WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 11, Issue 3, 1379-1391. Research Article ISSN 2277– 7105

ASSESSMENT OF NUTRITIONAL STATUS AND PARENTS KNOWLEDGE AND ATTITUDE OF NUTRITIONAL CONSUMPTION AMONG CHILDREN LESS THAN FIVE YEARS OF AGE

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Article Received on
26 December 2021,

Revised on 15 Jan. 2022,
Accepted on 04 Feb. 2022

DOI: 10.20959/wjpr20223-23157

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ABSTRACT

Background: Children below the age of 5 are known to be vulnerable and susceptible to nutritional deficiencies and malnutrition more than any other age group. Good nutrition is the fundamental pillar for the maintenance of positive health. Achieving balanced and proper nutrition is one of the most important health objectives in the early years of a child's life. **Objectives:** The objectives of this study are to assess the parent's knowledge, attitude and the nutritional status of their children. **Methodology:** A descriptive cross sectional study was conducted for in the urban areas of Bangalore, India. The study population is made up of children less than five years of age and their parents who are permanent residents of the study area. The Parents of the children gave informed consent for participation of their children prior to administration of the questionnaire. Modified questionnaire on nutrition knowledge, attitude and practices was used in data collection. **Results:** In our study there was a significant correlation between nutritional knowledge (KAP) of parents and nutritional practice of their children. The parents who had high education had a good nutritional knowledge and attitudes. Most of the parents had good attitudes towards the importance of nutrition. Majority of mothers had some knowledge about nutrition. Age, level of education, and occupation were significantly related to knowledge level. **Conclusion:** The Research demonstrated that there is appropriate feeding practice among children under-five compared to the recommend standard, which is mostly due to parents knowledge, attitude and practice about young children feeding.

KEYWORDS: Parents, Children, Knowledge, Attitude, Nutritional Status.

BACKGROUND

Nutritional intake has a special direct effect on children's health due to their physical and mental growth as well as cognitive development. Furthermore, it has long-term effects on general health status through formation of life-long eating behaviors in children.[1,2] However, the majorities of children do not meet recommended standards of dietary guidelines and are devoid of healthy dietary habits.[3] Malnutrition is a global problem that is widely seen in the present times. Children below the age of 5 are known to be vulnerable and susceptible to nutritional deficiencies and malnutrition more than any other age group. Good nutrition is the fundamental pillar for the maintenance of positive health.[4] Achieving balanced and proper nutrition is one of the most important health objectives in the early years of a child's life.[5] Nutrition knowledge is defined as the understanding of different types of food and how food nourishes the body and influences body health.[6]

Healthy eating habits in children are important in preventing under nutrition, growth retardation, and acute child nutritional problems. In addition, it is important to preventing chronic, long term health problems such as; obesity, coronary heart disease, type-2 diabetes, and stroke.[7] Food consumption behavior however, is complex and focusing on single food or nutrients does not take into account the complexity of food-consumption patterns and their multidimensional nature.[8,9] Studies on the determinants of food-consumption patterns in children are important; however, more insight into correlations with these patterns might help identify specific target groups and determinants for interventions. The dietary guidelines for preschool children not only include an adequate intake of the main foods such as fruits and vegetables, but also encourage moderation, especially in intakes of nutrient-poor energy-dense foods.[10]

Under nutrition explains around 45% of deaths among children under five, mainly in low and middle-income countries.[11] Wasting and stunting are associated with increased mortality, especially when both are present in the same child.[12] It is becoming increasingly clear that children who are wasted are more likely to become stunted and children who are stunted are more likely to become wasted.[13] There are about two billion children under five years and adults who are deficient of vitamins and minerals which can lead to greater susceptibility to many diseases resulting in higher mortality rate.[14] Moreover, one third of deaths among children less than five years of age are attributable to malnutrition, most of which is associated with inappropriate feeding practices that occurs during the first year of life.[15]

Malnutrition in girl child could lead to poor obstetrics outcome when they are having children later in life. Other consequences include delayed sexual development, reduced muscle mass and strength weakened immune system and increased lifetime risk of osteoporosis.[16]

