Effect of Developing Protocol of Care on Satisfaction of Bio-psychosocial Needs of Institutionalized School Age Orphans Children

Rasha Ali Abdel-Rahman [1], Latifa Mahmoud Fouda [2], Hanan Abo Elgamelen Ebrahim [3], Nagwa Ali Ibrahim Abo Aisha [4] , Fatma EL-Sayed Soliman [5]

[1]Assistant lecturer of Community Health Nursing Department, Faculty of Nursing, Kafr El-sheikh University.

[2] Professor, Community Health Nursing Department, Faculty of Nursing Tanta University, Egypt

[3] Professor, Community Health Nursing Department, Faculty of Nursing Tanta University, Egypt

[4]Lecturer , of Community Health Nursing Department, Faculty of Nursing Tanta University, Egypt.

[5] Assistant Professor of Community Health Nursing Department, Faculty of Nursing Tanta University, Egypt.

Abstract

Background: Orphaned children are one of the most vulnerable and needy groups of children all over the world. Those children suffer from the trauma of loss of one or both parents, followed by lacking in satisfaction of their bio- psychosocial needs especially in the care institutions. **Aim:** Evaluate the effect of developed protocol of care on satisfaction of bio-psychosocial needs of institutionalized school age orphans children. **Design:** A Quasi- experimental research design. **Setting:** This study was conducted in three orphanages affiliated to the Ministry of Social Affairs in Tanta city and Kafr El-sheikh city. **Subjects**: A convenience sample of 60 of the institutionalized school age orphans and 28 of their caregivers were included in this study. **Tools**: two tools were used. **Tool I:** Structured interview schedule for institutionalized school age orphans children included three parts, part1): bio-socio demographic data of institutionalized school age orphans children, part2): Assessment of satisfaction of bio psychosocial needs and Part3): Institutionalized school age orphans children observational checklist. **Tool II:** Structured questionnaire schedule for caregivers included two parts, part1): Socio - demographic characteristics of the caregivers: part2): Caregiver's knowledge about the bio psychosocial needs of institutionalized school age orphans children. **Results:** There was a statistically significant improvement in the mean score of satisfaction of bio- psychosocial needs among the studied orphan children pre, immediately, and three months post- protocol intervention (P=0.001). Where, the mean scores of their total bio psychosocial needs satisfaction improved from 69.99+6.02 pre-protocol intervention to 92.71+4.01 immediately post and 86.23+4.85 three months post-protocol intervention. **Conclusion and recommendations**: The protocol of care was effective in satisfying and improving the bio psychosocial needs of the school age orphan children. Therefore, protocol of care should be conducted at all orphanage homes to meet their bio psychosocial needs and to promote a healthier lifestyle among orphan children

Key words: Bio-psychosocial needs, Orphan children, Care institutions, Protocol of care**.**

Introduction

The early years of life are necessary and crucial for children physical, social, cognitive and emotional development [1]. All these aspects of growth and development are equally significant for the sound health of the child [2, 3]. School age children are those in the age period between 6 to 12 years old. Most children in this stage have more opportunities to expose themselves to people and environment they had never known [3]. All children have the right and need to live with their parents or to stay in touch with them. Also, they have the right to grow up in a supportive, protective, and caring family that promotes his or her full potential. Family is one of the main socializing institutions of the society and important to the children's development and protection. Within family, they can feel cared and grow up, develop physically fit, emotionally resilient and intellectually capable [4].

Children growing up without a mother, father or primary caregiver have become a common phenomenon in developing countries. More than 5,760 children become orphan. Every 2.2 seconds a child loses a parent somewhere in the world. Globally, UNICEF statistics state that there are between 143 million and 210 million orphans worldwide. Eighteen million orphans in Africa alone. In Egypt, the number of orphans is around 1, 700, 000 orphans [5]. Those children suffer from lacking in meeting their basic needs which are the important aspect of care in the institutions due to the trauma that the children have. So these needs must be met in order to maintain the health of them and ensure their sustainable development [6].

Orphanages, children's homes, care homes, residential child care institutions and institutional homes are forms of alternative care facilities which were established to meet the basic needs of orphans. As well, providing care, support and safe environment to orphans children but it still facing major difficulties and problems of lacking in many resources as nutrition, medical care and psychosocial deficiencies due to many causes as lacking of number and training of care givers who fail to provide care that meets the needs of orphaned children[7, 8].

Caregivers at those institutions have an important roles and responsibilities in satisfying the needs of orphan children which include nutrition, rest and sleep, health care, hygiene, play activities, education, love and security. Roles and responsibilities of caregivers were found to require them to be equipped with sufficient qualifications and experience in handling and raising children to be able to care for those children and themselves. So, they should have knowledge, accurate information and awareness about bio psychosocial needs of orphans and how to meet and satisfy these needs and how to promote their healthy development [9].

Community health nurses can learn more about this institutionalized care and assess the positive and negative factors that can affect the orphans health and quality of life and use this information to help them grow up physically and emotionally healthy. Furthermore, community health nurses can alert the health professionals, business leaders, religious groups, and voluntary organizations about institutional care children's needs and the strategies that can improve their health [10].

Significance of the study

The future of any society depends on its ability to foster the health and well-being of

the next generation. Simply, today's children will become tomorrow's citizens, workers, and parents. When we invest wisely in children and families, the next generation will pay that back through a lifetime of productivity and responsible citizenship [(11)]. The number of children under age of 17 who registered in orphanages is 23,779 [(12)]. Children deprived from family care represent highly vulnerable, sensitive and risky groups that need multidisciplinary research and intervention. When we fail to provide institutionalized children with what they need to build a strong foundation for healthy and productive lives, we put our future prosperity and security at risk [(13)]. Indeed, developing standards and protocol of care help orphan children and their caregivers to have significant data base about the importance of bio-psychosocial needs satisfaction also, providing caregivers with appropriate trainings, and improved caregiving environments in child care institutions have beneficial effects on the child's physical, emotional, social and cognitive development. So this study was aimed to evaluate the effect of developing protocol of care on satisfying the bio-psychosocial needs of institutionalized school age orphans children.

