Tanta Scientific Nursing Journal

Volume 22 Number 3

(Suppl) , August

2021

ظهر الغلاف ورقة بيضاء

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Effect of Guideline Education on Knowledge and Performance of Mothers regarding Using of Cook Salt for Management of Infants with Granuloma Umbilical ***Sabah Mohammed Sharshour [1], Noha Mohammed Ashour Gebril[2], Mabrouka Atia Nada [3]*** *[1] Lecture of Pediatric Nursing, Faculty of Nursing, Tanta University, Egypt,* *[2]Lecture of Pediatric Medicine, Faculty of Medicine, Menoufia University,Egypt,* *[3]Colleage of Pediatric Nursing, Menoufia University Hospital, Egypt.*	

Assessment of Patients' Needs Pre and Post Open Heart surgery

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Abstract

Background: Assessment of Bio-psychosocial needs of patient pre and post open heart surgery are very important aspect of patient centered care. **Aim:** was to assess patients' needs pre and post Open Heart Surgery. **Design:** -A descriptive exploratory design was utilized in this study. **Settings:** This study was conducted at Cardio-Thoracic Intensive Care Unit of Educational Tanta University Hospital. **Subjects:** A convenience sample of (100) open heart surgery patients that had been admitted to Cardio-Thoracic Intensive Care unit and meeting the inclusion criteria. **Tools of the study:** Two tools was used in this study for data collection**: Tool I:**A structured Interview Schedule **Tool II:**Bio psychosocial Needs Interview Questionnaire which included three parts; part (1): Physical Needs for Patients undergoing Open Heart Surgery, part(2): Psychological Assessment for Patients with Open Heart Surgery and part (3) Social Dysfunction Rating Scale for Patients with Open Heart Surgery. **Results:** There was highly significant positive correlation between total Social Dysfunction of the studied patients and their total score of pain score and total score of psychological needs at (P= < 0.01). In addition, there were significant positive correlation between total score of pain score of the studied patients and their total score of psychological needs and total score of Social Dysfunction at (P= < 0.01). **Conclusion:** The study concluded that, three-quarters of the studied patient had unsatisfactory level of total knowledge about heart surgeries. Also, there was a marked increase in total patients' dependency in Activities of Daily Living level at post heart surgery. **Recommendations:** Routine pre and postoperative assessment of patients who are undergoing open heart surgery is recommended to identify the different patient's bio-psychosocial needs and consequently any risk factor and reduced the post-operative complications.

Key words: - Bio-psychosocial needs, Open Heart Surgery

Introduction

Open heart surgery is a surgery in which the chest is opened and surgery is done on the heart muscle, valves, arteries, or other parts of the heart. It is a major surgery that requires a hospital stay of a week or more. Open heart surgery Patient will spend time in the Intensive Care Unit immediately after surgery. It is done to allow blood to flow around blocked blood vessels in the heart [(1)].

Open heart surgeries such as coronary artery by bass graft (CABG) and valve replacements have been used to improve patient outcomes related to cardiac symptoms, prolongation of life, and health-related quality of life. Although these surgical outcomes are beneficial, research has suggested that the experience and recovery process after open-heart surgery may be more complex than anticipated and presents psychosocial and physical challenges that will continue after hospital discharge[(2)].

According to statistics from Open Heart Surgery Department at Tanta University, patients admitted for open heart surgery are about 20 cases per month. Also, it was reported that about 53% of patients undergoing Coronary Artery Bypass Grafting (CABG) with cardiopulmonary Bypass (CPBG) had abnormal neurocognitive function at discharge, 24% of them continued to have neurologic abnormalities at 6 months after their cardiac surgery, and 42% reported cognitive decline at 5 years following the surgery[(3)]. Delirium occurs in up to 10% of patients more than 65 years of age and is also associated with worse long- term mortality. Other early postoperative neuro-cognitive abnormalities occur in up to 60% of patients and manifest as mild deficits in memory, attention, concentration and language [(4)].

Complications after open heart surgery include low cardiac output syndrome, arrhythmias, cardiac tamponade, or myocardial depression with or without myocardial necrosis, excessive bleeding can occur post operation or secondary to coagulopathy, uncontrolled hypertension and neuro-psychological dysfunction. The highest risk of postoperative central nervous system dysfunction is associated with long cardiopulmonary bypass (CPB) times, perioperative hypotension and post-cardiotomy delirium that occurs 2 to 5 days after cardiac surgery and is manifested as mild confusion, somnolence, agitation, or hallucinations[(5)].

Assessing the needs for patients subjected to open heart surgery is very important to facilitate patient's recovery and helping them to cope with any problems. Post cardiac surgery neurologic outcomes focused on clinically obvious neurologic

and psychological dysfunction such as stroke, disorientation, and depression [6].

However, with more widespread use of neuro-psychometric testing typically includes measures of language and memory, exercise and activity after open heart surgery are important for healthy healing and will help patients return to a more active lifestyle. Aerobic exercise is a continuous training that uses the large muscle groups to helps heart and lungs to work more efficiently. It also helps to control other risk factors for heart disease and stroke [7].

The biopsychosocial assessment is a very important step in medical care as it broadens the scope with which health and illness can be examined in clinical practice, in the assessment, prevention and treatment of diseases especially in open heart surgery. Because it includes complicated procedures that require high qualified professionals with a unique skills such as coronary artery bypass, repair of damaged structures, and heart transplant, as well as other treatments such as implantation of medical devices. The role of the professional nurse in the pre and post-operative care of the patient undergoing open heart surgery is beneficial for obtaining a positive outcome for the patient[8].

Significance of study:

Triage and treatment of patients in Open Heart Surgery Department deserve first priority. However, biopsychosocial case complexity may also affect patient health outcome and not explored in this setting, therefore, the aim of the study is to estimate prevalence rates of biopsychosocial problems in patients undergoing open heart surgery to evaluate possible correlations between patient profiles regarding case complexity and further clinical treatment.

Operational definitions of biopsychosocial patients' needs include assessment of the following needs: **physical needs** (pain assessment, basic activities of daily living as bathing, dressing, toileting, transferring, continence and feeding), **psychological needs** through Anxiety assessment for patients with open heart surgery and **assess social needs** through social dysfunction rating scale (self-stem, interpersonal system and performance system) for open heart surgery patients.

The aim of this study was to: - Assess patients' needs pre and post Open Heart Surgery.

Research question: - What are the patients' needs pre and post Open Heart Surgery?

Subjects and Method

Study design: - A descriptive exploratory design was utilized in this study.

Study settings: -

This study was conducted at Cardio-Thoracic Intensive Care Unit of Educational Tanta University Hospital. The hospital has one floor for Cardio-Thoracic Intensive Care unit consist of 5 wards, each ward contains 3 beds. The capacity of the unit includes 15 beds.

Study subjects:-

A convenience sample of (100) open heart surgery patients that had been admitted to Cardio-Thoracic Intensive Care unit and meeting the inclusion criteria. The sample size calculation by power analysis based on patient's admission in the hospital per year (250 patients/year).It was calculated based on epidemiological information program based on the total patients per year according to review of Tanta main university hospital statistical record.

Study tools:

Two tools were used in this study to assess bio- psychosocial needs for patients undergoing open heart surgery as follow:

Tool I: A structured Interview Schedule:

It was developed by the researcher in Arabic language after reviewed literature and was divided into three parts:

Part (A):- Socio-Demographic Characteristics of Patients pre and post Open Heart Surgery.

It was included data about age, sex, marital status, level of education, previous occupation, income, and number of children.

Part (B): **Past and Current Medical and Surgical History of Patients under the Study**:

It included data about chronic diseases, medication received, previous admission to the hospital, previous surgical intervention (type of operation and its duration) and family history.

Part (C): Open Heart Surgery Knowledge for patients:

It included data aboutindication, complications, management, and discharge plan. It consists of 8-items to assess knowledge for patients pre and post open heart surgery. The patient responds ranged from 0 (Don't know) to 1(know). The total score was obtained by summing all items, which ranged from (0-8).Total score of patients' knowledge was categorized as follows**:-**Less than or equal 60%of the total knowledge score considered unsatisfactory level of knowledge and more than 60% of total score considered satisfactory level of knowledge.

Tool II: Bio psychosocial Needs Interview Questionnaire:[9-13]

It was developed by the researcher after reviewing related literature and it included the following parts:

Part (A):-Physical Needs for Patients

undergoing Open Heart Surgery: It included:

1. Pain Assessment Scale[9]:

Pain assessment for patients undergoing open heart surgery had been done by using a Likert scale. This scale was developed by Galer and Gammaiton 2003 and it was adapted by the researcher in this study. It consists of 20-item to assess perception and sensation of pain for patient undergoing open heart surgery. The patient responds ranged from 0 (No pain) to 10 (sever pain). The total score was obtained by summing all items, which ranged from (0-200).

Total score categorized as follows:-

- Zero considered no pain
- Less than or equal 30% of the total score it will be considered mild level of pain.
- 31-60% of the total score it will be considered moderate level of pain.
- More than 60%of the total score it will be considered sever pain.

2. Katz Index of Independence in Activities of Daily Living(Katz ADL)for Patients undergoing Open Heart Surgery[10,11]:

This scale was developed by Katz et al., (2007)and it was adapted by the researcher. It was used to assess physical needs for patient pre and post open heart surgery by measuring the basic activities of daily living. Katz ADL index measures the ability to conduct self-care. It consists of six-item instrument, which assess the independence or dependence in the activities of bathing, dressing, toileting, transferring, continence and feeding. Patients are scored yes/no for independence in each of the six functions. Scores ranged from 0-6, a score of 6 indicated full function, 4 indicated moderate impairment and 2 or less indicated severe functional impairment.

