Effect of Instructional Guidelines on Mothers' Knowledge and practices regarding Early Stunting Detection among Children under five years

Ghada Sobhy Hassan[1], Heba Ibrahim Mohamed[2],Amany Lotfy Ahmed[3]

[1]lecturer of community health nursing,Faculty of nursing,Ain Shams University-Cairo-Egypt.

[2] lecturer of pediatric nursing,Faculty of nursing, Kafrelsheikh University,[3]lecturer of community health nursing,Faculty of nursing,Kafrelsheikh University-gypt.

abstract

Background: Stunting has a negative impact on a child's health, making them more susceptible to disease and infection, as well as their mental and physical development, making stunted youngsters less likely to reach their full height and cognitive capacity as adults. **Aim:** The study aimed to evaluate the effect of instructional guidelines on mothers' Knowledge and practices regarding early stunting detection among Children under five years. **Setting**: Maternal and Child Health Center at Kafrelsheik city**. Sample:** A purposive sample included 163 mothers combined with their children. **Methods:** Quasi-experimental design was used**. Tools**: First tool: Structured interviewing questionnaire was used **Part I**: used to assess demographic characteristics of mothers **part II:** Used to assess the mother's knowledge about stunting and knowledge about proper nutritional **Second tool**: observational checklist for assessing mothers ' practices toward growth monitoring. **Results:** The current study showed statistically significant differences between the mothers' total knowledge and their practices regarding early stunting detection among their children under five years pre/post instructional guidelines. **Conclusion:** The Guidelines were effective for the studied sample regarding early stunting detection a significant improvement was observed in the mean score and level of knowledge and practice among the studied sample in post guidelines in comparison to that in pre-guidelines. **Recommendation**: Conducting educational program to increase mothers' knowledge about nutritional stunting, monitoring growth & development of the child, and the benefits of early detection in treatment through mass media.

Keywords: Instructional Guidelines, Early Stunting Detection, Children under five years

Introduction

Children's stunting is a serious public health concern and is regarded one of the world's most common nutritional problems. It has an impact on all part of a child's life; its impacts extend beyond physical well-being to include mental, social, and spiritual well-being **(Metwally et al., 2020)**. The second objective, 'Zero Hunger,' is one of seventeen Sustainable Development Goals (SDGs) endorsed by all United Nations Member States in 2015. It calls for the abolition of all kinds of global hunger and malnutrition by 2030. The achievement of a reduction in stunting among children under the age of five is one of the goals of this particular aim **(WHO, 2015).** Children are the future's hope, and they resemble seeds

that, if adequately cared for, would flourish and open up endless possibilities for a better society in terms of health, lifestyle, and capacity building **(United Nations, 2020).**

Stunting occurs when children's growth and development are stunted as a result of inadequate nutrition, recurring illnesses, and a lack of proper psychosocial stimulation **(Kumar & Lakhtakia, 2020).** A height that is more than two standard deviations below the World Health Organization (WHO) child growth guidelines median is considered stunting (being too short for one's age) **(WHO, 2014).**

Stunting is one of the most common outcomes of child malnutrition, and it has recently become a global health priority.

Socioeconomic level, poor maternal health and nutrition, insufficient baby and young child feeding practises, micronutrient deficiencies, and frequent infections are all factors that contribute to stunting in children **(Black & Heidkamp, 2018).**

Stunting has long-term consequences for children and societies, including impaired cognitive and physical development, decreased productive capacity, poor health, and a higher risk of degenerative diseases like diabetes **(Aslam, 2013).** Also, there are various demographic and socioeconomic determinants of child stunting. Child age and sex, wealth index, and the number of antenatal care visits **(Aguayo et al., 2015)**.

Monitoring the growth of children is the process of comparing a child's growth progress to standard anthropometric measurements on a regular basis. Assessing growth enables for the detection of growth deteriopration before the child reaches the point of malnutrition, lowering the risk of death. The use of dynamic indicators of nutritional status provides a more accurate diagnosis of likely death than assessing a child's growth trajectory. Growth monitoring has also been shown to have a positive impact on newborn feeding practises and calorie intake **(Griffiths & Rosso, 2019).**

Stunting is influenced by maternal education in a unique way. There is relatively little effort done through programmes to educate women about stunting, maternal and child nutrition. Increased maternal stunting-related information could be a useful strategy for addressing and avoiding stunting. Knowledge could include being more aware of appropriate feeding practises and understanding the nutrient diversity among the numerous food options available. being able to recognise stunting and nutritional condition in general, as well as childcare techniques **(West, et al., 2018).**

and their children about maternity protection, this is to improve maternal nutrition and health The role of community health and paediatric nurses as health care providers played an important role in stunting reduction which focus health education on adolescent girls and empowered them as they will be a future mothers to make good health choices for themselves, as well as educate mothers good perinatal care, in addition to provide "safe" nourishment and protect newborns from gastrointestinal illnesses, protect and promote exclusive breastfeeding for the first six months. During the supplemental feeding phase of six to 23 months, encourage the consumption of healthy, varied diets that include high-quality, nutrient-dense foods **(Shaban et al., 2017).**

Significance of the study

There is a lack of national studies that have examined the mothers' knowledge regarding early stunting detection among their children under five years. So, the study was aimed to evaluate the effect of instructional guidelines on mothers' knowledge and practices regarding early stunting detection among children under five years.

