# Effect of Mothers' Nutritional Knowledge, Attitude, and Practices in Childcare on the Growth of Children

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# Abstract

Well education about nutrition can improve maternal nutritional knowledge and practices significantly, that improve the growth of children. Aim: Assess the effect of mothers' nutritional knowledge, attitude, and practices in childcare on the growth of children. Subjects and method: Design: An analytical cross-sectional study research design was conducted for 100 mothers and their children aged 6-23 months in Medical Pediatric Out-Patient Clinic in Sohag University Hospital. Tools for data collection: Four tools were used to collect the data in the current study, tool (I): A structured questionnaire that consisted of two parts: part (1): Sociodemographic characteristics of mothers of children, part (2): Demographic characteristics of children, tool (II): Anthropometric measurement tool, and tool (III): Nutrition-related KAP model questionnaires (Module 2: Feeding young children (6-23 months), and tool (IV): Modified Fahmy and ElSherbini scale. **Results**: it observed that a significant positive relationship was detected between knowledge, attitude, and practices and WFA (r = 0.26, P = 0.0001) and between WFH (r = 0.11, P = 0.02). In the studied young children, it was observed that 54% of young children between 6-8 months consume the recommended and 59% of young children between 9 and 23 months consume more than recommended. Conclusion: Mothers' nutritional knowledge, attitude, and practices regarding childcare have positively affected the growth of children. Recommendations: Educational programs about balanced nutrition for children aged 6-23 should be taught to all mothers.

Keywords: Mothers' nutritional knowledge, attitude, and practices, childcare practices, growth of children

# **Introduction:**

Nutrition is considered an important factor in the growth, development, and all functioning of a child. Children need adequate dietary intake to provide them enough nutrients and energy to grow, without reducing his body's ability to stay healthy (**Renae, 2013**).

Good nutrition and dietary behaviors are important to achieve growth and to promote wellbeing. Children require sufficient energy, protein, and other nutrients for growth to maintain their body functions. Furthermore, poor dietary quality and physical inactivity during early childhood can stunt the basic cognitive and physical abilities of the children, so that any consideration should be given such as mother's education, mother's knowledge, attitude, and practices concerning feeding and health-seeking (**Ekwochi et al., 2015**). Common anthropometric indicators of childhood include height combined with weight) according to age and sex. The Body Mass Index (BMI is defined as the weight in kilograms divided by the square of the height in meters) is a simple index of weight-to-height commonly used to classify underweight, overweight, and obesity. While stunting is defined as children with a low height for age (**Boslaugh, 2008**).

Balanced nutrition is very important to maintain good health and prevent infants' malnutrition which includes stunting, wasting, and obesity. The anthropometric composite index is an anthropometric index that combines the three indexes, namely weight-for-age (WAZ), height-for-age (HAZ), and weight-forheight (WHZ), to determine the nutritional status of the child (**Simanjuntak et al., 2018**).

Mothers are the first caregiver of children to avoid nutritional problems in children and

achieve optimal growth. Maternal knowledge, attitudes, and practices affect the change of the children's diet. Mothers with sufficient knowledge will implement a good nutrition practice; hence, their children will be healthy and free from malnutrition disease while they following better dietary practices. Subsequently, this will help the mothers in changing their family's eating behavior and practices (**Edith and Priya, 2016**).

The body is growing at alarming rates during early childhood. These rates slow down after the age of 1 year throughout childhood, adolescence, and puberty. Children with poor nutrition do not only have direct negative effects on their weight and health, but also causes significant deficiencies in the nutrients and affects cognitive development (Macías, and Glasauer, 2019).

Because children are eating from what mothers provide. Mothers' attitudes of serving foods may influence children's attitudes concerning likes and dislikes and family members' vegetable selection was affected by guardians' vegetable serving (Wenrich et al, 2017).

Child-nutrition practices are determined by the availability of various foods, the sizes that children are offered, the frequency of eating occasions, and the social contexts in which eating occurs. Mothers can affect children's dietary practices in many areas as availability and accessibility of the foods; meal content and environment; adult food modeling; food socialization practices (**El-Nmera et al.**, **2021**).

