JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

# "A STUDY TO ASSESS THE PHYSICAL GROWTH AND NUTRITIONAL STATUS OF SCHOOL GOING CHILDREN AND TO DEVELOP A TEST SELF INSTRUCTIONAL MODULE ON PHYSICAL GROWTH AND NUTRITION OF CHILDREN IN SELECTED AREAS AT BANGALORE"

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**ABSTRACT**

Growth is a fundamental feature of children, child's growth purely depends upon the fulfillment of his basic needs and must be satisfied for higher growth. Accurate measurement at the regular intervals is vital to assess the growth. Growth refers to an increase in physical size of the whole body or any of its parts, and can be measured in inches or centimeters and in pounds or kilograms. Mothers' role in bringing up children is very important; mothers should express their unconditional love for their children, as well as provide them with the continued support. It is important that mother's of toddlers need to be self assured with discipline, through discipline child learns behaviors which are acceptable. A well-balanced nutrition is needed for proper growth and development of toddlers, there is a strong relationship between physical growth and dietary intake. Mothers' knowledge regarding proper nutritional fulfillment is very important to ensure normal growth of toddlers. Toddlers are completely dependent on their parents especially upon their mothers for the fulfillment of their basic needs and mothers are the persons, who always accompany their toddlers most of the time and witnesses the growth and development so they need to acquire knowledge of normal growth and development and also variations in the normal growth and development, attainment of milestones at appropriate age and any delay in attainment.

## 1. INTRODUCTION

The child's growth status depends upon the health of the family and the parents socio-economic, educational, cultural and emotional background. It is found that the present changes in social and family structure that is industrialization, urbanization, nuclear family system, working mothers etc. affects the growth status of toddlers. Healthy marriage is an important element of support because it supports both the mother and the mother child relationship. A healthy stable environment also helps with the baby's brain development. Mothers have specific ideas for helping a child to develop literacy skills, which include exposing a child to books when he is a toddler. Read and talk with him ask him simple questions such as what is that which helps him in improving the skills. Mothers' poor knowledge especially regarding growth of the child and poverty may result in low growth for the entire growth period resulting in stunted stature. The studies conducted on assessment of growth pattern of children revealed that many children are deviated from the normal growth and development pattern due to socio-economic and cultural factors etc.

A study was conducted to assess the knowledge of mothers regarding relationship of nutrients on growth among pre-school children. A considerable proportion of mothers reported that because of poor knowledge of nutrition there is an attribution to a lack of weight and feeding problems for their children. Among the low income mother studied, nutrition related anticipatory guidance was not consistently recalled.

Pediatric health nurse is an effective agent to educate the community regarding various factors that influence the growth of toddlers. Since family is the first social environment for the infant and later for toddler, mother is an important primary health care provider and depending to the quality of this relation will evolve the adult. Poor knowledge of mothers regarding growth and development of a child may interfere with child's normal growth and development. Hence the investigator felt the need to assess the knowledge of mothers regarding growth and developmental pattern of their toddlers' and hence to prepare a self instruction module for mothers based on their learning needs which will guide them to identify the normal patterns of growth and development and deviations in normal growth and development of a child in its early stage.

A study was conducted to determine the mothers' knowledge regarding child development in Turkey. Results suggested that mothers believed 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

Studies on child growth and development have always occupied an important position in the scientific research curriculum and are of interest to the researchers. The growth of children in a population reflects their nutritional status and indirectly determines their standard of living.

India has several socially disadvantaged communities and scheduled tribes are the most deprived ones. The tribal population, which constitutes 8.08 percent of the total population, is characterized by widespread poverty, illiteracy, malnutrition, lack of safe drinking water and hygienic conditions, which are the contributing factors for their dismal health conditions.

## 2. NEED FOR THE STUDY

Children constitute a major proportion of the global population today. Children constitute the most important and vulnerable segment of our population. They are truly the foundation of India. The future of our nation depends on the way we nurture our children today. In any community children and mothers constitute a priority group. They comprise approximately 70% of the developing countries. Nutritional status is a Major determinant of the health and well being of children. Nutrition of the preschool children is of paramount importance because the foundation for life time, health strength and intellectual vitality is laid during that period. Though many target programs have been oriented in our country, central level and state level, to control the Malnutrition among the vulnerable groups in India, Malnutrition among children continues to be a cause for serious concern. Malnutrition is increasingly recognized as a prevalent and important health problem in many developing countries. This problem has serious long term consequences for the child and adversely influences their development. Poor nutrition or malnutrition is caused by not getting the proper nutrients needed for normal growth and development. Undernourished children do grow to their full potential of physical and mental abilities. Malnutrition makes the child more susceptible to infection and recovery is slower and mortality is higher. Over the past two decades, there has been a substantial and progressive decline in infant and child mortality rates in India. There has also been a significant reduction in the prevalence nutritional deficiency disorders. It is therefore important that increasing attention is now paid to the nutritional status of the survivors.