One of the most critical factors for children's health and development is their nutritional status. The burden of malnutrition across the world remains unacceptably high and progress unacceptably slow. According to Global Nutrition Report 2018, children under five years of age face multiple burden of malnutrition with 150.8 million stunted, 50.5 million wasted and 38.3 million overweight. Meanwhile 20 million babies are born with low birth weight each year. Children who are undernourished are less able to fight infections and more likely to die young. Malnutrition is the underlying cause of more than 50% of under-five deaths.[17]

Our country faces the burden of diseases in which nutritional deficiencies are the most common. The prevalence of underweight children in India is among the highest in the world. Knowledge of mothers has an important role in the maintenance of nutritional status of the children. For these mothers has to be made more aware about feeding practices of children and other health-care practices.[18] Adequate nutrition knowledge, positive attitudes and perceptions, and good practices of parents on infant and young child feeding (IYCF), among others, are essential for the optimal growth of children.[19]

The early stages of a child's life, when all parts of the infant are growing physically, mentally and socially, are very important, which requires an optimal supply of energy and nutrients to the body.[20,21] Therefore, knowledge, attitude and practice (KAP) of mothers/caregivers on infant and young child feeding in this critical time are very important for the child health, growth and development.[22–25] Hence this study was done to assess the knowledge, attitude and practices of young child feeding and nutritional status of children in urban parts of Bengaluru.

MATERIALS AND METHODS

Study design: A descriptive cross sectional study

Study Period: 6 months

Study Sites: Bengaluru, India

Study Population: 150

Inclusion Criteria

- Parents of children who are below 5 years of age of both genders.
- Parents residing in urban population of Bangalore having child or children.
- Parents of children who are willing to take part in the study.

Exclusion Criteria

- Those parents who are not willing to give informed consent
- Those parents whose children are above the age group of five years.
- Those parents who are not in clear state of mind requires special attention and unable to participate in the study.

Proceedure

- The study was conducted in urban areas of Bengaluru, India.
- The study was approval by the Institutional Ethical Committee (IEC).
- The study population is made up of children less than five years of age and their parentswho are permanent residents of the study area.
- The Parents of the children gave informed consent for participation of their children prior to administration of the questionnaire.
- All the information collected during the survey is treated as confidential and used for the study purpose only.
- Modified questionnaire on nutrition knowledge, attitude and practices was used in data collection.
- Data was collected on the social, demographic and household characteristics, young children feeding, and hygiene and sanitation practices.
- All the data collected were coded numerically and entered into the SPSS version 22.0 software program for the analysis. Descriptive statistical analysis was used to calculate the frequencies and percentages.
- For some analysis, Cronbach's alpha**,** α (or *coefficient alpha*), developed by Lee Cronbach in 1951, measures reliability, or internal consistency. "Reliability" is another name for consistency. Cronbach's alpha tests to see if multiple-question Likert scale surveys are reliable. These questions measure latent variables—hidden or unobservable variables like: a person's conscientiousness, neurosis or openness. These are very difficult to measure in real life. Cronbach's alpha will tell you how closely related a set of test items are as a group.

RESULTS

1. DEMOGRAPHIC DETAILS

The demographic details includes the age, gender of the participants, the education and employment status of the parents of the participants were collected from the urban sectors of Bengaluru.

(A) AGE GROUP OF PARTICIPANTS	
AGE GROUP	**NUMBER OF CHILDREN (%)**
1 YEAR OLD	10 (6.66%)
2 YEAR OLD	40 (26.6%)
3 YEAR OLD	55 (36.6%)
4 YEAR OLD	35 (23%)
5 YEAR OLD	10 (6.6%)
(B) GENDER OF PARTICIPANTS	
GENDER	**NUMBER OF CHILDREN (%)**
BOYS	110 (73.3%)
GIRLS	40 (26.6%)
(C) EDUCATION OF THE PARENTS OF PARTICIPANTS	
PARENTS EDUCATION	**RESULTS (%)**
A.Fathers education	
Illiterate	00 (0%)
Primary Education	30 (20%)
Diploma	50 (33.3%)
Bachelor and higher	70 (46.6%)
B.Mothers education	
Illiterate	00 (0%)
Primary Education	40 (26.6%)
Diploma	60 (40%)
Bachelor and higher	50 (33.3%)
(D) EMPLOYMENT STATUS OF THE PARENTS OF PARTICIPANTS	
PARENTS OCCUPATION	**RESULTS (%)**
A. Father	
1. Government Job	30 (20%)
2. Private Job	70 (46.6%)
3. Buisness	50 (33.3%)
B. Mother	
1. Job	50 (33.3%)
2. House wife	70 (46.6%)