Around 162 million children under the age of five are affected globally. In Egypt, one out of every five children under the age of five is stunted, with one out of every ten being severely stunted. If current trends continue, 127 million children under the age of five would be stunted by 2025 in the world **(Haidar et al., 2019).**

In 2016, 87 million stunted children lived in Asia, compared to 59 million in Africa and 6 million in Latin America and the Caribbean **(UNICEF, WHO, World BankGroup, 2018).**

3. Aim of the study

The study aimed to evaluate the effect of instructional guidelines on mothers' knowledge and practices regarding early stunting detection among their children under five years through:

1.   Assessing mothers' knowledge and practices regarding early

stunting detection among children under five years.

2.   Design and implement guidelines for improving mothers' knowledge and their practices related to growth monitoring regarding early stunting detection among children under five years.

3.   Evaluate the effect of instructional guidelines on mothers' knowledge and their practices regarding growth monitoring for early stunting detection.

3.1.   Research hypothesis

The current study hypothesized that instructional guideline will improve mothers' knowledge and their practices regarding early stunting detection among their children under five years.

Subjects & Methods

4.1. Research design

A quasi-experimental design was utilized to collect the data relevant to this study.

4.2. Research setting

The study was carried out in the Maternal and Child Health Center in Kafrelsheik city, which was chosen because of the high frequency of mothers in this area, as well as the fact that it serves the largest portion of the population from both rural and urban areas.

4.3. Subjects

-   A purposive sample included 163 mothers combined with their children and met the inclusion criteria in six- months and received care from the previous setting mentioned starting from January 2021 until June 2021. The inclusion criteria were mothers who had children from three to under five years, visited the MCH center for receiving care, were free from physical and chronic disease, agree to participate in this study, and Excluded the children who suffered from chronic diseases or congenital anomalies.

-   Based on data from the literature *(Sari, 2021)*, considering a level of significance of 5%, and power of study of 80%, the sample size can be calculated using the following formula:

$$n = \frac{(Z\alpha/2 + Z\beta)^2 \times 2(SD)^2}{d^2}$$

where, SD = standard deviation obtained from previous study; $Z_{\alpha/2}$, for 5% this is 1.96; Z_{β}, for 80% this is 0.84 and d, for the expected difference. Therefore,

$$n = \frac{(1.96 + 0.84)^2 \times 2(7.6)^2}{(2.36)^2} = 162.6$$

Based on the above formula, the sample size required is 163

4.4. Tools of the study
The data was collected through:

4.4.1. Tool.

Structured interviewing questionnaire

-   It was developed by the researchers based on the recent related literature review, experts' opinions, and researcher experience. It included two parts:

Part I: This part included questions related to demographic characteristics of mothers such as age, education, occupation, age at marriage, birth order of the child, sex of child, residence, and wealth index

Part II:

A. This part is used to assess the Mother's Knowledge about stunting as meaning, causes, risk factors associated with stunting, clinical manifestation, Health effects of stunting in children, Growth monitoring.

B. Mothers' knowledge about proper nutritional diet for their children under 5 years this included (7 Questions) regarding the meaning of healthy food, the importance of healthy nutrition, the basic components of healthy food, examples of healthy food, food sources rich in proteins, food sources rich in carbohydrates, and food sources rich in vitamins and minerals. This tool was used twice (Pre/post instructional guidelines) after reviewing the

related literature (**Haidar et al., 2019& Daniel et al., 2017).**

❖ **Scoring system:**

Mothers' answers were cross-coded with a model key answer prepared by the researchers. Each question was scored as the following: the correct answer was scored (2) while "1" was given for incorrect answer or don't know.

These scores were summed-up and categorized into two levels:

Satisfactory level of knowledge (if the score ≥ 60%) and unsatisfactory level (if the score < 60%)

4.4.2. Tool II: An observational checklist for assessing mothers ' practices toward growth monitoring which include: (Weight, height, Plotting height-for-age (HFA) on a growth chart).

It was developed by UNICEF, WHO and modified by the researchers it includes body measurements of Children (anthropometric measurements- 10 items for Height and 10 items for weight) then Plotting The height-for-age (HFA) on a growth chart which is divided into three groups includes severe stunting (less than − 3 z-score), stunting ($− 3 \leq$ z-score $< − 2$), normal ($− 2 \leq$ z-score $\leq + 3$).

Scoring system

The checklist of mothers who performed it completely was considered Done'; the score was given (2) and the checklist of those who left any step was considered 'Not done; the score was given (1).

The total score of the procedure is classified as follows:

Done ≥ 50% of the total score.
Not Done < 50% of the total score.

The pilot study was carried out on 16 mothers representing 10% of the sample at the previously mentioned setting to test the applicability and the clarity of the included tools and the feasibility of the research process. The pilot has also served to estimate the time needed for each subject to fill in the questionnaires.

Content validity was ascertained by a group of five experts, from the pediatric nursing department (two experts), three experts of the community health nursing department, their opinions elicited regarding the format, layout, consistency, accuracy, and relevancy of the tools' **content. Test-retest reliability** was carried out to test the reliability of the tool. Cronbach's Alpha for the tool was 0.832.

Ethical Considerations:

To proceed in the study procedures, an approval was obtained from the Ethical Committee of the Faculty of Nursing at Kafrelsheik University. Before the study began, the researchers explained the study's aims and goals to the mothers who were participating. Before being included in the study, the mothers gave their verbal consent. The researchers ensured that the data of the subjects was kept anonymous and confidential. The mothers were informed that they had the option of participating in the study or not, and that they had the right to withdraw at any time.

