Improving Mothers` Knowledge regarding Children Healthy Feeding

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Abstract:

Background: The role of the mothers is very important in providing care and monitor their children`s health in general. Their awareness concerning quality of foods which is needed for each child`s developmental stage can effect on nutritional status This Study assesses Improve Mothers` Knowledge regarding healthy nutrition of their children .**Materials and Methods**: A quasi- experimental design was adopted to recruit (60)mother was selected from Al-Ayn Social Care Foundation International Al-Samawah City. A non-probability "purposive sample".**Results:** Of the current study revealed that is high significant relationship between mothers' knowledge and their level of education at p-value= .001. **Conclusion:** it could be concluded that after the interventional program concerning nutrition related health, most mothers level of knowledge in the study group was increased. The study recommended that the nutrition education program can be presented to all mothers to increase their knowledge and interest about importance of child nutrition their education should be frequently renewed.

Keywords: Effectiveness ,Nutrition Education, Knowledge, Nutritional Status, Nutrition programs

المستخلص

دور الأمهات مهم جداً في تقديم الرعاية ومراقبة صحة أطفالهن بشكل عام. إن وعيهم بجودة الأطعمة اللازمة لمرحلة نمو كل طفل يمكن أن يؤثر على الحالة التغذوية. تهدف هذه الدراسة إلى تقييم تحسين معرفة الأمهات فيما يتعلق بالتغذية الصحية لأطفالهن

أجريت دراسة شبة تجريبية , في مؤسسة العين للرعاية الاجتماعية من 12 تموز2022 إلى 14اكتوبر 2023. العينة غير الاحتمالية (الغرضية) متكونة من (60) أم ، تنقسم العينة الى مجموعتين (30) ام لمجموعة الدراسة الذي تعرضوا للبرنامج التعليمي و (30)ام للمجموهة الضابطة التي لم تتعرض للبرنامج التعليمي . قام الباحث بنشاء البرنامج التعليمي يتعلق بالتغذية مقتبس من برامج منظمة الصحة العالمية ووزارة الصحة العراقية لتغذية الأطفال

تم تطوير اداة القياس (الاستبانة) من قبل الباحث بعد مراجعة الدراسات السابقة والتي تتكون من البيانات الاجتماعية والديموغرافية للمشاركين ومعرفة الأمهات حول الصحة المتعلقة بالتغذية لأطفالهن. وتم تحديد صدق وثبات الاستبيان، وتم تحليل البيانات باستخدام برنامج spss

اشارت نتائج الدراسة الحالية عن وجود علاقة ذات دلالة إحصائية عالية بين معارف الأمهات ومستوى تعليمهن عند القيمة الاحتمالية = .001.

أوصت الدراسة باعتماد البرنامج الغذائي الحالي لزيادة معرفة الأمهات حول الصحة المتعلقة بتغذية الطفل. تشجيع العاملين في مجال الرعاية الصحية المتخصصين على القيام بزيارات منزلية منتظمة للتحقق من الحالة التغذوية للطفل

Introduction

Nutrition education includes a variety of strategies for mother aimed at gaining the knowledge, skills, and behaviors needed to plan , and make food choices that meet daily nutrient requirements (1)

Good nutrition is integral for survival , bodily growth, intellectual development, performance, production, health and well-being across the whole lifestyles span from the earliest tiers of fetal development, at birth, and through infancy, childhood, adolescence and on in to adulthood infancy, childhood, and in to adulthood(2)

The nutritional status of children under five years is consider one of the most important indicators for child survival and a reflection of their overall health. When children have adequate food supply, they are less susceptible to hospital admission, reach their growth potential, and well-nourished(3).

The literature found the importance of teaching mothers about the essential elements of a healthy diet and good nutrition habits, and modeling a good nutrition habits to their children (4). The Nutrition intervention programs can help in developed mothers' health literacy (5)

More countries recognize the need to give priority to adopted programs that improve mothers' ability to provide optimal care for young children, especially during the period under 2 years (6).

A healthful nutrition also helps minimize many health conditions including. Overweight and obesity, Malnutrition, Iron-deficiency anemia, heart disease, high blood pressure, dyslipidemia (poor lipid profiles),type 2 diabetes, osteoporosis, oral disease, constipation and diverticular disease(7)

Maternal knowledge, attitudes, and practices affect the change of the children's diet. Mothers with sufficient knowledge will implement a good nutrition practice, their children will be healthy and free from malnutrition disease (8).

