise with mean 0.0787 and SD 1.9138 This indicates that maximum knowledge deficit existed in the content wise of knowledge regarding delayed mile stones.

Table 4: Findings related to post-test knowledge scores regarding delayed mile stones N = 300.

S.no	Level of knowledge	Frequency (n)	Percentage (%)	Mean scores	Mean percent	Standard deviation
1.	Poor	0	0.0%			
2.	Average	190	63.33%	23.141	77.1366%	33.1498
3.	Good	110	36.7%			
	Total	300	100%			

The data presented in table no.- 4 and Figure no.- 5 depicts that the mean percentage of post-test knowledge score of parents of children is 77.1366% regarding delayed mile stones. It depicts that knowledge score of parents of children ranged between good and while parents of children having average and poor knowledge were nil. Findings revealed that 0% (nil) of parents of children has poor knowledge, and 63.33% parents of children had average knowledge, while 36.7% were having good knowledge regarding delayed mile stones.

Hence it is concluded that the maximum no. of parents of children have average knowledge, followed have a good knowledge respectively.

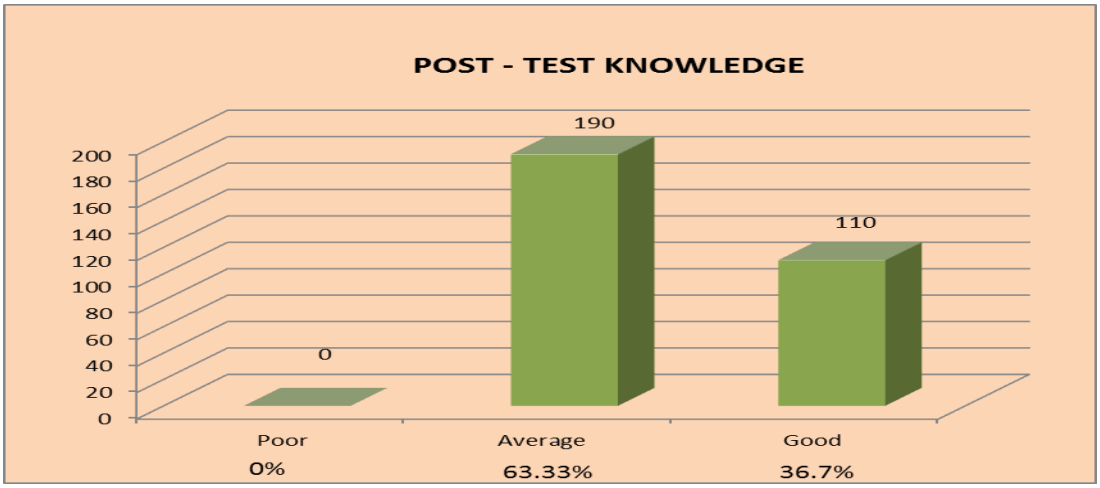

Figure 5: Bar diagram showing percentage distribution of subjects according to post-test knowledge.

Table 5: Findings related to content wise post-test knowledge of parents of children students regarding delayed mile stones N= 300.

S. no.	Content wise	Post-test		
		Mean	Mean%	S D
1.	Delayed mile stones	23.141	77.136%	33.1498

The data in table no. 5 reveal that the highest mean percentage of post-test score 77.136% is in the content wise with mean 23.141 and SD 33.1498. This indicates that maximum knowledge deficit existed in the content wise of knowledge regarding delayed mile stones.

To compare the pre-test and post-test knowledge scores among parents of children (0-2 years).

Table 6: Findings related comparison of pre-test and post-test knowledge of parents of children regarding delayed mile stones N = 300.

Test	Mean	Mean %	S D	"t"test value	P value
Pre-test	0.0787	0.2623%	1.913	12.07 < 0.001	
Post-test	23.141	77.13%	33.149		

The data in table no. - 6 and figure no. - 6 reveal Comparison between pre-test and post-test knowledge scores of parents of children regarding delayed mile stones. showed that pre-test knowledge score was 0.2623% with mean 0.0787 and post-test knowledge score was 77.13% with mean score 23.141 , paired test value 12.07 indicates there is a significant difference between pre-test and post-test knowledge score of parents of children regarding delayed mile stones.

