

Mother's Knowledge and Practice about Children's Physical Growth: Home-Based Intervention

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Abstract: Maternal nutrition knowledge and practices are essential in child's growth and development. Without adequate nutritional knowledge and optimal feeding practices, poor nutritional status among children can arise even in households with adequate income and food, good sanitation and health services. The aim of this study was to assess mother's knowledge and practice about children's physical growth after home based intervention. Design: Quasi-experimental design (pre-post) test was utilized. Settings:- This study was conducted at Maternal and Child Health Centers at Tanta city, Gharbiya Governorate, Egypt. Sample: A convenience sample of 100 children and their mothers. Tools: 1) A structured interviewing questionnaire including; the socio-demographic data of children's and their parent's, Nutrition knowledge and practice 2) Physiological measurements of children. Results: 48% of mothers had secondary education, and most of them 70% were housewife, more than half of children between 4-5 years (55%). It was revealed that highly significant improvement ($p < 0.0002$) in the mothers' nutritional knowledge after early home based intervention. There was high significant difference between pre and post 2 intervention nutritional practice regarding Body Mass Index of children. Conclusion: The home based intervention was effective in improving nutritional knowledge and practices in post intervention than pre intervention. Recommendation: Educate parents to be role models for their children in relation to healthy eating patterns & participating in physical activities. Providing nutritional programs for mothers about good nutrition, and method of cook a healthy food to preschool children. Integrate nutritional courses to the children in the MHC centers to learning good food habits and practices.

Keywords: Home based Intervention, Knowledge and Practice, children's Physical Growth.

1. INTRODUCTION

Nutrition is a significant factor in the growth, development, and overall functioning of a child. Good nutrition provides the energy and nutrients essential to sustain life and promote physical, social, emotional, and cognitive development [1]. During early childhood, the body is growing at an alarming rate. This rate slows down after age 1 year and may occur in spurts throughout childhood, adolescence, and puberty. A child needs adequate dietary intake to provide enough nutrients and energy for him to grow, without reducing his body's ability to stay healthy. In addition, almost half of the adult skeletal mass is built during adolescence. A healthy diet, rich in calcium and other essential vitamins and minerals, will enable optimal skeletal and physical growth [2].

Physical growth is a dynamic process that is characterized by physiological changes and increase in the mass of body tissues in an individual from infancy into adulthood. Growth should be monitored sequentially. It is an important tool in the early detection of chronic disease in children [3]. Early childhood is a critical time for the development of food preferences and eating patterns. Consumption of a healthy diet by young children is essential for normal growth and development and to prevent a variety of nutritional related health problems, such as anemia, growth retardation,

malnutrition, compromised cognitive achievement, obesity, dental caries, and chronic diseases in later life. Children are the nation's most important resource and thus deserve the best possible education for their present and future health [4,5].

The mother is the principle provider of the primary care that her child needs during the first five years of life. Nutritional awareness of mothers plays an important role in the health of children aged 0-5 years. The type of care she provides depends to a large extent on her knowledge and understanding of some aspects of basic nutrition and health care. Mothers educational level, position, health and nutritional status is central to the quality of life and is a key ingredient of her child's health, nutritional status, behavioral and other aspects of child welfare in developing countries [6].

Knowledge of mothers has an important role in the maintenance of nutritional status of the children. Adequate knowledge regarding various aspects of feeding practices during pregnancy and during infancy is very essential especially among females as they are going to influence the feeding practices of this vulnerable group. The knowledge of child nutrition and caring practices can be expected to have significant bearing on their children nutritional status but conflicting results have been reported in this regard where as some studies [7,8,9] have observed a positive relationship between childhood malnutrition and maternal knowledge and beliefs regarding nutrition.

In 2015, globally about 15% of children were underweight. The African region and south- East Asia have reported the highest prevalence of undernutrition, with the accounting for about 24.9% of the underweight children under 5 years of age [10]. Also, it is reliably estimated that, globally, below 5 years, over 41 million are overweight [11].

Health and nutrition education is a common intervention targeted to mothers. Although maternal education is an important determinant of nutritional status of children, it remains unclear whether mother's practical knowledge about nutrition has an independent effect on child growth. Furthermore, the factors that influence translation of acquired knowledge into practice are not well-understood [12].