Part (B):-Psychological Assessment for Patients with Open Heart Surgery [12]:

This part was used to assess psychological needs for open heart surgery patients by using zung scale for anxiety. It was developed by Zung 1996. It was adapted by the researcher in this study. It was a self-administered test which has 20 questions to assess psychological needs and anxiety level for the patient. The patient responds by using a Likert scale using a 4-point scale, ranging from 1 (none, or a little of the time) to 4 (most, or all of the time). There are 20 questions with 15 increasing anxiety level questions and 5 decreasing anxiety questions. Total score was obtained by summing all items which ranged from (20-80) raw score .Then converting the total raw score to anxiety index on the conversion chart. Record the corresponding anxiety index which ranged from 25-100 score. Compared the anxiety

index with the clinical interpretation chart as following:

Anxiety index score categorized as follows:-

-Blow 45 indicated normal range

-45-59 indicated mild to moderate anxiety levels

-60-74 indicated marked to severe anxiety levels

-75 and over indicated extreme anxiety levels

Part (C):-Social Dysfunction Rating Scale for Patients with Open Heart Surgery [13] :

This scale was developed by Ian2006. It was adapted by the researcher in this study. It consisted of 20-items to assess social needs for open heart surgery patients. The patient responded by using a Likert scale that ranged from 1 (none) to 6 (very sever). The total score was obtained by summing all items, which is ranged from (20-120).

Total scorecategorized as follows:-

1- Less than or equal 60%of the total score it considered low level of social dysfunction.

2- More than 60% of the total score it considered High level of social dysfunction.

Method

The study was accomplished through the following steps:

Administrative process:

1-An official hospital permission and written approval to carry out the study was obtained from the Dean of Faculty of Nursing to the manager of Cardio-Thoracic Intensive Care Unit of Educational Tanta University Hospital before conducting this study through official letters explaining the purpose of the study.

2- Ethical consideration:

- Informed and written consent was obtained from the study group after explanation of the aim of the study and assuring them confidentiality of collected data.
- Patients were informed that participation is voluntary and that they could withdraw at any time of the study.
- Privacy of the studied patients was maintained.
- Confidentiality and autonomy were maintained by the use of code number instead of name.

3- Tool development:

The study tools were developed and translated into Arabic language by the researcher based on literature review, modified to suit the level of understanding of all subjects and were tested for translation by experts in English language.

4- Validity of the tools:

All tools were tested for face validity by five jury of experts in the field of Medical-Surgical Nursing and Critical Care Nursing

at the Faculty of Nursing in Tanta University before conducting the study.

5- Reliability of the tools.

The study tools were tested for its reliability by using cronbach's alpha test, it was computed and it was found to be for structured interview schedule= (0.71), Pain Assessment Scale = (0.74), Katz Index of Independence in Activities of Daily Living = (0.83), Psychological Assessment for Patients with Open Heart Surgery= (0.79) and finally for Social Dysfunction Rating Scale for Patients with Open Heart Surgery = (0.81).

6- A pilot study:-

It was conducted before the actual study on 10% of the patients (10 patients), in order to test the clarity, feasibility and applicability of the different items of the developed tools .Modifications, rephrasing and some additional terms were done by the researcher before the main study, according to the experience gained from this pilot study. Data obtained from those patients were excluded and not included in the current study.

7- Data collection

- Data was collected from patient's sample who's met the study criteria.
- Data were collected over a period of 6 months, started from April 2020 to September 2020.
-The patients were interviewed individually using the previously mentioned data collection tools.
- The purpose of the study was explained by the researcher to each patient included in this study.
- Data were collected at two times: firstly, at preoperative phase. Secondly, at postoperative period from the second day of operation when patient become able to complete the interview sheet.

8- The present study was conducted through:

Assessment phase:

This phase was concerned with obtaining an official permission to conduct the study. The tools of the study were prepared after reviewing the recent literature.

Pre and post-operative assessment:

- The researcher used Tool (I) A structured Interview Schedule at the first time of patient's admission for collection of patient's data and assessed the patient who met the inclusion criteria and was included in the study through three parts.
- In tool (I), each patient was assessed regarding socio-demographic data (age, sex, marital status, level of education, previous occupation, income, and number of children), past and current medical and surgical history (chronic diseases, medication received, previous admission

to the hospital, previous surgical intervention, availability of health services and reasons of using it) and patients' knowledge regarding open heart surgery (indication, complications, management, and discharge plan).

- Also, the researcher used tool (II) to assess bio psychosocial needs for open heart surgery patients. Part (A) assessed physical needs (pain assessment, basic activities of daily living as bathing, dressing, toileting, transferring, continence and feeding), part (B) assessed psychological needs and part (C) used to assess social needs for open heart surgery patients.

9-Statistical analysis of data:

The study data were computerized and verified using the SPSS (Statistical Package For Social Science) version 20 to perform tabulation and statistical analysis. Quantitative data were summarized by the arithmetic mean and standard deviation. All statistical analysis was done using two tailed test and alpha error of 0.05 p value less than or equal to 0.05 was considered to be statistically significant. Frequency tables and cross tabulations with percentages was used to illustrate the result of categorical data and tested by chi square ($\chi 2$). Correlation analysis: Pearson correlation is used to test nature and strength of relation between three quantitative/ordinal variables. The sign of the coefficients indicates the nature of relation as follow: week correlation for (r) less than 0.25, intermediate correlation for (r) of value between 0.25–0.74 and strong correlation for value between 0.75-0.99.[14]

Results

Table (1) shows the distribution of the study patients according to their socio-demographic characteristics. In relation to age, less than half (46%) of the studied patients ranged between 50-60 years with Mean±SD 52.4±3.15 year. Regarding to marital status, the majority (80%) of the studied patients were married. Related to residence, more than half (55%) of the studied patients living in rural areas. In addition, less than half (44%) of the studied patients were working. While, two fifth (40%) of them were not working. Concerning monthly income, it was observed that less than two-thirds (62%) of the studied patients had insufficient monthly income.

Table (2) presents the distribution of the studied elderly according to their past and current health history. In relation to history of chronic diseases, it was observed that, all (100%) studied patients had history of heart disease, also, two-thirds (66%) of them had history of hypertension. Regarding previous admission to the hospital, the vast majority (95%) of the studied patients admitted to the hospital

previously. In addition, all (100%) studied patients taken medication before.

Concerning history of surgery, two-thirds (66%) of the studied patients didn't have surgical history. While, more than one-third (34%) of the studied patient had surgical history and less than half (41.2%) of them had history of appendectomy. Finally, this table revealed that, more than half (55%) of the studied patients didn't have family history of cardiac problems. While, less than half (45%) of the studied patient had family history of cardiac problems and more than one-third (37.8%) of them were the father.

Table (3) revealed the distribution of the studied patients according to their total knowledge about heart surgeries. It was observed that, three-quarters (75%) of the studied patient had unsatisfactory level of total knowledge about heart surgeries. While, one-quarter (25%) of them had satisfactory level of total knowledge about heart surgeries.

Table (4) revealedthe distribution of the studied patients according to their total pain score at Post Open Heart Surgery. It was observed that, more than half (56%) of the studied patients had moderate level of total pain score at Post Open Heart Surgery. Also, less than one-quarter (23%) of them had mild level. While, less than one-fifth (16%) of them had severe level.

Table (5) revealed the distribution of the studied patients according to their total Independency in Activities of Daily Living at Pre and Post Open Heart Surgery. It was observed that, there was a marked increase in total patients' dependency in Activities of Daily Living level at post heart surgery with highly statistically significant difference at (P= 0.000) between pre- and post- heart surgery. As evidence, less than two-thirds (62%) of the studied patients were full function at pre heart surgery. While, the majority (95%) of them had severe level of impairment at post heart surgery.

Table (6) shows the **distribution of the studied patients according to their total anxiety at Post Open Heart Surgery.** It was observed that, more than half (54%) of the studied patients had severe level of total anxiety score at post Open Heart Surgery. Also, less than one-quarter (24%) of them had minimal to moderate level. While, more than one-tenth (12%) of them had extremely severe level.

Table (7) reveals the distribution of the studied patients according to their total social dysfunction subscales at Post Open Heart Surgery. It was observed that, less than two-thirds (64% and 62%) of the studied patients had high level of self-system dysfunction and performance system dysfunction at post Open Heart

Surgery. Also, more than half (58%) of them had high level of interpersonal system dysfunction**.** Finally**,** in this table, it was observed that, three fifth (60%) of the studied patients had high level of social dysfunction at post Open Heart Surgery. While, two fifth (40%) of them had low level of social dysfunction at post Open Heart Surgery**.**

Table (8) showed the correlation between pain score, Independency in ADL, psychological needs and social post -Open Heart Surgery. The table showed that, there was highly significant positive correlation between total Social Dysfunction of the studied patients and their total score of pain score and total score of psychological needs at (P= < 0.01). In addition, there was significant positive correlation between total score of pain score of the studied patients and their total score of psychological needs and total score of Social Dysfunction at (P= < 0.01). Also, there was significant negative correlation between total pain score of the studied patients and their Total score of Independency in ADL at (P=<0.01).In addition, there was highly significant negative correlation between total score of Independency in ADL of the studied patients and their total score of psychological needs and total score of Social Dysfunctional (P= < 0.01). Also, there was significant positive correlation between total psychological needs of the studied patients and their Total score of Social Dysfunction at (P= < 0.01).