2. Assessment of Parents Knowledge on Nutritional Consumption of Children

SL. No.	ITEMS	PROPORTION		Cronbach's Alpha Value
		YES	NO	
K1	Do you know nutrition's are obtained from foods and it is very important during this growing stage of young child?	123 (82%)	27 (18%)	0.826584
K2	Do you know proteins, fruits, vegetables, dairy products (such as lean meat, eggs, fruit juices, dark green vegetables etc.) are very important for the development of young Child's immune system and growth?	127 (84.6%)	23 (15.3%)	0.776452
K3	Do you know having processed foods, fried food and soft drinks as part of young child's frequent diet plan can increase chances in development of number of disease either in childhood or adult life (such as obesity, heart diseases etc.)?	90 (60%)	60 (40%)	0.718412
K4	Do you know malnutrition can effects the child's health Seriously (such as rickets, scurvy, beriberi, kwashiorkor etc.)?	76 (50.6%)	74 (49.3%)	0.712784
K5	Do you know lack of nutrition in meals can result in malnutrition?	96 (64%)	54 (36%)	0.735056

3. Assessment of Parents Attitude on Nutritional Consumption Of Children

Sl. No.	ITEMS	PROPORTION					Cronbach's Alpha Value
		STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE	
A1	Under nutrition affects the child's health seriously.	60 (40%)	43 (28.8%)	34 (22.2%)	8 (5.33%)	5 (3.33%)	0.842102
A2	An under nourished child is more susceptible to infection.	47 (31.3%)	57 (38%)	33 (22%)	8 (5.33%)	5 (3.33%)	0.873139
A3	Pulses & cereals should be included in the complementary food.	43 (28.6%)	63 (42%)	37 (24.6%)	7 (4.66%)	0	0.896899
A4	Feeding your child even when the child refuses to eat is Important.	42 (28%)	40 (26.6%)	38 (25.3%)	8 (5.33%)	22 (14.6%)	0.842580
A5	Providing different types of food every day to the child is not feasible.	18 (12%)	37 (24.6%)	42 (28.6%)	11 (7.33%)	41 (27.3%)	0.886586

4. Assessment of Nutritional Status of Participants

VARIABLE	FREQUENCY	PERCENTAGE
Weight For Height		
1.Severely Wasted	00	0%
2. Moderately wasted	10	6.66%
3. Normal	120	80%
4. Overweight/Obese	20	13.33%

Height for Age		
1. Severly stunted	00	0%
2.Moderately stunted	10	6.66%
3.Normal	110	73.3%
4. Tall	30	20%
Mid Upper Arm Circumference		
1.Severly Wasted	00	0%
2.Moderately Wasted	10	6.66%
3.Normal	140	93.3%

DISCUSSION

As there is limited data on the nutritional status, knowledge and attitude of Parents feeding their young children in Urban Bangalore, this study was done to assess the parent's knowledge and attitude of feeding their children and nutritional status. A total of 150 participants were enrolled in the study between the age group of 1-5 years. The children belonging to age group of 1 year were 10 (6.66%), 2 years were 40 (26.6%), 3 years were 55(36.6%), 4 years were 35 (23%) and 5 years were found to be 10 (6.66%). Among the total participants, 110 (73.3 %) were boys and 40 (26.6%) were girls. In our study 20% of the fathers were having primary education, 33.3% had diploma and 70% were having bachelor and higher degree and none were illiterate. 26.6% of mothers were having primary education, 40% were having diploma and 33.3% had Bachelor and higher degree. None of the mothers were illiterate. Among the Parents Occupation, 20% of fathers had a government job, 46.6% had a private job and 33.3% had business. 33.3% of mothers had a job and 46.6% were house wife.