Home visiting has been demonstrated to be an effective method of supporting families, particularly as part of a comprehensive and coordinated system of services. While, home visiting programs vary in goals and content of services, they combine parenting and health care education and early intervention and education services for young children and their families [13]. Nurses can provide intervention to families and children regarding the basic concepts of balanced nutrition and undesirable effect of insufficient nutrition [14].

AIM OF THE STUDY

The aim of this study was to assess the mother's knowledge and practice about children's physical growth after home based intervention.

RESEARCH HYPOTHESES

1. Mothers who participate in the home based intervention will have higher nutritional knowledge in post intervention than pre intervention.
2. Mothers who participate in the home based intervention will have improved nutritional practices in post intervention than pre intervention.

2. METHODS

2.1 Design: Quasi-experimental design (pre-post) test was utilized.

2.2 Settings: This study was conducted at Maternal and Child Health Centers at Tanta city in Gharbiya Governorate. Egypt.

2.3 Sample: A convenience sample of 100 children aged 2-5 years old and their mother's at Maternal and Child Health Centers (MCH) was selected.

2.3.1 Inclusion criteria:

- Free from any chronic diseases or handicap.
- Children should not follow a special medical regimen.

2.3.2 Exclusion criteria:

- Having prematurity or low birth weight.
- Having endocrine disorder or cardiac disease.
- Having teeth decay.

2.3.3 Sample Size:

It is formed by Epi website (Open Source Statistics for Public Health)*. Our assumptions were: A two sided confidence level of 95% = $(1 - \alpha)$. A power $(1 - \beta)$ or (% chance of detecting) of 80%. Ratio of sample size, unexposed (pre intervention) / exposed (post intervention) = 1% of pre intervention with exposure = 40%.

Then enter one of four parameters which was % of post intervention cases = 22%, and the others three parameters would be calculated by the Epi website program. Kelsey method was used with nearly 200 children aged 2-5 years who were attending MCHCs with their mothers as our sample size (100 children pre-intervention, and the same 100 children will constitute the post-intervention group).

2.3.4 Sampling technique:

The technique used to select the sample was:-

A multistage random technique was used to select the setting according to the following:-

- The first stage was random selection of one district from eight districts in Gharbiya Governorate. The selected district was Tanta. Tanta city which has 7 Maternal and Child Health Centers, affiliated to the Ministry of Health and Population offering maternal and child health care.
- The second stage was random selection of 2 Maternal and Child Health Centers. The selected centers were Alomoma Care Center and Childhood and Family Health Center from which the sample was taken.

2.4 Data Collection Instruments:

Data was collected through using the following tools:

A structured interviewing questionnaire: it was developed by the researcher after reviewing the literature to collect the necessary data from children's and their parent's and including the following parts:

A- Socio-demographic data of children's and their parent's such as (child age, gender, residence, parent's educational level, occupation, income).

B- Nutrition knowledge and practice. It includes the following:

Nutritional knowledge: It included questions about importance of eating breakfast, balanced meal containing meat, vegetables, bread and rice, information about food groups, and information of alternative food.

Scoring system for Nutritional knowledge

Each items was two points Liker scale (0 – 1), as (0) for incorrect answer and don't know, (1) for correct and complete answer. The questionnaire was evaluated giving a score of 0-4. The total score of each mother was categorized arbitrary into "inadequate knowledge" when the mother achieved less than or equal $\leq 50\%$ of the total score, i.e (0-2), and adequate knowledge was considered when the mother achieved more than $> 50\%$ of the total score, i.e (3 -4).

- **Nutritional Practice:** It included questions about eating of the main three meals, having daily breakfast, giving foods when go to the nursery, milk and dairy products daily intake, eating fruit, a green salad every day, a lot of sweets, add spices to food, weighing child continuously, and watching television during eating.

Scoring system for Nutritional Practice

Each item was examined in a two points Liker scale (0-1). The rating scale scores the healthy practice was (0) for not done, and (1) for done. The questionnaire was evaluated giving a score of 0-13. The total score of each mother was

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categorized into “Risky practice” when the mother achieved less than or equal $\leq 50\%$ of the total score, i.e (0 -6), and “Safe practice” when the mother achieved more than $> 50\%$ of the total score i.e (7 – 13).

2- Physiological Measurements of children included height, weight, head circumference, chest circumference, and mid arm circumference. Using Egyptian growth charts; body mass index for age percentiles was adopted by the researcher from National Nutrition Institute (2008) to assess the body mass index for boys and girls [15].