4.6. Procedures

After selecting the studied mothers, who met the inclusion criteria,The study included 163 mothers. The researchers introduced themselves to studied mothers; the purpose and importance of the study were explained The researchers attended the previously mentioned setting of the study three days / a week from 9 am to 12 pm. The reserchers met for about 4:5 mothers/day. Data was collected through a period of 6 months from January 2021 until the end of June 2021. Data was collected from the studied mothers through interviewing questionnaires and an observation checklist. Each participant took, approximately, 30-40 minutes to complete the interview questionnaire.

Oral permission were obtained from studied mothers before participation in the study. The researchers collected data by distributing the questionnaire to studied mothers; each

question was explained to the studied mothers then answered by them.

This sheet was distributed to the studied twice; (1) pre/post-test to assess the mother's knowledge and practices through implementing instructional guidelines.

Nursing instructional guidelines are available in the hope of improving health care, assisting decision making, providing optimal and holistic care for women, and referrals to specialists related to patients with problems. A way to translate the best evidence into a clinical and transferable organizational context. Ensuring a safe and quality life (Khalil&Mahmoud 2020).

The guideline was used as a supportive material and given to mothers in the form of a simple Arabic language to cover the relevant knowledge and practical part of stunting and growth monitoring after reviewing the related literature based on the assessment of the actual needs of the studied mothers. Different teaching methods such as lectures, discussion, demonstration, and re-demonstration were used. Different teaching media were used as pamphlets, pictures, posters, and real equipment. The researchers designed and implemented the guideline about stunting in the form of a theoretical part and a practical part.

The study implantation included 3 phases:

Phase 1: Preparation for assessment (1 month): It was based on the preparatory phase for developing the data collection tool obtained from the interviewing questionnaire, as well as literature review (pre/posttest).

Phase II: Design and implementation (5 months): The nursing instructional guideline was designed based on analysis of the actual needs of mothers regarding knowledge and practice of early detection of stunting in pre assessment by using the pre constructed tool. The nursing instructional guideline was developed through determining the general objective, content, teaching methods and aids used.

Content: Content was designed to improve mothers knowledge and practice regarding early detection of stunting among their children under 5 years.

The sessions took place at the reception of the MCH center The total number of sessions' hours was 10 (4 hours for theory sessions & 6 hours for practical sessions). The duration of each session was 1-2 hours. The sessions included the following two parts: Part I: Promotion of mother's knowledge about stunting, the researchers were providing information about meaning of stunting, risk factors of stunting, causes of stunting, clinical manifestation, health effects of stunting in children, proper child nutrition, mothers ' physical practices toward growth monitoring such as (Weight, height, Plotting height-for-age (HFA) on a growth chart).

At the starting of the first session, an orientation about the guidelines and its purposes was given. From the second session, each one started by a summary about what was given through the previous session and objectives of the new one, taking into consideration using simple and clear language to suit the level of mothers. By the end of every session a summary was made, and time was allocated for questions and answers, and a plan for next session was presented. The researchers adjusted with mothers a day for the next session. Except for the last session, a termination of sessions through feedback was done.

Part II: Practical part include: Demonstration of weight for Children more than two years, Demonstration of height for Children more than two years old is measured standing up (Height) and Demonstration of plotting height-for-age (HFA) on a growth chart.

Phase III: Evaluation of the instruction guideline: evaluation occurred after one month, each mother was re-interviewed to assess their knowledge and practices regarding stunting. Re-assessment of the mother's knowledge was done and a re-demonstration of the height and weight

practices technique was done using the same tool. This took 10 minutes and was individualized to ensure accuracy in the completion of tools and to assess if steps of height and weight practices technique are correct or incorrect according to the observational checklist.

5. Data analysis

All data from the study sample was revised, coded, and introduced to a computer (PC). The Statistical Package for Social Sciences (SPSS) version 22 was used for computerised data entry and statistical analysis. Descriptive statistics such as number/percent, mean, and SD were used to present the data. **Chi-square** was used to compare pre and post-intervention. Pearson's correlation coefficient is the statistical test that measures the statistical relationship, or association, between two continuous variables. The level of significance was considered at p <0.05, and at p<0.01 was considered highly significant.

Results:

Table (1): presents the socio-demographic characteristics of mothers. It reveals that 77.3% of mothers were in the age group from 20 to less than 30 years. Concerning mothers' level of education, mothers had secondary school education 50.9%, while 2.50% of them could illiterate. Concerning mothers' work, 68.7% of mothers were working. As for age at marriage, 69.9 % were more than 18 years old.

Table (2): Presents the distribution of Mothers' Knowledge pre/post guideline regarding Stunting. It shows a significant improvement in mothers' knowledge per/and post guidelines regarding meaning stunting and the Health effect of stunting (12,9%, 87.7%, and 9.8%,76.1% respectively). There was a statistically significant difference between pre/post guidelines (P=0.000).

Figure (1): shows the total level of mothers' Knowledge regarding stunting pre/post guidelines. It reveals that 86.5% of mothers had an unsatisfactory level of total knowledge; pre- guideline. On the other hand, 69.9% had a satisfactory level of total

knowledge post guideline with significant improvement (p=0.000).

Table (3): shows the distribution of mothers' knowledge pre/post guidelines regarding proper nutritional diet for their children. it illustrates a significant improvement in mothers' knowledge per/and post guidelines regarding the meaning of healthy food and example of healthy food (11,7%,63.8%% and19.6%, 71.8% respectively). there was a statistically significant difference between pre/post guidelines (P=0.000).