Aim of the study

Evaluate the effect of developed protocol of care on satisfaction of bio-psychosocial needs of institutionalized school age orphans children.

Research hypothesis

The bio-psychosocial needs of institutionalized school age orphans children is expected to be satisfied after implementing the protocol of care.

Subjects and method

Subjects

Research design

A Quasi- experimental research design was used to achieve the aim of this study.

Settings

This study was conducted in three orphanages (orphans' care institutions) affiliated to the Ministry of Social Affairs in Tanta city and Kafr El-sheikh city. One orphanage was social care home for girls which belong to Al Wafaa Islamic Charity from Tanta city. The two other orphanages were from Kafr El-sheikh city, Dar Al Hanan for orphaned girls' care, and Shelter institution for boys.

Subjects

Convenience sample was utilized in this study. All institutionalized school age orphans children (60) and their caregivers (28) in the above mentioned settings who willing to participate in the study was included in this study.

Tools of data collection

Two tools were used to collect the necessary data which were developed by the researcher based on reviewing the recent related literatures as following:

Tool I: Structured questionnaire schedule for institutionalized school age orphans children. It included three parts as following:

Part (1): Socio demographic data of* institutionalized *school age orphans children.

It included (5) questions about the age, gender, educational grade, period of staying in the orphanage (duration of institutionalization) and height, weight, BMI.

***Part (2):* Assessment of bio-psychosocial needs satisfaction of institutionalized school age orphans children**

It was developed by the researcher after reviewing the related literatures [(14, 15)]. The total items of the scale were 62 items,

represented two domains that assess the satisfaction of bio-psychosocial needs of the institutionalized school age orphans children as the following:-

A-Domain of physical needs: encompassed 37 items presented under seven dimensions: nutrition (7 items), shelter (5 items), rest and sleep (5 items), clothes (7 items), health care (3 items), activity and play (4 items), and hygiene (6 items).

B-Domain of psychosocial needs: included (25) questions to assess the satisfaction of psychological and social needs of the institutionalized school age orphans children.

Scoring system

Three – point likert scale was used in this part as one point was given if their response was (never), two points for (sometimes) and three points for (always). The overall score of the instrument ranged from (62–186), where the higher scores indicated high satisfaction of the bio psychosocial needs. The overall study orphan's scores of satisfaction of bio psychosocial needs was summed and classified as the following:

-Low satisfaction: <50% (<124)

-Moderate satisfaction: 50% -70% (124-149)

-High satisfaction: >70% (> 149)

Part 3: Institutionalized school age orphans children observational checklist.

It was adapted from Abd-el-Kader N 2016 [(16)].The total items of the instrument were (57) items, represented four parts to assess the practice of school age orphans children regarding physical assessment, physical needs, social relation and psychological behavior of the children.

Scoring system

The questions of this part were scored based on ″yes ″or ″no″; which two points given to (yes) and one point to (no).The overall score of the checklist ranged from (57–114), where the higher scores indicated high satisfactory practices regarding the bio psychosocial needs. The total scores of this observational checklist were summed and categorized as follows: -

-Satisfactory practices: ≥60% of the total score (≥ 91)

-Unsatisfactory practices: < 60% of the total score (<91)

Tool II: Structured questionnaire schedule for caregivers:

It was developed by the researcher after reviewing the recent related literatures [(17, 18)] to assess the caregivers' socio - demographic characteristics and their knowledge about the bio psychosocial needs of institutionalized school age orphans children. It included the following parts:

Part (1): Socio - demographic characteristics of the caregivers.

It included seven questions about the age, gender, educational level, marital status, previous training in the field of caring of orphans, years of experience in dealing with orphans, and number of children.

Part (2): Caregiver's knowledge about the bio psychosocial needs of institutionalized school age orphans children.

The total items of the questionnaire were 33 items, represented three domains that assess the knowledge of the caregivers about the bio psychosocial needs of the institutionalized school age orphans children.

Scoring system

The items of the questionnaire checked with a model key answer prepared by the researcher

and scored as two points were given to (correct and complete) answer, one point to (correct and incomplete) answer, and zero point was given to (incorrect answer or don't know). The overall score of the questionnaire ranged from (0–66), where the higher scores indicated good caregiver's knowledge regarding bio psychosocial needs of children. The total scores of this questionnaire were summed and categorized as follows:

-Poor knowledge: < 50% (< 33)

-Fair knowledge: 50% - < 75% (33- < 49.5)

-Good knowledge: ≥ 75% (≥49.5)

Method

1. Administrative process

-An approval from the ethical committee in the faculty of Nursing, Tanta University was obtained on the study proposal to carry out the study.

-An official permission was obtained from dean of the faculty of nursing to the directorate of Social Affairs in Tanta and Kafr El- sheikh cities, then to the directors of the selected orphanages.

2. Ethical considerations

-An informed consent of the directors of the chosen orphanages and consent of the caregivers included in the study was obtained after appropriate explanation of the nature and purpose of the study.

-Consent of the orphan school age children to participate in the study was also assured.

-Nature of the study does not cause harm and/or pain for the entire sample.

-The right to withdraw from the study at any time was assured for each participant.