2.4.1 Reliability of the tools:

Reliability was applied by the researcher for testing the internal consistency of the tool by administration of the tool to the same subjects before collecting the data actually to assess clarity and simplicity of the questions. Reliability was estimated among 15 participants by using test retest method with two weeks apart between them. Then correlation coefficient was calculated between the two scores. Correlation coefficient for each of the tools: interviewing questionnaire data ($r = 0.83$), maternal nutritional knowledge and practice ($r = 0.79$) - physiological measurements ($r = 0.87$). In addition, correlation coefficient was 0.85 which indicates that the questionnaire is reliable to detect the objectives of the study.

2.4.2 Validity of the tools:

The questionnaire was tested for its content by jury of two experts in the field of Community Health Nursing and pediatric nursing to ascertain relevance and completeness. Validity of the questionnaire was assessed using content validity by an Expert. The relevancy, clarity, fluency, and simplicity of each component in the questionnaire was examined by the expert and she found the questionnaire is useful and helpful.

2.5 Pilot Study:

A pilot study was carried out on 10 mothers to assess the clarity, feasibility, applicability of the study tools, and time needed to fill the tool. The necessary modifications were done as revealed from the pilot study. The sample of pilot study was excluded from the total sample to assure the stability of the result.

2.6 Ethical Consideration:

For ethical reasons the protocol was approved by the ethical committee of the “Faculty of Nursing, Menoufia University”. An official permission was taken from the directors of MCH centers. Before data collection, each mother was informed about the aim of the study and its importance. They were given an opportunity to refuse to participate. Also they were assured that the information would remain confidential and used for the research purpose only.

2.7 Procedure and Data Collection:

- Duration of study: Data were collected during the period of time from the beginning of May 2016 to the end of April 2017.
- A review of past and current literature covering the various aspects of the problem was done using books, article, magazines, and studies related intervention on the children’s physical growth from two to five years.
- An official permission were obtained from the Faculty of Nursing, Menoufia University and sent to the directors of directors of MCH centers to get their permission for data collection. The letters explained the aim of the study and sought their cooperation.
- Before starting the data collection, the agreement and the aim of the study were explained to each head of nursing at MCH centers to gain their cooperation.
- According to the follow up visit time schedule, the researcher met the subjects in the waiting room, in each selected MCH centers. The researcher introduced herself and explained to the mother the aim of the study and their consent to participate was obtained.
- Each mother was personally interviewed and sometimes groups of mothers in the MCH centers. Then mothers name, address and telephone number were taken as primary assessment.

International Journal of Novel Research in Healthcare and Nursing

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- The researcher distributed and filled a copy of the pretest questionnaire to all mothers. Mother's were interviewed at home.
- Filling in the pretest questionnaire took about 20-30 minutes.
- Physiological measurements of children included: Height, weight, head circumference, chest circumference, mid-upper arm circumference of it was extracted Body mass index (BMI):- and that the following equation: $BMI = \text{weight (kg)} / \text{height (m)}^2$
- On the first session, subjects were informed about definition, factors, and classification of physical growth. The first visit took about one hour.
- On the second session, education was given about the basic food group, food pyramids and false diet habits. This session took about 35-50 minutes.
- First post-test has been obtained after 3 months to assess the mother's nutritional knowledge, and physiological measurements. This visit took about 15 minutes.
- Second post-test has been obtained after 6 months to follow the mother's practice and knowledge, and physiological measurements. This visit took about 35 minutes.

2.8 Statistical analysis:

The collected data was entered and analyzed by using SPSS version 22 (Statistical Package for Social Science). Graphics were done using Excel program. Graphics were done using Excel program.

Quantitative data were presented by mean (X) and standard deviation (SD). If data was normally distributed, it was analyzed using student t- test for comparison between two means, and ANOVA (F) test for comparison between more than two means. However, if data was not normally distributed, non - parametric tests were used.

Qualitative data were presented in the form of frequency distribution tables, number and percentage. It was analyzed by chi-square (χ^2) test. However, if an expected value of any cell in the table was less than 5, Fisher Exact test was used (if the table was 4 cells), or Likelihood Ratio (LR) test (if the table was more than 4 cells). Level of significance was set as P value <0.05 for all significant tests.