Figure (2): shows the Total Level of mothers' Knowledge regarding proper nutritional diet for their children pre/post guideline. It reveals that 88.3% of mothers had an unsatisfactory level of total knowledge; pre-guideline. On the other hand, 57.7% of mothers had a satisfactory level of total knowledge post guideline with significant improvement (p=0.000).

Figure (3): shows the total level of mothers' knowledge pre/post guideline. It reveals that 63.2% of mothers had an unsatisfactory level of total knowledge; pre-guideline. On the other hand 87.7% of mothers had a satisfactory level of total knowledge post guideline with significant improvement (p=0.000).

Table (4) & figure (4): Presents percentage distribution of the studied Mothers' physical practices for their children regarding growth monitoring. Regarding Measurement of Height and Plotting height-for-age (HFA) on the growth chart (3.7% and 1,8% respectively) of mothers were not done pre guidelines while more than half of them (58.3% and 51.5% respectively) were done post guidelines with statistically significant difference between pre/post guidelines (P=0.000).

Figure (5): Shows the total level of mothers' practices regarding growth monitoring pre/post guideline. It reveals that 95.7% were not done in pre guidelines while 61.3% post guidelines with a statistically

significant difference between pre/post guidelines (P=0.000).

Table (5): shows a frequency distribution of children for the height-for-age. it reveals that 1.2 % of children were severely stunted while 16.6 of them were stunted.

Table(6). Illustrates association between children for the height-for-age and nutritional knowledge pre/post-intervention. It reveals that 68.4% of mothers who had a satisfactory level of knowledge had a normal child. while increased to 95.7% post guidelines with a statistically significant difference between pre/post guidelines (P=0.000).

Table(7). Illustrates association between total knowledge and practice levels pre/post-guidelines. It reveals improvement in mothers' knowledge and practice levels with a statistically significant difference between pre/post guidelines (P=0.000).

Table (8). shows the statistically significant difference among the studied sample regarding their knowledge concerning mother age, education, occupation, age at marriage, exclusive breastfeeding, and wealth index (p=0.001).

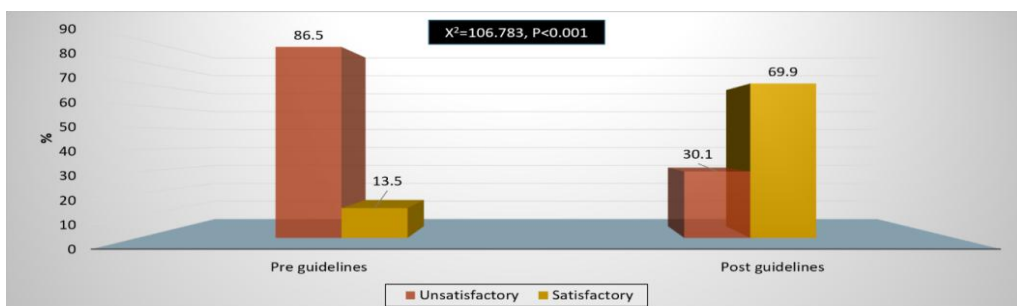**Table (1):** Socio-demographic characteristics of mothers and their children n=163.

	n	%
Mothers' Age (Years)		
< 20	12	7.4
20 < 30	126	77.3
30 – 35	25	15.3
Mother's Education		
Not read and write	4	2.5
Read and write	13	8.0
Basic education	17	10.4
Secondary school	83	50.9
Higher education	46	28.2
Mother's occupation		
Working	112	68.7
Not working	51	31.3
Age at Marriage (Years)		
Teenager (<18)	49	30.1
Normal (≥18)	114	69.9
Birth order of child		
First	56	34.4
Second	61	37.4
Third	35	21.5
Fourth or more	11	6.7
Sex of child		
Boy	65	39.9
Girl	98	60.1
Residence		
Rural	97	59.5
Urban	66	40.5
Wealth index		
High (rich)	28	17.2
Middle	63	38.7
Low(poor)	72	44.2

Table (2): Distribution of mothers' knowledge pre/post guideline regarding stunting n= 163.

Mother's Knowledge regarding Stunting	Pre Guidelines				Post Guidelines				Chi-Square	
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory			
	n	%	n	%	n	%	n	%	X^2	P
Meaning of stunting	21	12.9	142	87.1	143	87.7	20	12.3	182.632	<0.001**
Causes of stunting	13	8.0	150	92.0	112	68.7	51	31.3	127.169	<0.001**
Risk Factors associated with stunting	33	20.2	130	79.8	109	66.9	54	33.1	72.067	<0.001**
Clinical manifestation	27	16.6	136	83.4	95	58.3	68	41.7	60.568	<0.001**
Health effect of stunting	16	9.8	147	90.2	124	76.1	39	23.9	146.023	<0.001**
Growth Monitoring	22	13.5	141	86.5	103	63.2	60	36.8	85.129	<0.001**

Figure (1): Total Level of mothers' knowledge regarding stunting pre/post guideline.

Table (3): Distribution of mothers' knowledge pre/post guideline regarding

proper nutritional diet for their children n=163.