-Confidentiality of the collected data was assured as; a code number was used instead of names.

3. Developing the study tools

-As regards to tool I (part1, 2) and tool II, they were developed by the researcher based on reviewing of the related literatures.

-Concerning tool I (part 3), it was adapted from Abd-el-Kader N 2016 [16] with doing the necessary modifications to be suitable for data collection.

-All tools of data collection were tested for their face and content validity (0.905) by a Jury of five experts of Community Health Nursing and Public Health and Preventive Medicine.

-The study tools were tested for its reliability by using Cronbach's alpha test, it was computed and found to be (0.905) for all the study tools, (0.886) for tool I, and (0.920) for tool II.

4. A pilot study was carried out on (10 %) of the study sample (six children and three caregivers) to test the tools for their applicability, clarity, and feasibility. No modifications for the questions were done so, these sample not excluded from the entire sample.

5. The study phases

The protocol of care of this study was designed based on modernization agency and the national institute for clinical excellence[19], step by step guide for development and implementation of the protocol was conducted through the following four phases:

Phase (1): assessment phase

The data was collected by the previously mentioned tools through interviewing each study subject individually in the pre-determined setting to collect the baseline data as a pre-intervention assessment.

Phase (2): planning and designing phase.

Planning and designing the protocol of care was done according to the need assessment

results and relevant literature review with the guidance of the steps of protocol as follows:

I-Setting the objectives of the protocol of care

- **General objective**: was to meet the bio-psychosocial needs of institutionalized school age orphans children in orphanages.
- **Specific objectives of the protocol of care**: by the end of implementing the teaching program of the protocol of care, the studied subjects were able to:

1. Identify the physical needs of children as nutrition, shelter, rest and sleep and physical activity.
2. Motivate orphans and their caregivers to recognize and follow a healthy practice of personal hygiene and eating pattern to meet those needs.
3. Improve the safety and security needs of orphan children.
4. Follow a healthy practice to meet social needs.
5. Improve children's ability to deal positively with their feelings and fears.
6. Enhance the awareness of caregivers and children about their psychological needs and help them to meet these needs.

II- Preparing and organizing the content of the protocol of care

- Based on the studied subjects' needs which were determined in the assessment phase and the objectives of the protocol of care, the researcher reviewed the related literatures that covered the satisfaction of the bio psychosocial needs of institutionalized school age orphans children.
- The content of the protocol of care was based on the designed training program for the studied subjects.
- The content of the program was prepared and organized by the researcher based on the results obtained from assessment phase, as well as the literature review which included eight sessions to be provided for the studied subjects.

III-Preparing the teaching strategies and materials

Teaching methods: lecture, individual\group discussion, demonstration and re-demonstration was used as teaching methods.

Audiovisual aids: as power point presentation, pictures, videos, role play and a guiding booklet. All of them were prepared in a simple Arabic language supported by photos and illustrations which distributed on all the study subjects to help them in understanding the content simply.

Phase (3): implementation phase of developed protocol of care.

- The field work of this study was done in nine months starting from October 2019 to June 2020.
- The researcher met the studied sample at the selected orphanage home, two days per week.
- The sessions were conducted when the children have the day off from their schools.
- The program was carried out by the researcher to the studied subjects through groups as the group ranged from (5-6) children and caregivers.
- The program sessions were carried out with the duration of each session approximately 45- 60 minutes followed by 15 minutes for discussion.
- Every orphanage director was take a copy of the Arabic bio psychosocial needs hand out; also they take a copy of the teaching materials on a CD to be guide in orphanage

and to ensure dissemination, applicability and continuity of care.

- The entire sample (caregivers) were provided with a booklet about the bio psychosocial needs supported with a lot of pictures for first aid practice that needed in different situations of emergency for school age orphans children.
- The protocol was demonstrated through eight consecutive program sessions; first session was concerned with orientation and expectations of the subjects, second session was about physiological needs of orphans, third session was about promoting practices of physical needs and fitness. As regards the fourth session; was about promoting hygienic care practices, while the fifth session was focusing on safety and security needs enhancement, and the sixth session was about social needs of the orphans. Moreover, the seventh session was about psychological needs of the orphans' children, and finally, the eighth session was covering the ways of enhancing awareness of the caregivers regarding the psychological needs.

Phase (4): Evaluation phase.

The aim of this phase was to evaluate the effectiveness of the developed protocol of care on satisfaction of bio-psychosocial needs of institutionalized school age orphans children. Data were collected three times as the following:

- First time: before implementation (on the assessment phase) of the protocol using the three tools of the study.
- Second time: immediately after the implementation of the protocol of care using tools I (Part 2 & 3), and tool II (Part 2).
- Third time: three months after the implementation of the protocol of care using tool I (Part 2 & 3), and tool II (Part 2).

6.Statistical analysis

The collected data were organized, tabulated, and statistically analyzed using SPSS version 19 (Statistical Package for the Social Studies) created by IBM Illinois, Chicago, USA. For numerical values, the range, means and standard deviations were calculated. For categorical values, the number and percentage were calculated and the differences between subcategories were tested by Chi-square test (χ^2). The correlation between two variables was calculated using Pearson's correlation coefficient. Probability (p-value) less than 0.05 was considered significant and less than 0.001 was considered as highly significant.

Results

Table (I) represents the distribution of the studied orphan children according to their total score of the satisfaction of their bio psychosocial needs throughout the study phases. There was a statistically significant difference regarding the total score of physical, psychological and social needs among the studied orphan children pre, immediately, and three months post- program intervention (P=0.001). As regard the total score of bio psychosocial needs, the table shows that approximately one third (31.7%) of the studied orphan children had a high satisfied level pre-program intervention. While, those who had a high satisfied level immediately post and three months post-program intervention increased to include all of them (100.0%) with improved on the total mean scores from 69.99±6.02 pre-program intervention to 92.71±4.01 immediately post and 86.23±4.85 three months post-program intervention.