3. RESULTS

Table (1) showed distribution of sociodemographic characteristic of studied sample. The table showed that, more than half of children between 4-5 years (55%). Female were more than males (52%, and 48%). Regarding ordering of child in his/ her family, 28% of children were the second child. Regarding to residence, 54% of children were from rural and 46% of them from urban areas. Regarding father's education and occupation, 42% of father had university education and more than half 56% of fathers were manual workers. Also, the table reveals that, 48% of mothers had secondary education, and most of them 70% were housewife. Regarding monthly income the majority (84%) of mothers reported that income were enough.

Table (2) presented distribution of pre, post 1 and post 2 intervention in relation to BMI of studied children. There was increase in percentage of normal BMI from 48% pre intervention and 54% post 1 intervention to 79% post 2 intervention, while decrease in underweight from 34% pre intervention and 31% post 1 intervention to 14% post 2 intervention. Also, decrease in percentage of obese from 12% pre intervention to 4% post 2 intervention. There was significant differences between pre and post 2 intervention regarding body mass index classification $p=0.001$

Also, there was significant differences between post1 and post 2 intervention regarding body mass index classification $p=0.01$

Answering the hypothesis 1:

Mothers who participate in the home based intervention will have higher nutritional knowledge in post intervention than pre intervention.

Figure (1): showed that the mothers’ nutritional knowledge pre, post1 and post2 intervention which revealed a highly significant improvement ($p < 0.0002$) in the mothers’ nutritional knowledge after early home based intervention which reached 82% in post1 intervention and increased to be 90% in post 2 intervention than in pre intervention 70%.

Figure (2) presented effect of early home based intervention on nutritional knowledge of mothers on their children BMI. As noticed from the figure, in pre intervention, half of studied mothers had adequate knowledge, their children had normal weight, while, 40%, 16.7% of studied mothers had inadequate knowledge, their children had underweight and obese. There was no significant difference between pre intervention nutritional knowledge of studied mothers and BMI of children $p = 0.13$

On the other hand, in post 2 intervention, 77.8% of studied mothers had adequate knowledge, their children had normal weight. while, 10% of studied mothers had inadequate knowledge, their children had underweight. Also, there was no significant difference between post 2 intervention nutritional knowledge of mothers and BMI of children $p = 0.62$

Answering the hypothesis 2:

Mothers who participate in the home based intervention will have improved nutritional practices in post intervention than pre intervention.

Figure (3): showed that there was statistical significant improvement ($p < 0.02$) in the studied mothers nutritional practice after early home based intervention from 84% in post 2 intervention than pre intervention 71%.

Figure (4): showed relation between pre - post 2 intervention nutritional practice of mothers and BMI of their children. Regarding mothers with good nutritional practice, there was increase in percentage of normal BMI of their children from 47.9% pre intervention to 79.8% post 2 intervention, and decrease in the abnormal BMI from 29.6%, 8.5%, 14.1% pre intervention to 14.3%, 3.6%, 2.4% post 2 intervention respectively. There was high significant difference between pre and post 2 intervention nutritional practice regarding BMI of children $p = 0.000$

Regarding mothers with poor nutritional practice: decrease in abnormal BMI from 44.8%, 6.9% pre intervention to 12.5%, 12.5%. The later result may be due to the small sample size of poor practice mothers post 2 intervention ($n = 16$).

Table 1: Distribution of sociodemographic characteristic of studied sample (N=100)

Sociodemographic characteristic		Frequency	Percent
Age of children	2 -	20	20.0
	3 -	25	25.0
	4 to 5 years	55	55.0
Sex of children	Male	48	48.0
	Female	52	52.0
Child order	First	39	39.0
	Second	28	28.0
	Last	33	33.0
Residence	Rural	54	54.0
	Urban	46	46.0
Birth weight	Normal	91	91.0
	Abnormal	9	9.0
Feeding	Breast feeding	70	70.0
	Formula feeding	11	11.0
	Both of them	19	19.0
Father education	Illiterate	10	10.0
	Elementary	16	16.0
	Secondary	32	32.0
	University	42	42.0
Father occupation	Employee	39	39.0
	Manual worker	56	56.0
	Unemployed	5	5.0

Mother age	20 -	17	17.0
	26 -	44	44.0
	31- 40 years	39	39.0
Mother education	Illiterate	3	3.0
	Elementary	9	9.0
	Secondary	48	48.0
	University	40	40.0
Mother occupation	Housewife	70	70.0
	Working	30	30.0
Monthly income	Not enough	9	9.0
	Enough	84	84.0
	More than enough	7	7.0
Total		100	100.0

Table 2: Distribution of pre, post 1 and post 2 intervention in relation to BMI of studied children.