Table (1): Distribution of the studied patients according to their socio-demographic characteristics

Socio-demographic characteristics	The studied patients (n=100)	
	N	%
Age (year)		
20 - < 30	8	8.0
30 - < 40	16	16.0
40 - < 50	30	30.0
50 – 60	**46**	**46.0**
Range	**21-60**	
Mean ±SD	**52.4±3.15**	
Gender		
Male	**62**	**62.0**
Female	38	38.0
Residence		
Rural	**55**	**55.0**
Urban	45	45.0
Marital status		
Single	14	14.0
Married	**80**	**80.0**
Divorced	2	2.0
Widowed	4	4**.0**
Educational level		
Read & write	8	8.0
Basic education	16	16.0
Secondary education	**60**	**60.0**
University education	16	16**.0**
Employment		
Working	**44**	**44.0**
Not working	40	40.0
Housewife	16	16**.0**
Monthly income		
Enough	38	38.0
Not enough	**62**	**62.0**

Table (2):Distribution of the studied patients according to their past and current health history

Past and Current Medical and Surgical History of Patients	The studied Patients (n=100)	
	N	%
Suffering from chronic diseases		
No	0	0.0
Hypertension	66	66.0
Diabetes	38	38.0
Heart disease	100	100.0
Osteoporosis	2	2.0
Joints stiffens	2	2.0
Kidney disease	6	6.0
Chest disease	12	12.0
Chronic obstructive pulmonary disease (COPD)	20	20.0
Rheumatoid	2	2.0
Previous admission to the hospital		
Yes	**95**	**95.0**
No	5	5**.0**
Taking any medication before		
Yes	**100**	**100.0**
No	0	0.0
Past history of surgery		
Yes	34	34.0
No	**66**	**66.0**
Type of surgery (n=34)		
Appendectomy	**14**	**41.2**
Hernia repair	10	29.4
Tonsillectomy	7	20.6
Caesarean section	3	8.8
Family history of cardiac problems		
No	**55**	**55.0**
Arteriosclerosis	5	5.0
Patent ductus arteriosus (PDA)	4	4.0
Angina pectoris	24	24.0
Heart attacks	12	12.0
The degree of kinship: (n=45)		
Brother / sister	8	17.8
Father	**17**	**37.8**
Mother	14	31.1
Wife	4	8.9
One of sons	2	4.4

more than one answer

Table (3): Distribution of the studied patients according to their total knowledge about heart surgeries.

Levels of total knowledge	The studied Patients (n=100)	
	N	%
Satisfactory	25	25.0
Unsatisfactory	75	75.0

Table (4): Distribution of the studied patients according to their total pain score at Post Open Heart Surgery (n=100).

Levels of total pain score	The studied Patients (n=100)	
	N	%
No pain	5	5.0
Mild	23	23.0
Moderate	56	56.0
Severe	16	16.0

Table (5):Distribution of the studied patients according to their total Independency in Activities of Daily Living atPre and Post Open Heart Surgery.

Levels of total Independency in Activities of Daily Living	The studied Patients (n=100)				X^2	p-value
	Pre		Post			
	N	%	N	%		
Full function	62	62.0	0	0.0	17.99	0.000**
Moderate impairment	30	30.0	5	5.0		
Severe impairment	8	8.0	95	95.0		

(**) highly statistically significant at p<0.01.

Table (6):Distribution of the studied patients according to their levels of total anxiety atPost Open Heart Surgery.

Levels of total anxiety score	The studied Patients (n=100)	
	N	%
Normal	10	10.0
Minimal to Moderate	24	24.0
Severe anxiety	54	54.0
Extremely Severe	12	12.0

Table (7): Distribution of the patients according to their total social dysfunction subscales at Post Open Heart Surgery.

Social dysfunctionsubscales	The studied Patients (n=100)			
	High social dysfunction		Low social dysfunction	
	N	%	N	%
Self-system	64	64.0	36	36.0
Interpersonal system	58	58.0	42	42.0
Performance system	62	62.0	38	38.0
Total	60	60.0	40	40.0

Table (8): Correlation betweenpain score, Independency in ADL, psychological needs and Social Dysfunctionat post -Open Heart Surgery.

Variables	Total score of pain score	Total score of Independency in ADL	Total score of psychological needs
	r P	r P	r P
Total score ofpain score			
Total score of Independency in ADL	-0.408 0.000**		
Total score of psychological needs	0.419 0.000**	-0.391 0.000**	
Total score of Social Dysfunction	0.403 0.001**	-0.452 0.000**	0.417 0.000**

(*) Statistically significant at p<0.05--(**) Highly significant at p<0.01. (r) Pearson correlation

Discussion

Open heart surgery is an operation to repair damage in the heart. Assessing the needs for patients subjected to open heart surgery is very important to facilitate patient's recovery and helping them to cope with any health problems. The biopsychosocial (BPS) assessment was proposed as a necessary change from the biomedical model in which health was the result of the absence of disease, and where illnesses and treatment options were understood within a physiological framework [(15)].

Assessment of Bio-psychosocial needs of patient pre and post open heart surgery are very important aspect of patient centered care. This implies that all three sub-systems biological, psychological and social are interrelated and interdependent and that every system exerts an effect on the other. Thus, each individual patient experiences the interplay of biological, psychological and social factors. The biological needs refer to a person's physiological processes, the psychological needs of the patient includes a person's knowledge, emotions, cognitions and beliefs, and the social needs refers to the influence of society and its values and norms on a person.Open heart surgery includes a complicated procedures that require high qualified professionals with unique skills such as coronary artery bypass, repair of damaged structures, and heart transplant, as well as other treatments such as implantation of medical devices. So the comprehensive assessment of patients needs who were undergoing open heart surgery represented a beneficial role of the professional nurse forobtaining a positive patient'soutcome [(16-17)].

Discussion of the present study will focus onthe finding related todemographic characteristics of the studied patients, assessment of educational needs, and assessment of bio-psychosocial needs (physical, psychological and social needs) of studied patients.Alsocorrelation between patient needs and their total knowledge.

Regarding to demographic characteristics of studied patients, it was revealed that less than one half of studied patients were from age of 50 to 60 years with mean age (52.4±3.15). This may be due to increased life stressors even among people. This result is in accordance with **Leathy &Jada(2015)[(18)],** who revealed that average age of the studied sample was 40 (range 20-55). **Moreover a study conducted by Amaal F et al, (2017)[(19)]**revealed that the average age of the studied sample wasranged between 50 and 59 years with a mean age of (45.9±11.7).

In relation to gender, the present study showed that, more than half of the studied patients were males this may be due to

unhealthy life style and genetic factors that proposed that estrogen hormone protect women from cardiac disease. This finding was consistent with a study done by **Dibardino et al, (2012)**[19] who stated that more than half of the sample were male.

Concerning residence, the current study showed that more than half of studied patients were from rural areas, this may be due to lack of health care provided, take more time to diagnosed, and low educational level in rural area. This result was in the same line with **Kapwata & Manda, (2018))**[21] who found that, when increase distance from health care facilities, the cardiovascular disease was increased and morbidity and mortality also worsen. Moreover our findings were in the same line with another study **conducted by** Amaal F et al, (2017) **)**[19] who revealed that majority of the studied patients were from rural area.

Regarding marital status, the present study revealed that, about three fourth of studied patients were married; this may be due to related over social and psychological stress. This finding was supported by a study done by **Fredericks & Sidani (2012)** [22] which revealed that most of samples were married.

Regarding educational level, the finding of the present study revealed that, more than half of the studied patients with secondary education that may be a cause of poor treatment adherence. This was supported by **Mosleh et al,(2017)**[23] who found that about one half of sample had secondary education. Our findings contradicted with another study **conducted by** Amaal F et al, (2017**)** [19] which revealed that majority of the studied patients were illiterate. More over **AbdelGhany, et al., (2016)**[24]found that nearly third of subjects were university graduates

Regarding occupation status, the finding of the present study revealed that, about near half of studied patients were employed; this may be due to increase job strain and increase stress of lack income. This was in accordance with **Ferrario et al, (2017)**[25] Who reported that, higher coronary heart disease incidence rates was found among manual workers.

Regarding medical historyof studied patients, the results of the present study showed that, all of the studied patients had heart disease and near two third of studied patients had hypertension. This may be due to poor treatment adherence, genetic factor or unhealthy life style. This was in the same line with **Lancellotti et al, (2017)**[26]who reported that, most of subjects complain of CHD and minority valvular heart disease. Moreover a study conducted by **Bassand et al, (2018)**[27]found that, about two thirds of patients had hypertension.

Regarding to educational needs about open heart surgery among studied patients, the present study found that, three-quarters of the studied patient had unsatisfactory level of total knowledge about heart surgeries. While, one-quarter of them had satisfactory level of total knowledge about heart surgeries, this is may be due to more than half of studied patients with secondary education and resident in rural area, this was in the same line with **Mosleh et al, (2017)[23]** who found that, the major needs of patients are education about wound care, medication and post intervention complication.

Regarding chest pain of patients undergoing open heart surgery, the present study showed that, there was a marked increase in patients' pain level at post heart surgery. This may be due to post-operative surgical wound at chest and leg. This was in the same line with **Ziehm et al , (2017)**[28] Moreover **Ballan & Lee,(2007)**[29] they found that, patients reported higher levels of pain post-operatively compared to pre-operative levels.

Our findings were contradicted with another study conducted **by Khalil NS et al**, (2018) [30] who revealed thatUtilize lavender oil inhalation in the early days of open heart surgery to decrease the consumption of opioids and analgesics.

Regarding activity of daily living, the present study revealed that, there was a marked increase in total patients' dependency in activities of daily living level include bathing, dressing, toileting, transferring, continence, and feeding at post heart surgery. This may be due to pain and patients' general condition after operation, also may be due to clinical health state associated with open heart surgery, loss of blood, and electrolytes imbalance on bypass machine.

This was supported by **van Laar et al , (2017)**[31] who found that there is a decreased in physical activity post-operative as compared to before operation up to less than half of the samples. Moreover **Kulik et al, (2017)**[32] reported that patients after operation had an increase in physical limitation (increased body pain, reduced general health and physical activity) as compared to before operation.

Regarding level of anxiety of studied patients pre and post the operation, the present study revealed that, it was observed that, there was a marked increase in patients' fear of the uncertain future stressors at post heart surgery. This may be due to lack of knowledge about open heart surgery and lack of pre-operative psychological preparation. Alsothe emotional state is closely associated withphysical health status and experienceof pain intensity **[33].**This was supported by **Gallagher & McKinley,**

(2013) [34] who stated that there was an increase in level anxiety up to half of sample after operation as compared to before operation. Moreover this was supported by **Tully & Baker, (2012)** [35]who reported that increased number of patients after operation affected with depression up to half of samples as compared to before operation.