The important role of the nurse is to help mothers to care for child nutrition. Provide adequate care, health education for caregivers (both formal and informal), provide support resources). Help mothers in providing information about feeding regarding positive structure, age-appropriate support, and healthful food and beverage choices (**Department of Census and Statistics, Demographic and Health Survey, 2019).** 

Failure of growth and development can affect an infant's life in adulthood. Nutritional status is affected by eating habits and healthy eating habits are necessary for children who need to grow healthy and to solve acute dietary problems in children (**Cogill, 2019**). Hence, the study was aimed to assess the effect of mothers' nutritional knowledge, attitude, and practices in childcare on the growth of children in Sohag City.

#### Significance of the study:

Mortality rates and deaths of under-five children from malnutrition was 6.9 million and are concentrated in Africa (You et al., 2014). Maternal nutritional knowledge is strongly linked with the nutritional status of children. Practices of mothers are influenced by knowledge, awareness, and skill levels that affected the nutritional outcomes of children and might help more effective interventions against malnutrition. It is important to assess and evaluate maternal nutritional knowledge to maintain child growth and health because insufficient knowledge affected practices and child growth (United Nations Second report on the world nutrition situation, 2017).

# Aim of the study:

The study was aimed to assess the effect of mothers' nutritional knowledge, attitude, and practices in childcare on the growth of children in Sohag City through:

- 1- Assessing mothers' nutritional knowledge, attitude, and childcare practices.
- 2- Assessing the growth of the children.
- 3- Investigate the relation between demographic data of the mothers and nutritional knowledge, attitude, and childcare practices.
- 4- Investigate the effect of mothers' nutritional knowledge, attitude, and practices in childcare on the growth of children.

#### Research questions:

- 1- What are the mothers' nutritional knowledge, attitude, and practices in childcare?
- 2- What is the growth of the children?
- 3- Is there a relationship between demographic data of the mothers and nutritional knowledge, attitude, and childcare practices?
- 4- Is there an effect of mothers' nutritional knowledge, attitude, and practices in childcare on the growth of children?

#### Subjects and Methods:

#### Research design:

An analytical cross-sectional design was adopted in the current study. It is often used to make inferences about possible relationships or to gather preliminary data to support further research and experimentation (**Kendra**, 2019). Setting:

The study was conducted at Medical Pediatric Out-Patient Clinic affiliated to Sohag University Hospital; this setting was selected due to the high attendance of children in this setting and also it serves the biggest region. **Subjects**:

A purposive sample involved 100 children and their mothers from the total number 225, who attended the previously mentioned setting within six months from the beginning of July and to last December 2020 and fit the inclusion and exclusion criteria.

#### Inclusion criteria:

It included the mother who had a child aged 6-23 months and agrees to participate in the study.

#### Exclusion criteria:

It included children suffering from any history of chronic physical illness e.g. Diabetes mellitus or others.

Sample size was calculated by the following equation:

 $n = [DEFF*N p (1-p)]/ [(d 2 /Z 2 1-\alpha/2*(N-1) +p*(1-p)]]$ 

(n) = Sample Size, DEFF = Design effect (for cluster surveys-DEFF): (1.5), d = Confidence level (95%), N = Population size, P = margin of error (0.05).

#### Tools and techniques of data collection:-

Data collection tools used in the current study as follows:

- Tool (I): A structured questionnaire was developed by the researcher after reviewing related literature (WHO, 2019) that consisted of two parts:
- Part (1): Sociodemographic characteristics of mothers: This included age, educational

level, residence, working status, and family income.

