

Health Educational Program for Orphanages Children regarding Prevention of Nutritional Diseases

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Abstract

Background: Nutritional disease, any of the nutrient-related diseases and conditions that cause illness in children. Orphanages children are more prone to Nutritional disease. **Aim:** This study aimed to evaluate the effect of health educational program for orphanages children regarding prevention of nutritional diseases. **Research design:** A quasi experimental research design was used in this study (pre-post test). **Setting:** The study was conducted at two orphanage homes (social home care for males and social home care for females) at Benha City in Kalyubia Governorate. **Sample:** A convenience sample of children (60 child) according to certain criteria of inclusion (6:17 years). **Tools:** Two tools were used. **(I):** Was a structured interviewing questionnaire which consist of two parts: **(A):** Demographic characteristics of orphanages children. **(B):** Children's knowledge regarding nutrition and nutritional diseases. **(II):** Observe children's practices concerning nutrition. **Results:** 33.3% of studied children had good total knowledge pre implementation of the program which increased to 55% post program, 20% of studied children had satisfactory total practices level preprogram which increased to 80% post program. There was a positive highly statistically significant correlation between the studied children's total practices score and their total knowledge score pre and post program. **Conclusion:** Health educational program had a positive effect on improving level of knowledge and practices of orphanages children regarding prevention of nutritional diseases. **Recommendations:** Continuous health education programs are needed for the prevention of nutritional diseases.

Key words: Knowledge, Nutritional Diseases, Orphanages Children, Practices.

Introduction

Children are the future of the nation. Parents play an irreplaceable role in a child's physical, mental, and emotional well-being; unfortunately, not all children are brought up by their parents. Most of these orphan children are placed in orphanages homes. An orphan is anyone between the ages of 0 and 17 years who has lost at least one parent or both the parents (Faust & Manning, 2021).

Nutrition is the intake of food, considered in relation to the body's dietary needs. Optimum nutrition is required for the

physical, mental growth and development of the children. Malnutrition is the common public health problem among children in insecurity and is one of the important contributors to child malnutrition. It recognizes disease and poor caring practices as equally important causes of malnutrition. Caregivers might not make the best use of available resources because of lack of knowledge about optimal feeding behaviors and inappropriate cultural beliefs and practices regarding feeding (Corkins et al., 2019).

Childhood malnutrition of every form, including undernutrition (wasting, stunting and underweight), micronutrient deficiencies, as well as overweight and obesity, consists a triple burden of disease, especially for low- and middle-income countries, and is one of the leading causes of poor health and a major impediment to personal development and achievement of full human potential worldwide . Globally in 2019, 149 million children were stunted, almost 50 million wasted, 340 million suffered from micronutrient deficiencies and 38,2 million were overweight and obese. The nutritional needs of children and adolescents are unique and poor availability or limited access to food of adequate nutritional quality leads large population groups to undernutrition, poor nutritional status, overweight and obesity **(Vassilakou, 2021)**.

Nutritional disease, any of the nutrient-related diseases and conditions that cause illness in children which may include deficiencies or excesses in the diet, obesity and eating disorders. Nutritional diseases also include developmental abnormalities that can be prevented by diet, hereditary metabolic disorders that respond to dietary treatment, the interaction of foods and nutrients with drugs, food allergies and intolerances, and potential hazards in the food supply **(Weininger, 2021)**. Nutritional disease is a preventable and treatable cause of childhood morbidity and mortality. nutritional disease is common public health problem among children in low- and middle-income countries. Orphan's children are vulnerable and neglected group in the society and are more prone to malnutrition such as underweight, stunting and thinness of children. Inadequate dietary intake is the direct cause of nutritional disease and indirectly household food security, childcare, health services and environment,

inappropriate feeding, poor health and hygiene, and poor caring practices **(Mkhize & Sibanda, 2020)**.

Orphanage children are deprived of their primary care givers, so children are more prone to physical health problems. Orphan children do not receive proper physical and emotional care because children are unaccompanied, displaced, and lacking family support. In general, the long term effects of orphan to be negative. These children are at an increased risk for suffering from malnutrition, anaemia, dental caries and scabies **(Cheyo & Mligo, 2021)**.