Regarding total psychological needs of studied patients pre and post the operation the present study revealed that there was a marked increase in total patients' psychological needs at post heart surgery. This may be due to pain, patients' connection and deficient knowledge regarding open heart surgery. This was supported by **Roohafza et al, (2015)**[36] who reported that there was an increased psychological alterations after operation as compared to before operation.

Regarding to social dysfunction of studied patients, the present study found that, more than half of the studied patient always do not participate in community activities and don't care about community affairs or activities that affect others post heart surgery. This may be due to delayed recovery or poor treatment adherence. This was supported by **Spaderna et al, (2017)**[37] who stated that, less than two thirds of study had social isolation after operation as compared to before operation.

Concerning social dysfunction there was highly significant positive correlation between total social dysfunction of the studied patients and total score of psychological needs at (P=<0.01). This mean that increased psychological needs due to increased insight about open heart surgery associated with increased social dysfunction of the studied patient. This finding was supported by **Shamaskin et al, (2012)**[38] who revealed that theincreased mean of social dysfunction was associated with increasing need for psychological support. Also, in the same line this result was supported by **Areias et al, (2021)**[39]they found that male patients had low quality of life than female.

Routine pre and post-operative assessment of patients undergoing open heart surgery is essential to identify and reduce stressors and improve the postoperative out outcome. Furthermore, pre and post-operative patients' education should be incorporated into routine nursing practice to reduce anxiety and reduced the post-operative complications.

Conclusion: -

Based on the findings of the present study, it can be concluded that it was observed that, three-quarters of the studied patient had unsatisfactory level of total knowledge about heart surgeries. While, one-quarter of them had satisfactory level of total knowledge about heart surgeries. Also, it was observed that, there was a marked increase in total patients' dependency in

Activities of Daily Living level at post heart surgery.

In addition, more than half of the studied patients had moderate level of total pain score and had severe level of total anxiety score at post Open Heart Surgery. While, three fifth of the studied patients had high level of social dysfunction at post Open Heart Surgery.

Recommendations: -

Recommendations geared toward patients:

-Routine pre and postoperative assessment of patients who are undergoing open heart surgery is recommended to identify the different patient's bio-psychosocial needs and consequently any risk factor and reduced the post-operative complications.

-The pre and post-operative patients' education should be incorporated into routine nursing practice to reduce anxiety and improve the patient's post-operative outcome.

Recommendations geared toward future researches:

-Based on the current study finding it was recommended that further researches are needed to be replicated at various time points and on larger sample to understand the nature of relationships between studied variables and their relationship with recovery after open heart surgery.

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Efficacy of Instructional Program on Clinical Nurse Educators Implementation of Cooperative Learning at Faculty of Nursing

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Abstract:

Background: Cooperative learning plays a vital role to equip the nursing students with overall needed qualities and skills that suggest clear adoption and effective implementation from clinical nurse educators. **Aim:** To determine efficacy of instructional program on clinical nurse educators' implementation of cooperative learning at Faculty of Nursing. **Subjects and method:** A quasi experimental study design was used. **Setting:** Study was conducted at Faculty of Nursing, Tanta University including all seven academic nursing departments. **Subject**s: All available (n=80) clinical nurse educators included nursing demonstrators and assistant lecturers enrolled at Faculty of Nursing, Tanta University. Three tools were used; **Tool I**: Clinical nurse educators' perception regarding cooperative learning implementation Questionnaire. **Tool II**: Knowledge questionnaire about cooperative learning implementation. **Tool III**: Cooperative learning implementation observational checklist. **Results:** Pre-instructional program, majority (83.7%) of clinical nurse educators had low perception level regarding cooperative learning implementation. Majority (88.7%) of clinical nurse educators had poor knowledge level pre-instructional program, while post-instructional program high percent (77.5%) of them had good knowledge level and 96.0% of them showed good practice level. **Conclusion:** Post-instructional program most of clinical nurse educators had good knowledge level with significant improvement compared to pre-instructional program. Also, majority of them showed good practice level regarding implementation of cooperative learning in clinical sessions. **Recommendations:** Conduct in-service training programs and workshops for qualifying and encouraging clinical nurse educators for using cooperative learning in their clinical sessions.

Key words: Clinical nurse educators, Cooperative learning, Nursing education.

Introduction

Ever-changing and complex health care environment including serious diseases, complicated equipment, staffing shortage and globalization requires nursing graduates with specific intellectual and social skills to adapt and fulfill their growing roles and responsibilities [1,2]. The primary goal of nursing education is to prepare nursing professionals which are effective communicators, managers, producers of knowledge, critical thinkers, decision makers, and team workers for the benefit of patients and health care work environment as a whole. To cope with these challenging demands the nursing education reform is recommended for including more active and creative teaching strategies for qualifying more professional nursing graduates [1, 3].

Nursing education consists of theoretical and practical learning experiences to aid the nursing students acquiring the needed knowledge, skills, and attitudes for providing nursing care. A big section of nursing education is conducted in clinical environment. Clinical education provides opportunities for the nursing students to develop their skills, socialize to nursing profession and relieve gap between theory and practice. So that, clinical education is considered the heart of the nursing education program that put a major responsibility on clinical nurse educators for nursing education reformation [4,5].

Clinical nurse educators are considered the most important factor in achieving clinical outcomes and assisting the nursing students to a quire the needed knowledge, skills and attitudes necessary for professional nursing practice. So that, clinical nurse educators' core competencies should include abilities to design, implement, and evaluate more innovative educational strategies to enhance nursing students' active involvement in learning process and producing highly qualified nursing students able to cope with work life and market demands [6,7]. Cooperative learning becomes one of the most remarkable areas of research and practice in nursing education. It can help to generate health care quality by providing opportunities for the nursing students to learn and practice collaboration, problem solving, critical thinking and interpersonal skills [1,8].

Cooperative learning is a teaching pedagogy in which the nursing students work in small groups on a certain topic or an activity to enhance each other learning and accomplish common goals [9]. In cooperative activities, the nursing students play the most important role in

understanding concepts and helping one another to learn the academic material. While, the clinical nurse educators' role changes from being a knowledge transmitter to be facilitators and mediators of learning process, design the learning context and prepare an appropriate class room environment for maximum cooperative learning implementation effectiveness [10].

Cooperative learning implementation includes five essential features are critical to ensure its effectiveness and can discriminate it from other group work techniques including positive interdependence, where group members' success depends on actions of each group member that oblige them to use promotive interaction to achieve group goals [11]. Also, group members should held accountability for doing their share of the work, develop and practice social and collaborative skills including trust-building, leadership, decision-making and group self-evaluation for processing cooperative learning experience [12].

Various benefits of cooperative learning can affect positively on both the nursing students and clinical nurse educators. Cooperative learning provide opportunity for the nursing students to work with their peers from different academic levels, sharing their understandings and opinions for solving problems that can enhance their academic achievements, self- confidence and self-esteem from being involved actively in the learning process and also, holding decision making and communication skills. Therefore, the nursing students become better prepared to perform more effectively in an interdependent and complex work environment [13]. For clinical nurse educators, cooperative learning can enable them to shift practice from traditional teaching strategies to more active learning context and to be in alignment with the constructivist educational paradigm [14].

Despite the great benefits of cooperative learning implementation for both clinical nurse educators and the nursing students, its implementation in clinical college classroom still a challenge. Effective cooperative learning implementation requires clinical nurse educators' clear understanding of its theoretical foundations, basic features and overcoming techniques of implementation barriers including limited time, insufficient resources and inadequate nursing students' social skills[13,15]. Faculty development programs including workshops and training programs on cooperative learning can play a vital role in adequately preparation of clinical nurse educators with the required knowledge and skills to teach and practice cooperative learning for the

nursing students and prepare them for the collaborative practice [16].

Significance of the study:

The latest multiple changes in nursing education including focusing more on developing the nursing students' problem solving, decision making, and collaborative skills that change clinical nurse educators' role to be more centered on clinical applications and teaching professional collaboration among nursing students. Based on these changes, there is a great need to equip clinical nurse educators with the needed competencies including knowledge and skills to contribute effectively through involving active learning strategies including cooperative learning to relieve gab between theory and practice and graduating highly effective and skilled nurses [17]. So that, conducting instructional program about cooperative learning implementation is very important for clinical nurse educators to adopt and effectively implement it in their clinical sessions for achieving the benefits for the nursing students and health care world as a whole.

Aim of the study to:

Determine efficacy of instructional program on clinical nurse educators' implementation of cooperative learning at Faculty of Nursing.

Research hypothesis:

Cooperative learning instructional program is expected to improve clinical nurse educators' knowledge and practice regarding its implementation.

Subject and method

Study design:

Quasi experimental study design was utilized to accomplish aim of the present study. It is well suited study design to determine the impact of an intervention on its target population [18].

Setting:

The present study was conducted at Tanta University, Faculty of Nursing that structured at 1982 as High Institute of Nursing after this, formally transformed to Faculty of Nursing at 2000 and was gained accreditation at 2019. Seven academic nursing departments are enrolled in Nursing Faculty including Pediatric Nursing, Maternal and Newborn Health Nursing, Community Health Nursing, Psychiatric and Mental Health Nursing, Nursing Services Administration, Medical Surgical Nursing and Critical Care and Emergency Nursing.

Subjects:

All available (n= 80) clinical nurse educators included Nursing Demonstrators (n= 51) and Assistant Lecturers (No= 29) enrolled at Tanta University, Faculty of Nursing.

Tools of data collection:

Three tools were used to accomplish aim of this study including:

Tool I: Clinical Nurse Educators' Perception regarding Cooperative Learning Implementation in Clinical Sessions Questionnaire.

This tool was developed by the researcher guided by George (2017) [19], Shahzada et al, (2012) [20] and other recent related literatures [21,22] to assess clinical nurse educators' perception regarding cooperative learning implementation in clinical sessions. It included three parts as follows:

Part (1): Clinical nurse educators' personal characteristics such as age, gender, academic position, years of experience, department and range of clinical group.