Mother's/caregiver's knowledge, attitude, and practices improved. To address malnutrition in children under 5 years. Childhood is one of the most important stages of life concerning the development of nutritional disorders and deficiencies since the quality and quantity of food are related to nutritional and health aspects(9)

The nutrition session consists of several topics: child growth monitoring, principle of complementary feeding practices, nutritional needs of infant and young children (10)

A previous two studies conducted in Iraq, to assess mothers` knowledge concerning nutrition practices of children under five years, the finding of the studies reported that mothers' knowledge about full exclusive breastfeeding until six months of child life was lacking, there is a high significant relationship between mothers' knowledge and nutritional status of their children (11).(12)

A descriptive study by the researcher (13)which aimed to assess the knowledge of mothers regarding the nutrition for under five children.. Found a significant association between mothers with their knowledge, educational , occupation, religion, type of family, number of children , monthly income Numerous factors can influence nutritional status of children's have no control over some of these factors, including developmental determinants, genetic, gender, and age. Numerous factors can influence nutritional status of children's have no control over some of these factors, including developmental

determinants, genetic, gender, and age. Other factors that influence which has potential control include level of physical activity, diet, and some environmental and social factors(14)

The association between parents' Knowledge about nutritional management then their demographic variables of fathers, mothers (parents age, residence then socioeconomic position (15) minimizing high fats and sugar intake(16)Mothers play an essential role in the eating behavior of children, as their habits and lifestyle influence the children's diet (17). Mothers are often responsible for purchasing, cooking, and supplying food for their children, which greatly affects the formation of their eating habits, body composition, and growth (18)

Internationally, it has been estimated that (42) million children under (5) years old, were overweight or obese. The prevalence of obesity and overweight for children was highest in developed countries (11.7%) of all children). However, prevalence is increasing at alarming rates in developing countries with prevalence rising by more than (30%) in low- and middle-income countries in comparison to developed countries(19) .In developed countries (52) million children under the age of five suffer from wasting, (20)million children suffer from severe wasting, (155) million children suffer from stunting, while (41) million children suffer from overweight or obesity, A cross sectional study [(22)] which aimed to determine the effect of maternal magnitude of the influence of a high level of maternal knowledge is(14.7) with comparedtomotherswithlowknowledge Parental Self their ability to supply the social, cultural, and emotional support their children need for efficient and successful functioning throughout their developmental trajectory. There are statistically significant positive correlations between family's three or Mothers play a important role in their children's nutritional status ،A systematic review conducted by the International Journal of Child Care and Education Policy found that maternal nutrition education and knowledge had a significant impact on children's nutritional status. The mother is the primary person to take care of child, especially during the first six years in life. Maternal care varies depending on mother's knowledge about nutrition and health. In this regard, mother's educational level is reported to be effective on child care. Children are more easily affected by inadequate nutrition. Mothers with nutrition knowledge can raise their children more healthily[(21)]

Improving Mothers` Knowledge regarding Children Healthy Feeding

Nutrition is a critical feature of a lifetime and plays an important role in the growth and development of a healthy child free from illness and disability. The Descriptive Study was planned to assess mothers with information concerning the nutritional status of their children in Baghdad District (Karkh and Rasafa area) The found of the study have been of high significance between mothers' knowledge and age, occupation status, number of children in the family). The study recommendation educational level of the mother is very important in all periods of life and is not limited to a specific period or age of life[23]

Mothers understanding the appropriate method of feeding can helps to prevent children`s malnutrition and nutrition related health status. Some of the researchers found that nutrition education program can enhance mothers knowledge and attitudes for appropriate feeding methods, and change their practices in providing feeding for their children, to prevent malnutrition[24][25]

Mothers should be breastfeed their children exclusively for the first six months of their children's life, if they really want to protect their children from malnutrition, diseases, The previous study by [26] which aimed to assess breastfeeding knowledge, attitude and practice (KAP) among mothers attending outpatient clinic in Fatema Alzahra baby friendly hospital. A cross-sectional study, Three hundred mothers joined in the study, found All of the mothers know that breastfeeding is better for their children, but 180(60%) of them know that breastfeeding prevent disease in children. And 42(14%) mothers know that breast milk is easy to digestion, there was a deficiency in mother`s knowledge about exclusive breastfeeding

Healthy eating behaviors during pregnancy enables optimal gestational weight gain and reduces complications, both of which are linked to positive birth outcomes and contribute to women's overall health. Poor maternal nutrition is linked to low infant birth weight [20] The ministry of health can develop and implement effective strategies for the detection and treatment of malnutrition among children[27]

Finally , In view of point of the researcher, the present of the study is to evaluate the nutrition knowledge of mother , learn more about their way of thinking about nutrition, and determine the effectiveness of nutrition education programs about nutritionalknowledge.