Health educational program about nutrition helps children understand the role of nutrition in preventing and managing chronic diseases, such as obesity, diabetes, and heart disease. Some critical components of nutrition education include understanding the different nutrients and their functions in the body, understanding the role of a balanced diet in maintaining good health, understanding the concept of portion sizes and how children relate to energy intake, knowing how to make healthy choices when eating out or choosing packaged foods, understanding the role of physical activity in maintaining a healthy weight **(Bonyan Organization, 2022)**.

Community Health Nurse (CHN) as a leader direct, influence, others to effect change that will positively affect children's health. Acting as a change agent and influencing health planning at the local, state and national levels are elements of the role of the leader. CHN share solving problem related to nutrition and nutritional diseases and able to look at the whole picture and good communicator. CHN should have goal-oriented, open-minded, good time manager and good teacher to achieve optimal level of nutritional practices between orphanages children **(Jacquot, 2019)**.

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Significance of the study:

Children residing in care homes in Egypt are often referred to as 'orphans' or 'children without parental care'. Their placement in care homes could be due to a number of reasons. The main reason is poverty; the percentage of Egyptians living under the poverty line is 29.7%, thus leading parents to place their children in care homes because of not having adequate financial resources to take care of children (**World Bank, 2021**).

The exact of children in care homes remains unknown due to the fact that there is a considerable number of care homes that are not registered under the Ministry of Social Solidarity, which is the government body overseeing care homes in Egypt. Officially, according to the latest statistics, there are approximately 500 care institutions across Egypt serving approximately 10,000 children. While the number of children living in alternative family-based care arrangements reached approximately 13,164 Egyptian children in 2022. Malnutrition diseases affect more than 30% of Egyptian children. Children's malnutrition status with prevalence of stunted growth at 21%, anaemia 27.2% of children and prevalence of obesity 22.3% of children (**El Azzazy, 2023**).

Aim of the study:

This study aimed to Assess of orphanages children nutritional knowledge and practices about malnutrition, designing and implementing health educational program about nutrition for orphanages children.

Research hypothesis

Health educational program about nutrition will be increasing the knowledge of orphanages children about nutrition and nutritional disease and improving healthy practices and reducing health problems after implementing it.

Subjects and method:

Research design:

A quasi experimental research design (pre-post test) was used for this study.

Setting:

This study was conducted at two orphanage homes (social home care for males and females) at Benha City in Kalyubia Governorate.

Sampling:

A convenience sample of 60 orphan children (36 males and 24 females) was selected from the above previous mentioned setting.

Tools of data collection:

I-A structured interviewing questionnaire:

It was developed by the researchers based on literature review of the current and past available national and international references related literature about nutrition and malnutrition disease by using a journal, textbooks and internet search, revised by supervisors. It was written in simple clear Arabic language: It composed of the following three parts:

The first part: It was designed to assess demographic characteristics of the studied children. It included 6 questions such as; age, sex, educational level, duration of stay in the orphanage, parental presence status and reason for entering the orphanage.

The second part:

(A): It was concerned with children's knowledge regarding nutrition which included 43 questions divided into 202 points as following; 10 questions included 36 points about importance of food and its sources, 5 questions included 24 points about food pyramid and food plate, 16 questions included 77 points about minerals and 12 questions included 65 points about vitamins.

(B): It was concerned with children's knowledge regarding nutritional diseases which 13 questions included 86 points

detailed as following, 4 questions included 27 points about malnutrition diseases, 3 questions included 16 points about thinness, 3 questions included 19 points about obesity, 3 questions included 24 points about anemia.

The scoring system for children's knowledge: Was calculated as follows (2) score for complete correct answer, while (1) score for incomplete correct answer, and (0) for don't know. For each section of knowledge, the score of the points was summed up and the total divided by the number of the points, giving a mean score for the part. These scores were converted into a percent score. The total knowledge score=112 was considered good if the score of the total knowledge equal $\geq 75\%$ and more (≥ 42 points), while considered average if it equals $50 < 75\%$ ($28 < 42$ points), and considered poor if it is equal $< 50\%$ (< 28 points).