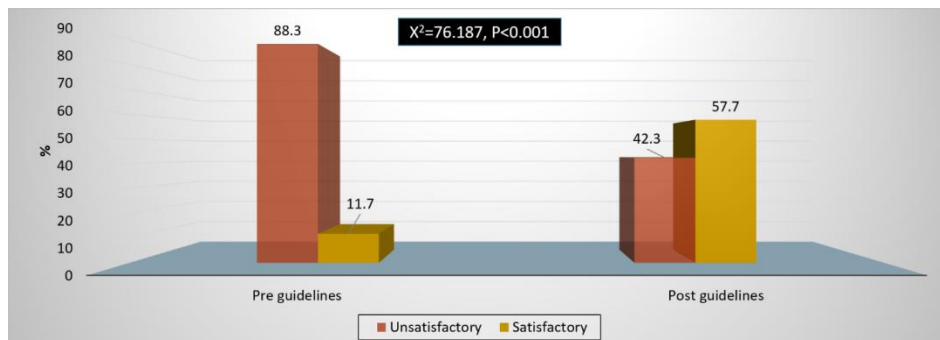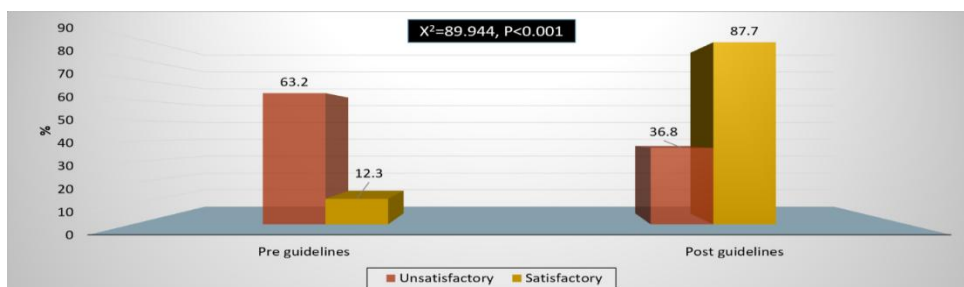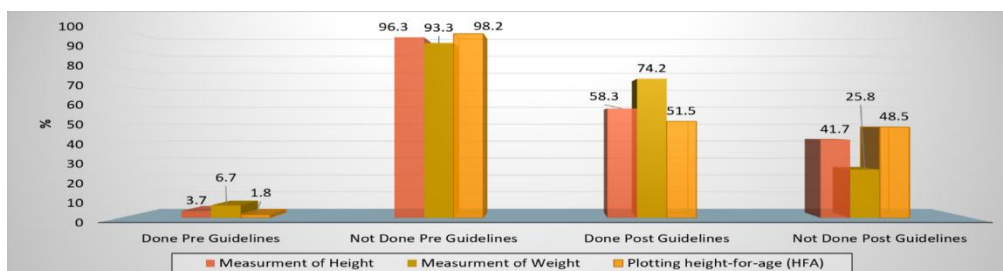| Mother's Knowledge regarding Proper nutritional diet for their children	Pre Guidelines				Post Guidelines				Chi-Square	
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory			
	n	%	n	%	n	%	n	%	X^2	P
Meaning of Healthy food	23	14.1	140	85.9	79	48.5	84	51.5	44.745	<0.001**
Importance of healthy nutrition	19	11.7	144	88.3	104	63.8	59	36.2	94.330	<0.001**
The basic components of healthy food	28	17.2	135	82.8	85	52.1	78	47.9	44.005	<0.001**
Example of Healthy food	32	19.6	131	80.4	117	71.8	46	28.2	89.309	<0.001**
Food sources rich in proteins	18	11	145	89.0	92	56.4	71	43.6	75.133	<0.001**
Food sources rich in carbohydrates	12	7.4	151	92.6	85	52.1	78	47.9	78.208	<0.001**
Food sources rich in vitamins and minerals	7	4.3	156	95.7	102	62.6	61	37.4	124.388	<0.001**

Figure (2): Total Level of mothers' knowledge regarding proper nutritional diet for their children pre/post guideline.

Figure(3): Total Level of mothers' knowledge pre/post guideline.

Table (4): Percentage distribution of the studied mothers physical practices for their children regarding growth monitoring (Measuring Infant Height, weight, and Plotting height-for-age (HFA) on a growth chart (n= 163).

Growth monitoring	Pre Guidelines				Post Guidelines				Chi-Square	
	Done		Not Done		Done		Not Done		X^2	P
	n	%	n	%	n	%	n	%		
Measurment of Height	6	3.7	157	96.3	95	58.3	68	41.7	113.630	<0.001**
Measurment of Weight	11	6.7	152	93.3	121	74.2	42	25.8	154.037	<0.001**
Plotting height-for-age (HFA) on growth chart	3	1.8	160	98.2	84	51.5	79	48.5	102.865	<0.001**

Figure(4): Percentage distribution of the studied mothers physical practices for their children regarding growth monitoring pre/post guideline.
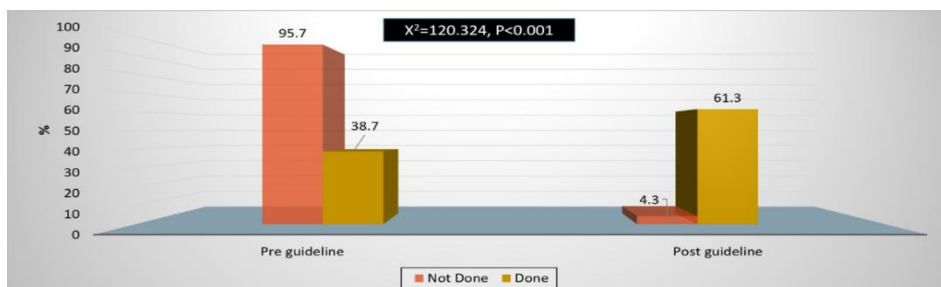
Figure (5): The total level of mothers' practices regarding growth monitoring pre/post guideline

Table (5): Frequency distribution of children for the height-for-age (HFA), N=(163)

Items	No	%
Severe stunting	2	1.2
Stunting	27	16.6
Normal	134	82.2

Table (6): Association between children for the height-for-age and nutritional knowledge pre/post-intervention.