Significance of The Study:

Educated mothers may have better knowledge about health care and nutrition. The education program effect significantly improves the health child so that it can reduce the incidence of stunting, underweight, anima in children. In addition, there is an impact of increasing knowledge by providing beneficial education. Nutrition education should emphasize on improving mothers' [28]). nutrition knowledge regarding infant and young child feeding recommendations and supporting mothers to overcome barriers to feed their children with adequate diets. There is a strong linkage between maternal education and children's health, mothers are the first caregiver of children to avoid nutritional problems in children and achieve optimal growth. Children born to educated mothers suffer less from underweight, wasting and stunting in children[29]More countries recognize the need to give priority to adopted programs that improve mothers' ability to provide optimal care for young children, especially during the period from child's birth to second birthday [30]

Aim of The Study was to:

Improve Mothers` Knowledge regarding healthy nutrition of their children

Research hypothesis:

There is a statistically significant difference between the two different teaching modalities.

Method:

Research Design

A quasi-experimental research design was utilized to conduct this study. Two group pretest posttestdesignwasadapted.

Independent variable: In this study independent variable is the Improve Mothers Knowledge

Dependent variables: In these study dependent variables is the children Nutritional status

Research Settings: The study was conducted at Al-Samawah City's Al-Ayn Social Care Foundation International The participants selected by non random method.

Study participants:

A Sixty mothers with selected criteria were divided in to two groups, the study one was exposed to the child nutrition educational program, while the control group not exposed to the reason to selected the criteria of the study was to provide the usefulness of the program to such population, and achieve the goals of the current study.

Tools of Data Collection:

Data were collected by using of the following tools: The first tool was a questionnaire sheet: It was designed by the researcher after a constructs questionnaire was developed through the review of available literature in order to reach the aims of the study. It consists of two parts reviewing the current available literature and it was written in Arabic Language to suit all mothers categories.

Instrument Measures:

Each part has its score according to the numbers of items included as the following The levels of scale which were scored at total of three episodes of events were observed of each respondent. The answers of mothers were scored for each questions as: know =3, uncertain =2, and do not know =1 ,It consists of two parts:**Part I. Mother's and Child's Socio-Demographic Characteristics**

This part is concerned with the collection of basic some of socio demographic data for mothers such as: age, educational level, occupation, monthly income, residency , type of family, and source of information about nutrition

While child's socio-demographic characteristics include: age, gender. In addition to measure child`s height and weight according to their age, weight for length for children under two years, and Body mass index BMI for children

over two years that used for Centers for Disease Control and Prevention CDC 2010 .

Part II. mothers` knowledge concerning their children's` nutrition related health

The mothers` knowledge scale was constructed to assess nutrition-related health for children, that composed of (60 items) divided on (6 domains) which include:

- First domain: mothers` indicators of child`s healthy
- Second domain: Infant nutrition needs (1 day- less 1 year)
- Third domain: Toddler nutrition needs (1-less 3 years)
- Fourth domain: Pre-school nutrition needs (3- less 5 years)
- Fifth domain: mothers` food safety and poisoning
- Sixth domain: Common health problems related to nutrition among children under 5 years

Implementation of The Educational Program

The researcher first obtained written consent from all of the mothers in the Al-Ayn Social Care Foundation International The data collection process began fromthe period 22th December, 2022 to 30th and continued until April 2024 Data was collected through the use of the Arabic version of the questionnaire. The study sample was divided into two groups before the educational program was put into the study group and the control group. The study group was exposed to a pre-test, educational program, post-test1, and post-test2, while the control group was exposed to a pre-test, post-test1, and post-test2. The program includes the following steps:

Step One: The researchers introduced themselves, obtained mothers approval, explained the study's aim, process, and roles, and conducted a pre-test