- **Part (2):** Demographic characteristics of children: This involved age and gender.
- Tool (II): Anthropometric measurement tool: This tool included the anthropometric measurement of the child which is used to record weight, height, and weight-for-height (WFH) was measured following the z-score benchmark of the World Health Organization. Weight-for-age index (WFA) divided into three groups was of underweight ( $-3 \le z$ -score < -2), normal (- $2 \leq z$ -score  $\leq +1$ ), and overweight (above + 1). The height-for-age (HFA) was divided into four groups of severe short height (less than -3 z-score), short height ( $-3 \le z$ -score <-2), normal ( $-2 \le z$ -score  $\le +3$ ), and tall (higher than + 3). The weight-for-height index (WFH) was divided into 5 groups of lean (less than -2), normal ( $-2 \le z$ -score  $\le$ + 1), overweight (+ 1 < z-score  $\leq$  + 2), weight gain (+ 2 < z-score  $\leq + 3$ ), and obese (> + 3). The weight of the children was measured using a measuring scale with a weighing precision of 5 g and control weights of 50, 100, and 1000 g (Talachvan et al., 2015). Body mass index (BMI) was calculated by dividing weight (kilograms) with height in meters squared (kg/m2). Evaluation of growth status (undernutrition, over nutrition, and obesity) using BMI was based on the score of centile is performed according to Egyptian centiles as the following: (1) Child with BMI below 5th centile is considered underweight. (2) A child with BMI from above or equal to 5th centile to below 85th centile is considered normal. (3) A child with a BMI equal to or above 85th centile but less than 95th centile is considered overweight. (4) A child with a BMI equal to or above 95th centile is considered obese.
- Tool (III): Nutrition-related KAP model questionnaires (Module 1: Feeding young children (6–23 months) (Food and Agriculture Organization of the United Nations (FAD), 2014): This tool used to estimate the level of knowledge, attitudes, and practices (KAP), the KAP Model Nutrition Questionnaire developed by FAO

was used; Of the 13 modules which conform the questionnaire, modules 2 were used for young children from 6-23 months. The questionnaire modules were in-field tested in Cambodia. Malawi. Mexico, and El Salvador to ensure their validity, readability, easily of administration, and certainty that they do not entail excessive difficulty for the respondents; however, indications were taken into account indications of FAO's manual. The feeding young questionnaire for the child from 6-23 months consisted of, knowledge questions, 7 attitudes 7 questions, 4 questions to determine the feeding practice to the child from 6-23 months. The feeding questionnaire for young aged 6 to 23 months has questions for continuous breastfeeding practice, food diversity questions asking about the consumption of feeding groups, other foods, and frequency of meals (World Health Organization, 2010).

Tool (IV): Modified Fahmy and El-Sherbini scale: This scale was used to assess the socio-economic level of the family. The total score ranged from 5 to 19. Those with scores 15 or more ( $\geq$  80% of total score) were considered of high socioeconomic class; scores 11-14 (60-< 11(< 60%) of low socioeconomic class (Fahmy and El-Sherbini, 1983).

#### Validity and reliability:

Face and content validity of the tool for clarity, comprehensiveness, and relevance was assessed by a board of five experts in pediatric nursing and community health nursing with more than ten years of experience in the field. Content validity of the tools, Content Validity Index (CVI) was 0.95, 0.97, and 0.96 respectively.

The Reliability of the tool was assessed through Cronbach's alpha test  $\alpha$ = 90% in the first tool and revealed that the second tool's reliability was 0.86, and reliability was 0.88 in the third tools.

# A pilot study

A pilot study was conducted on 10% of the mothers (10 mothers and their children to test the clarity and the feasibility of the research process and needed time for data collection. No modifications were required in the pilot study. The sample of the pilot study was included in the total sample.

# Administrative Approval

Official permission was obtained from the Dean of Faculty of Nursing, Sohag University to the chairmen of the Medical Pediatric Out-Patient Clinic at Sohag University Hospital to conduct this study. The aim of the study was explained to obtain permission to collect the research data from the hospital under his directorate. Permissions for data collection were generated from the hospital directors and the head of the outpatients and were informed about the purpose of the study, the date, and the time of starting data collection to obtain their approval.