Items	Pre-Guidelines				Post-Guidelines			
	Unsatisfactory (n=144)		Satisfactory (n=19)		Unsatisfactory (n=69)		Satisfactory (n=94)	
	N	%	N	%	N	%	N	%
Severe stunting	1	0.7	1	5.3	2	2.9	0	0.0
Stunting	22	15.3	5	26.3	23	33.3	4	4.3
Normal	121	84.0	13	68.4	44	63.8	90	95.7
Chi-Square [X^2,P]	4.587		0.101		27.985		<0.001**	

Table(7): Association between total knowledge and practice levels pre/post-guidelines.

Items	Pre-Guidelines				Post-Guidelines			
	Not Done (n=156)		Done (n=7)		Not Done (n=63)		Done (n=100)	
	n	%	n	%	n	%	n	%
Unsatisfactory	139	89.1	5	71.4	59	93.7	10	10.0
Satisfactory	17	10.9	2	28.6	4	6.3	90	90.0
Chi-Square [X^2,P]	2.032		0.153		110.78		<0.001	

Table (8): The relationship between the level of mothers' knowledge and their socio-demographic characteristics of the mothers.

	Total Knowledge level											
	Pre guidelines						Post guidelines					
	Satisfactory		Unsatisfactory		Chi-square		Satisfactory		Unsatisfactory		Chi-square	
	N	%	N	%	X²	P	N	%	N	%	X²	P
Age (Years)												
< 20	1	5.0	11	7.7			2	1.9	10	16.7		
20 – 29	11	55.0	115	80.4			86	83.5	40	66.7		
30 – 35	8	40.0	17	11.9	10.680	0.005	15	14.6	10	16.7	12.64	0.002
Educational Level												
Not read and write	1	5.0	3	2.1			1	1.0	3	5.0		
Read and write	2	10.0	11	7.7			3	2.9	10	16.7		
Basic education	3	15.0	14	9.8			9	8.7	8	13.3		
Secondary school	3	15.0	80	55.9			60	58.3	23	38.3		
Higher education	11	55.0	35	24.5	12.745	0.013	30	29.1	16	26.7	15.304	0.004
Occupational status												
Working	15	75.0	97	67.8			78	75.7	34	56.7		
Not working	5	25.0	46	32.2	0.419	0.517	25	24.3	26	43.3	6.408	0.011
Age at Marriage												
Teenager	15	75.0	34	23.8			25	24.3	24	40.0		
Normal	5	25.0	109	76.2	21.898	<0.001	78	75.7	36	60.0	4.461	0.035
Residence												
Rural	6	30.0	91	63.6			60	58.3	37	61.7		
Urban	14	70.0	52	36.4	8.239	0.004	43	41.7	23	38.3	0.183	0.668
Wealth index												
High	4	20.0	24	16.8			9	8.7	19	31.7		
Middle	2	10.0	61	42.7			46	44.7	17	28.3		
Low	14	70.0	58	40.6	8.390	0.015	48	46.6	24	40.0	14.593	<0.001

Discussion

Stunting is one of the most prevalent nutritional disorders among children under the age of five, and it has major health consequences. Stunting is a common symptom of malnutrition in early childhood, which is caused by insufficient food intake and illnesses during the time from conception to the first years of life **(Shaban et al., 2017).** Mothers can learn useful information and adopt healthy lifestyles with the help of knowledge. Age, education level, and experience are all important aspects that influence mother's knowledge acquisition.

As regards of the study sample's sociodemographic characteristics, more than three-quarters of the mothers were aged 20 to less than 30 years old, according to the findings. This is expected because it is the typical reproductive age in Egypt. This finding is in accordance with the findings of **Sari et al (2021),** who conducted a study on early stunting detection education in order to improve mothers' awareness of stunting prevention. They revealed that the majority of the responders were between the ages of 20 and 35. In the age range of 20-35 years, a person's productive era was defined as a period during which they readily accepted the learning process and developed their intellectual strength. In terms of education, more than half of the mothers had completed secondary school, whereas 2.5 percent were illiterate. This emphasises the necessity of integrating highly qualified nurses in supporting mothers' knowledge and practice with stunting by providing valuable guidance on child care and growth monitoring for maintaining and enhancing their health based on their educational levels and requirements.

Concerning total Level of mothers' Knowledge regarding stunting pre/post guideline. The present study reveals that the majority of mothers had an unsatisfactory level of total knowledge; pre- guideline. From the researchers' point of view, this could be attributed to difficulties in accessing information about early detection

of stunting, lack of resources, and lack of guidelines. while more than two-thirds of them had a satisfactory level of total knowledge post guideline with significant improvement (p=0.000). This could be attributed to the content of the guidelines which presented in a simple manner using audiovisual aids and their abilities to recall the information effectively. This result is in accordance with **Ch, et al., (2015)** who conduct a study of mother's knowledge about child care and care practices in Lahore, Pakistan. Also, **Yunitasari (2020)** has performed research on The Effects of Lecture, Brainstorming, and Demonstration (CBD) on Mothers' Knowledge, Attitudes, and Behavior regarding Stunting Prevention. He discovered that the level of knowledge of the responders improves to a good level.