Iron deficiency anemia can be seen in all age groups. “Big Four” among the PEM and vitamin A deficiency occur mostly among preschool children. Anemia is prevalent in all groups but highest prevalence being among preschool children and pregnant women. These diseases if untreated or not prevented may lead to many disabilities. PEM results in poor growth and development among children. Vitamin A deficiency when it becomes severe leads to nutritional blindness, anemia leads to impaired work, capacity and impaired resistance to infection. Mild to moderate protein energy malnutrition is much more prevalent than severe PEM with 1.74 million children under five in the developing world with low weight for age and 230 million with low height for age with 1999.

According to Grindel C.G. and Costello M.C, Nutrition plays a significant role in preventing the incidence and prevalence of diseases and more importantly promoting health. Nutrition screening

is an important tool used by nurses and dieticians to identify and assess the children at risk for nutritional compromise. Information regarding nutrition status of the children can be obtained by anthropometric measurement, clinical assessment, biochemical values, and 24 hours dietary recall of children. Knowledge regarding nutritional status of the children urban and rural community makes.

## 3. OBJECTIVE

- Assess the physical growth of school going children.
- Assess the nutritional status of school going children
- Association physical growth and nutritional status of school going children with the socio-demographic variables
- Develop and test self instructional module on physical growth and nutrition of school going children.

## 4. HYPOTHESIS

**H1**-a) There will be significant association between physical growth and nutritional status of school going children with type of family

**H1**-b) there will be significant association between physical growth and nutritional status of school going children with family income.

**H1**-c) there will be significant association between physical growth and nutritional status of school going children with education of parents.

**H1**-d) There will be significant association between physical growth and nutritional status of school going children with age of children.

**H1**-e) There will be significant association between physical growth and nutritional status of school going children with weight of children.

**H1**-f) There will be significant association between physical growth and nutritional status of school going children with immunization of children.

**H1**-g) There will be significant association between physical growth and nutritional status of school going children with diet of children.

**H1**-h) There will be significant association between physical growth and nutritional status of school going children with number of children.

## 5. REVIEW OF LITERETURE

"A review of literature on the research topic makes the researcher familiar with the existing studies and provides a foundation upon which to base new knowledge. It involves the systematic identification, location, scrutiny and summary of written materials that contain information on a

research problem" **(Polit&Hungler, 1999)**

Literature means writings and a body of literature refers to all the published writings in a particular style on a particular subject. A review of the literature is an essential part of one's academic research project. The review is a careful examination of a body of literature pointing toward the answer to your research question. Literature reviewed typically includes scholarly journals, scholarly books, authoritative databases and primary sources. Sometimes it includes newspapers, magazines, other books, films, and audio and video tapes and other secondary sources. Primary sources are the origin of Information under study, fundamental documents relating to a particular subject or idea. Often they are firsthand accounts written by a witness or researcher at the time of an event or discovery. These may be accessible as physical publications, as publications in electronic databases, or on the Internet. Secondary sources are documents or recordings that relates to or discuss information originally presented elsewhere. These, too, may be accessible as physical objects or electronically in databases or on the Internet. All good research and writing is guided by a review of the relevant literature.

**Bronner YL. (1996)** conducted a study to explore the relationship between nutritional status outcomes among ethnically diverse children and cultural and environmental contexts. Articles from the body composition measure, diet, and physiologic outcomes among ethnically diverse children were identified through on-line literature searches and references from articles reviewed. These studies were critically reviewed and selected if they reported findings resulting from use of accepted methodologies. Explanations consistent with evaluation of results from the studies and reports were developed by synthesis of the findings. Children from underserved, ethnically diverse population groups were at increased risk for obesity, increased serum lipid levels, and dietary consumption patterns that do not meet the Dietary Guidelines for Americans. More than 80% of all US children consume more than the recommended amount of total fat and saturated fat. These factors, which were noted during childhood, may track into adolescence, placing these children at increased risk for the early onset of chronic diseases such as non-insulin-dependent diabetes mellitus, cardiovascular disease, hypertension, and some forms of cancer. Although federally funded food assistance programs are changing rapidly, currently they provide foods that, when eaten as recommended, exceed the Dietary Guidelines for these children. Future interventions to improve the health and nutritional status of our nation's children, especially those from underserved, ethnically diverse groups should be culturally appropriate and implemented at the levels of individuals, families, and communities.

**Srihari G, Eilander A, Muthayya S, Kurpad AV, Seshadri S(.2007)** Study showed that anemia prevalence (haemoglobin concentration <120 g/L) ranged from 19 to 88% across five different cities in India. Other micronutrient deficiencies including, folate, riboflavin, in one study and clinical signs of deficiency in three other studies Overweight and obesity were prevalent among 8.5-29.0% and 1.5-7.4% respectively among school children, as indicated by 11 studies.

Predominant components in children's diet were cereals and pulses, followed by milk and milk products; the fruits and vegetables component was comparatively lower. Nutritional status of MHSES children in India needs attention especially with respect to the high prevalence of anemia, overweight and obesity. There are indications that micronutrient deficiencies exist, but sufficient data are lacking, in particular biochemical data. A current estimate, using well designed methodologies, of prevalence of micronutrient deficiencies and information on the etiology of anemia among children of middle and high socio economic status (MHSES) groups would be valuable to help understand the nutritional status and extent of micronutrient malnutrition.