#### Fieldwork:

Data were collected from the beginning of July and to last December 2020. Researches were attended the previously mentioned setting for collected data one day per week (Monday), from 9 Am to 1 pm. To estimate the Knowledge, attitudes, and practices (KAP) of mothers regarding childcare, the KAP Model Nutrition Questionnaire developed by FAO was used. Measurements such as weight and length/height were measured by the researchers in the previously mentioned setting.

Young children's weights were measured using an electronic weighing scale, and the scale records weights in kilograms. It was adjusted to zero before each reading. The length was centimeters using measured in а metal anthropometric linear rule fixed to a horizontal flat board. It was recorded with Young children in the supine position; an assistant held the Young children in a position, making sure that the knee fully extended and straight and the soles of the feet held firmly against the footboard and head touching the fixed board.

# Ethical considerations:

The purpose of the study was explained to the mothers of premature neonates. The researchers informed the participants that the study was voluntary, they were allowed to refuse to participate and they had the right to withdraw from the study at any time, without giving any reason. Moreover, they were assured that their information would be confidential and used for research purposes only.

#### Statistical analysis:

Data analysis was performed using SPSS version 20. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables and mean and SDs for quantitative variables. Statistical differences were considered significant at pvalues of less than 0.05. Chi-square (x2) test of significance was used to compare proportions between qualitative parameters. Multivariate regression analysis was used in assessing the association between childcare knowledge, attitude, practices. and sociodemographic characteristics of the mothers.

# **Results:**

From **table** (1) it was noticed that three quarters (76%) of the studied mothers were their age < 30 years with the mean age of  $27.2\pm1.2$  years. Concerning educational level, more than a quarter (36.0 %) of them had bachelor's degree, more than three-quarters of them (76%) were living in urban areas and 73% of mothers were working. As regard family income more than two-thirds of mothers had low income (65%).

Regarding demographic characteristics of the studied children, it was observed from the **table (2)** that, less than one half (45%) of children were aged 12 to less than 18 months, with the mean age of  $10\pm4.3$  years. Regarding their gender, nearly two thirds (63%) of them were females.

As shown in table (3), it was observed that regarding the recommended time that a mother continues breastfeeding (35%) of mothers reported correct answer (24 months or more). 35% reported the correct age of start of complementary foods. Half of the mothers (50%) answered that the reason for giving complementary foods at six months that breast milk alone is not sufficient and 65% said the consistency of meals should be thick. More than one-third (36%) of mothers preferred animalsource foods to be added to rice to make it more nutritious and more than one quarter reported that the best ways to encourage young children to eat make funny faces/play/laugh and more than one third have good nutritional knowledge.

 

 Table (4): showed that (63%) of mothers

 feel confident in preparing food for their children, more than three quarters (78%) of them feel good to do give different types of food to the child each day, and 46% of them found it is difficult to give different types of food to the child each day. Most of them (80%) reported that it is good to feed children several times each day. More than half of mothers (56%) found it not difficult to feed the child several times each day. Nearly two-thirds (63%) reported it is good to continue breastfeeding beyond six months for their children and (76%) of them found that it is not difficult to continue breastfeeding beyond six months and most of them have a positive attitude towards their child' nutrition.

**Table (5):** Showed the mothers practices in their children nutrition and it was noticed that more than two-thirds (65%) of mothers reported that their baby breastfed consume breast milk yesterday during the day or at night, 67% of babies ate food as grains, roots, and tubers, 57% of them ate legumes and nuts during the day or at night. Number of infant formula during the day drink by babies was 4 times and 96% of babies ate eggs. Mothers reported that all young children eat other foods like milk products and rice with breastfeeding and number of meals presented to during the day was 3 times.

**Table (6):** represent the recommendations of the WHO, the frequency of servings for children fed with breast milk is: 2-3 times for infants from 6 to 8 months breastfed, 3-4 times for infants of 9 to 23 months breastfed. In the studied young children, it was observed that 54% of young children between 6-8 months consume the recommended and 59% of young children between 9 and 23 months consume more than recommended.