Regarding the total Level of mothers' Knowledge regarding proper nutritional diet for their children pre/post guideline, the present study indicated that the majority of mothers had an unsatisfactory level of total knowledge; pre- guideline. On the other hand, more than half of them had a satisfactory level of total knowledge post guideline with significant improvement. **Sukandar (2015)** was inagrement with the present finding. He stated that the score means of nutritional knowledge after the intervention was significantly higher in the intervention group.

Concerning the total level of mother's knowledge pre/post guideline. It reveals that nearly two-thirds of mothers had an unsatisfactory level of total knowledge; pre- guideline. From the researchers' point of view, this could be attributed to difficulties in accessing information about early detection of stunting, lack of resources, and lack of guidelines. While the majority of them had a satisfactory level of total knowledge post guideline with significant improvement (p=0.000). This could be attributed to the content of the guidelines which presented in a simple manner using audiovisual aids and their abilities to recall the information effectively. Similar results

have been reported by **Sari (2021)** who proved that providing education on early detection of stunting could significantly increase mothers' knowledge regarding the prevention of stunting in children.

Concerning the total level of mothers' practices regarding growth monitoring pre/post guideline. There was a significant improvement in the total score of the practice of mothers' pre and post guidelines (p=0.001). This is in accordance with **Golshiri1 (2018),** who conducted a study on the comparison of two types of education on the knowledge and practise of mothers with children under the age of three years old regarding growth monitoring and nutritional development phases, the study reported a significant difference in mothers' practise mean scores before and after educational intervention (P0.001).

As regards the distribution of children for the height-for-age, the present study indicated that one percent of children were severely stunted while 16.6% of them were stunted**,** similar results have been reported **by Metwally et al., (2020)** performed a study on a sample of 1740 children to investigate the prevalence of stunting in some Egyptian government primary school pupils, as well as its nutritional and socioeconomic causes, and discovered that 7.8% of the children were stunted. Stunting was also prevalent among children under the age of five, according to the Egypt Demographic and Health Survey 2014 (EDHS 2014). **Abd El-Fatah (2019)** reported that the prevalence of stunting and severely stunted growths in Egypt was 11.3 percent and 1.15 percent, respectively). This was linked to rural settings, less educated mothers, birth order, poor feeding practises, and a lack of awareness among children and parents, according to the study.

Regarding the association between children for the height-for-age and nutritional knowledge pre/post-intervention. The current study revealed that more than two-thirds of mothers who had a satisfactory level of knowledge had a normal child. while

increased to include the majority of them post guidelines. This in agreement with a study titled Maternal nutrition counselling is correlated with reduced stunting prevalence and improved feeding behaviours in early childhood, **Mistry (2019)** found a positive correlation between maternal nutrition counselling and reduced stunting prevalence among young children. This, according to the researchers, could be attributed to excellent programme monitoring.

Concerning the relationship between the total level of a mother's knowledge and practises for early stunting identification prior to and after the implementation of a guideline. The total score of knowledge and practises of moms' pre and after guidelines improved significantly. This is in agreement with the findings of **Manzou (2018),** who conducted a study on Maternal Knowledge and Practice Regarding Children's Nutrition and Impact on Growth of their Children and discovered that the knowledge and practises score of mothers had greatly improved.

The level of knowledge among the participants was statistically significant in relation to the mother's age, education, occupation, age at marriage, exclusive breastfeeding, and wealth index, according to this study. This is in line with **Daniel et al., (2017),** who conducted a study on Knowledge and Attitude on Growth Monitoring and its Associated Factors among Mothers/Guardians of Children Less Than Two Years in Areka Town, finding a significant link between knowledge, educational status of mothers, and occupational status. Also, **Shaban et al. (2017)** discovered a significant difference between the amount of knowledge of nutritional stunting and all mothers' characteristics (p=0.001) in their study Prevalence of Nutritional Stunting and Associated Risk Factors among Under Five Children in Suhag Governorate. This result demonstrates the value of implementing instructional guidelines that suited the needs of the mothers and provided them with

sufficient knowledge to prevent stunting among children.

Conclusion

The findings of this study reveal concluded that the instructional guidelines were effective in improving the knowledge and practise of the examined sample about early stunting detection in their children. In comparison to pre-guidelines, the mean score and level of knowledge and practise within the investigated sample improved significantly in post-guidelines.

Recommendations

Based on the result of the present study, the following recommendations are suggested:

- A guidebook should be distributed to all mothers with stunting and non-stunting children to improve their knowledge about stunting.
- Increase awareness of mothers about nutritional stunting, monitoring growth & development of the child, and the benefits of early detection in treatment through mass media.
- Educational nutritional intervention for mothers that promote and support infant and young child feeding practices.

References

Abd El-Fatah NK, Abu-Elenin MM. (2019): Prevalence of stunting, overweight and obesity among Egyptian primary school children in behera governorate. Food Public Health.;9(3): 84-93.

Aguayo, V. M., Badgaiyan, N., & Paintal, K. (2015): Determinants of child stunting in the Royal Kingdom of Bhutan: an in-depth analysis of nationally representative data. Maternal & Child Nutrition, 11(3), 333-345.