II- An observational checklist to assessing children's healthy and unhealthy nutritional practices: Included (16 points) about **healthy nutritional practices** such as eating 3-5 meals, eating meals regularly and at a specified time, eating meat once a week, eating fish once a week, avoid eating fast food as much as possible, eating vegetables during the day, eating fruit during the day, eating different foods, eating less fatty foods, eating a lot of fluids, eating a little salt in cooked food, chewing food well before swallowing, taking milk or dairy products daily, washing teeth after eating, washing hands before eating, washing hands after eating, (17 points) about **unhealthy nutritional practices** such as eating food irregularly, not having breakfast, eating meals between the main meals, eating junk food at dinner, eating meat processed like lanchon and sausage in abundance, eating fast, eating while

watching TV, taking pickles a lot, drinking plenty of water while eating, eating fruit right after eating, having tea right after eating, sleeping right after eating, eating chocolate, desserts and ice cream a lot, liking to eat outside the house when receiving money from the house, buying food from street vendors when receiving money from the house and eating late at night.

The scoring system for orphanage children's practices: Was calculated as follows (1) score for done and (0) for not done practicing. The score of the points was summed- up and the total divided by the number of points, giving a mean score. These scores were converted into a percentage score. The total practices score=33 was considered satisfactory if the score of the total practices $\geq 60\%$ (≥ 20 points), while considered unsatisfactory if it is $< 60\%$ (< 20 points).

Tools validity and reliability:

Content validity of the tools was done by five of Faculty's Staff Nursing experts from the Community Health Nursing Specialties who reviewed the tools for clarity, relevance, comprehensiveness, and applicability and give their opinion. Reliability of the tool was applied by the researchers for testing the internal consistency of the tool, by administration of the same tools to the same subjects under similar condition on one or more occasion. Answers from repeated testing were compared (test-re-test reliability). The reliability was done by Cronbachs Alpha coefficient test which revealed that each of the two tools consisted of relatively homogenous points as indicated by the moderate to high reliability of each tool. The internal consistency of the knowledge was 0.88 while practices were 0.91.

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Ethical consideration:

All ethical issues were assured; oral consent has been obtained from each child before conducting the interview and given them a brief orientation to the purpose of the study. The caregivers and the orphanage children were also reassured about the privacy of their information and that all information gathered would be confidentially used only for the purpose of the study.

Pilot study:

The pilot study was conducted on 10% (6 children) of the subjects in the studied group. The pilot study was aimed to test the content, clarity, applicability and simplicity of the tool using the interviewing questionnaire and the observational checklist as a pre-test sheet. The estimation of the time needed to fill the questionnaire time needed to fill each sheet consumed about 30 minutes. No modifications were made, so the pilot study sample was included in the total sample.

Health educational program regarding prevention of nutritional diseases included four phases:

Based on the results obtained from the interviewing questionnaire and literature review, the home health educational program developed by researchers s . It was implemented immediately after pre-test. The researchers implemented the health educational program through 4 phases as the following:

(I) Assessment phase: In this phase of the health educational program, assessed knowledge and practices of the studied patients through collection and analysis of baseline data from the filled tools. In this phase the researchers did the pre- test.

(II) Planning phase: The researchers identified the important needs for target group, set priorities of needs, goals and objectives were developed.

General objective:- By the end of the health educational program, orphanages children will be able to discuss knowledge, and practices about nutrition requirement and nutritional diseases.

Specific objectives:- Explain nutrition and food, mention the importance of food for human, describe a healthy balanced diet for people, enumerate food classification according to sources, functions and protection divisions, identify food pyramid and its importance, classify foods into groups according to their nutrients and mention food sources containing them, describe the new food pyramid and its importance of balancing between food groups and describe the nutrient requirements during childhood and daily needs of food serving,

(III) Implementation phase:

The questionnaire was conducted by the researchers for data collection in the selected setting, after getting the necessary official permission: the researchers was introduced herself to the orphanages employees and the children and asked questions using simple Arabic language. Implementation of health educational program was done through nine sessions. Data were collected over 6 months from the beginning of December 2021 to the end of May 2022. The study was carried out by the researchers at the females and male's orphanage homes for the studied children. Data collection was conducted two days a week (Saturday and Tuesday) from 1:00 pm to 3:00 pm in the previously described study settings. The researchers chose these days because children are available for teaching in these days and these days appropriate for researchers. The average time needed for interviewing was around 30minutes for each child, the average number interviewed at the orphanage were 2-3 child/day depending on the responses of the children. The researchers

took about an hour for each home to observe the food place environment. In this phase the researchers implemented the health educational program for the children at a suitable time for them. To ensure that they were exposed to the same learning experience. The researchers implemented health educational program through 9 sessions for each orphanage (5 theoretical sessions) and (4 practical sessions) and each session lasted (30) minutes for each session including periods of discussion and the average number implementation of the health educational program were 2-3 child/day, and immediately did the post-test. The total time used in health educational program is 5 hours (2 hours theoretical, 3 hours practical).