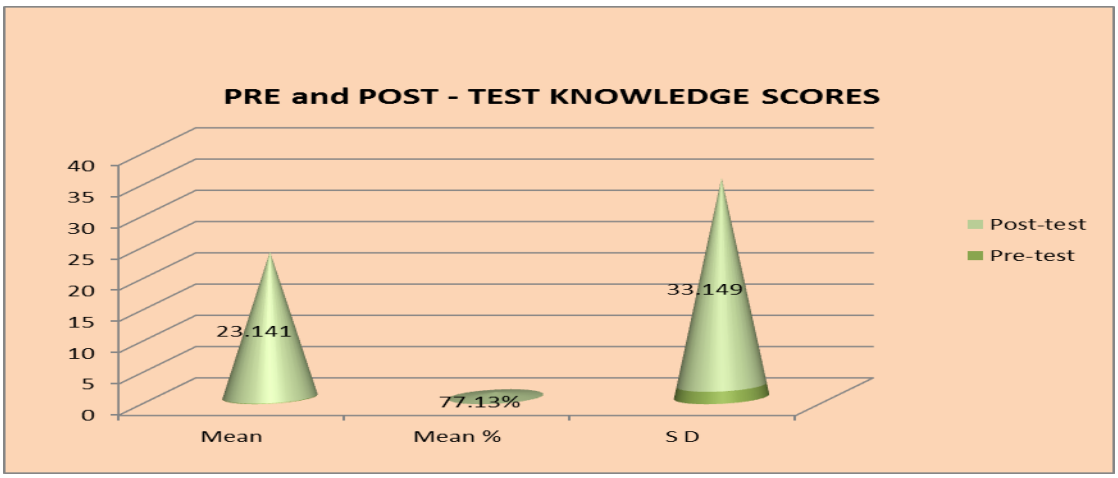

Figure 6: Bar diagram showing the comparison between pre-test and post-test knowledge score of parents of children.

Table 7: The data presented in the table no. - 7 figure no. - 6 depict the comparison between pre-test and post-test knowledge scores N = 300.

Content wise	Pre-test			Post-test					
Delayed mile stones	Mean	Mean %	S D	Mean	Mean %	SD	Gain %	"t" value	P value
Delayed mile stones	0.0787	0.2623	1.913	23.14	77.13%	33.149	65.65	12.07	<0.001

Comparison between pre and post-test scores of parents of children regarding delayed mile stones (content wise) showed that the pre-test knowledge score was 0.0787 and post-test knowledge score was 23.14 , paired t-test 12.07 indicates that there is significant difference between pre and post-test knowledge scores of parents of children regarding delayed mile stones.

To assess the effectiveness of structured teaching programme on knowledge of delayed mile stones among parents of children in (0-2 years) age.

Table 8: Findings related to effectiveness of structured teaching programme in terms of gain in knowledge regarding delayed mile stones N= 300.

Level of knowledge	Pre-test	Post-test
Poor (0-10)	66.66%	0.0%
Average (11-20)	33.33%	63.33%
Good (21-30)	0.0%	36.7%

The data in the table no.-8 figure no. - 7 Depicts that effectiveness of structured teaching programme. In the pre-test findings revealed that 0% (nil) of parents of children have good and poor knowledge, 66.66% parents of children knowledge while 33.33% were having average knowledge regarding delayed mile stones. Whereas in post –test findings revealed that 0% (nil) of parents of children have poor and average knowledge, 63.33% parents of children having good knowledge, 36.7% regarding delayed mile stones.