On assessment of parents knowledge on nutritional consumption in children's less than 5 years of age, 123 (82%) of Parents answered yes and had good knowledge about K1 whereas 27 (18%) of Parents answered No and had poor knowledge About K1. This signifies that 82% of participants were aware that the nutrition is obtained from foods and it is very important during the growing stage of young child. 127 (84.6%) of parents answered yes and had good knowledge about K2 and 23(15.3%) of parents answered No and had poor knowledge About K2. This signifies that 84.6% of parents were aware that proteins, fruits, vegetables, dairy products (such as lean meat, eggs, fruit juices, dark green vegetables etc.) are very important for the development of young child's immune system and growth. Among the total participants, 90 (60%) of parents answered yes and had good knowledge about K3 and 60(40%) of Parents answered No had poor knowledge About K3. This signifies that 60% of Parents had good knowledge that processed foods, fried food and soft drinks as part of young

child's frequent diet plan can increase chances in development of number of disease either in childhood or adult life (such as obesity, heart diseases etc). 76(50.6%) answered yes and had good knowledge about K4 and 74 (49.3%) answered No and had poor knowledge About K4. This signifies that 50.6% of parents had good knowledge that malnutrition can affect the Childs health seriously (such as rickets, scurvy, beriberi, kwashiorkor etc.). 96 (64%) of parents had answered yes and had good knowledge about K5 where as 54 (36%) of the participants answered No and had poor knowledge about K5. This signifies that 64% of the parents had good knowledge that lack of nutrition in meals can result in malnutrition.

On assessment of parents attitude on nutritional consumption in children's less than 5 years of age, 60 (40%) of participants had strongly agreed, where as 43(28.8%) agreed, 34(22.2%) were neutral, 8 (5.33%) disagreed and 5(3.33%) strongly disagreed for A1. This signifies that 40% of the participants strongly agreed that under nutrition affects child health seriously. Among the total participants, 47 (31.3%) of participants strongly agreed, where as 57(38%) agreed, 33(22%) were neutral, 8(5.33%) disagreed and 5(3.33%) had strongly disagreed for the question A2. This signifies that 31.3% of the participants had strongly agreed that an under nourished child is more susceptible to infection. 43 (28.6%) of participants strongly agreed, where as 63(42%) agreed, 37(24.6%) were neutral, 7(4.66%) disagreed and none of the participants strongly disagreed for A3.This signifies that 28.6% of the participants strongly agreed that pulses and cereals should be included in the complementary food. Among the total participants, 42 (28%) of participants have strongly agreed, where as 40(26.6%) agreed, 38(25.3%) were neutral, 8(5.33%) had disagreed and 22(14.6%) had strongly disagreed for A4. This signifies that 28% of participants had strongly agreed to the statement that it's important to feed the child even if the child refuses to eat. 18 (12%) of participants have strongly agreed, where as 37 (24.6%) agreed, 43(28.6%) were neutral, 11(7.33%) had disagreed and 41(27.3%) had strongly disagreed for A5. This signifies that 12% of the participants strongly agreed with the statement that providing different kinds of food every day to the child is not feasible.

Malnutrition is one of the major causes of death in under-five children. There are many causes of malnutrition, one of them being inadequate maternal nutrition knowledge. As this study was designed to assess the knowledge and attitude of parents with under-five children have on nutrition and how this impacts the growth of children. The majority of parents in our study had attained primary and secondary levels of education. Most of the parents had good

attitudes towards the importance of nutrition. Majority of mothers had some knowledge about nutrition. Age, level of education, and occupation were significantly related to knowledge level. Our study concluded that education plays an important role in the acquisition of this knowledge. This result was similar to the study conducted by Wilbroad et al[26] in Zambia which also showed that education plays an important role in the acquisition of knowledge about nutrition. Our study is in contrast to the study conducted by S.Sulaiman et al,[27] in Kano, Nigeria which demonstrated that there is inappropriate feeding practice among children under-five compared to the recommend standard, which was mostly due to lack of mother's knowledge, attitude and practice about infant and young children feeding and there was a need for aggressive campaign for good feeding practices of infant and young child to make required progress in tackling malnutrition.