Regarding anthropometric indices, the results reflected that 72% of the children had normal weight, 24% were overweight to obese, and only 3.5% were underweight. Concerning the height-for-age index, only (1%) of children was severe stunting and 93.5% had a normal range of height. In terms of weight-for-height index, 70% of them were their weight normal for height, and 20% of the children aged 6-23 months were at risk for overweight and (6%) to overweight and (3%) to obese.

#### **Original Article**

**Table** (7):In multiple-linear-regression models, a significant difference was found in the age, educational level, residence, working status, family income, attitudes towards nutrition, and nutritional practices across the mothers (p < 0.01). In this study group, mothers acquire more nutritional knowledge in childcare as they grow older. Mothers who had the highest education level had better nutrition knowledge. Mothers who live in urban areas had more knowledge of nutrition than those living in rural areas. Mothers who paid attention to nutrition practice and attitude had more knowledge than those who did not pay attention to nutrition (**Table 8**).

**Table (9):** Showed a significant positive relationship was detected between knowledge, attitude, and practices and WFA (r = 0.26, P = 0.0001) and between WFH (r = 0.11, P = 0.02).

 Table (1): Frequency distribution of the studied mothers regarding their sociodemographic characteristics (N= 100)

| Sociodemographic characteristics | No | %     |
|----------------------------------|----|-------|
| Age(years):                      |    |       |
| - <30                            | 75 | 75.0  |
| - >30                            | 25 | 25.0  |
| Mean and SD(27.2±1.2)            |    |       |
| Educational level:               |    |       |
| - Postgraduate                   | 6  | 6.00  |
| - Bachelor's degree              | 36 | 36.00 |
| - Technical Institute            | 30 | 30.00 |
| - Secondary school diploma       | 28 | 28.00 |
| Residence                        |    |       |
| - Urban                          | 76 | 76.00 |
| - Rural                          | 24 | 24.00 |
| - Working status:                |    |       |
| - Working                        | 73 | 73.00 |
| - Not working                    | 27 | 27.00 |
| Family income:                   |    |       |
| - Low                            | 65 | 65.00 |
| - High                           | 35 | 35.00 |

Table (2): Frequency distribution of the children regarding their demographic characteristics (N=100)

| Demographic characteristics | No | %     |
|-----------------------------|----|-------|
| Age(months)                 |    |       |
| • 6 < 12                    | 35 | 35.00 |
| • 12 <18                    | 45 | 45.00 |
| <ul> <li>18 ≥ 23</li> </ul> | 20 | 20.00 |
| Mean and SD ( 10±4.3)       |    |       |
| -Gender                     |    |       |
| - Female                    | 63 | 63.0  |
| - Male                      | 37 | 37.0  |