Step Two: The educational program Improving Mothers` Knowledge regarding Children Healthy Feeding is designed and presented in five lectures throughout the five-day period. Every lecture took approximately 45 minutes, the time

allowed for mother was 15-20 minutes to fill out the questionnaire, and the number of staff attending the educational program was30 mother's .
Many educational methods, including brainstorming, group discussions, demonstrations, posters, video films, and booklets, were employed in the application of the preventive bundle guideline

Validity

Content validity of the questionnaire sheet was submitted to a panel .The panel of expert method was used, a (12) experts

were included who have more than 10 years of experience in their field , they were from Baghdad college of nursing, . They were (4)faculty members from Community health nursing , 3 faculty members from Pediatric nursing , 3 faculty members from Maternal and newborn nursing,2 faculty members from Adult nursing .experts with more than ten years of experience in the field. Modifications of the tools were made according to the panel's judgments on clarity of sentences, appropriateness of content, sequence of items and accuracy of scoringan drecording

Reliability

The test- retest method was used to determine the reliability of questionnaire in the current study, by administering the same test twice over a period of time to a group of individuals through Cronbach`s alpha coefficient. Test-retest reliability result was calculated by Statistical Package for Social Science Program, IBM SPSS, version 26.0. as it ranged. 0.711 The findings from validity and reliability suggested that the tools of the study could form viable tools and might be used as a data collection toolsforthecurrentstudy

Pilot Study:

A pilot study is carried out with participant of (10) mothers from Al-Ayn Social Care Foundation International in Al-Samawah city for the period 10th to 15th of August, 2023. The sample of the pilot study was excluded from the main study sample. The studied mothers in the pilot study were excluded from the studied subjects.

Ethical Consideration:

The ethical consideration was considered in the data collection, the privacy of the

approval has been obtained from Scientific Ethical Committee at College of Nursing for questionnaire tool. The written consent form also was obtained from the participants, that include their agreement for the participation in the study and their participants and their confidentiality, in addition to the objectives and the benefit

of the study were included in the data collection

free of participate were referred before data collection)include the written consent form of the participants

Data Collection:

The data are gathered throughout the using the study`s instrument by direct interview with the mothers, and measure child`s weight and stature. The data collection process has been performed from (April 11th 2023 to 12 December 2023),in Al-Samawah city at Al-Ayn Social Care Foundation International. Precede the application of the constructed program, a pre-test is presented to assess the mothers knowledge in the study and control groups. The time required to answer all the questions take about (20-30) minutes

After complete pretest to all participant, the education program was intervene to the study group only, in the central lecture room of Al-Ayn Social Care Foundation International, for the period from 24th to 26th October, 2023. The program lasted for three days which introduced and scheduled for approximately 1 hour a day .

All mothers were exposed to post-test to evaluate their knowledge for both the study and the control group, and after 30 days of posttest I, posttest II was achieved to all participants again for the same tool. The same questionnaire is used as a post-test I immediately after the educated program provided for study group, and used again after one month (post test II). While the control

group, evaluate their knowledge by the same scale during post test I and II, but without programintervention

Data Analysis

Analyzing data is an essential step in nursing research, wherein various methods are employed to describe and assess information gathered by the researcher. The choice of analysis method depends on the nature of the collected data, with quantitative research specifically utilizing descriptive and inferential statistics to analyze numerical data. (O'Connor, 2020) The data were analyzed and interpreted through use of the application of Statistical Package for Social Sciences (SPSS), version 26.0 using descriptive statistics in the form of frequencies, percentage, means and standard deviation and Inferential Statistical Tests include Cronbach Alpha (α), Pearson Correlation Coefficient (r) , Spearman's rank correlation coefficient, Point Biserial Correlation, Repeated Measure ANOVA

Results:

Table (1) This table shows that average age of children with mothers in the study group refers to 3.5±1.1 years and the highest percentage is seen with 3-less than 4 year among 33.4%. The average age for children with mothers in the control group refers to 3.7±1.3 years and 33.3% of them seen with age group of 5- less than 6 years. Regarding children's sex, 56.7% of children in the study group and 70% of them in the control group are males. The body mass index for children refers to healthy weight among 66.7% of children in the study group and 56.7% of them in the control group.