Part (2): It included 16 items to assess clinical nurse educators' opinion regarding cooperative learning implementation in clinical sessions. These items were categorized into three subscales including;

- Frequency of cooperative learning implementation in clinical sessions (6item),
- Preference of cooperative learning implementation in clinical sessions (2 items),
- Training needs regarding cooperative learning implementation in clinical sessions (8 items).

Scoring system:

Responses of clinical nurse educators were measured using Likert Scale. (2) point Likert Scale for closed questions yes take score (1) and No take score (2). 3 and 4 point Likert Scale for multiple choice questions. Choice A take score (1), choice B take score (2), choice C take score (3) and choice D take score (4).

Part (3): It included 137 items to assess clinical nurse educators' perception regarding cooperative learning implementation in clinical sessions. These items were categorized into five subscales:

1. **Basic features of cooperative learning subscale:** It included 27 items divided as follows:

- Positive interdependence (6 items).
- Face to face promotive interaction (6 items).
- Individual accountability (5 items).
- Appropriate use of social skills (6 items).
- Group processing (4 items).

2. **The Students' role in cooperative learning subscale:** It Included 7 items.
3. **Clinical nurse educators' role in cooperative learning subscale:** It included 50 items divided as follows:

A. Clinical nurse educators' role in pre implementation phase included 33 items divided as follows:

- Specify instructional objectives (5 items).

- Grouping technique (3 items).
- Arrange class room and group seating (3 items).
- Arrange materials (3 items).
- Group role and tasks (17 items).
- Specify desired behaviors (2 items).

B. Clinical nurse educators' role in implementation phase included 6 items.

C. Clinical nurse educators' role in post implementation phase included 11 items

4. **Advantages of cooperative learning implementation subscale:** It included 25 items divided as follows:
    - Academic benefits (10 items).
    - Social benefits (4 items).
    - Psychological benefits (7 items).
    - Assessment benefits (4 items).
5. **Obstacles of cooperative learning implementation subscale:** It included 28 items divided as follows:

A. Obstacles facing clinical nurse educators included: It included 16 items divided as follows:

- Training obstacles (3 items).
- Administration obstacles (4 items).
- Environmental obstacles (6 items).
- Timing obstacles (3 items).

B. Obstacles facing the students: It included 12 items.

Scoring system:

Responses of clinical nurse educators were measured in a three points Likert Scale: agree (3), neutral (2), disagree (1). Levels of clinical nurse educators' perception regarding cooperative learning implementation in clinical sessions were cut of point as follows:

- High perception level > 75%
- Moderate perception level 60 - 75%
- Low perception level < 60%

Tool II: Knowledge questionnaire about Cooperative Learning Implementation.

This tool was developed by the researcher guided by Bhushan (2017) [23] and other recent related literature [24] to test clinical nurse educators' knowledge about cooperative learning implementation. It included two parts as follows:

Part (1): It included clinical nurse educators' personal characteristics such as age, gender, academic position, years of experience and department.

Part (2): It included knowledge questionnaire about cooperative learning implementation. It included (50) questions in the form of (20) questions true & false and (30) questions multiple choice categorized as follows:

- Items related to cooperative learning concepts and its theoretical foundation included 9 questions.
- Items related to basic features of effective cooperative learning and forms of cooperative learning groups included 9 questions.
- Items related to cooperative learning models included 7 questions.

- Items related to benefits of cooperative learning included 8 questions.
- Items related to role of the students, and clinical nurse educators in cooperative learning implementation included 9 questions.
- Items related to obstacles of cooperative learning implementation and overcoming techniques included 8 questions.

Scoring system:

Each question was taken score (1) for correct answer and (0) for wrong answer. Levels of clinical nurse educators' knowledge were cut of point as follows:

- Good knowledge level > 75%
- Fair knowledge level 60 - 75%
- Poor knowledge level < 60%

Tool III: Cooperative Learning Implementation Observational Checklist

This tool was developed by the researcher guided by Purther (2018) [25], George (2017) [19] and other recent related literature [24] to assess clinical nurse educators' actual practice of cooperative learning in clinical sessions. It included three parts as follows:

Part (1): It included clinical nurse educators' identification data such as department, date and time.

Part (2): It included cooperative learning implementation in clinical sessions observational checklist. It included three subscales about basic features of cooperative learning**,** clinical nurse educators' role in cooperative learning**,** and students' role in cooperative learning that were categorized into three phases as follows:

A. **Clinical nurse educators' role in pre implementation phase:** It included 35 items divided as follows:

- Prepare class room and materials (3 items).
- Specify instructional objectives (4 items).
- Grouping Techniques (5 items).
- Arrange group members seating and materials (4 items).
- Assign group roles and tasks (19 items).

B. Clinical nurse educators' role in implementation phase: It included 51 items divided as follows:

1. Basic features of cooperative learning: It included 25 items divided as follows:

- Positive interdependence (5 items).
- Face to face promotive interaction (6 items).
- Individual accountability (5 items).
- Appropriate use of social skills (6 items).
- Group processing (3 items).

2. The students' role in cooperative learning implementation: It included 7 items.

3. Clinical nurse educators' role during cooperative learning process: It included 10 items.

C. **Clinical nurse educators' role in post implementation phase:** It included 9 items.

Scoring system

Clinical nurse educators' observation was measured on 3 points Likert Scale as follow: Done = (2), Partially done = (1), Not done = (0). Levels of clinical nurse educators' practice were cut of point as follow:

- Good practice level > 75%
- Fair practice level 60 - 75%
- Poor practice level < 60%

Part (3): It included 10 items for assessing clinical class rooms' appropriateness for effective cooperative learning implementation.

Scoring system

Class rooms' appropriateness observation was measured on 3 points Likert Scale as follow: Present = (2), Partially present = (1), Not present = (0). Levels of clinical class rooms' appropriateness were cut of point as follows:

- Appropriate level > 75%,
- Partially appropriate level 60 - 75%,
- Not appropriate Level < 60%

Method

1. Official permission to carry out the study was obtained from faculty authorities.
2. Ethical consideration:
   a) Approval of ethical committee at Faculty of Nursing.
   b) Informed consent was obtained from clinical nurse educators after explanation of the nature and the aim of the study.
   c) Confidentiality and the privacy of data collection were taken into consideration.
3. Tool I, III was presented to a jury of seven experts in the area of specialty to check content validity of its items. The experts were one professor of nursing administration, Damanhur University. One Professor of Nursing Administration, Mansoura University. One Professor of Nursing Administration, Alexandria University. Five experts two Assistant Professor and three Lectures of Nursing Administration Tanta University, Faculty of Nursing. Responses of experts were presented in four points Likert Sscale as follows: strongly relevant=4, relevant= 3, not relevant=2, strongly not relevant = 1. Necessary modifications were done including calcifying and simplifying certain words, excluding certain questions and adding others. The content validity index value for tool I was 94.85 % and for tool III was 96. 43%.
4. A pilot study was carried out on (n= 8) of clinical nurse educators for testing

clarity and applicability of tools and they weren't excluded from the total study subjects for general benefit. The time taken for completing questionnaire items was 30 minutes..

5. Reliability of tools was tested using Cronbach's Alpha Coefficient Factor, its value was (0.965) for tool I and (0.800) for tool III.
6. Clinical nurse educators' perception regarding cooperative learning implementation in clinical sessions (tool I) was used to assess clinical nurse educators' perception regarding cooperative learning implementation in clinical sessions pre implementation of the instructional program.
7. Knowledge questionnaire about cooperative learning implementation (tool II) was used to test clinical nurse educators' knowledge about cooperative learning implementation pre and post implementation of the instructional program.
8. Cooperative learning implementation observational checklist (tool III) was used to assess clinical nurse educators' actual practice of cooperative learning in clinical sessions post implementation of the instructional program.
9. Data collection from August 2020 to January 2021.
10. Limitation of the study: Cooperative learning implementation observational checklist included only (n=75) of clinical nurse educators. The five which excluded 2 of them were in doctoral exam, one was in sick leave and 2 were in maternity leave.
11. The instructional program was conducted in four phases as follows: assessment phase, planning of the instructional program phase, implementation of the instructional program phase, and finally evaluation phase.

Phase I: Assessment

Pre-implementation of the instructional program, a pre-test was given to assess clinical nurse educators' levels of knowledge regarding cooperative learning implementation through filling tool II. Also, clinical nurse educators' perception regarding cooperative learning was assessed through filling tool I.

Phase II: Planning of the instructional program

The instructional program construction started with determining the instructional general and specific objectives according to the assessed clinical nurse educators' knowledge and perception levels regarding cooperative learning implementation and a review of relevant recent literature [(24)].

Aim of the instructional program:

Determine efficacy of instructional program on clinical nurse educators' implementation of cooperative learning at Faculty of Nursing.

General objectives of the instructional program:

The instructional program helps clinical nurse educators to gain knowledge about cooperative learning implementation and also, be able to practice it effectively in clinical sessions at the end of the instructional program.

Specific objectives of the instructional program:

- Explain cooperative learning concepts and its theoretical foundation
- State and structure basic features of cooperative learning and forms of cooperative learning groups.
- Recognize and apply cooperative learning models
- Identify and creates benefits of cooperative learning
- Express and apply role of the nursing students and clinical nurse educators in cooperative learning implementation
- Enumerates obstacles of cooperative learning implementation and apply overcoming techniques

Content of the instructional program

After determining instructional program objectives, instructional program content was designed, and teaching methods were selected to enable clinical nurse educators to acquire both knowledge and practice about cooperative learning implementation. **Six sessions were included in the instructional program:**

- Session (1): Cooperative learning concepts and its theoretical foundation.
- Session (2): Basic features and forms of cooperative learning.
- Session (3): Cooperative learning models.
- Session (4): Benefits of cooperative learning.
- Session (5): Role of the nursing students, clinical nurse educators and faculty administration cooperative learning implementation.
- Session (6): Obstacles of cooperative learning implementation and overcoming techniques.