Malnutrition affects the mental development of the children, according to the studies reviewed by tropical metabolism research unit, conversation of the West Indies Kingston to find out the effect of severe malnutrition on mental development – severely malnourished children demonstrate marked behavioural disorder in the acute stage. They are more apathetic, less active and explore their development – less both in quantity and complexity than children who are with other disease mohl. K.J. Nutrition Research centre, Houton USA Conducted a study to assess the nutritional status of children in hospital and in the field. This study serves as a guide to early nutritional interventions. Indicators for early nutritional intervention are-Height for age and weight for height or age, Height for age measurements less than 95% of expected height, Weight for height Early nutritional intervention is essential to restore normal body composition

**Lawrence U.S.(2008)** Conducted a study to determine the pattern of physical growth and nutritional impact on it in low socio economic semi urban town in Nigeria .Anthropometric data was collected with BMI height and weight was compared with the reference population the result showed thinness and stunning were higher in boys than girls.

**Lastra – ES Cudero L-G (1996)**conduted a cross sectional study to evaluate malnutrition prevalence of children under five in Mexico in 31 urban and 562 rural area. According to the report of study concluded by Mattos A, Morais, M (1999) Department of pediatrics, university of Paulo scholabraid to evaluate the nutritional status and dietary habits of Indian children. (< 10 years of age) of Altoxingu tribes. Result was of 103 children less than 5 years of age 23% percentile protein energy malnutrition according to Gomez's 2'S criteria of which only 2% with grade II malnutrition and no child presented severe PEM.

**Sudesh Joodetal (1995)** According to the study conducted by the Department of foods and nutrition, Haryana Agricultural University on 90 rural preschool children in 4 areas of Haryana state to assess the nutritional status of preschool children the mean of the daily intake of all nutrients were found lower than their respective recommended dietary intake, (RDI) mean of height and weight of 10 children were found lower in two areas when compared to their reference values. On the basis of weight for age and height for age criteria as well as clinical examination majority of children were normal in one village. That the current mid-day meal programs me in India should be viewed more as a feeding programme rather than a nutritional programme since its primary objective is to alleviate hunger and improve school attendance and enrolment.

A study was conducted by College of Nursing, MAHE, Manipal, Karnataka to determine the physical health status of pre-school children in a village of Udupi district of Karnataka state in 1998. The objectives were to assess the physical health status of children to asses' birth order of the child, number of siblings of the child, gender of the child, child care arrangements and socio-economic status of parents and to find out the association between physical health statuses of pre-school children. The study used system's model and Co-relational survey. Data were collected from 100 samples. A significant association was observed between the physical health status of the children and the employment status of the mother [chi square = 4.003, $p < 0.05$], and no significant association was found between physical health status and age of parents, educational status of parents, birth order of the child, number of siblings of the child, gender of the child, child care arrangements and socio economic status of parents.

In a study conducted by AIMS, A under Integrated Child Development Services (ICDS) scheme is the largest national programme for the promotion of the mother and child health and their development in the world. The beneficiaries include children below 6 years. The package of services provided by the ICDS scheme includes supplementary nutrition, immunization, health check-up and pre-school education the scheme services are rendered essentially through the Anganwadi worker (AWW) at a village

## 6- CONCEPTUAL FRAME WORK

**Dr. Nola J. Pender** had formulated conceptual framework used in this present study on the health promotion model. The model is similar in construction to the health belief model but is not limited to explaining disease prevention behavior and expands to encompass behavior for enhancing health. **Dr. Nola J. Pender's** background in human development, experimental psychology, and education accounts for this foundation of social psychology and learning theory for her health promotion model. The health promotion model has three variables that serve to influence the individual to engage in health promoting behavior: activity related affect, commitment to a plan of action and immediate competing demand and performance. The health promotion model serves the function of identifying concept relevant to health promoting behaviors and integrating research

## 7. METHODOLOGY

This chapter deals with the methodology adopted for assessing the physical growth and nutritional status of school going children. It includes the description of research approach, research design, setting of study sample and sampling technique and development of data collection, tools, observational programme and procedure for data collection and plan for data analysis. Further the study is also aimed to determine the living standard, education of father and mother, occupation of mother and father, income, illness of child, place of delivery, age of children, sex, vaccination,

tendency to go to school, number of children ,diet, food decision, total number of children in home, responsibilities of feeding, exercise, members in family.

## RESEARCH APPROACH

The choice of research approach constitute of the major decisions, which must be made in conducting a research study. Research approach is a systemic, objective method of discovery with ethnical evidence and rigorous control. The control is achieved by holding conditions and varying only the phenomenon under study. This approach permits to find out the problem by observational method and evaluative approach. In this present study the investigator wish to assess the gain in knowledge of mothers after the administration of self-instructional module on growth and nutritional status of school going children (9-12yrs). Evaluative approach helps to explain the effect of independent variable on the dependent variable.