Sessions detailed as following:

First session: At the beginning of the first session, the researchers welcomed and introduced herself to the children, an orientation to the health educational program and its importance were presented, introduction and definition of nutrition and food, the importance of food ,definition of healthy balanced diet and tips for healthy eating and food divisions (according to sources, functions and protection).

Second session: Covered identifying food pyramid and its importance, classification of foods into groups according to their nutrients and what food sources for each food group and description of the new food pyramid and its importance of balancing between food groups and description of the nutrient requirements during childhood and daily needs of food serving.

Third session: Covered identifying micro nutrients, explaining the common minerals (calcium, phosphorus, iron , zinc) that people require in their diet and its function, enumeration of symptoms of common minerals deficiencies and understanding some

of the methods to prevent and treat these common minerals deficiencies.

Fourth session: Covered identifying of common vitamins (A, B, C,D) that people require in their diet and its function, enumerate symptoms of common vitamins deficiencies and understand some of the methods to prevent and treat these common vitamins deficiencies.

Fifth session: Covered definition of malnutrition, understanding body mass index, enumerating signs and symptoms of some of nutritional diseases such as underweight, overweight teeth cavities, anemia and explain methods of preventing nutritional diseases.

Sixth session: Performing hand hygiene technique.

Seventh session: Performing tooth brushing technique.

Eighth session: Dividing meals to healthy meals and unhealthy meals and draw new food pyramid.

Ninth session: Participation in preparing healthy plate.

(IV) Evaluation phase: Evaluation of the health educational program was done immediately after the end of the session by using the same pre/post questionnaire.

Statistical analysis:

All data collected were organized, tabulated and analyzed using appropriate statistical test. The data were analyzed by using the Statistical Package for Social Science (SPSS) version 26 which was applied to calculate frequencies and percentage, mean and standard deviation, as well as test statistical significance and associations by using Chi- square test (χ^2) and linear correlation coefficient (r), and matrix correlation to detect the relation between the variables (P value). **Significance levels were considered as follows:**

Highly statistically significant $P < 0.001^{**}$

Statistically significant $P < 0.05^*$

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Not significant $P > 0.05$

Results:

Table (1): Shows that demographic characteristics of the studied children, 50 % of them their ages were between 12 to less than 15 years (Mean \pm SD 12.55 ± 2.632), 60% of them were boys. Regarding educational levels 46.7% of children had preparatory education, 53.3% of them spent from 4-9 years in the orphanage home while 20% of them had no parents a live.

Figure (1): This figure illustrates that; 33.3% of studied children had good total knowledge pre implementation of the program which increased to 55% post program while 86.7%

of them had poor total knowledge at preprogram, and then this percentage decreased to 3.3% post program.

Figure (2): Illustrates that; 20% of studied children had satisfactory total practices preprogram which increased to 86.7% post program while 80% of them had unsatisfactory total practices pre implementation of the program, and then this percentage decreased to 13.3% post program.

Table (2): Shows that; there was a positive correlation between the studied children total practices score and their total knowledge score pre and post program.

Table 1: Frequency distribution of the studied orphanages children according to their demographic characteristics (n=60)

Demographic characteristics	No.	%
Age (years)		
6<9	6	10.0
9<12	14	23.3
12<15	30	50.0
15<18	10	16.7
Mean \pm SD	12.55 \pm 2.632	
Gender		
Boys	36	60.0
Girls	24	40.0
Educational level		
Primary education	23	38.3
Preparatory education	28	46.7
Secondary education	9	15.0
Duration of stay in the orphanage		
Less than 4 year		
From 4-9 years	32	53.3
More than 9 years	13	21.7
Presences of parents		
No parent	12	20.0
The father	11	18.4
The mother	18	30.0
Unknown	19	31.6
Causes of entering the orphanage		
Father's death	22	36.7
Mother's death	2	3.3
Both parent's death	12	20.0
Parental separation	17	28.3
Not having a home	4	6.7
Poverty	3	5.0