Teaching and learning strategies

Lecture, discussion, cooperative learning, brain storming demonstration and role play were teaching and learning strategies included and utilized in the instructional program.

Teaching aids

PowerPoint Presentation (PPT), handouts, and videos, were included and utilized as teaching aids in the instructional program.

Phase III: Implementation of the instructional program

- The instructional program started by informing clinical nurse educators about its objectives and encouraging participation through using good relationships and informed consent.
- The present study involved 80 clinical nurse educators including (51) nursing demonstrators and (29) assistant lecturers in Faculty of Nursing, Tanta University. Clinical nurse educators were divided into (8) groups. The instructional program was implemented in form of (6) sessions, one session every day, 2hr of each session for 6 days. The sessions were held out of clinical time in breaks and after ending work time.
- Cooperative learning was one of the teaching and learning strategies that were utilized in holding instructional program for more qualifying clinical nurse educators for its effective implementation.
- The researcher begun by instructing each session objectives, giving a lecture about important points of each session then, clinical nurse educators were classified into groups of four members, each group determined its logo, each member held a role such as leader, recorder, monitor and checker.
- Simulated scenarios relevant to each session objectives are utilized for encouraging clinical nurse educators brainstorming and acting cooperatively as groups for giving answer.

Phase IV: Evaluation of the instructional program

The instructional program was evaluated to determine the extent to which the instructional program improves clinical nurse educators' levels of knowledge and practice regarding cooperative learning implementation through:

- Immediately post-implementation of the instructional program, post- test to assess clinical nurse educators' levels of knowledge regarding cooperative learning implementation was given (tool II).
- Observation was done to assess clinical nurse educators' levels of practice regarding cooperative learning implementation (tool III) follow up post-implementation of the instructional program.

Statistical analysis of the data

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp) Qualitative data were described using number and percent. Quantitative data were described using range (minimum and maximum), mean and standard

deviation. Significance of the obtained results was judged at the 5% level. The used tests were Marginal Homogeneity Test, Paired t-test, Monte Carlo correction and Pearson coefficient.

Results

Table (1): Represents clinical nurse educators' personal characteristics. The table revealed that high percent (62.5%) of clinical nurse educators were at age group 25<30 years, while 28.8% of them were at age group 30<35 years with mean age 28.34 ± 2.97. Majority (96.2%) of clinical nurse educators were females but, only 3.8 % of them were male. High percent (63.7%) of clinical nurse educators were demonstrators and the rest 36.3% of them were assistant lecturers. Regarding years of experience, above half (53.7%) of clinical nurse educators had 1<5 years and almost one third (33.8 %) of them had 5< 10 years. According to work department, 22.5% of clinical nurse educators were from Maternal and Newborn Health Nursing department, while 16.3% and 15.0% of them were from Nursing Administration and Medical Surgical Nursing department, respectively.

Table (2): Illustrates clinical nurse educators' opinion about frequency of cooperative learning implementation in clinical sessions. It was clear from the table that over half (60%) of clinical nurse educators didn't implement cooperative learning previously in their clinical sessions, while 40 % of them implemented cooperative learning before. Regarding to clinical nurse educators whose implemented cooperative learning in their clinical sessions, around one third (37.5 % and 31.3 %) of them implemented cooperative learning per-week and per-semester, respectively. High percent (43.8% and 40.5%) of clinical nurse educators who implemented cooperative learning were for the third academic year for more than one hour per session, respectively. Also, half (50.0%) of clinical nurse educators preferred small group size from five to seven students and majority (75.0%) of them showed that cooperative learning sometimes can be easily implemented in their clinical sessions.

Table (3): Represents clinical nurse educators' opinion about training needs regarding cooperative learning implementation. The table illustrated that majority (81.2%) of clinical nurse educators weren't familiar with the different techniques of cooperative learning. Also, majority (86.2%) of them didn't receive any training regarding cooperative learning. The only13.8% of clinical nurse educators whose received cooperative learning training, high percent (72.7% and 63.6%) of them received one-time training, in form of workshops, respectively. Also, over half (63.6 % and 54.5%) of clinical nurse educators received

training since months, outside nursing faculty, respectively. Also, the table mentions that high percent (77.5%, 72.5%) of clinical nurse educators didn't read about the technical ways of cooperative learning before and also, they didn't previously participate with the others whose effectively utilized cooperative learning in their clinical sessions, respectively.

Figure (1): Shows total perception levels of clinical nurse educators regarding cooperative learning implementation in clinical sessions. Pre-instructional program. The figure illustrated that majority (83.7%) of clinical nurse educators showed low perception level regarding cooperative learning implementation in clinical sessions pre- instructional program.

Table (4): Illustrates total knowledge levels and mean scores of clinical nurse educators about cooperative learning implementation pre and post-instructional program. The table revealed that majority (88.7%) of clinical nurse educators had poor knowledge level pre-instructional program. But, post-instructional program, high percent (77.5%) of them had good knowledge level with statistically significant difference at (P= 0.001). Also, pre-instructional program clinical nurse educators' total knowledge mean score was 21.32 ± 7.96 which increased to 42.30 ± 8.16 post-instructional program with statistically significant difference at p= <0.001.

Figure (2): Illustrates total practice levels of clinical nurse educators' implementation of cooperative learning in clinical sessions post-instructional program. The figure showed that none of clinical nurse educators showed poor practice level, but majority (96.0%) of them showed good practice level regarding implementation of cooperative learning in clinical sessions post-instructional program.

Table (5): Reveals correlation between knowledge of clinical nurse educators about cooperative learning implementation and their total perception levels pre-instructional program. As shown in the table, that there was statistically significant correlation between total knowledge levels of clinical nurse educators about cooperative learning implementation and their total perception levels (r = 0.290). There was statistically significant correlation between clinical nurse educators' knowledge on basic features of cooperative learning and benefits of cooperative learning and their total perception levels (r = 0.005 and 0.027), respectively.

Table (6): Shows correlation between knowledge of clinical nurse educators about cooperative learning implementation and their total practice levels post-instructional program. The table revealed that there was no statistically significant correlation between clinical nurse

educators' knowledge about cooperative learning implementation and their total practice levels (r = 0.081).

Table (1): Clinical nurse educators' personal characteristics (n = 80)

5	Clinical nurse educators	
	No.	**%**
Age		
< 25	5	6. 2
25 < 30	50	62.5
30 < 35	23	28.8
≥ 35	2	2.5
Min. – Max.	24.0 – 37.0	
Mean ± SD.	28.34 ± 2.97	
Gender		
Male	3	3.8
Female	77	96.2
Academic position		
Demonstrator	51	63.7
Assistant Lecturer	29	36.3
Years of experience		
1<5	43	53.7
5 < 10	27	33.8
≥ 10	10	12.5
Min. – Max.	1.0 – 13.0	
Mean ± SD.	4.89 ± 3.44	
Work department		
Pediatric Nursing	11	13.7
Maternal and Newborn Health Nursing	18	22.5
Community Health Nursing	10	12.5
Psychiatric and Mental Health Nursing	9	11.3
Nursing Administration	13	16.3
Medical Surgical Nursing	12	15.0
Critical Care and Emergency Nursing	7	8.7
What is the range of your clinical group?		
0-10	0	0.0
11-20	16	20.0
21- 30	43	53.7
31 or more	21	26.3

Table (2): Clinical nurse educators' opinion about frequency of cooperative learning implementation in clinical sessions (n = 80)

Cooperative learning implementation in clinical sessions	Clinical nurse educators	
	No.	%
Previous implementation of cooperative learning in clinical sessions		
Yes	32	40.0
No	48	60.0
If yes, mention (n = 32)		
Times of cooperative learning implementation in clinical sessions		
Per week	12	37.5
Per month	9	28.1
Per semester	10	31.3
Per year	1	3.1
Academic year of cooperative learning implementation		
1st academic year	3	9.4
2nd academic year	4	12.5
3rd academic year	14	43.8
4th academic year	11	34.4
Time given for cooperative learning activities		
More than1 hour	13	40.5
1 hour	6	18.8
30 minutes	3	9.4
Less than30 minutes	10	31.3
The typical size used for cooperative learning groups		
2- 4 students	7	21.9
5- 7 students	16	50.0
8 or more students	9	28.1
Cooperative learning can be easily implemented in clinical sessions		
Usually	8	25.0
Some times	24	75.0
Never	0	0.0

Table (3): Clinical nurse educators' opinion about training needs regarding cooperative learning implementation (n = 80)

Training needs regarding cooperative learning implementation	Clinical nurse educators	
	No.	%
Familiarity with different cooperative learning techniques		
Yes	15	18.8
No	65	81.2
Receiving any training regarding cooperative learning (training programs and workshops)		
Yes	11	13.8
No	69	86.2
If yes, mention (n =11)		
Frequency		
One time	8	72.7
Two times	2	18.2
More	1	9.1
Type		
Workshop	7	63.6
Program	0	0.0
Lecture	4	36.4
Where		
Nursing Faculty	5	45.5
Outside nursing faculty	6	54.5
When		
Months	7	63.6
One year	1	9.1
More	3	27.3
Previous participation with others whose effectively utilized cooperative learning in clinical sessions		
Yes	22	27.5
No	58	72.5
Reading about technical ways of cooperative learning before		
Yes	18	22.5
No	62	77.5