## RESEARCH DESIGN

The research design is the back bone of the structure of study. It provides a framework that supports the study and holds it together. **Polit** and **Hungler** 1995 stated the research design incorporates the most important methodological design that make in conducting a research study. In the present study the investigator selects the non experimental research design to observe the physical growth and nutritional status and its relationship and administer a self-instructional module to assess the gain in knowledge regarding growth and nutrition of school going children (9-12yrs). The investigator selected the middle and primary school of Government and private school, that are Pre-Primary Training Institute Non experimental and survey research design was considered appropriate for the present study to identify the relationship of physical growth and nutritional status of school going children. The research design used in the study is the pre-experimental single group pre-test, post- test design.

## 8. ANALYSIS AND INTERPRETESION

### FREQUENCY AND PERCENTAGE OF DEMOGRAPHIC VARIABLES (n=500)

| S.NO | VARIABLES | 9yrs | 10yrs | 11yrs | 12yrs | FREQ-UENCY (N) | PERCEN TAGE (%) |
|---|---|---|---|---|---|---|---|
| **1.** | **Type of family** | | | | | | |
| | Nuclear | 65 | 80 | 83 | 74 | 302 | 60.4% |
| | Joint | 60 | 45 | 42 | 51 | 198 | 39.6% |
| **2** | **Occupation of mother** | | | | | | |
| | Agriculture | 5 | 23 | 13 | 16 | 57 | 11.4% |
| | Labor | 4 | 13 | 15 | 13 | 45 | 9% |
| | No work | 41 | 37 | 41 | 40 | 159 | 31.8% |
| | Business | 32 | 26 | 22 | 25 | 105 | 21% |
| | Private | 43 | 26 | 34 | 31 | 134 | 26.8% |
| | **Occupation of father** | | | | | | |
| | Agriculture | 34 | 28 | 30 | 31 | 123 | 24.6% |
| | Labor | 30 | 29 | 30 | 33 | 122 | 24.4% |
| | No work | 2 | 5 | 3 | 4 | 14 | 2.8% |
| | Business | 27 | 33 | 31 | 29 | 120 | 24% |
| | Private | 32 | 30 | 31 | 28 | 121 | 24.2% |
| 3 | **Family Income** | | | | | | |
| | Rs1-Rs5000 | 4 | 5 | 10 | 2 | 21 | 4.2% |
| | Rs5001-Rs10000 | 57 | 54 | 56 | 56 | 223 | 44.6% |
| | More than 10000 rupees | 64 | 66 | 59 | 67 | 256 | 51.2% |
| 4 | **Education of parents** | | | | | | |
| | Illiterate | 2 | 3 | 3 | 2 | 10 | 2% |
| | Primary School | 9 | 13 | 23 | 22 | 67 | 13.4% |
| | Middle School | 46 | 38 | 45 | 36 | 165 | 33% |
| | Intermediate | 40 | 36 | 34 | 31 | 141 | 28.2% |
| | Graduate | 26 | 26 | 13 | 20 | 85 | 17% |
| | Postgraduate | 2 | 19 | 3 | 8 | 32 | 6.4% |
| 5 | **Treatment of the child** | | | | | | |
| | Home treatment | 40 | 33 | 23 | 28 | 124 | 24.8% |
| | Private Doctors | 38 | 39 | 33 | 40 | 150 | 30% |
| | Government Doctors | 34 | 44 | 59 | 49 | 186 | 37.2% |
| | Ayurvedic | 13 | 9 | 10 | 8 | 40 | 8% |
| 6 | **Place of delivery of child** | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Home | 39 | 63 | 69 | 79 | 250 | 50% |
| | Hospital | 86 | 62 | 56 | 46 | 250 | 50% |
| 7 | **Age of children** | | | | | | |
| | 9yrs | 125 | 0 | 0 | 0 | 125 | 25% |
| | 10yrs | 0 | 125 | 0 | 0 | 125 | 25% |
| | 11yrs | 0 | 0 | 125 | 0 | 125 | 25% |
| | 12yrs | 0 | 0 | 0 | 125 | 125 | 25% |
| 8 | **Sex** | | | | | | |
| | Male | 50 | 44 | 48 | 45 | 187 | 37.4% |
| | Female | 75 | 81 | 77 | 80 | 313 | 62.6% |
| **9** | **Immunization status of children** | | | | | | |
| | Vaccinated | 118 | 119 | 119 | 120 | 476 | 95.2% |
| | Partially vaccinated | 4 | 4 | 3 | 4 | 15 | 3% |
| | Not vaccinated | 3 | 2 | 3 | 1 | 9 | 1.8% |
| **10** | **willingness to go to school** | | | | | | |
| | Happily | 96 | 104 | 103 | 106 | 409 | 81.8% |
| | Through pressure | 20 | 16 | 11 | 14 | 61 | 12.2% |
| | No tendency | 3 | 5 | 11 | 5 | 24 | 4.8% |
| **11** | **Diet of children** | | | | | | |
| | Vegetarian | 77 | 46 | 59 | 53 | 235 | 47% |
| | Non-vegetarian | 48 | 79 | 66 | 72 | 265 | 53% |
| 12 | **Number of children** | | | | | | |
| | 1 | 16 | 17 | 8 | 16 | 57 | 11.4% |
| | 2 | 46 | 43 | 39 | 46 | 174 | 34.8% |
| | 3 | 40 | 32 | 49 | 42 | 163 | 32.6% |
| | 4 | 14 | 16 | 14 | 11 | 55 | 11% |
| | >5 | 9 | 17 | 15 | 10 | 51 | 10.2% |