# **Table (3):** Frequency distribution of mothers' knowledge in childcare

| Maternal knowledge questions   | No | %  |
|--|----|----|
| 1-Until what age is it recommended that a mother continues breastfeeding?  |    |    |
| - Six months or less   | 23 | 23 |
| - 6–11 months  | 12 | 12 |
| - 12–23 months   | 30 | 30 |
| - 24 months and more (correct response)  | 35 | 35 |
| 2-Age of the start of complementary foods  |    |    |
| - At six months  | 33 | 33 |
| - Other times  | 57 | 57 |
| - Don't know   | 10 | 10 |
| 3-Reason for giving complementary foods at six months  |    |    |
| - Breast milk alone is not sufficient  | 50 | 50 |
| - Other reasons  | 40 | 40 |
| - Don't know   | 10 | 10 |
| 4-Consistency of meals   |    |    |
| - Shows the thick porridge   | 65 | 65 |
| - Shows the watery   | 35 | 35 |
| - Does not know  | 10 | 10 |
| 5-Reason for consistency of meals  |    |    |
| - Because the first porridge is thicker than the other   |    |    |
| - Because the thick porridge is more nutritious/because it is prepared with different                                    | 27 | 27 |
| types of foods or ingredients (food diversity)   | 73 | 73 |
| 6-Which foods or types of food can be added to rice porridge to make it more nutritious?                                 |    |    |
| - Animal-source foods (meat, poultry, fish, liver/organ meat, eggs, etc.)  | 36 | 36 |
| - Pulses and nuts: flours of groundnut and other legumes (peas, beans, lentils, etc.), sunflower seed, peanuts, soybeans | 25 | 25 |
| - Vitamin-A-rich fruits and vegetables (carrot, orange-fleshed sweet potato, yellow                                      | 10 | 10 |
| pumpkin, mango, papaya, etc.)  | 17 | 17 |
| - Green leafy vegetables (e.g. spinach)  | 20 | 20 |
| 7-Do you know any ways to encourage young children to eat?   |    |    |
| - Giving them attention during meals, talk to them, make mealtimes happy times   | 15 | 15 |
| - clap hands   |    |    |
| - make funny faces/play/laugh  | 17 | 17 |
| - demonstrate opening your mouth very wide/modeling how to eat   | 28 | 28 |
| - say encouraging words  | 25 | 25 |
| - draw the child's attention   | 10 | 10 |
|  | 15 | 15 |

| Table (4): Frequency distribution of mothers' | Attitudes towards an ideal or desired nutrition-related |
|---|---|
| practice in childcare                         |   |

|   | No | %  |
|---|----|----|
| 1-How confidence do you feel in preparing food for your child?                        |    |    |
| - Ok/so-so  | 27 | 27 |
| - Confident   | 63 | 63 |
| 2-How good do you think it is to give different types of food to your child each day? |    |    |
| - 1. Not good   | 5  | 5  |
| - 2. You're not sure  | 17 | 17 |
| - 3. Good   | 78 | 78 |
| 3-How difficult is it for you to give different types of food to your child each day? |    |    |
| - 1. Not difficult  | 46 | 46 |
| - 2. So-so  | 16 | 16 |
| - 3. Difficult  | 38 | 38 |
| 4-How good do you think it is to feed your child several times each day?              |    |    |
| - 1. Not good   | 7  | 7  |
| - 2. You're not sure  | 13 | 13 |
| - 3. Good   | 80 | 80 |
| 5-How difficult is it for you to feed your child several times each day?              |    |    |
| - 1. Not difficult  |    |    |
| - 2. So-so  | 56 | 56 |
| - 3. Difficult  | 24 | 24 |
|   | 30 | 30 |
| 6-How good do you think it is to continue breastfeeding beyond six months?            |    |    |
| - You're not sure   |    |    |
| - Good  | 37 | 37 |
|   | 63 | 63 |
| 7-How difficult is it for you to continue breastfeeding beyond six months?            |    |    |
| - 1. Not difficult  | 76 | 76 |
| - 2. So-so  | 14 | 14 |
| - 3. Difficult  | 20 | 20 |

**Table (5):** Frequency distribution of mothers' practices in childcare regarding nutrition

| Mothers' practices  | No   | Yes          |
|---|--|--------------|
| 1-Was the baby breastfed or did he or she consume breast milk vesterday during the day or at night? | 35%  | 65%          |
| 2-liquids or foods that (name of the baby) ate yesterday during the d                               | ay or at night   |              |
| Group   | No   | Yes          |
| Group 1: Grains, roots, and tubers  | 33%  | 67 <b>%</b>  |
| Group 2: Legumes and nuts   | 43%  | 57%          |
| Group 3: Dairy products   | Infant formula   | 4 times      |
|   | Milk, such as tinned, powdered, or fresh animal milk 7 times |              |
|   | Yogurt or drinking yog                                       | gurt 6 times |
| Group 4: Flesh foods  | 67%  | 33%          |
| Group 5: Eggs   | 4 <b>%</b>   | 96%          |
| Group 6: Vitamin A fruits and vegetables  | 25%  | 75 <b>%</b>  |
| Group 7: Other fruits and vegetables  | 11%  | 89%          |
| Others (not counted in the dietary diversity score)   | 32%  | 68 <b>%</b>  |
| 3-The baby does not consume any food other than breast milk   | 100  | 0            |
| 4-How many times did eat foods that are meals other than liquids yes<br>3 times                     | sterday during the day                                       | or at night? |