Table (II) represents the distribution of the studied orphan children according to their total score of the observation of their bio psychosocial needs throughout the study phases. The table reveals that, there was statistically significant difference among the studied orphan children in relation to the observed dimensions of their bio psychosocial needs (the three dimensions including physical needs, social needs, and psychological needs), pre, immediately post, and three months post-program intervention (P=0.001). Finally, there was statistically significant improvement in the mean score of the total bio psychosocial needs among the studied orphan children throughout the study phases (P=0.001). Where, the mean scores of their total score of the bio psychosocial needs improved from 77.35±6.55 pre-program intervention to 97.56±2.60 immediately post and 92.28±4.50 three months post-program intervention.

Table (III) represents the correlation between age, education grade of the studied orphan children with their total score of met and observation of bio psychosocial needs throughout the study phases. It was observed that, there was a significant positive correlation between educational grade of the studied orphan children and their met of bio psychosocial needs during pre-program intervention as (P= 0.020) & (r= 0.301). As regards to observation of bio psychosocial needs among the studied children, they were positively correlated with the age of the studied children in pre, immediate post, and three months post- program intervention as (P= 0.001, 0.001, and 0.002 respectively) & (r= 0.561,0.523, and 0.393 respectively) Also, there was a significant positive correlation between educational grade of the studied children and their observation of bio psychosocial needs during pre, immediate post, and three months post- program intervention as (P= 0.001, 0.001, and 0.003 respectively)& (r= 0.598,0.499, and 0.376 respectively).

Table (IV) illustrates the relationship between gender of the studied orphan children, and mean score of their met and observation of bio psychosocial needs throughout the study phases. The table reveals that, there was statistically significant relation between gender of the studied orphan children and their met of bio psychosocial needs immediately post - program intervention as (P= 0.001). As regards to observation of bio psychosocial needs among the studied orphan children, there was a significant relationship between the gender of the studied orphan children and it in immediately post, and three months post- program intervention as (P= 0.022 and 0.007 respectively).

Table (V) represents the distribution of the studied caregivers according to their total score of their knowledge about the dimensions of the bio psychosocial needs of the school age orphan children throughout the study phases. The table shows that, there were statistically significant differences among the studied caregivers in relation to their total score of their knowledge related to all dimensions of bio psychosocial needs (physical needs, social needs , and psychological needs), pre, immediately post, and three months post-program intervention (P=0.001).

Finally, there was statistically significant improvement in the mean score of the caregiver's total knowledge of bio psychosocial needs of the school age orphan

children throughout the study phases (P=0.001). It was clear from the table, the majority (82.1%) of the studied caregivers had poor level of knowledge preprogram. Indeed, all (100.0%) of them had good level of knowledge immediately post- program intervention, while, more than three quarters (78.6%) resound the good level of knowledge three months post-program intervention. Also, the mean scores of the caregiver's total knowledge of the bio psychosocial needs improved from 77.35±6.55 pre-program intervention to 97.56±2.60 immediately post and 92.28±4.50 three months post-program intervention.

Table (VI) represents the correlation between age of the studied caregivers, their level of education, their years of experience and their total knowledge about the bio psychosocial needs of institutionalized school age orphans children throughout the study phases. It is observed that, there were significant negative correlations between age of the studied caregivers and their total score of knowledge about the bio psychosocial needs pre, immediate and three months post-program intervention as (P= 0.025, 0.018 and 0.020 respectively). As regards to educational level of the studied caregivers, they were positively correlated with the total score of their knowledge in pre, and three months post-program intervention as (P= 0.001, and 0.016 respectively) .On the other hand, no significant correlations were found between caregivers' years of experience and their total score of knowledge pre, immediate and three months post- program intervention as (P= 0.466, 0.069 and 0.200 respectively).

Table (VII) illustrates the relationship between caregiver's characteristics and their total score of their knowledge about the bio psychosocial needs of institutionalized school age orphans children throughout the study phases. The table shows that, there was statistically significant relationship between gender of the studied caregivers and their mean score of knowledge during three months post- program intervention as (P= 0.044) in females only as (P= 0.001). Regarding the relationship between previous training of the studied caregivers and their mean score of knowledge, there was a statistically significant relationship between them pre and three months post-program intervention as (P= 0.002 and 0.028 respectively) either taking training or no.

As regards to caregivers' having children, the table also shows that there was a statistically significant relationship between caregivers' having children and their total score of knowledge pre, immediately post and three months post- program intervention as (P= 0.009, 0.032, and 0.017 respectively) either they having children or no as (P=0.001)

Table (I): Distribution of the studied orphan children according to their total score of the satisfaction of their bio psychosocial needs throughout the study phases.