**Table no. 1**- Indicates frequency, percentage of demographical variables of school going children, in which majority of students 302 belong to the nuclear family, majority of mothers 159 were house wife, and majority of father 122 out of 500 are labour, family income majority belong to more than 10000 / - Rs. month were the education of parents 165 belong to middle school and majority 186 children treated by govt. Doctor, place of delivery of child 250 in home and 250 in hospital, out of 500 children 125 belongs to 9 years, 125 (10 yrs.) , 125 (11 yrs.) And 125 (12 yrs.), 476 children are immunized, were 409 children go to school happily, most of the children 265 are non vegetarian, maximum family have 2 children.

**Table no. 2**

**TYPE OF FAMILY (n=500)**

| FAMILY TYPE | AGE OF THE CHILDREN | | | | FREQUENCY | PERCENTAGE |
|---|---|---|---|---|---|---|
| | 9 yrs | 10 yrs | 11 yrs | 12 yrs | | |
| **Nuclear** | 65 | 80 | 83 | 74 | 302 | 60.4% |
| **Joint** | 60 | 45 | 42 | 51 | 198 | 39.6% |

**Table no. 2 –** Indicates type of family, 60.4 % (n=302) belong to nuclear family in that majority (n=83) are of 11 years; 39.6% (n=198) belong to joint family, in that majority (n=60) are of 9 years.