Table (2): shows the overall evaluation of Mothers' knowledge about nutrition-related health for children under five years; the findings reveals that mothers in the study group are showing poor level of knowledge during the pre-test time (76.8%, M±SD= 88.47 ± 28.647) while they show good level of knowledge during the post-test I (100%, M±SD= 178.50 ± 1.650) and post-test II (100%, M±SD= 176.27 ± 2.651) that indicate the clear improvement in Mothers' knowledge after engagement in the program.

The mothers in the control group are showing poor level of knowledge during the three times of test: pre-test (83.3%, M±SD= 91.43 ± 27.077), post-test I

(83.3%, M±SD= 91.50 ± 27.076), and post-test II (83.3%, M±SD= 91.37 ± 27.050) that indicate no significant change in their knowledge. Table (3): This table exhibits that analysis of RM-ANOVA test indicates that educational program was highly effective on Mothers' knowledge among the study group evidenced by high

significance associated with "Greenhouse-Geisser" correction at p-value=0.000 and the Eta squared that indicate large size effect (.906). It is clear out of descriptive

data the noticeable increasing of mean score on Mothers' knowledge during post-test I and II that indicate the effectiveness of educational program. Table (4): This table reveals that there is no significance has been associated with "Greenhouse-Geisser" correction and the Eta squared indicates small size effect (.050). The descriptive analysis shows no clear differences in mean score of mothers' knowledge in the control group during pre-test, post-test I, and II.

Table (5): This table indicates that there is high significant relationship between mothers' knowledge and their level of education at p-value= .001 and there is significant relationship between mothers' knowledge and their residency at p-value= .015. There are no significant relationships have been reported among mothers' knowledge with their age, occupation, monthly income, and sources of information.

Table (1): Distribution of the Children according to their Socio-demographic Characteristics

No.	Characteristics		Study group		Control group	
			f	%	f	%
1	**Age (year)**	1 – less than 2	7	23.3	2	6.7
		2 – less than 3	6	20	6	20
		3 – less than 4	10	33.4	7	23.3

		4 – less than 5	6	20	5	16.7
		5 – less than 6	1	3.3	10	33.3
		Total	***30***	***100***	***30***	***100***
		M ± SD	***3.5 ± 1.1***		***3.7 ± 1.3***	
2	**Sex**	Male	17	56.7	21	70
		Female	13	43.3	9	30
		Total	***30***	***100***	***30***	***100***
3	**Body Mass Index**	Underweight	7	23.3	4	13.3
		Healthy weight	20	66.7	17	56.7
		Overweight	3	10	9	30
		Total	***30***	***100***	***30***	***100***

No: Number, f: Frequency, %: Percentage

Table (2): Overall Evaluation of Mothers' Knowledge about Nutrition-related Health for Children under Five Years

Levels of knowledge	Study Group												Control Group											
	Pre-test				Post-test I				Post-test II				Pre-test				Post-test I				Post-test II			
	F	%	M	S.D	F	%	M	S.D	f	%	M	S.D	F	%	M	S.D	F	%	M	S.D	F	%	M	S.D
Poor	23	76.8	88.47	28.647	0	0	178.50	1.656	0	0	176.27	2.651	25	83.3	91.43	27.077	25	83.3	91.50	27.076	25	83.3	91.37	27.050
Fair	5	16.7			0	0			0	0			2	6.7			2	6.7			2	6.7		
Good	2	6.7			30	100			30	100			3	10			3	10			3	10		

Total	*30*	*100*			*30*	*100*			*30*	*100*			*30*	*100*			*30*	*100*			*30*	*100*		

f: Frequency, %: Percentage, M: Mean of total score, SD Standard deviation of total scorePoor= 60 – 100, Fair= 101 – 140, Good= 141 – 180

Table (3): Repeated Measure Analysis of Variance (RM-ANOVA) Test for Effectiveness of Educational Program on Mothers' Knowledge about Nutrition-related Health in the Study Group (N=30)