bio psychosocial needs	Studied orphan children (N=60)						F	p
	Pre		Immediate post		Three months post			
	n	%	N	%	n	%		
physical needs								
Low satisfied	6	10.0	0	0.0	0	0.0		
Moderate satisfied	16	26.7	0	0.0	0	0.0		
High satisfied	**38**	**63.3**	**60**	**100**	**60**	**100**		
Range	59-81		84-100		75-97			
Mean±SD	**70.92±6.30**		**93.47±4.18**		**89.42±4.49**		362.3	**0.001***
Psychological needs								
Low satisfied	25	41.7	0	0.0	3	5.0		
Moderate satisfied	26	43.3	3	5.0	10	16.7		
High satisfied	**9**	**15.0**	**57**	**95.0**	**47**	**78.3**		
Range	40-90		60-100		50-100			
Mean±SD	**61.44±11.68**		**89.17±7.78**		**78.44±10.67**		236.3	**0.001***
Social needs								
Low satisfied	10	16.7	0	0.0	0	0.0		
Moderate satisfied	43	71.7	1	1.7	1	1.7		
High satisfied	**7**	**11.7**	**59**	**98.3**	**59**	**98.3**		
Range	47-90		67-100		70-97			
Mean±SD	**65.06±7.75**		**90.57±6.41**		**83.39±6.21**		297.4	**0.001***
Grand total								
Low satisfied	1	1.7	0	0.0	0	0.0		
Moderate satisfied	40	66.7	0	0.0	00	0.0		
High satisfied	**19**	**31.7**	**60**	**100**	**60**	**100**		
Range	58-84		79-100		73-98			
Mean±SD	**69.99±6.02**		**92.71±4.01**		**86.23±4.85**		572.5	**0.001***

*Significant at (P < 0.001)

Table (II): Distribution of the studied orphan children according to their total score of the observation of their bio psychosocial needs throughout the study phases

Bio psychosocial needs	Studied orphan children (N=60)						F	P
	Pre		Immediate post		Three months post			
	n	%	N	%	N	%		
Physical needs								
Unsatisfied	38	63.3	0	0.0	41	68.4		
Satisfied	22	36.7	60	100	19	31.7		
Range	57-86		96-100		75-100			
Mean±SD	**69.12±7.41**		**99.81±0.79**		**92.60±9.58**		633.3	**0.001***
Social needs								
Unsatisfied	14	23.3	0	0.0	0	0.0		
Satisfied	46	76.7	60	100	60	100		
Range	62-100		87-100		81-100			
Mean±SD	**79.37±10.69**		**99.58±2.26**		**94.69±6.59**		89.3	**0.001***
Psychological needs								
Unsatisfied	17	28.3	0	0.0	0	0.0		
Satisfied	43	71.7	60	100	60	100		
Range	61-96		84-100		73-100			
Mean±SD	**76.41±9.57**		**98.33±3.35**		**89.17±7.96**		130.6	**0.001***
Grand total score								
Unsatisfied	11	18.3	0	0.0	0	0.0		
Satisfied	49	81.7	60	100	60	100		
Range	66-89		90-100		77-99			
Mean±SD	**77.35±6.55**		**97.56±2.60**		**92.28±4.50**		302.1	**0.001***

*Significant at ($P < 0.001$)

Table (III): Correlation between age and education grade of the studied orphan children, and their total score of met and observation of bio psychosocial needs throughout the study phases.

Variables	Studied orphan children (N=60)			
	Age in years		Educational grade	
	R	P	R	p
Met of bio psychosocial needs				
Pre	0.254	0.050	0.301	**0.020***
Immediate post	-0.025	0.851	-0.088	0.502
Three months post	0.028	0.829	0.025	0.849
Observation of bio psychosocial needs:				
Pre	0.561	**0.001***	0.598	**0.001***
Immediate post	0.523	**0.001***	0.499	**0.001***
Three months post	0.393	**0.002***	0.376	**0.003***

*Significant at (P < 0.001)

Table (IV): The relation between gender of the studied orphan children, and their met and observation of their bio psychosocial needs throughout the study phases

Variables	Studied orphan children (N=60)			
	Males	Females	Z	P
Met of bio psychosocial needs				
Pre	68.62+7.06	69.28+5.18	0.948	0.343
Immediate post	94.80+3.38	91.12+3.74	3.650	**0.001***
Three months post	86.81+5.75	85.79+4.07	0.284	0.777
Observation of bio psychosocial needs:				
Pre	77.19+7.62	77.47+5.71	0.396	0.692
Immediate post	98.19+2.66	97.08+2.49	2.294	**0.022***
Three months post	93.88+3.32	91.06+4.93	2.695	**0.007***

*Significant at (P < 0.001)

Table (V): Distribution of the studied caregivers according to their total score of their knowledge about the dimensions of the bio psychosocial needs of the school age orphan children throughout the study phases

Bio psychosocial needs	Studied caregivers (N=28)						F	P
	Pre		Immediate post		Three months post			
	N	%	n	%	N	%		
Physical needs								
Poor	0	0.0	0	0.0	1	3.6		
Fair	27	96.4	0	0.0	0	0.0		
Good	**1**	**3.6**	**28**	**100.0**	**27**	**96.4**		
Range	34-61		77-100		50-98			
Mean±SD	**44.73±8.73**		**97.37±5.00**		**85.82±9.93**		560.4	**0.001***
Psychological needs								
Poor	**21**	**75.0**	5	17.9	6	21.4		
Fair	0	0.0	0	0.0	0	0.0		
Good	7	25.0	**23**	**82.1**	**22**	**78.6**		
Range	0-75		50-100		50-100			
Mean±SD	**42.86±26.23**		**90.18±19.65**		**81.25±19.98**		116.1	**0.001***
Social needs								
Poor	**25**	**89.3**	0	0.0	6	21.7		
Fair	0	0.0	0	0.0	0	0.0		
Good	3	10.7	**28**	**100.0**	**22**	**78.6**		
Range	25-100		75-100		50-100			
Mean±SD	**50.89±14.41**		**99.10±4.72**		**75.00±16.67**		204.3	**0.001***
Grand total score								
Poor	**23**	**82.1**	0	0.0	6	21.7		
Fair	4	14.3	0	0.0	0	0.0		
Good	1	3.6	**28**	**100.0**	**22**	**78.6**		
Range	29-79		77-100		50-97			
Mean±SD	**46.32±12.49**		**95.06±9.11**		**80.07±13.96**		392.8	**0.001***