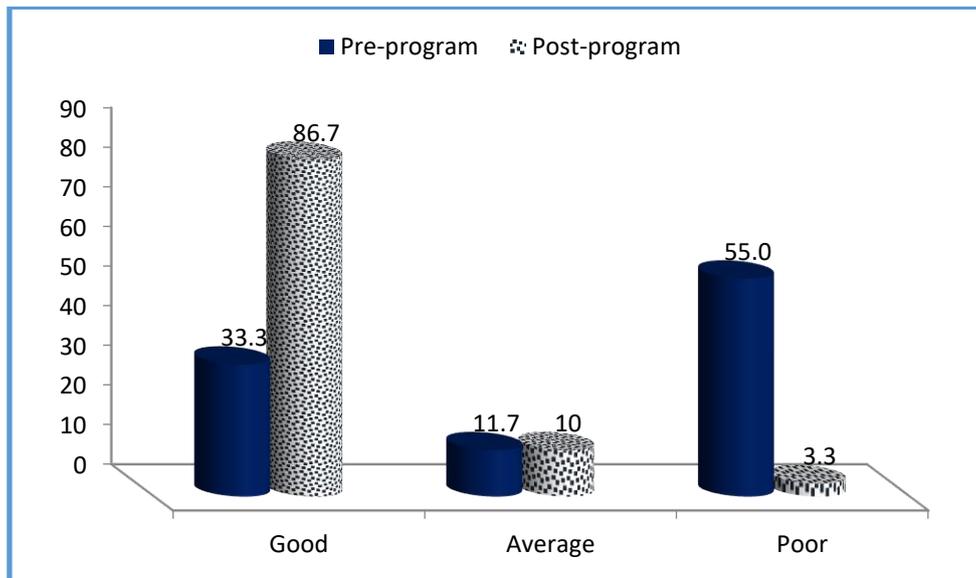


Figure (1): Percentage distribution of the studied children according to total knowledge level about nutrition and nutritional diseases pre and post implementation of the program (n=60)

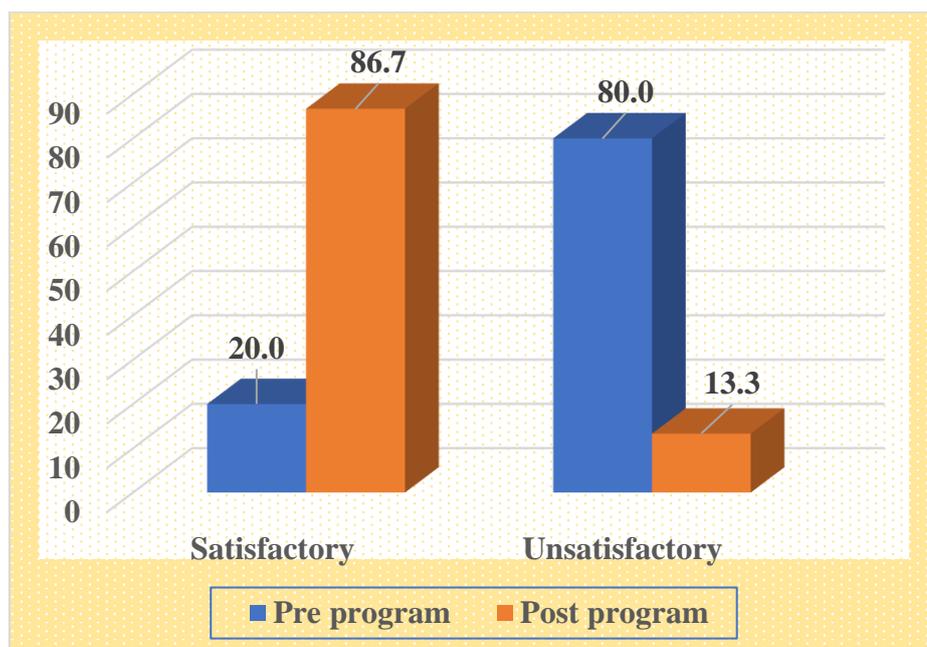


Figure (2): Percentage distribution of the studied children regarding total practices level about nutrition pre and post program (n=60):