 Table (6): Frequency distribution of recommended nutrition for children by World Health Organization

| Age         | Less than recommended | Recommender | More than recommended |
|-------------|-----------------------|-------------|-----------------------|
| 6-8 months  | 34(34%)               | 54(54%)     | 12(12%)               |
| 9-23 months | 18(18%)               | 23(23%)     | 59(59%)               |

 Table (7): Frequency distribution of Z-score for the height-for-age (HFA), weight-for-age (WFA), and weight-for-height (WFH) of the young children

| Anthropometric Indicators | No   | %    |
|---------------------------|------|------|
| WFA                       |      |      |
| Underweight               | 3.5  | 3.5  |
| Normal                    | 72.5 | 72.5 |
| Overweight                | 24   | 24   |
| HFA                       |      |      |
| Severe stunting           | 1    | 1    |
| Stunting                  | 5    | 5    |
| Normal                    | 90   | 90   |
| Tall                      | 4    | 4    |
| WFH                       |      |      |
| Wasting                   | 1    | 1    |
| Normal                    | 70   | 70   |
| Risk of overweight        | 20   | 20   |
| Overweight                | 6    | 6    |
| Obese                     | 3    | 3    |

 Table (8): Multiple linear regressions to identify factors that affect sociodemographic and nutritional knowledge of the mothers

| Sociodemographic<br>characteristics | В     | SE    | VIF   | t      | p-Value  |
|-------------------------------------|-------|-------|-------|--------|----------|
| Age(years)                          | 0.257 | 0.051 | 1.389 | 5.090  | 0.000 *  |
| Educational level                   | 0.468 | 0.142 | 1.506 | 3.331  | 0.001 *  |
| Residence                           | 0.543 | 0.088 | 1.808 | 6.091  | 0.000 *  |
| Working status                      | 0.351 | 0.048 | 1.971 | -2.336 | 0.029 ** |
| Family income                       | 0.407 | 0.041 | 1.418 | 2.008  | 0.001 *  |
| Attitude towards nutrition          | 0.048 | 0.087 | 2.511 | -0.574 | 0.000 *  |
| Nutritional Practice                | 0.209 | 0.129 | 1.217 | -1.626 | 0.020 ** |

Table (9): Relationship between mothers' nutritional knowledge, attitude, and practices in childcare and child' anthropometric indices

| Anthropometric indices | Knowledge |        | Attitude |      | Practice |        |
|------------------------|-----------|--------|----------|------|----------|--------|
|                        | R         | Р      | R        | Р    | r        | Р      |
| WFA                    | 0.26      | 0.0001 | -        | -    | -        | -      |
| HFA                    | 0.05      | 0.25   | 0.05     | 0.29 | -        | -      |
| WFH                    | 0.11      | 0.02   | 0.05     | 0.29 | 0.50     | 0.0001 |

#### **Discussion:**

Preventing malnutrition diseases can reduce the risk of child mortality. Achievement of this purpose considered easy and possible through healthy nutritional knowledge should be provided to mothers to improve the growth and development (**Ministerio et al., 2016**). The transition stage from exclusive breastfeeding to complementary feeding is considered a complex process, influenced by cultural and economic status, which results in decisionmaking (**Saeidlou et al., 2016**).

The findings of the current study revealed that more than one-third of mothers have good nutritional knowledge. This emphasizes the importance of mothers' knowledge because insufficient nutritional knowledge can cause nutrition problems and the occurrence of diseases related to nutrition. These results were in the same line with results conducted by **Organization Mundial de la Salud**, (2014) and found in their study that all mothers know and understand the concept of exclusive breastfeeding and complementary feeding. Also, in India, most mothers reported the same about good knowledge (Jain et al., 2018).