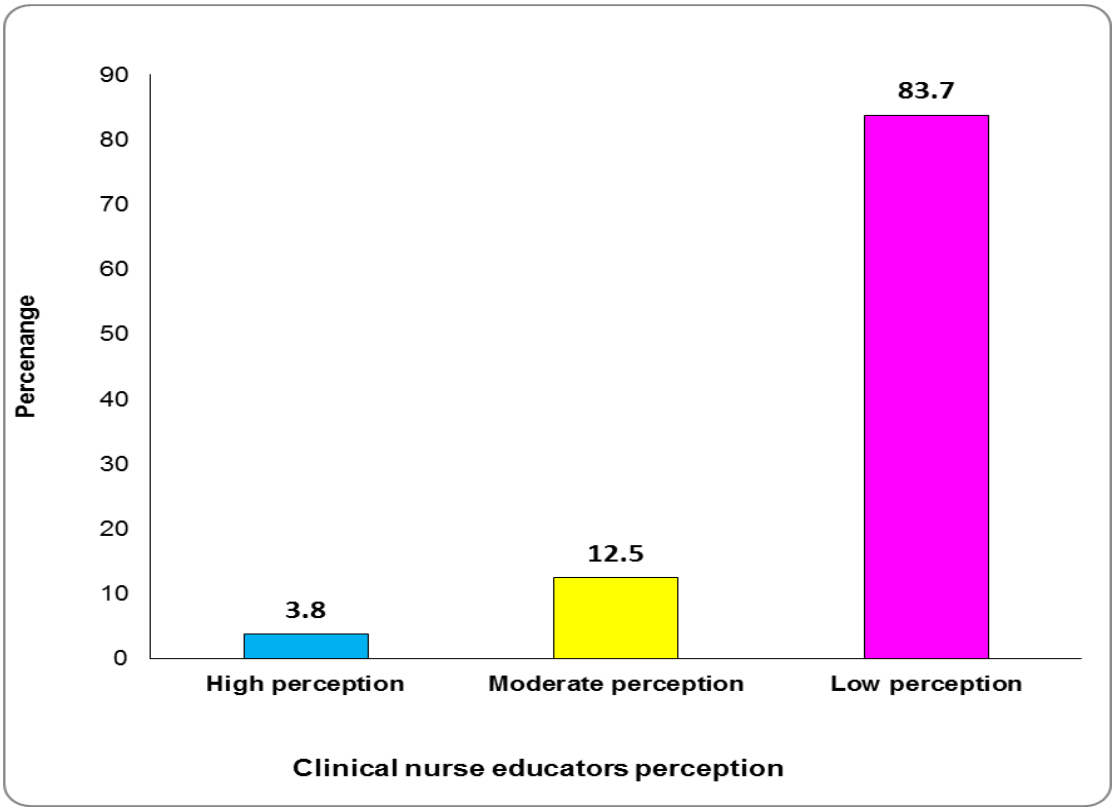

Figure (1): Total perception levels of clinical nurse educators regarding cooperative learning implementation in clinical sessions pre-instructional program (n = 80

Table (4): Total knowledge levels and mean scores of clinical nurse educators about cooperative learning implementation pre and post-instructional program (n=80)

Total knowledge levels	Clinical nurse educators (n=80)				P
	Pre		post		
	No.	%	No.	%	
▪ Good	1	1.3	62	77.5	<0.001*
▪ Fair	8	10.0	15	18.7	
▪ Poor	71	88.7	3	3.8	
Min. – Max. Mean ± SD.	0.0 – 40.0 21.32 ± 7.96		1.0 – 50.0 42.30 ± 8.16		t = 19.465* p= <0.001*

* Statistically significant at $p \leq 0.05$

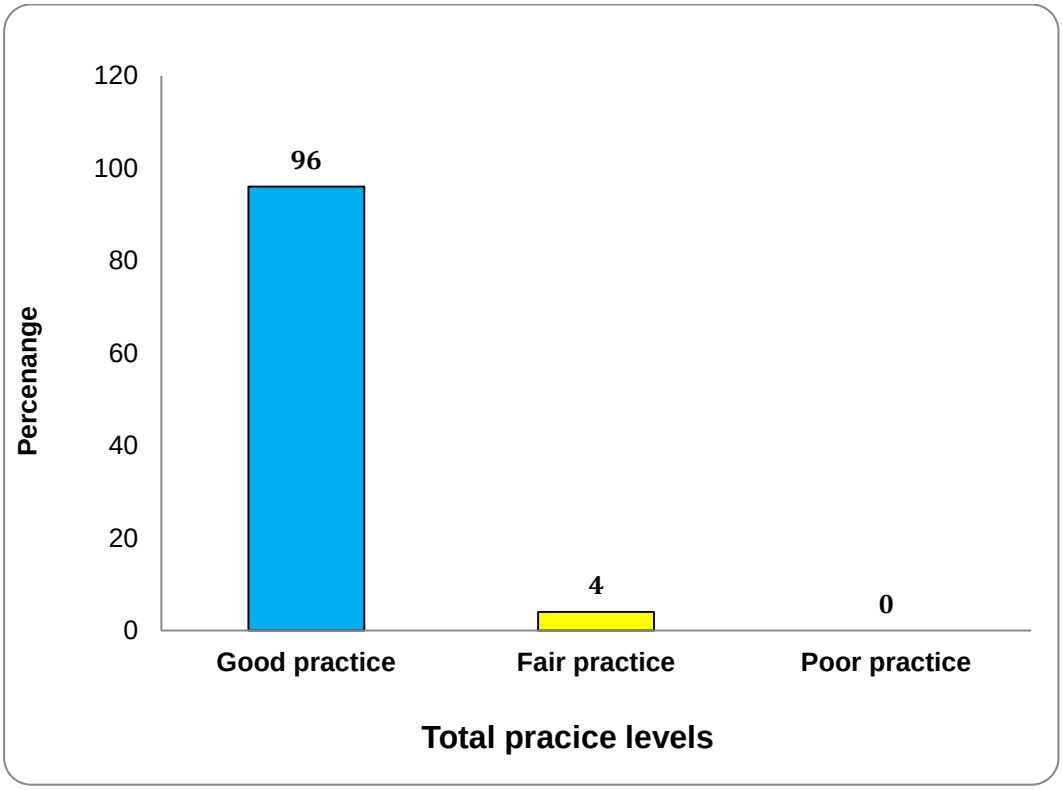

Figure (2): Total practice levels of clinical nurse educators' implementation of cooperative learning in clinical sessions post-instructional program (n = 75)

Table (5): Correlation between knowledge of clinical nurse educators about cooperative learning implementation and their total perception level pre-instructional program (n=80)

Clinical nurse educators' knowledge	Overall perception	
	r	p
Basic features of cooperative learning	0.314*	0.005*
Benefits of cooperative learning	0.247*	0.027*
Role of the students, and clinical nurse educators in cooperative learning implementation	0.107	0.345
Obstacles of cooperative learning implementation	0.109	0.336
Total	0.290*	0.009*

Table (6): Correlation between knowledge levels of clinical nurse educators about cooperative learning implementation and their total practice levels post-instructional program (n= 75)

Clinical nurse educators' knowledge	Overall practice	
	r	p
Basic features of cooperative learning	0.050	0.672
Role of the students and clinical nurse educators in cooperative learning implementation	0.053	0.649
Total	0.081	0.490

* Statistically significant at $p \leq 0.05$

Discussion

Results of the present study revealed that over half of clinical nurse educators had no previous implementation of cooperative learning in their clinical sessions. This may be due to cooperative learning implementation time constraints where over half of them agreed that cooperative learning preparation and implementation requires extra time and effort. Also, lack of environmental support including classrooms furniture doesn't permit face to face interaction, inadequate materials and modern technological media such as internet and data show. Additionally, lack of their knowledge and skills about effective cooperative learning implementation.

These findings were supported by **Bristol et al. (2019)** [26] who found that few nursing faculty members implemented cooperative learning and if it was used is blended with the lecture method that had occupied seventy five percent 5% of the lecture time. Also, **Alias et al. (2018)** [22] found that high percent of the clinical educators reported that they didn't implement cooperative learning due to limited time and teaching aids constraints. Additionally, **Saborit et al. (2016)** [27] found that nursing educators' objection to cooperative learning implementation in their classes was imposed by curriculum organization, as well as their lack of knowledge and skills about effective implementation.

The results of the present study showed that more than one third of clinical nurse educators had implemented cooperative learning before once a time per week. This may be due to those clinical nurse educators may be used the traditional lecture method with a little time devoted to small group work without including all essential basic elements of formal cooperative learning for enhancing more students concentration and interesting. Also, accessible supportive environment that may not be available to all clinical nurse educators including space, time, and materials that could support them for implementing group work in their clinical sessions.

These findings were supported by **Castillo (2017)** [28] who found that around half of clinical educators implemented cooperative learning in their courses ranging from informal to formal type. Also, one third of them reported using cooperative learning at least once a time per week. The others reported using cooperative learning at least once a time per class period and per semester. The educators whose implemented cooperative learning reported having environmental support and opportunities to learn than those didn't implement it.

The present study results revealed that half of clinical nurse educators who implemented cooperative learning in their clinical sessions preferred small group size from five to seven students. This may be justified by small group members can creates more intimacy and familiarity among group members. They can communicate effectively with each other, each group member can participate that ensure good group work results.

These findings were supported by **Koç (2018)** [29] supported these findings who found that most of clinical educators indicated that they preferred to arrange their students in groups of fours and only one quarter of them indicated a preference of five members in each group. Also, **Roh (2017)** [30] reported that group size was a significant factor affecting learner engagement in cooperative activities. Small groups' usage facilitated safe learning environment and the best practice concerning group size was four to six members. He concluded that simulation educators should consider an optimal group size for achieving learning outcome.

Also, **Akpolat (2016)** [31] found that majority of pre service educators preferred small groups of four students or less in which group members have equal chance to participate and easy expression of their opinions freely compared to large groups of seven group members or more in which difficulty of self-expression in cooperative activities can occur. Additionally, **Lama et al. (2015)** [32] found that small group teaching sessions were highly interactive and made both the educator and the students communicate effectively and greatly enhanced overall understanding of the students.

Results of the present study revealed that majority of clinical nurse educators didn't receive any training regarding cooperative learning. The few percent of clinical nurse educators who received training regarding cooperative learning, over half of them were outside nursing faculty. This may be interpreted by lack of nursing faculty administration conduction of orientation programs for clinical nurse educators about cooperative learning. Also, inadequate fund for supporting adequate preparation for cooperative learning implementation in clinical classrooms.