Table (2): Correlation coefficient between total knowledge score and total practice score of the studied children pre and post program (n=60)

Variables	Total knowledge score			
	Pre program n=60		Post program n=60	
	r	p	r	P
Total practice score	0.332	0.010*	0.481	0.000**

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Discussion:

According to demographic characteristics of the studied patients, the current study revealed that; of the 60 orphanages children evaluated half of the children their age were from 12 to less than 15 years old, with mean age was 12.55 ± 2.632 . This finding was in agreement with **Acharya et al. (2020)**, who conducted a study about “Malnutrition and associated factors with nutritional status among orphan children: An evidence-based study from Nepal” (sample size = 185 patients). The study reported that the highest number of the participants 44.4% were of the age group 12–14 years, where mean age was 10.7 years.

The current study revealed that two third of the studied children were boys. This finding was in agreement with **Acharya et al., (2020)**, who conducted a study about “Malnutrition and associated factors with nutritional status among orphan children: An evidence-based study from Nepal” (sample size = 185 child), while this finding was consistent with **Adeomi et al., (2020)**, who conduct a study about “Eating Patterns, Dietary Diversity and the Nutritional Status of Children Residing in Orphanages in Southwestern Nigeria” (sample size = 185 patients), This study reported that 54.6% of the studied children were females.

As regards studied children total knowledge about nutrition and nutritional diseases, around one third of studied children had good total knowledge pre implementation of the program which increased to majority post program while around three quarter of them had poor total knowledge at preprogram, and then this percentage decreased post program. Also, more than tenth of them had average total knowledge preprogram which decreased post program. This finding was consistent with **Shin et al.,**

(2020), who studied “Malnutrition and Associated Factors with Nutritional Status among Orphan Children: An Evidence-Based Study in Nepal”, (n= 160 children) reported that 31.2% of studied children had good total knowledge pre implementation of the program which increased to 52.4% post program while 86.5% of them had poor total knowledge at preprogram, and then this percentage decreased post program. From the researchers point of view, this might be children in orphan didn't take teaching programs before implementation of the program so the percent increase after intervention.

Concerning to the studied children regarding total practices level about nutrition pre and post program, the current study revealed that less than quarter of studied children had satisfactory total practices level preprogram which increased to more than three quarter post-program, while more than two thirds of them had unsatisfactory total practices level preprogram and then decreased post program. This study was in the same line with **Mundia, (2018)**, who studied “factors affecting performance of orphaned and vulnerable children's programs in faith based organization: a case study of happy life children's home in Nairobi,” (n= 130 children) reported that 22,1% of studied children had satisfactory total practices level preprogram, while 83.5% of them had unsatisfactory total practices level preprogram. From the researcher's point of view, this might be due to lack of children's awareness regarding healthy nutritional habits.

As regard to the correlation coefficient between total knowledge score and total practice score of the studied children pre and post program, the present study revealed that there was a positive highly statistically

significant correlation between the studied children's total practices score and their total knowledge score pre and post program. This result was agreed with **Fawzy & Fouad, (2019)** who found that there was a positive highly statistically significant correlation between the studied children's total practices score and their total knowledge score. Also, this study agreed with **Kazeem & Jensen (2018)**, who revealed that there was a positive highly statistically significant correlation between the studied children's total practices score and their total knowledge score. This means that when children's knowledge increase, their practice become better so the researchers design comprehensive health program for children to improve their knowledge and practice.

Conclusion:

The health educational program succeeded in improving nutrition knowledge and healthy nutrition practices of the studied orphanages children post implementation. Three quarter of the studied sample had good knowledge about all knowledge items post implementation of the health educational program, majority of studied children had satisfactory total practices level post implementation of the health educational program compared by less than quarter pre implementation of the health educational program. There was a positive correlation between the studied children's total practices score and their total knowledge score pre and post program.

Recommendations:

- Continuous health educational programs regarding nutritional diseases should be introduced at orphanages homes in order to help in disseminating information about nutrition, nutritional diseases and prevention of nutritional diseases.
- Further studies should be conducted to assess the orphanages' houses environmental

conditions and its relation to nutritional diseases.

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