*Significant at ($P < 0.001$)

Table (VI): Correlation between age, level of education and duration of experience of the studied caregivers, and their total knowledge about the bio psychosocial needs of institutionalized school age orphans children throughout the study phases

Total score percentage of caregiver's knowledge	Studied caregivers (N=28)					
	Age in years		Educational level		Years of experience	
	r	P	R	P	r	P
Pre	-0.424	**0.025***	0.790	**0.001***	-0.144	0.466
Immediate post	-0.445	**0.018***	0.240	0.219	-0.349	0.069
Three months post	-0.436	**0.020***	0.451	**0.016***	-0.250	0.200

*Significant at (P < 0.001)

Table (VII): Relationship between caregiver's characteristics and their total knowledge about the bio psychosocial needs of institutionalized school age orphans children throughout the study phases.

Variables	Studied caregivers (N=28)				
	Mean score of caregiver's knowledge				
	pre	Immediate post	Three months post	X^2	p
Gender:					
Males	59.07±20.73	100±0.00	92.05±5.00	6.000	0.050
Females	44.79±10.81	94.46±9.49	78.63±14.04	50.00	**0.001***
Z	1.269	1.214	2.015		
P	0.205	0.225	**0.044***		
Previous training					
No	43.22±12.19	93.95±10.01	77.64±14.60	44.00	**0.001***
Yes	57.63±1.59	99.13±1.39	88.98±6.01	12.00	**0.002***
Z	3.094	0.271	2.194		
P	**0.002***	0.786	**0.028***		
Having children					
No	37.94±8.24	90.87±10.93	72.31±14.26	20.00	**0.001***
Yes	50.97±14.14	97.38±7.25	84.38±12.12	36.00	**0.001***
Z	2.577	2.147	2.384		
P	**0.009***	**0.032***	**0.017***		

*Significant at (P < 0.001)

Discussion

Worldwide orphanage institutions are responsible for providing the support and resources for a holistic development in the lives of children who are deprived from their family care. The management system and quality of care vary from one place to another depending on the managers' background and beliefs. Institutional care need intensive and constant technical support to be able to provide a healthy environment that promotes the physical and psychological well-being for children and youth who lost their parental care and an environment that secures their good education and social integration [20, 21].

Improving the knowledge concerning the institutionalized children' bio psychosocial needs has special significance in public health because it likely affects their levels of achievement and considered the foundation for health in adulthood [22]. Therefore, the development of protocol of care is an important step-toward assuring satisfaction of bio psychosocial needs of orphan children. So, the present study was conducted to evaluate the effect of developing protocol of care of bio-psychosocial needs on satisfaction of institutionalized school age orphans children.

Generally, the present study revealed that, the developed protocol of care was effective in improving the satisfaction of bio psychosocial needs among the studied orphan children either through asking the children or through the observation **(table I and II)**. This effect could be related to the change occurred after implementation of the program. This finding is similar to a finding from a study conducted by **Alqahtani, (2021)** who determined the effect of a proposed program to improve quality of life for the orphans at social care homes (Riyadh, Saudi Arabia), and a study conducted by **Adejimi et al., (2019)**, in Osun State, Nigeria. Both studies reported that implementing care and support programs for orphans and vulnerable children was significantly responding to the physical, social and psychological needs of those children and ensuring better care for them [22, 23].

As well, the study done by **Abd-El-Kader, (2016),** revealed the effect of nursing protocol based care on bio-psycho-social needs of school age orphanage children in Cairo Governorate, Egypt, concluded that, the intervention was successful in improving the satisfaction and meeting the basic needs of school age orphan children [16] . Likewise, The study done by **El-sherbeny et al., (2015),** revealed the effect of develop and application of standards of health care for orphan children in Dakahlia Governorate, Egypt, concluded that the developed standards of health care for orphan children and for the institution improved the quality of health care provided and decreased the occurrence of health problems like physical, social and psychological problems. [24]. Moreover, **Embleton et al., (2014)** study at Uasin Gishu county at (Kenya), determined the efficacy of models of care for orphaned and separated children in upholding children's rights**,** concluded that the application of several models was successful in uphold children's rights and provide basic material needs [25].

According to the analysis of the three dimensions of the bio psychosocial needs in the present study during the pre-intervention phase, the highest mean score was related to the physical needs (70.92±6.30) followed by social needs (65.06±7.75). Contrarily, the lowest score was for psychological needs (61.44±11.68) as

reported by the studied orphan children **(table I)**. The pre- intervention highest score in physical needs in the present study could be explained from the researcher point of view and observation that; the majority of the orphanage homes focus on providing the services to meet primitive and basic needs of children such as food, water, shelter and clothing and no much attention has been given to psychosocial needs. This explanation is supported by **Asgarinekah et al., (2019), and El-sherbeny et al., (2015)** who reported that, the most essential measures and services provided in orphanage homes are providing a suitable diet for children, maintaining a safe shelter and paying attention to quality and quantity of clothes which indicates the fulfillment of the physical needs [26, 24].