Good nutrition is cornerstone for growing children during early childhood and school-age years; children begin to establish habits for eating and exercise that stick with them for their entire lives. If children establish healthy habits, their risk for developing many chronic diseases will be greatly decreased. Social class of parents, father's education, and mother's education has great influence on children's nutritional behavior. Parents shape the development of children's eating behaviors, not only by the foods they make accessible to children, but also by their own eating styles, behavior at meal times, and child-feeding practices. In our study, there was significant correlation between nutritional knowledge (KAP) of parents and nutritional practice of their children. A study conducted by Fathea El-Nmer[28] in Egypt also stated that there was a relationship between parent's knowledge, attitude, and healthy food intake by children.

The first five years of life are a time of rapid physical growth and change, and are the years when eating behaviors that can serve as a foundation for future eating patterns develop. During these early years, children are learning what, when, and how much to eat based on the transmission of cultural and familial beliefs, attitudes, and practices surrounding food and eating. Throughout, we focus on the vital role parents play in structuring children's early experiences with food and eating, and describe how these experiences are linked to children's eating behavior and their weight status. Nutritional knowledge was related to dietary intake highlighting the fact that nutrition related education and information for parents can improve their children's dietary intake.

In our study the parents who had high education had a good nutritional knowledge and attitudes. This result agreed with the study conducted by Al-Shookr[29] in Oman, which stated that there was a positive relationship between children's dietary food intake scores and the mothers' nutritional knowledge and attitude scores.

A rational way of nourishment combined with adequate physical activity, are the basic components of maintaining proper body condition. The most common nutritional abnormalities include undernourishment as well as overweight and obesity. The fundamental components of a healthy lifestyle include: rational nutrition, physical activity, a stable emotional state, and a sufficient amount of sleep. The most common lifestyle errors among children and adolescents include inappropriate nutrition and insufficient physical activity. Physical activity and appropriate nutrition are of key importance to health. Physical activity that is done regularly in childhood results in healthy lifestyle habits in adulthood. Both the lack of physical activity and its excess have a negative effect on the nutritional status.

On assessment of the nutritional status of children's participating in our study, 80% were normal weight for height, 13.33% were overweight or obese and 6.66% were moderately wasted and none of them were severely wasted. 73.3% of the children were normal for height for age, 20% were tall and 6.66% were moderately stunted and none of them were severely stunted. 93.3% were normal for mid upper arm circumference, 6.66% were moderately wasted and none of them were severely wasted. Our study is in contrast to a study conducted in Rural Nepal by J Chataut[30] which has stated that nearly 37% children are suffering from underweight, 41% from stunting and 11% are suffering from wasting. These children are at a substantially greater risk of severe acute malnutrition and death. Out of 243 children, 97 (39.9%) were stunted and in weight for age assessment, 46 (18.9%) were underweight and concluded that there was high prevalence of malnutrition, especially stunting among under-five.

CONCLUSION

Parents have significant influence in the development of children's eating behavior and food choices. Their knowledge and attitudes towards nutritional status play an important part in childhood growth, as parents become role models in shaping children's eating habits. The Research demonstrated that there is appropriate feeding practice among children under-five compared to the recommend standard, which is mostly due to parents knowledge, attitude and practice about young children feeding. This study discovered

that good knowledge, attitude and practices of parents are a significant contributor to the good nutritional status of children under five. To the best of our knowledge, this is the first study that assessed knowledge, attitude and practices among parents of children less than 5 years in Urban Bangalore. Findings of this study will guide appropriate policy formulation and encourage nutritional education intervention to address the knowledge, attitude and practices among parents of children under 5 years of age.

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