The findings of the current study revealed that most of them have a positive attitude towards their child's nutrition. Nearly twothirds reported it is good to continue breastfeeding beyond six months for their children and of them found that it is not difficult to continue breastfeeding beyond six months. The result of the present study is Saeidlou et al. (2016) who supported by studied "Nutritional Knowledge, Attitude and Practice of North West Households" in Iran and found the same result and positive attitude towards the preparation and benefits of additional nutrition with feeding among 90% of the caregivers. This meaning that the good knowledge of mothers reflected positively on their attitude and mothers try to apply what they know about healthy feeding and meals for their children.

The findings of the current study reflected that all young children were breastfed and eat other foods like milk products and rice ...etc with breastfeeding and number of meals presented to during the day was 3 times, this meaning the good practice of mothers due to good knowledge about their children' nutrition. This result agrees with the study conducted by **Oscar et al.**, (2019) about knowledge, attitudes and food practices in caregivers and nutritional status in infants from Ventaquemada and found that most of the participants reported that diversity was found to ensure adequate diet and similar to the study in Iran by (Asare et al., 2018).

The findings of the current study revealed that more than half of young children between 6-8 months consume the recommended and nearly three-fifths of them from 9 and 23 months consume more than recommended. This study agrees with a study conducted by **Oscar et al., (2019)** study about knowledge, attitudes and food practices in caregivers and nutritional status in infants from Ventaquemada and found the frequency of meals per day, among children between 6-23 months ago was in a significant proportion, consume more than the recommendations established by World Health Organization.

The findings of the current study reflected that a significant difference was found in the age, educational level, residence, working status, family income, attitudes towards nutrition, and nutritional practices across the mothers (p < 0.01). Regarding age, this is explained by that old mothers have more knowledge than young mothers. Concerning mothers' education, it may be attributed to that educated mothers can know more about the child's nutritional requirements and meal contents and have more opportunities to search and read different sources about their children's nutrition. Regarding mother's residence, this may explain by that urban areas are different in culture, values, and beliefs, and mothers in these areas are more in freedom and opening. increase of awareness for reading, asking, and searching. Also. mothers' nutritional knowledge was associated with working mothers. This result may be because working mothers can have enough money to buy several nutritional requirements for their young children. Regarding family income, it may explain by that more family income help mothers to buy what they need for their children.

The findings of the current study revealed that a significant positive relationship was detected between knowledge, attitude, and practices and WFA and between WFH. The results of the current study are consistent with the findings conducted by Abuya et al. (2012) who studied effect of mother's education on child's nutritional status in the slums of Nairobi and found a significant relationship between the height-for-age index and the knowledge of the mothers. Similar to the present study conducted by Galgamuwa et al., (2014) about nutritional status and correlated socioeconomic factors among preschool and school children in plantation communities in Sri Lanka and found the same. Also, El-Nmera et al., (2021) in their study in Menoufia about nutritional knowledge, attitude, and practice of parents and its impact on the growth of their children and reported that maternal nutritional knowledge is positively associated with the nutritional status of children, and a significant correlation was found between the nutritional practice of children and their weight.

# **Conclusion:**

Based on the results of the study and research questions, it was concluded that, majority of the children were normal weight, nearly one quarter was overweight to obese, and only less than five percent were underweight. There was a significant difference found between demographic was the studied mothers characteristics of knowledge, attitudes towards nutrition, and nutritional practices across the mothers (p <There was a significant positive 0.01. relationship was detected between knowledge, attitude, and practices. Mothers' nutritional knowledge, attitude, and practices regarding childcare have positively affected the growth of children.

#### **Recommendations:**

# From the previous findings the following recommendations are suggested: -

- Health nutritional education and child care practices programs should be encouraged for mothers about sufficient and healthy eating habits and ideal growth of children to enhance child nutrition.
- Future research to study the effect of interventional guidelines on improving mothers' nutritional knowledge, attitude, and childcare practices.

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