The lowest score for psychological needs found in the current study before the intervention is compatible with the studies by **Alem, (2020),** in Ethiopia, **Kaur et al., (2018),** in India and **Abd-El-Kader, (2016),** in Egypt [27, 28, 16]. Also, **El-Slamoni and Hussien, (2019),** assessed the depression and aggression among orphanage residents at Tanta city, and reported that, slightly more than one-third of the studied orphans experienced loneliness, entrapment, deprivation, rejection and helplessness, which related to un meeting of psychological needs of those children. This may be related to lack of enough trained caregivers for psychological needs or un availability of psychologist in this institutions [29]. On the other hand, the findings of **Disassa, (2021)**, in South West, **Shouket, (2020)**, in Pakistan, **and Boadu, (2020)**, in Ghana studies were incongruent with the present study findings. These studies reported that, the studied orphan children reported highest level of psychological support, satisfaction of autonomy, relatedness and life satisfaction whish associated with fulfillment of psychological needs. The reason for this difference could be attributed to the better ability of residential institutions to meet the children's psychological needs [30, 31, 32].

The present study illustrated that, there was a significant positive correlation between age, the educational grade of the studied orphan children and observation of the satisfaction of their bio psychosocial needs during pre, immediate post, and three months post-program intervention (**Table III**). This positive correlation may be attributed to, the children's healthy behavior and good practices usually encouraged and improved with increasing their age and wand higher educational level which help children to be more aware and realize the negative aspects of their living in the institution and try to modify it to the best living. As children in the current study aged 6 to12 years, and those who are 10 to 12 years are mostly students who are usually enrolled in the fourth to sixth grade (more than two thirds of the studied orphan children were enrolled in the fourth to sixth grade).

This finding is supported by **Abd-El-Kader, (2016)**, who mentioned that, the older school age children tended to practice healthier lifestyle than the younger and concluded that there was a significant positive corellation between observation of the biopsychosocial needs of the studied subjects and their age and educational grade [16]. Also, the findings of the studies carried out by **Adejimi et al., (2019)**, **Lee et al., (2019), and Chemwende and Mbogo, (2021),** are in the same line as they reported that, there was significant association between wellbeing of the study subjects and their educational grade and age [23, 33, 34].

Likewise, **El-Sakka et al., (2018),** who studied the quality of life among children deprived from family care in residential institutions in El-Beheira governorate, Egypt, and illustrated that statistically significant relation was observed between children's age and their quality of life (P = <0.0001). Also, the study reported that, 65.4% of the children who were in primary education had good quality of life. So, a statistically significant relation was observed between children's level of education and their quality of life (P = <0.001) [20].

On the contrary, it is contradicted by **Alqahtani, (2021), El-sherbeny et al., (2015) and Embleton et al., (2014),** studies, who found that, there was no significant association between addressing the needs of the study subjects and their age [22 , 24, 25] . Also, **Adedigba et al., (2018)** study contradicted this finding in illustrating that, age had no significant influence on the psychosocial wellbeing and development of orphaned children. The conflicting findings may be contributed to abnormal situation created by death which caused a child to be housed in residential homes and may also related to different institutions [35] .

The results of the present study revealed that, satisfaction of the bio psychosocial needs among the studied orphan children had significant positive relationship with their gender in immediately post -program intervention phase as (P= 0.001). Also, the current study found that, observation of the satisfaction of the bio psychosocial needs among the studied orphan children had positive relationship with their gender in immediately post, and three months post- program intervention as (P= 0.022 and P= 0.007 respectively) (**Table IV**).

This significant relationship may explained by the expected difference in gender that, the female has been reported to experience much development and wellbeing than their male counterparts , which is supported by **Elattar et al., (2019),** who evaluated the impact of orphan children's emotional and behavioral problems and length of institutionalization on their life satisfaction in Benha City, Kalyubia Governorate, Egypt and stated that, there was statistically significant relationship between orphan children's total life satisfaction and their gender [36]. Likewise, **Moyo et al., (2015),** who studied the impact of institutionalization of orphaned children on their wellbeing in Mtoko, Zimbabwe and illustrated that, there was a positive relationship between the gender of the studied children and their wellbeing [37].

On the other hand, the findings of the present study are contradicted by **Asgarinekah et al., (2019),** who conducted a study to investigate orphan and vulnerable children care needs and determine the related driving forces and challenges in Iran and revealed that no significant relationship was found between addressing the needs of the study subjects and their gender [26]. Also, **Jafar et al., (2020),** who investigated the effect of implementation of balanced nutrition program on food and nutrition consumption of orphanage children in Makassar City on Indonesia, found that there was no significant relationship between gender of the studied subjects and meeting their basic needs [38]. These differences in the obtained results can be primarily attributed to the differences in the institutions or the difference in the studied sample.

Institutions are the only level of care available for orphans' children, but such care may increase children's risk for psychological,

emotional and developmental problems which susceptible the children to several adverse bio psychosocial outcomes. For these children, it is important to receive high-quality care from their caregivers. Caregivers are crucial to an orphaned children's life as they interact and stay with them for long periods of time. Therefore, it is important to have the foundational knowledge and skills to deal effectively with those children [39].

Lack of awareness and knowledge about the needs and rights of orphan children among caregivers has been reported as the most important contributing factor to poor quality care. The ability of caregivers to provide quality care is vital, as it will assist with the maintenance of children's health status and improve their quality of life [40]. Therefore, there is an urgent need to sensitize the caregivers about the bio psychosocial needs of the orphan children and how to satisfy those needs.

The present study showed that, after conducting the educational sessions of the program there were an improvement in the mean score of the caregiver's total knowledge of bio psychosocial needs of the school age orphan children. Also, statistically significant differences have been found throughout the study phases (P=0.001) (**Table V**). According to the researcher's point of view, this improvement could be due to the positive effect of informing the studied caregivers with the valued knowledge about the bio psychosocial needs of orphan children and inform them with the best methods and strategies to satisfy those needs. Also they were in need of this knowledge and had the willing to know as they asked a lot of questions regarding the bio psychosocial needs during the sessions.