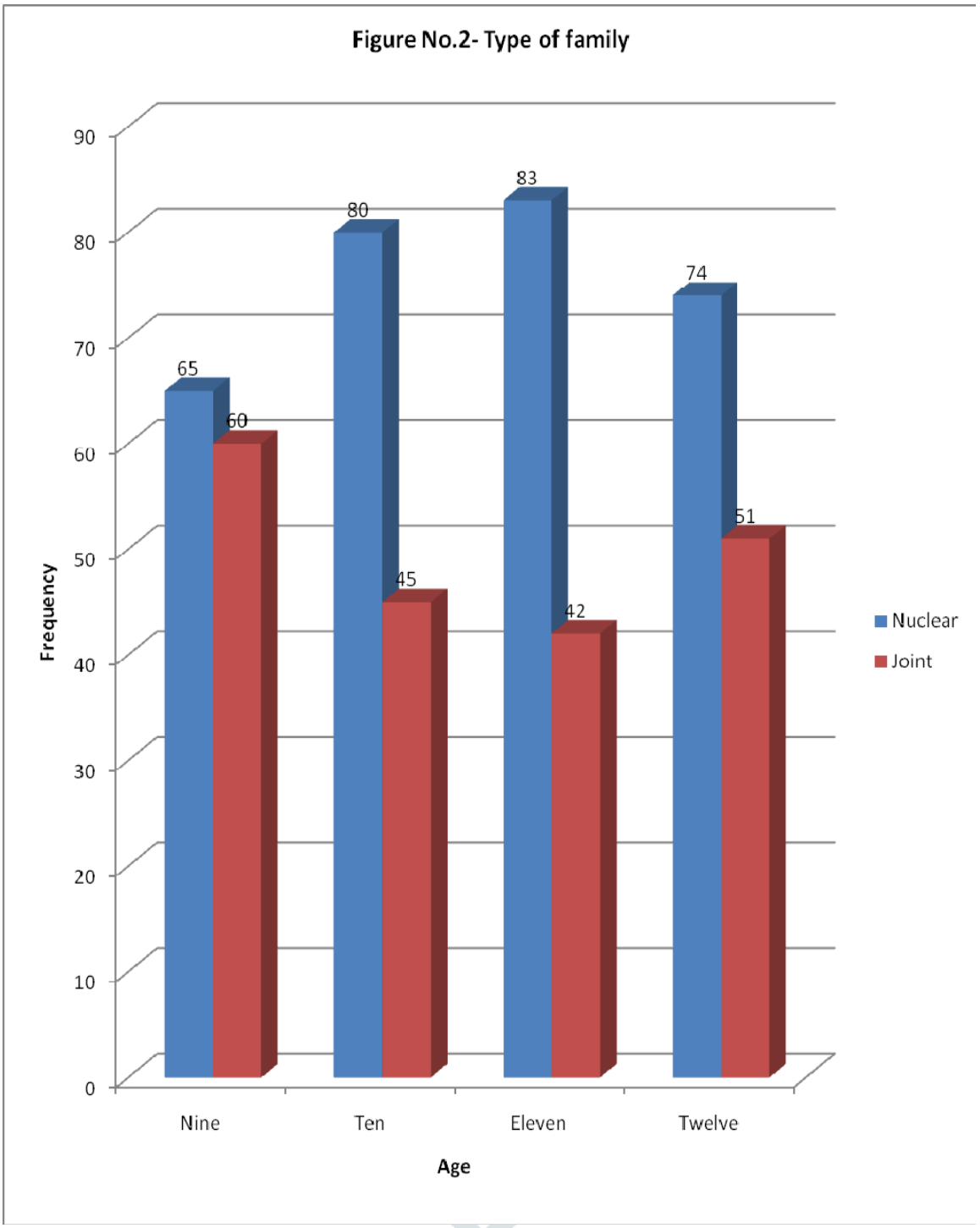


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**Table no. 3**

**OCCUPATION OF MOTHER (n=500)**

| OCCUPATION OF MOTEHR | AGE OF THE CHILDREN | | | | FREQUENCY | PERCENTAGE |
|---|---|---|---|---|---|---|
| | 9 yrs | 10 yrs | 11 yrs | 12 yrs | | |
| Agriculture | 5 | 23 | 13 | 16 | 57 | 11.4% |
| Labor | 4 | 13 | 15 | 13 | 45 | 9% |
| Unemployed | 41 | 37 | 41 | 40 | 159 | 31.8% |
| Business | 32 | 26 | 22 | 25 | 105 | 21% |
| Private | 43 | 26 | 34 | 31 | 134 | 26.8% |
| TOTAL | | | | | 500 | 100% |

**Table no. 3 –** Indicates occupation of mother, mothers of 11.4% (n=57) work in agricultural fields, in that majority of children (n=23) are of 10 years; mothers of 9% (n=45) work as labours, in that majority of children (n=15) are of 11 years; mothers of 31.8% (n=159) do not work, in that majority of children (n=41) are of 9 years and 11 years respectively; mothers of 21% (n=105) have their business, in that majority of children (n=32) are of 9 years; mothers of 26.8% (n=134) work in private, in that majority of children (n=43) are of 9 years.