Early home based intervention	BMI classification								P Value
	Underweight		Normal		Overweight		Obese		
	No.	%	No.	%	No.	%	No.	%	
Pre intervention	34	34.0	48	48.0	6	6.0	1	12.0	X ² =0.28,P1=0.59 NS
Post1 intervention	31	31.0	54	54.0	3	3.0	1	12.0	X ² =15.5,P2=0.001 Sig.
Post 2 intervention	14	14.0	79	79.0	3	3.0	4	4.0	LR=7.3,P3=0.01 Sig.

P1= Comparison of BMI classification between pre and post1intervention.

P2= Comparison of BMI classification between pre and post 2 intervention.

P3= Comparison of BMI classification between post1and post 2 intervention.

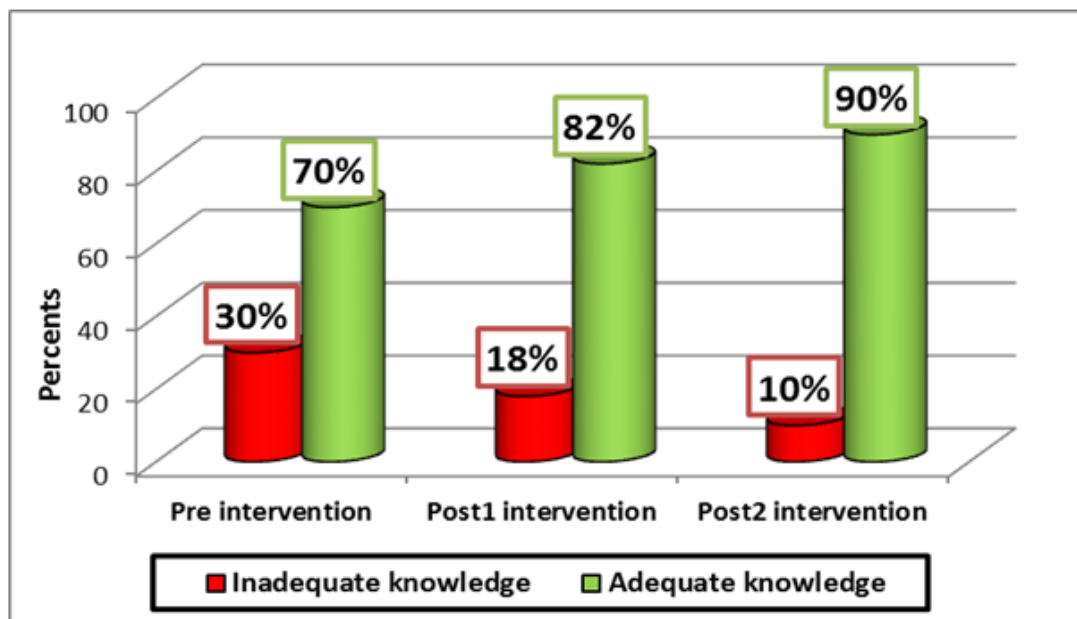


Figure 1: Distribution of mother's nutritional knowledge's "pre, post 1 and post 2 intervention"