These findings agree with **Sharp et al., (2021),** who studied the effect of intervention for caregivers to address the mental health needs of orphans and vulnerable children, and illustrated that training improved the skills and knowledge of the caregivers' quality and the mental health of orphans and vulnerable children [41]. This is partly in line with **Ismail, (2020),** who conducted a study to evaluate the effect of a health educational program about infection control on practice of caregivers in orphanage center, Khartoum state, Sudan and reported that, there was a statistically significant difference ($P < 0.05$) in practice score throughout pretest and posttest [42] .

Also, **Sabea et al., (2019),** who evaluated the effect of an educational program for informal caregivers about home accident prevention in Helwan district reported that**,** after the educational program implementation, there was improvement in the caregivers´ knowledge, attitudes and reported practices regarding home accident prevention with highly statistically significant effect in post-program compared with pre-program [43]. Moreover, a study had been done by **Masia et al., (2020**), to evaluate the effectiveness of health educational program on nutrition knowledge and care practice of home-based caregivers in South Africa, showed that the total score of nutrition knowledge among the studied sample was higher after the intervention and reported also that, there was a statistically significant difference ($P < 0.05$) in practice score throughout the pre and post intervention. Also that study concluded that good training help caregivers gain knowledge and have confidence in assisting children with their needs [44].

The present study found that, there was a significant negative correlation between age of

the studied caregivers and their total score of knowledge about the bio psychosocial needs of the orphan children throughout the study phases (**Table VI**). This negative correlation may be indicated that, the caregiver's responsibilities for their families and their children usually increase with increasing their age especially the majority of them were females and they aged 33 to 50 years; more than three fifths of them were married and had children. They prioritize their families over their own experiences and knowledge about their work which consequently, decrease their opportunity for giving more attention to their work in orphanage homes. That is supported by **Sharp et al., (2021),** who illustrated that there was an inverse correlation between age of the studied caregivers and their total knowledge [(41)].

The results of the present study revealed that, total score of knowledge about the bio psychosocial needs of the orphan children among the studied caregivers had positive relationship with their educational level in pre, and three months post- program intervention as (P= 0.001, and P= 0.016 respectively) (**Table VII**). This positive correlation may be attributed to, the caregiver's knowledge about the needs of orphan children usually encouraged and improved with wand higher educational level as more than two fifths of the studied caregivers had primary education and more than one-third of them had secondary education.

This finding is supported by **Mwinzi, (2020),** who mentioned that, the highly educated caregivers have valued knowledge and practice which help them in providing the care and enhance their ability to meet the needs of the orphan children [(45)]. On the other hand, it is contradicted by **Masia et al., (2020**), who reported that, the knowledge of the caregivers in the study was not influenced by the selected demographic factors as their education level [(44)]. The conflicting findings may be related to the different in the type of the studied knowledge in each study and also to the percentages of educational levels in each of them.

Eventually, loss of parents is extremely disruptive for children, and often seriously disadvantages their chances for obtaining basic living needs as well as for securing a place in school or future employment. So, health and well-being of the orphan children is essential to the progress of every society, Meeting their needs is vital to their current well-being but is also critical to their future, and failure to support them and satsfied their needs is considered amajor risk factor for developing greater physical and psychosocial care difficulties, distress their adjustment to life and thus seriously jeopardize their future. Considering that, the school age period is highly important because it influences major changes and transitions in children's lives, choosing a lifestyle and the practices associated with it, play asignificant role in children's health and the outcomes affect their physical, psychological, and social performance and well-being. On the other hand, child's health in this period affect their long term health, development and well-being [(46)].

The role of community health nurses (CHN) can be effective in assessing the physical environment of the institutions and in promoting healthy behavioures and practices among the school age orphan children through applying continuous training for children and their caregiveres. In this context, the present study revealed that, developing protocol of care was effective in satsfying the biopsychosocial

needs of school age instituationalized children. This directs the light toward the role of community health nurse in using the designed protocol and program to help orphan children to adopt healtheir lifestyle and improve their health [(26)].

Conclusion

Based on the findings of the present study; it can be concluded that, the protocol of care was effective in satisfaction of the bio psychosocial needs of the school age orphan children. A significant improvement was observed in the assessment of satisfaction and observation of the bio psychosocial needs among the studied orphan children throughout the study phases. Where, the mean scores of their total bio psychosocial needs were improved in the immediate post- program and three months post- program in comparison to that in pre-program. Also, the protocol of care was effective in improving the caregiver's knowledge of bio psychosocial needs of the school age orphan children. As the mean scores of their total knowledge of the bio psychosocial needs were improved in the immediate post-program and three months post- program in comparison to that in pre- program.

Recommendations

Based on the findings of the current study, the following recommendations are suggested:

1- There is a need to focus the efforts of caring, supporting and protecting the orphans children not only on their basic needs such as food, water, shelter and clothing, but also on their psychological and social needs.

2- Conducting a protocol of care among orphan children at orphanage homes to promote their healthier lifestyle to meet the bio psychosocial needs.

3- Periodically in service training programs should be established for caregivers at each institution or orphanage home for improving the satisfaction of the needs among orphan children, particularly during the school age periods.

4- Engage orphan children and their caregivers in designing, implementation and evaluation of protocol of care and health promotion programs to ensure individualization of the intervention and being tailored to meet their needs.

5- Assign trained health care providers to provide continuous care for the institutionalized children and their caregivers and make referral when needed.

6- Develop guidelines for nurse role in residential care institutions.

7- Further researches to study the obstacles that hinder the idealization of orphanage and how to overcome these obstacles.

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