**Figure no.: 3**

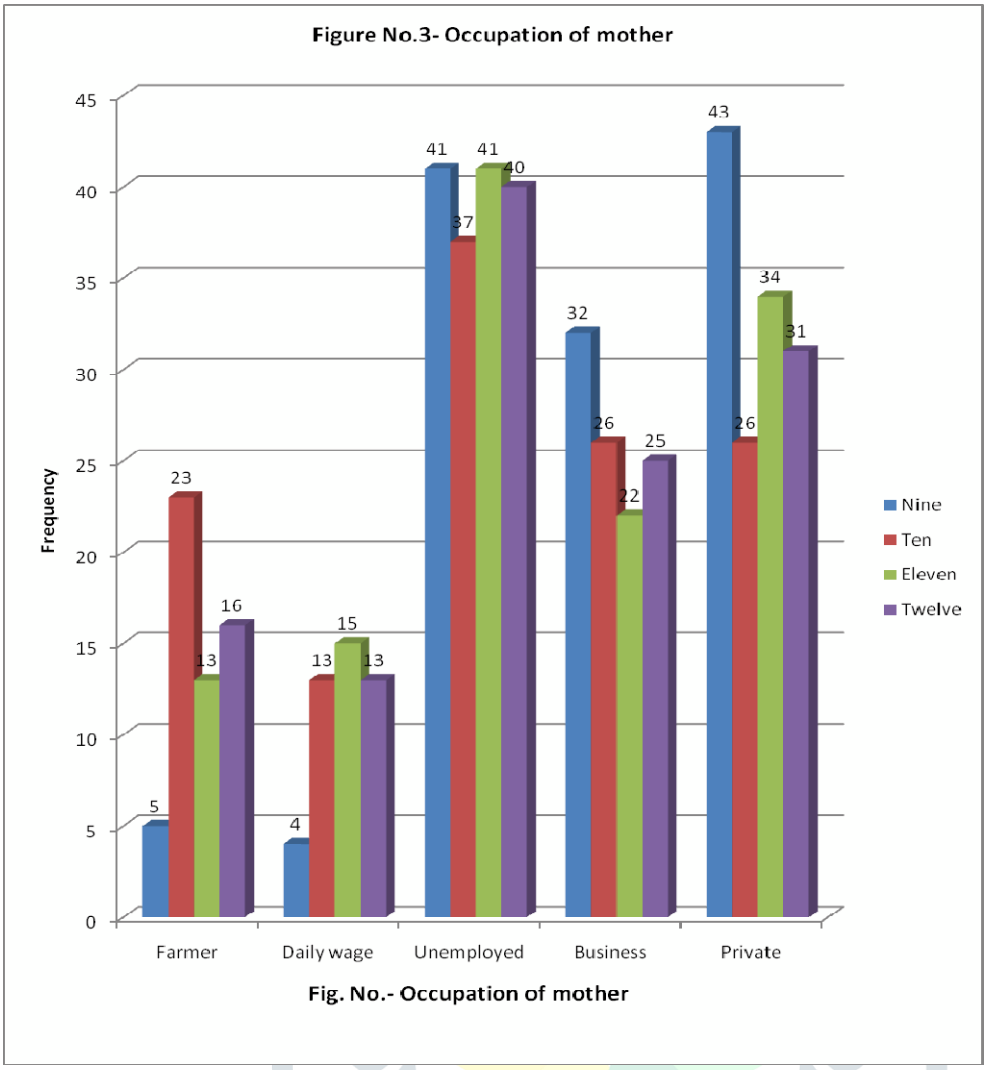


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**Table no. 4**

**OCCUPATION OF FATHER**

| OCCUPATION OF FATHER | AGE OF THE CHILDREN | | | | FREQUENCY | PERCENTAGE |
|---|---|---|---|---|---|---|
| | 9 yrs | 10 yrs | 11 yrs | 12 yrs | | |
| Agriculture | 34 | 28 | 30 | 31 | 123 | 24.6% |
| Daily wages | 30 | 29 | 30 | 33 | 122 | 24.4% |
| Unemployed | 2 | 5 | 3 | 4 | 14 | 2.8% |
| Business | 27 | 33 | 31 | 29 | 120 | 24% |
| Private | 32 | 30 | 31 | 28 | 121 | 24.2% |
| TOTAL | | | | | 500 | 100% |

**Table no. 4 –** Indicates occupation of father, fathers of 24.6% (n=123) work in agricultural fields, in that majority of children (n=34) are of 9 years; fathers of 24.4% (n=122) work as labourers, in that majority of children (n=33) are of 12 years; fathers of 2.8% (n=14) do not work, in that majority of children (n=5) are of 10 years; fathers of 24% (n=120) have their business, in that majority of children (n=33) are of 10 years; fathers of 24.2% (n=121) work in private, in that majority of children (n=32) are of 9 years.