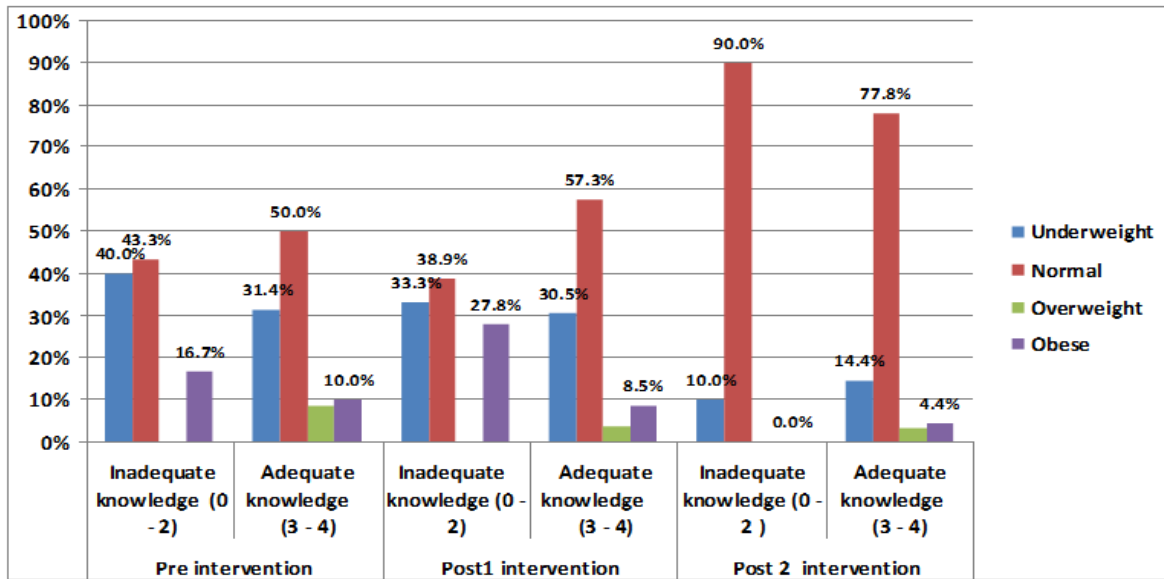


Figure 2: Effect of early home based intervention on nutritional knowledge of mothers on their children BMI

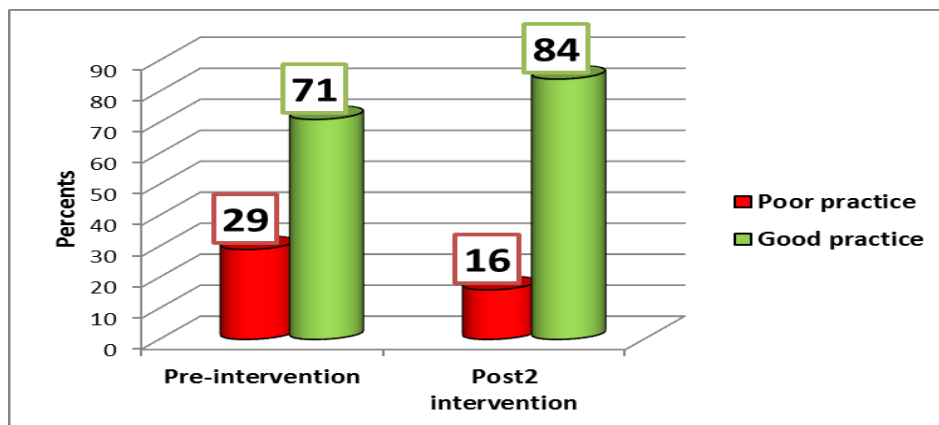


Figure 3: Distribution of mothers nutritional practice pre, post 1 and post 2 intervention.