Descriptive		**Within-Subjects Effect**								
Knowledge	**Mean (S.D)**	**Source**		**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**P-value**	**Sig.**	**Partial Eta Squared**
Pre-test Post-test I Post-test II	88.47 (28.467) 178.50 (1.656) 176.27 (2.651)	**Time**	Sphericity Assumed	158198.289	2	79099.144	278.850	.000	H.S	.906
			Greenhouse-Geisser	**158198.289**	**1.013**	**156213.230**	**278.850**	**.000**	**H.S**	**.906**
			Huynh-Feldt	158198.289	1.014	156002.514	278.850	.000	H.S	.906
			Lower-bound	158198.289	1.000	158198.289	278.850	.000	H.S	.906
		Error(Time)	Sphericity Assumed	16452.378	58	283.662				
			Greenhouse-Geisser	16452.378	29.369	560.205				
			Huynh-Feldt	16452.378	29.408	559.449				
			Lower-bound	16452.378	29.000	567.323				

.D: Standard Deviation, df: Degree of Freedom, f: F-statistics, P-value: probability value, Sig: Significance, H.S: High Significant

Table (4): Repeated Measure Analysis of Variance (RM-ANOVA) Test for Effectiveness of Educational Program on Mothers' Knowledge about Nutrition-related Health in the Control Group (N=30)

Descriptive		Within-Subjects Effect								
Knowledge	Mean (S.D)	Source		Type III Sum of Squares	df	Mean Square	F	P-value	Sig.	Partial Eta Squared
Pre-test Post-test I Post-test II	91.43 (27.077) 91.50 (27.076) 91.37 (27.050)	Time	Sphericity Assumed	.267	2	.133	1.526	.226	N.S	.050
			Greenhouse-Geisser	.267	1.633	.163	1.526	.229	N.S	.050
			Huynh-Feldt	.267	1.718	.155	1.526	.228	N.S	.050
			Lower-bound	.267	1.000	.267	1.526	.227	N.S	.050
		Error(Time)	Sphericity Assumed	5.067	58	.087				
			Greenhouse-Geisser	5.067	47.371	.107				
			Huynh-Feldt	5.067	49.810	.102				
			Lower-bound	5.067	29.000	.175				

S.D: Standard Deviation, df: Degree of Freedom, f: F-statistics, P-value: probability value, Sig: Significance, H.S: High Significant

Table (5): Relationships among Mothers' Knowledge in the Study Group with their Sociodemographic Characteristics (Post-test)

Variables		Knowledge				Relationship
		Poor	Fair	Good	Total	
Age (Years)	20 – less than 30	0	0	18	18	r_S = .054 P-value= .777 Sig= N.S
	30 – less than 40	0	0	10	10	
	40 and more	0	0	2	2	
	Total	0	0	30	30	
Level of education	Doesn't read & write	0	0	1	1	r_S = .610 P-value= .001 Sig= H.S
	Read & write	0	0	8	8	
	Primary school	0	0	9	9	
	Intermediate school	0	0	7	7	
	Secondary school	0	0	5	5	
	Total	0	0	30	30	
Occupation	Employee	0	0	2	2	r^* = .007 P-value= .971 Sig= N.S
	Housewife	0	0	28	28	
	Total	0	0	30	30	
Residency	Urban	0	0	17	17	r_S = .441 P-value= .015 Sig= S
	Suburban	0	0	13	13	
	Rural	0	0	0	0	
	Total	0	0	30	30	
Monthly income	Sufficient	0	0	8	8	r_S = .216 P-value= .252 Sig= N.S
	Barely sufficient	0	0	14	14	
	Insufficient	0	0	8	8	
	Total	0	0	30	30	
Source of information	None	0	0	8	8	r_S = .274 P-value= .143 Sig= N.S
	Family & friends	0	0	9	9	
	Internet	0	0	9	9	
	TV program	0	0	4	4	
	Total	0	0	30	30	

r_S = Spearman correlation coefficient, r^*= point biserial correlation coefficient, P= Probability, Sig= Significance, N.S= Not significant, S= Significant, H.S= High significant

Discussion

The result in table (1) The current study has employed approach of measuring the Body mass index BMI for children over two years that used for Centers for Disease Control and Prevention CDC (2010). The result showed most of children in both study and control groups were within normal BMI (66.7%, 56.7%) respectively, followed by underweight and overweight.