**Figure no.: 4**

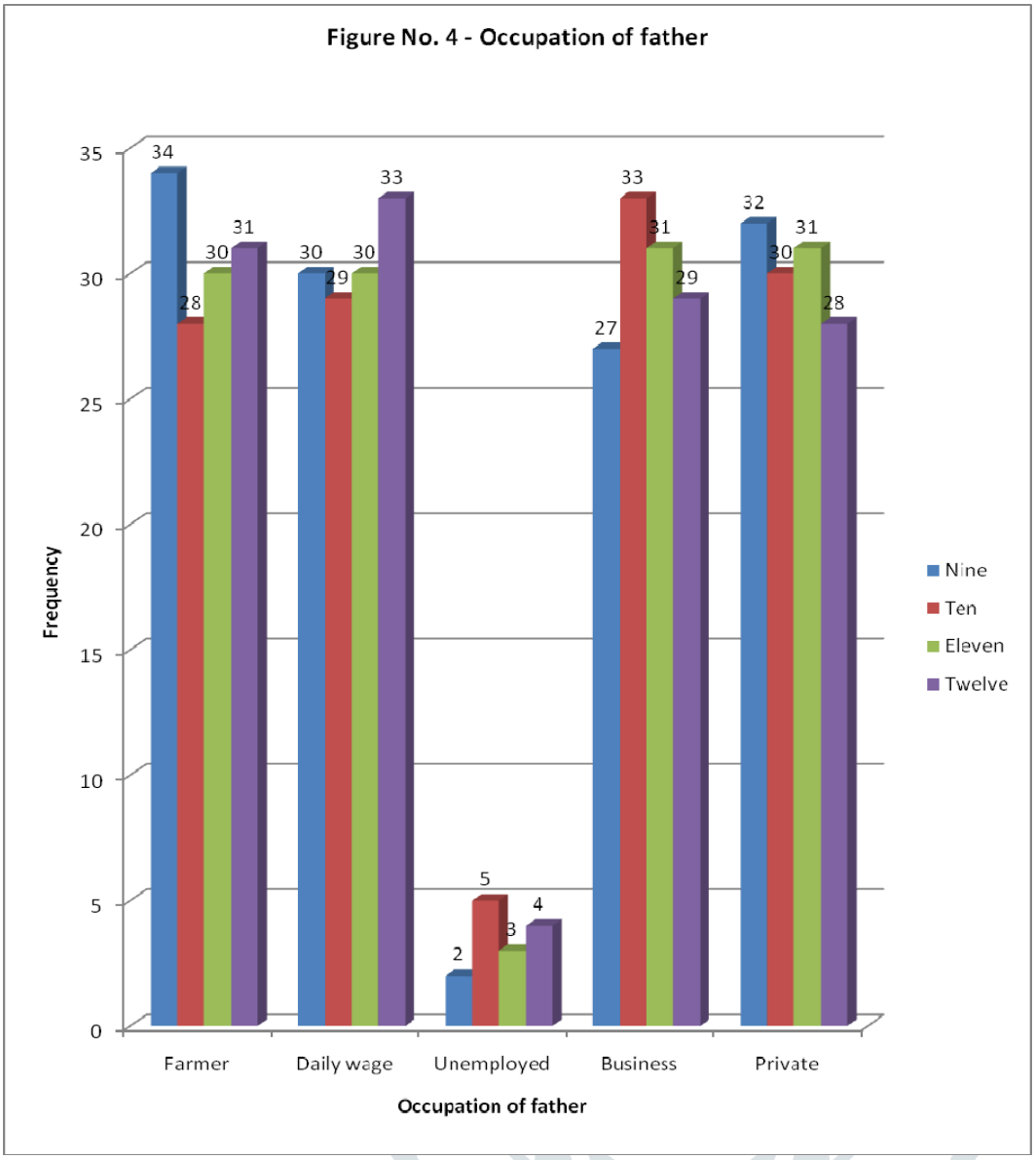


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**Table no.5**

**FAMILY INCOME (n=500)**

| FAMILY INCOME | AGE OF THE CHILDREN | | | | FREQUENCY | PERCENTAGE |
|---|---|---|---|---|---|---|
| | 9 yrs | 10 yrs | 11 yrs | 12 Yrs | | |
| 1-5000 Rs. | 4 | 5 | 10 | 2 | 21 | 4.2% |
| 5001-10000 Rs. | 57 | 54 | 56 | 56 | 223 | 44.6% |
| More than 10000 Rs. | 64 | 66 | 59 | 67 | 256 | 51.2% |
| TOTAL | | | | | 500 | 100% |

**Table no. 5 –** Indicates family income, 4.2% (n=21) children have their family income between Rs 1- 5000, in that majority (n=10) are of 11 years; 44.6% (n=223) children have their family income between Rs 5001- Rs10000, in that majority (n=57) are of 9 years; 51.2% (n=256) children have their family income more than 10000 rupees, in that majority (n=67) are of 12 years.

## 9. MAJOR FINDING OF THE STUDY

**Findings related to the physical growth of school going children**

Among 500 school going children

**Weight of the children;** the weight of the children 24% are below 26 kgs, in that majority are of 9 years; 44% are between 26.1- 32 kgs, in that majority are of 10 years; 27.6% are between 32.1-38 kgs, in that majority are of 11 years and 12 years respectively; 4.8% are above 38 kgs, in that majority are of 9 years.

**Height of child**; the height of the children is 33% are below 130 cms, in that majority are of 9 years; 36.4% are between 131- 135 cms, in that majority are of 12 years; 25% are between136 -140 cms, in that majority are of 11 years and 12 years respectively; 5.6% are above 140 cms, in that majority are of 10 years and 12 years respectively.

**Head circumference;** the head circumference of the children in which 30.6% are below 50 cms, in that majority are of 9 years; 44.6% are between 50.1- 52 cms, in that majority are of 11 years; 20% are between 52.1-54 cms, in that majority are of 12 years; 4.8% are above 54.1cms, in that majority are of 12 years

**Chest circumference**; the chest circumference of the children in which 19.8% are between 65cms- 68 cms, in that majority are of 9 years; 53.8% are between 68.1cms-71cms, in that majority are of 10 years; 22.2% are between 71.1cms -73 cms, in that majority are of 11 years; 7.8% are above 73.1cms, in that majority are of 9 years. It is seen

that weight, height, head circumference and chest circumference are associated with the age of child. This finding is supported by a study conducted by **Saraswati c Hunshalet. al**

## 10. CONCLUSION

Summary includes the objective, hypothesis, tool used for study. Human growth from infancy to maturity involves great changes in body size and appearance. The growth process is not a steady one: at some times growth occurs rapidly, at others slowly. Individual patterns of growth vary widely because of differences in heredity and environment. Children tend to have physiques similar to those of their parents or of earlier forebears; however, environment may modify this tendency. Living conditions including nutrition and hygiene, have considerable influence on growth. Growth and development goes side by side, and both have profound effect upon each other. When a child is born, he passes through various stages and ultimately a whole picture of a person emerges. Growth refers to an increase in physical size of the whole body or any of its parts. It is simply a quantitative change in the child's body. It can be measured in Kg, pounds, meters, and inches. The assessment of growth and development is very helpful in finding out the state of health and nutrition of a child. Continuous normal growth and development indicate a good state of health and nutrition of a child. Abnormal growth or growth failure is a symptom of disease. Hence, measurement of growth is an essential component of the physical examination. The process by which living organisms obtain food and use it for growth, metabolism, and repair The stages of nutrition include ingestion, digestion, absorption, transport, assimilation, and excretion. A balanced diet for children should include a variety of healthful fruits and vegetables, grain products, lean proteins and dairy products.

A poor diet can cause several physical problems in children. A diet too high in fat and calories can lead to obesity, which interferes with physical fitness but also raises the risk of heart disease, diabetes and cancer. A diet lacking in proper nutrition can also result in stunted growth and bone disorders. Lack of a nutritious diet also effects energy for physical pursuits.

## 13 - DELIMITATIONS

Study is delimited to area of Bangalore

- Age group 9-12 yrs
- Period of data collection is one month
- Sample size is 500 only
- Observational tool is used on students present in class

## 14. REFERENCES:

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