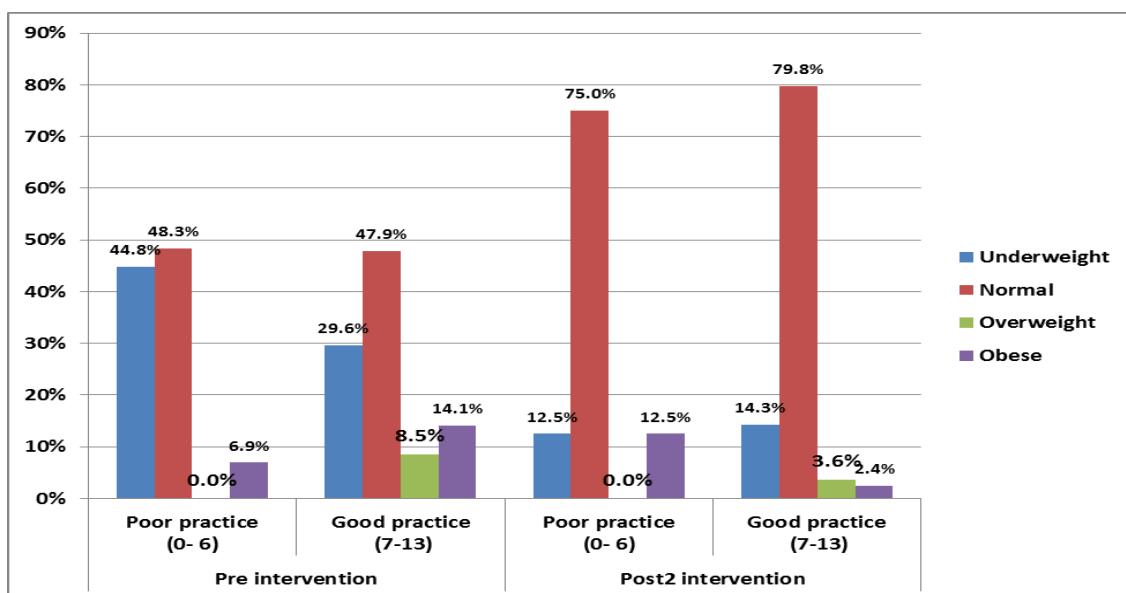


Figure 4: Relation between pre- post 2 intervention nutritional practice of mothers and BMI of their children

4. DISCUSSION

The mother is the major provider of the principal care that her child needs during the first five years of life. Knowledge about dietary needs is essential for good health and overall nutritional status especially when resources are few. Sometimes mothers do not know the importance of variety and balance in the diet and the right amount and types of foods needed by children to meet these dietary needs. Without adequate knowledge, malnutrition and poor nutritional status can occur in households with sufficient income, food and health services [16]. Aim of this study was to assess the mother's knowledge and practice about children's physical growth after home based intervention.

Regarding BMI of the studied children pre intervention, the current study revealed that about one third of children were underweight, nearly half of them were normal, less than one third of them were overweight and obese (Table 2). This current study finding came in agreement [17] who studied "children's eating behavior, feeding practices of parents and weight problems in early childhood in the Netherlands". They reported that the majority of the children included in the study population (78%) had a normal weight, 13% of the children had underweight, 8% overweight, and 2% obesity. While, the current study finding was not supported by [18] who studied "overweight and obesity among preschool children in port harcourt, Nigeria". They reported that nineteen (8.6%) were obese, (15%) were overweight, 65.9% had normal body mass index (BMI), (10.5%) were underweight. These variations of BMI could be a reflection of cultural and environmental differences.

Considering BMI of studied children pre, post1, and post 2 intervention, the present study revealed that there was decrease percent of overweight/ obese BMI classes from 6%, 12% (pre intervention) to 3%, 12% (post1 intervention), 7% (post 2 intervention) (Table 2). This finding was consistent with [19] who studied "efficacy of family-based weight control program for preschool children in primary care at the Women and Children's Hospital of Buffalo". They reported that children in the intervention group had greater % Over Body Mass Index and BMI decreases at three and six months compared with those assigned to information control. Also, this finding came in agreement with [20] who studied "a pilot randomized controlled trial of a clinic and home-based behavioral intervention to decrease obesity in preschoolers at Cincinnati Children's Hospital Medical Center". They showed a significantly greater decrease on the primary outcomes of child at month 6 (post-treatment) BMI and weight gain than pediatrician counseling and this difference was maintained at follow-up (month 12).

Additionally this finding came in agreement with [21] who studied "a childhood obesity intervention developed by families for families in New York". They reported that compared with pre intervention, children at post intervention had marginally lower BMI and significantly lower rates of obesity. Those finding may be attributed to educational session has an important role in improvement of nutritional knowledge and practice.

The present study revealed that there was significant differences between pre and post 2 intervention regarding body mass index (Table 2). The current study finding was inconsistent with [22] who studied "nutrition and physical activity randomized control trial in child care centers improves knowledge, policies, and children's body mass index in California, Connecticut, and North Carolina". They reported that among all 268 children measured at the pre-intervention period, there were no significant differences in the intervention versus control centers in the percent of children in the underweight, healthy, overweight or obese categories. This might be due to that different sample size.

Answering hypothesis 1:

Mothers who participate in the home based intervention will have higher nutritional knowledge in post intervention than pre intervention.

Regarding pre intervention mother's nutritional knowledge, the current study revealed that the majority of studied mothers had adequate knowledge (Figure 1). This finding was consistent with [23] who studied "nutrition status of under five years children pre and post intervention feeding parenting in the village Sangkima Kutai national Park East Kalimantan". They reported that mother has a good knowledge of nutrition 45%, being 50% and less than 5%. This might be due to mothers who have a junior high school education was 32.5%, 22.5% had elementary education and high school education by 20%.