These findings are consistent with a study conducted in Baghdad City, to estimate the nutritional status during childhood for (900) child. The findings revealed most of those children were with normal weight (46.33%), followed by overweight (17.18%), and underweight (14.79%) documented in their study, most of the nutritional status of children under five (66.2%) is good. (31)

The result in table (2) showed, most of mothers in both groups were recorded a poor knowledge before they intervene by the educational program. While, their knowledge were increase to the good level of knowledge after exposed to the educational program. When the researcher exam their knowledge immediately after the end of the program at post-test I period, and after one months of test I again at post-test II period. The result of the study indicated, a clear improvement in mothers' knowledge after exposed to the program contents. The researcher included the main information that related to the knowledge gap for mothers during preliminary study.

Most well prepared programs which provided by professional providers, aimed to improve individual knowledge or practice in certain topics. Many researchers included their prepared program in a study and exam its effectiveness. Such a randomized control trial in which aimed to determine the effect of nutrition related child educational program on mothers` knowledge and practices, the result revealed mothers in the study group were improved their good knowledge from (59% to 96%), while mothers in control group showed the same level of nutrition knowledge (32)

A booklet in their educational program, because it more interests, increase attention, and not boring. Their result showed a significant increase in knowledge, attitudes and behavior level of the participants after exposed to the nutrition education intervention by the authors(33). Another study by also found a differences in the knowledge and behavior between the mothers in control and intervention groups after they given an educational program about

children nutrition(34). Providing the educational program with develop the motivation of the participants to change their attitudes and feeding behavior by adding the media in the form of booklets will increase effectiveness of programs and reduce knowledge decay. recommend, the using of attractive and easy intervention with adequate information on breast feeding could improve mothers knowledge(35)

The current study has indicated that, the provided educational program was highly effective to improve mothers' knowledge in the study group, evidenced by high significance differences between their level before and after the provided program at p-value=0.000, but no clear differences of mothers' knowledge in the control group during period of the study (3& 4). The mothers knowledge in the control group showed the inadequate of knowledge along study period. That because, those mothers not intervene with additional source to improve their knowledge status, and they still keep their previous information about nutrition.

In Indonesia, the researchers assessment the effects of their intervene nutritional education on mothers` nutritional knowledge, attitude and practice in an experimental study, they divided the mothers randomly into control and intervention group. The score mean of nutritional knowledge after intervention was not change in the mothers at the control group (36)

In table (5) the statistics indicated a significant relationship between mothers' knowledge and their level of education, and residency only at p-value < .05. However, the socioeconomic status showed no significant association. In the researcher point of view, this result may be related to the fact that, when individuals have adequate healthy information, with barely level of socioeconomic status, mostly they capable to apply their healthy information with life style and family care.

Children born to educated mothers shown less malnutrition than not well educated mothers(37). In Diyala a previous study also found a positive association between children's nutritional status and their mother's education at p-value <0.05.

Furthermore,(38), in their study to evaluate maternal factors on children nutrition status in Tripuri town, the authors depicted mother's educational level influenced on their children nutritional status.

Low maternal education can lead to low awareness about the right and healthy food and correct ways of caring for their children's weight status (39). A study conducted in Europe, to find the impact of low maternal education upon childhood obesity, found the low maternal education increase the risk of prevalence the overweight among European Countries (40).

The residency has an effect on mothers` knowledge in the current study. In the researcher point of view this result can be justified to that, half of mothers approximately were lived in suburban and rural area, which make their chance of seeking for medical information and services was lack. In addition, most families in these area were depend mostly on the traditional information.

support the current result, in their comparative study in Ethiopia, which found mother's residency was associated as a significant factor with child`s weight.(41)

In Turkey were investigate mothers` nutrition literacy and BMI of their children, the authors revealed mothers` nutrition literacy was affected by their socio-economic level, nutritional knowledge, and the sources of information.(42)

recommends that the implementation of the nutrition education program can be employed as an educational mean for enhancing the high school female students' nutritional knowledge(43)

Conclusions

The study concluded the constructed Nutrition Education Program can be considered an effective mean for the reinforcement and improvement of the

mother's nutritional knowledge toward effects on their children Nutritional status. However, children nutritional status not affected.

Recommendation

It recommend to adapt the prepared educational program by ministry of health to increase mothers knowledge concerning nutrition related health to increase their knowledge and interest about importance of child nutrition. nurses and nutritionists carry out regular home visits or kindergarten and school to present appropriate teaching for mothers about proper nutrition and emphasis on importance of three meals particularly breakfast, decrease consumption of sugared fluid and important of physical activities. Breast feeding oriented education programs for mothers who do not breast-feed their babies

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