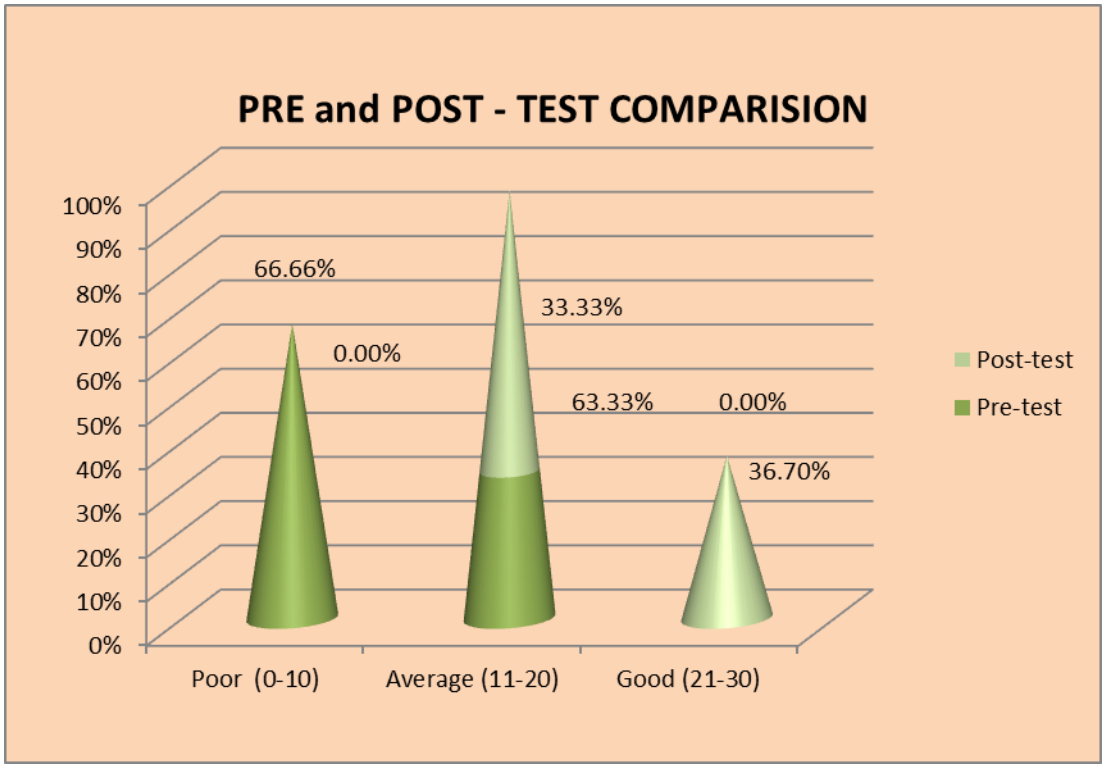

Figure 7: Cone diagram showing effectiveness of structured teaching programme regarding delayed mile stones.

To find out association between pre - test knowledge scores regarding delayed mile stones with selected demographic variables.

Findings related to the association between pre-test knowledge and socio- demographic variables of parents of children regarding delayed mile stones

This section describe the association between knowledge and socio-demographic variable. According to **Suresh k. Sharma** chi square is a statistical test commonly used to compare observed data with data we would expect to obtain according to a specific hypothesis. The chi square test is always testing what researcher call the null hypothesis, which states that there is no significant difference between the expected and observed result. It is represented by a symbol x^2 and use to find association between two discrete attributes.

In this section chi square analysis is done to find the association between pre-test knowledge with socio demographic variables, represented in table no. 9. In order to find out the significant association regarding knowledge of delayed mile stones with demographic variables, following research hypothesis was formulated.

H 1: there will be significant association between knowledge of parents of children regarding delayed mile stones with the socio-demographic variables, at 0.05 level of significance.

Table 9: Chi square analysis for association between pre-test knowledge regarding delayed mile stones among parents of children in (0-2 years) age. N=300.

S.no.	Demographic variables	Degree of freedom (df)	Chi square	Critical value	Inference
1.	Age	6	18.604	12.59	S
2.	Gender of parents	2	0.6332	5.99	NS
3.	Religion	6	54.56	12.59	S
4.	Educational status	6	18.106	12.59	S
5.	Occupation	6	14.639	12.59	S
6.	Family monthly income	6	5.96	12.59	NS
7.	Types of family	4	63.38	9.49	S
8.	No. of children	6	63.98	12.59	S
9.	Source of information	6	53.38	12.59	S
10.	Any child effected with delayed mile stones	2	0.1	5.99	NS
11.	Mode of delivery	2	159.13	5.99	S

The data presented in table – 9 shows that there is association between knowledge of parents of children with selected demographic variables