Aslam A(2013) : The state of the world's children 2013: children with disabilities. The state of the world's children 2013: children with disabilities. New York: UNICEF; 2013.

Black RE, Heidkamp R(2018). Causes of stunting and preventive dietary interventions in pregnancy and early childhood. Nestle Nutr Inst Workshop Ser.;89:105-13. https://doi. org/10.1159/ 000486496 PMid:29991036.

Ch Qayyum Abdul , Hassan Mahnaz Syeda and Zafar Abida (2015) : A Study of Mother's Knowledge about Childcare and Care Practices in Lahore, Pakistan Bulletin of Education and Research December, Vol. 37, No. 2 pp. 1-08. dalam pencegahan stunting. Jurnal Ilmiah Mahasiswa

Daniel,B, Tesfaye N, Mekonin E, Kassa A, Mensur K, Zerihun E, Deriba K, Tadesse H and Yeheyis T(2017): Knowledge and Attitude on Growth Monitoring and its Associated Factors among Mothers/Guardians of Children Less than Two Years in Areka Town, Southern Ethiopia, Journal of Nutritional Disorders & Therapy 2017, 7:3 DOI: 10.4172/2161-0509.1000216.diberikan program mother

Golshiri P. (2018): Comparison of two methods of education (lecture and self-learning) on knowledge and practice of mothers with under 3-year-old children about growth monitoring and nutritional development stages Iranian magazine Amuzesh dar Ulum Pezeshki (Wighanameh expanded by Amuzesh) / Zemistan 1389; 10)5

Griffiths M, Rosso JD (2019): Growth monitoring and the promotion of healthy young child growth: evidence

of effectiveness and potential to prevent malnutrition. Washington, DC: Manoff Group; p. 36.

Haidar AR, El-Awady MA, Ez-Elarab HS, Al Bagoury LS. (2019): Evaluation of growth monitoring care process for stunted under-five aged children in two primary health care units in Cairo-Egypt

Khalil W&Mahmoud H (2020): Effect of Nursing Instructional Guideline on Women's Quality of Life after Hysterectomy. International Journal of Novel Research in Healthcare and Nursing Vol. 7, Issue 2, pp: (439-451)

Kumar, R., & Lakhtakia, S. (2020): Women's Empowerment and Child Stunting in India: An Investigation. Journal of Population and Social Studies [JPSS], 29(-), 47 - 66. Retrieved from https://so03.tci-thaijo.org/index.php/jpss/article/view/225656.

Manzour A (2019): Knowledge and Practice Regarding Children's Nutrition and Impact on Growth of their Children in Sixth of October City, Cairo.. The Egyptian Journal of Community Medicine Vol. 37 No. 2 April 2019.

Metwally AM, El-Sonbaty MM, El Etreby LA, El-Din EMS, Hamid NA, Hussien HA, Hassanin A, Monir ZM (2020). Stunting and its Determinants among Governmental Primary School Children in Egypt: A School-based Cross-sectional Study. Open Access Maced J Med Sci. 2020 Sep 15; 8(B):650-657. https://doi.org/10.3889/oamjms.2020.4757.

Mistry S. (2019): Maternal nutrition counselling is associated with reduced stunting prevalence and improved feeding practices in early childhood: a post-program comparison study. Nutr J. ; 18: 47.

Sari1 M. (2021): Early stunting detection education as an effort to increase mother's knowledge about stunting prevention. Fol Med Indones, Vol. 57 No. 1 March 2021: 70-75.

Shaban A.N,. Fahmy.H.D & Hassan A K.(2017): Prevalence of Nutritional Stunting and Associated Risk Factors among Under Five Children in Suhag Governorate, Vol , (5) No , (10) April 2017

Sukandara D., (2015): Nutrition Knowledge, Attitude, and Practice of Mothers and Children Nutritional Status Improved after Five Months Nutrition Education Intervention adang, International Journal of Sciences: Basic and Applied Research (IJSBAR) (2015) Volume 23, No 2, pp 424-442.

UNICEF, WHO, &World Bank Group (2018): . Levels and Trends in Child Malnutrition. UNICEF/WHO/World Bank Group Joint Child Malnutrition Estimates. Key Findings of the 2017 Edition. Geneva: United Nations Children's Fund, World Health Organization, World Bank Group; 2017 Available from: http:/ www.who.int/ nutgrowthdb/jme_brochoure2017.pdf?ua

United Nations. Sustainable Development Goals (2020): Available from: https://www.sustainabledevelopment.un.org/?menu=1300. [Last accessed on 2020 Jan 30].

West, J., Syafiq, A., Crookston, B., Bennett, C., Hasan, M.R., Dearden, K., Linehan, M., Hall, C. and Torres, S. (2018) Stunting-Related Knowledge: Exploring Sources of and Factors Associated with Accessing Stunting-Related Knowledge among Mothers in

Rural Indonesia. Health, 10, 1250-1260. https://doi.org/10.4236/health.2018.10 9096.

World Health Organization (2015). severe acute malnutrition in infants and children: a Joint Statement by the World Health Organization and the United Nations Children's Fund. Geneva: WHO; 2014.

Yunitasari E., (2020): Effects of Lecture, Brainstorming, Demonstration (CBD) to Mother's Knowledge, Attitude, and Behavior About Stunting Prevention on Toddler Esti Yunitasari1*, Vol 11, Issue 6, Jun-July 2020.