Regarding mothers nutritional knowledge pre and post intervention, the current study revealed that the mothers' nutritional knowledge pre, post1 and post 2 intervention which revealed a highly significant improvement in the mothers' nutritional knowledge after early home based intervention than in pre intervention (Figure 1). This current finding was consistent with [24] who studied "an in-home intervention to improve nutrition, physical activity and knowledge among low-income teen mothers and their children". They reported that mothers reported an improvement in health knowledge about themselves and their children from pre-intervention to post-intervention. Also, this finding came in agreement with [25] who studied "a parent-focused pilot intervention to increase parent health literacy and healthy lifestyle choices for young children and families". They reported that knowledge about the importance and purpose of diet/nutrition (General Diet), an improvement was seen at posttest and follow up. This might be due to increase in mother educational level.

Regarding pre intervention nutritional knowledge of mothers and BMI of their children, the current study revealed that in pre intervention, half of studied mothers had adequate knowledge; their children had normal weight (Figure 2). This finding was consistent with [26] who studied "the effects of mother's nutritional knowledge on attitudes and behaviors of children about nutrition". They reported that many of the mothers who have higher nutritional knowledge level and their children have normal body weight. This might be due to the mothers who have higher level nutritional knowledge feed their children more with vegetable, fruit, legumes, and less sugared drinks such as cola juice and fast foods than the mothers who have lower level of nutritional knowledge.

The present study revealed that there was no significant difference between post 2 intervention nutritional knowledge of mothers and BMI of children (Figure 2). The current study finding was consistent with [27] who studied "effect of a child care center-based obesity prevention program on body mass index and nutrition practices among preschool-aged Children". They reported that there was no statistically significant association between parent/home intervention activities and BMI, it appears from point estimates that those who found the home activities helpful had lower BMI.

Answering hypothesis 2:

Mothers who participate in the home based intervention will have improved nutritional practices in post intervention than pre intervention.

Regarding pre intervention mother's nutritional practice, the current study revealed that majority of studied mothers had good practice, while approximately one third of studied mothers had poor practice regarding to their children's nutrition (Figure 3). This finding was consistent with [23] who studied "nutrition status of under five years children pre and post intervention feeding parenting in the village Sangkima Kutai national Park East Kalimantan". They reported that mothers who provides parenting practice good eating by 30%. This might be due to increase in mother educational level.

Concerning mothers nutritional practice pre and post 2 intervention. The current study revealed that there was statistically significant improvement in studied mother's nutritional practice after home based intervention (Figure 3). The current study finding was inconsistent with [23] who studied "nutrition status of under five years children pre and post intervention feeding parenting in the village Sangkima Kutai national Park East Kalimantan". They reported that differences in nutritional status have not demonstrated change after 3 months meal parenting intervention. This might be due to parents need to improve the practice of feeding their children including preparation, storage and food hygiene.

Regarding nutritional practice of mothers and BMI of their children, the current study revealed that in pre intervention, 6.9% of studied mothers had poor practice, their children had obese (Figure 4). The finding of the present study came in agreement with [28] who studied "risk factors for overweight/obesity in preschool children". They reported that parental feeding practice restriction for weight control is a risk factor for overweight/obesity during the preschool years. This finding might be due to parents are restrictive in response to children's unhealthy weight gain. Also, these findings were consistent with [29] who studied "nutritional status and eating practices among children aged four - six years old in selected urban and rural kindergarten in Selangor Malaysia". They reported that positive relation between children's BMI with fast food and eating out. This might due to fast food that can contribute to higher BMI.

The present study, there was no significant difference between pre intervention nutritional practice of studied mothers and BMI of children (Figure 4). The finding of the present study came in agreement with [30] who studied "nutritional knowledge, attitude, and practice of parents and its impact on growth of their children". They reported that there was no significant correlation between nutritional practice of children and their BMI and height.

5. CONCLUSIONS

The home based intervention was effective in improving nutritional knowledge and practices in post intervention than pre intervention.

6. RECOMMENDATION

1. Educate parents to be role models for their children in relation to healthy eating patterns & participating in physical activities
2. Providing nutritional programs for mothers about good nutrition, and method of cook a healthy food to preschool children.
3. Integrate nutritional courses to the children in the MHC centers to learning good food habits and practices.

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