Age chi square was 18.604, degree of freedom, 6 critical value 12.59, at p value 0.05 was there were significant and gender chi square was 0.6332, df 2, critical value 5.99, there were no significant at 0.05 level and religion chi square was 54.568, df 6, crtical value 12.59, there were significant at 0.05 level. Education chi square 18.106, df 6, critical value 12.59 there were significant at 0.05 level. Occupation chi square 14.639 df 6, critical value 12.59 there were significant at 0.05 level. Family monthly income chi square 5.96, df 6, critical value 12.59, there were no significant at 0.05 level. Types of family chi square 63.38, df 4, critical value 9.49, there were significant at 0.05 level. No. of children chi square 63.98, df 6 critical value 12.59, there were significant at 0.05 level. Source of information 53.38, df 6, critical value 12.59 there were significant at 0.05 level. Any child effected with delayed mile stones chi square 0.1, df 2 critical value 5.99, there were no significant at 0.05 level. Mode of delivery 150.13, df 2, critical value 5.99, there were significant at 0.05 level respectively .

Hence it may conclude that there is significant association of socio- demogarphic variable with the pre-test knowledge of parents of children (0-2years) regarding delayed mile stones.

DISCUSSION

The present study is, "A study to assess the knowledge of parents of children's regarding delayed mile stones in (0-2 years) of age in Rural community area of somni, Rajnandgaon, Chhattisgarh. In order to achieve the objectives of the study, quantitative pre-experimental research design was adopted.

Objectives

- To assess the pretest and post-test knowledge about delayed mile stone among parents of children.
- To compare the pretest and post-test knowledge regarding delayed mile stones among parents of children.
- To assess the effectiveness of structured teaching programme on delayed mile stones among parents of children.
- To find out association between pretest knowledge scores on delayed mile stones with selected demographic variables.

In the present study there is significant increase in knowledge of parents of children regarding delayed mile stones. In pre-test knowledge score of parents of children is 40.36% regarding delayed mile stones. It depicts that maximum score is 66.7% of parents of children's have poor knowledge, and minimum scores is 33.3% of parents of children's have average knowledge and 0%

have good knowledge, regarding delayed mile stones in post-test knowledge score of parents of children is 80.66% regarding delayed mile stones. It depicts that knowledge score of parents of children ranged between good and while parents of children having average and Poor knowledge were nil. Findings revealed that 0% (nil) of parents of children have poor knowledge, and 63.7% parents of children had average knowledge, while 36.7% were having good knowledge regarding delayed mile stones.

Hence it is concluded that the maximum no. of parents of children (63.7%) have average knowledge, followed (36.7%) have a good knowledge respectively.

The overall pre-test knowledge score of the respondents was identified as (0.2623%), post-test knowledge score of the parents of children was (77.13%), this difference was analyzed with paired "t" test and calculated t-value 12.07. This was found as highly significant.

Summary

This chapter deals with the analysis and interpretation and discussion of data collected from 300 parents of children in (0-2 year) age at selected rural community area of Somni, Rajnandgaon, Chhattisgarh and analysis was done by using descriptive and inferential statistics.

Implications of the Study

The present study has implications in various areas such as nursing practice, nursing education, nursing administration and nursing research.

1. Nursing Education

The gap between the existing and expected level of knowledge of the parents of children in different areas delayed mile stones is one of the way of setting priorities of planning a teaching programme for parents of children.

2. Nursing Administration

Nurse administrator may utilize the present tool for assessing knowledge of the parents of children.

- The nurse administrator may plan and organize continuing education programme for all parents for updating knowledge on current issues and trend in relation to delayed mile stones.
- Nurse administrator may facilitate education service to create awareness among the people about the delayed mile stones.
- Nurse administrator may find out the school, kinder garden, crèches, anganwadi set to arrange health education programme related to delayed mile stones and how to overcome them.

3. Nursing Research

- Nursing research can be conducted in developing a self- learning module on delayed mile stones among parents of children and tested for its effectiveness of the parents of children on delayed mile stones.
- There is need to carry out a survey on the incidence of delayed mile stones in parents of children in different states of india, and its cause and should make attempts a preparing literature in different regional language.

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