These finding were explained by **Bilal et al. (2019)** [16], they indicated that faculty members are considered the main ingredients to enhance professional education. Faculty development programs play a crucial role in fostering faculty members' knowledge and skills in their teaching and learning process. But, structuring formal programs may not be available or limited, where organizing faculty development programs need identifying educators' educational needs,

adequate resources, budget, administrative support, space, and also, well-structured theoretical framework.

Also, **Berghout (2019)** [33] and **Reid et al. (2018)** [34] found that most nurse educators did not formally learn or received any preparation or training about cooperative learning when they were students and continue to display this lack of understanding till now. So that, they become unmotivated to utilize cooperative learning with their undergraduate nursing students.

Results of the present study revealed that majority of clinical nurse educators showed low perception level regarding cooperative learning implementation in clinical sessions pre-instructional program. This can be explained by poor knowledge level of clinical nurse educators about cooperative learning implementation. Pre-instructional program, perception level of clinical nurse educators was positively correlated significantly with their knowledge level about cooperative learning implementation.

Myers et al. (2019) [35] supported these findings where found that majority of clinical instructors had low perception and experiences regarding collaborative clinical education pre conducting an academic program about cooperative learning and noted that they were in a strong need to be prepared with appropriate teaching strategies for elevation their low perception and experiences. Also, **Saborit et al. (2016)** [29] found that over half of clinical educators had low perception regarding cooperative learning implementation and explained that this could be related to the educators' scarce or ineffective training regarding cooperative learning strategies. Contradictly, **Alias et al. (2018)** [22] found that the clinical educators had high perception level toward cooperative learning implementation and they were ready and felt confident to practice it although, the constraints were present including classroom control, time and limited teaching aids.

The current study findings showed that there was a statistical significant difference between clinical nurse educators' knowledge about cooperative learning implementation pre and post-instructional program. Pre- instructional program, majority of clinical nurse educators had poor knowledge level compared to high percent of them had good knowledge level post-instructional program. Pre-instructional program, knowledge deficiency of clinical nurse educators about cooperative learning implementation can be explained by inadequate of training programs and workshops regarding cooperative learning. Also, inadequate preparation of clinical

nurse educators through reading about cooperative learning techniques or participation with those used cooperative learning in their clinical sessions before.

These findings were supported by **Williamson (2021)** [36] who reported that cooperative learning implementation is not an easy approach that can be implemented quickly and easily. But, it requires fully knowledgeable dedicated staff and ongoing support for successful implementation. Also, he found that significantly increase in the knowledge and self-confidence of the nursing educators about cooperative learning implementation after his educational project compared to pre-educational project.

Also, **Keramati and Gillies (2021)** [37] found that unfamiliarity and knowledge lack among Iranian faculty members regarding cooperative implementation. They indicated that faculty members starts the teaching profession and obtain teaching knowledge only through experience. So on, there is a need to design cooperative learning courses and workshops especially in their disciplines. Also, they concluded that their study made a significant development of faculty members' knowledge about cooperative learning through giving a clear message that good familiarity of cooperative learning can improves quality of its implementation.

In addition to, **Huda (2020)** [38] who was interested with exploring knowledge and attitude of nursing educators about active learning strategies including cooperative learning in Pakistan reported that the nursing educators need to have adequate knowledge and skills to integrate cooperative learning in their educational process for improving nursing students problem solving and critical thinking skills. So that, training and developmental program for nursing educators can be proposed.

Adding to that the current study results revealed that there was statistically significant improvement of clinical nurse educators' knowledge levels on all cooperative learning implementation domains post-instructional program compared to pre-instructional program. This can be attributed by utilizing creative teaching approaches that facilitate clinical nurse educators learning process about cooperative learning implementation. Also, providing opportunities for them to apply the theoretical knowledge by working cooperatively on simulated scenarios through program sessions provides some of the realism on cooperative learning and reflected on more understanding and improving clinical nurse educators' knowledge about cooperative learning implementation.

These findings were supported by **Kimmelmann and Lang (2018)** [39], they found significant improvement in educators' knowledge on all cooperative learning domains after cooperative learning training programs though linking university educators from different institution and using blended learning course program. The university educators had opportunity to exchange their experiences and opinions. They gained multiple perspectives about cooperative learning, its benefits, and factors influencing its success after the training program.

Also, **Duran and Miquel (2017)** [40] conducted peer tutoring program about cooperative learning implementation through constructing collaborative network among clinical educators and the educational institution administration to use cooperative learning in their classrooms. They found positive effects of the educational programs on educators' learning on cooperative learning concepts and their roles to adjust the program to their educational context.

Results of the present study post-instructional program revealed that majority of clinical nurse educators showed good practice level regarding cooperative learning implementation in their clinical sessions post- instructional program. This can be explained by clinical nurse educators acquired sufficient knowledge about effective cooperative learning implementation. Also, creating cooperative learning environment for clinical nurse educators to exchange their knowledge with their peers on simulated scenarios about program sessions kept them played an active role. So, reflection occurs on improving their role practice in cooperative learning implementation phases including pre implementation, implementation and post implementation phase.

These findings were supported by **Hebles et al. (2021)** [41], they found significant improvement of faculty members' application of several cooperative learning dimensions including lesson planning and tasks, structuring basic features, social, interdependence, reflection and evaluation after cooperative learning training program. Also, **Ming (2018)** [42] found that successful cooperative learning implementation among nursing educators in Jamaica following cooperative learning training program. Also, the nursing educators showed positive attitude toward successful adoption of cooperative learning in their class rooms for more addition to, **Goodyear (2016)** [43] who found that implementing a development program on cooperative learning significantly supported clinical educators' practices of cooperative learning in their classrooms

and adapted their practices of cooperative learning to their students' learning needs. Also, he indicated that continuous professional development is recommended for educators to learn and develop their practices to meet the complex and contemporary needs of their students.

The current study results showed that there was statistically significant correlation between clinical nurse educators' knowledge and perception about cooperative learning implementation pre-instructional program. This can be explained by clinical nurse educators' ineffective training regarding novel teaching strategies including cooperative learning in their initial or during professional training in their nursing faculty. So, on this scarce training had a deceive influence on clinical nurse educators' perception.

These finding were supported by **Saborit et al. (2016)** [(27)], found a significant correlation between clinical educators' knowledge about cooperative learning and their perception. They found that clinical educators whose adopted high perception levels regarding cooperative learning received training programs and knowledge about cooperative learning before.

The present study results revealed that that there was no statistically significant correlation between clinical nurse educators' knowledge and practice about cooperative learning implementation post-instructional program. This can be attributed by inappropriate class room environment for some clinical nurse educators including large class size, furniture isn't comfortable enough and fixed that partially hinder face to face interaction, inadequate enough space for students' interaction and movement. Also, limited time for clinical nurse educators. All of this can hinder them from successful practice of some cooperative learning implementation items.

These findings were supported by **Moges (2019)** [(44)] who verified that there was no significant relation between clinical instructors' knowledge and practice about cooperative learning implementation. He reported that class room condition to implement cooperative learning appropriately wasn't good. Class room size was large, the desks and chairs were not easily movable. The classroom was crowded by chairs. He concluded class room appropriateness was the core challenges to implement cooperative learning effectively. Also, **Saborit et al. (2016)** [(29)] indicated that clinical educators' knowledge about cooperative learning tends to play a key role in effective cooperative learning implementation. But, this is not often due to lack of interest, limited time for clinical educators can disturb effective cooperative learning

implementation regardless training is present.

Conclusion

Clinical nurse educators included nursing demonstrators and assistant lecturers at Faculty of Nursing, Tanta University had low perception level and poor knowledge level regarding cooperative learning implementation in clinical sessions pre-instructional program. Lack of clinical nurse educators' perception and knowledge regarding cooperative learning implementation indicated that they had a great need for an instructional program about cooperative learning implementation. Post-instructional program most of clinical nurse educators had good knowledge level with significant improvement compared to pre-instructional program. Also, majority of them showed good practice level regarding implementation of cooperative learning in clinical sessions.

Recommendations

On the light of the findings of the present study, the following recommendations are suggested for:

Faculty administrators:

-Revise and reform nursing curriculum to be more student centered and in alignment with the constructivist educational paradigm.

-Encourage clinical nurse educators and nursing students to implement cooperative learning in clinical sessions.

-Provide an appropriate and supportive cooperative learning environment e.g. large classes, comfortable furniture, movable desks, data shows, pens, papers, books, and internet.

-Conduct in-service training programs and workshops for clinical nurse educators about cooperative learning implementation.

-Conduct orientation programs and allow mentors for novice clinical nurse educators for enhancing their educational self-control.

- Conduct regular meetings with clinical nurse educators to share experiences and prepare cooperative exercises that save a lot of time and effort and facilitate implementation.

Nursing educators:

-Shift nursing education paradigm from traditional teaching methods to more student centered approaches including cooperative learning.

-Encourage nursing students' active involvement in collaborative activities through instruction about cooperative learning benefits.

-Develop nursing students' social and collaborative skills including communication, decision making, and

conflict management for effective collaboration.

-Deign challenged cooperative activities including simulated scenarios for active engagement of the nursing students in collaborative process.

-Ensure fair grading methods including self-evaluation, peer-evaluation, and individual tests to enforce nursing students' collaboration.

Further studies:

-Additional studies should be conducted to assess clinical nurse educators' educational needs.

-The effectiveness of cooperative learning implementation on nursing students transition to health care work environment.

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Structured Teaching Program's Effect on Knowledge and Self-Management Behaviors for Hemodialysis Patients

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Abstract:

Background: Promoting the level of knowledge of patients through education is one of the effective factors in increasing the patient responsibility in eliminating or changing unhealthy behaviors. Also, improving self-management of hemodialysis patients needs empowering the patients through educational program. **Aim:** to assess the effect of structured teaching program on knowledge and self-management behaviors for hemodialysis patients. **Subjects and method: Design:** A quasi-experimental (pre- post-test) design was used. **Setting:** The study was conducted in hemodialysis unit at Qena General Hospital. **Subjects:** A convenient sample consisted of 100 adult patients were selected based on the following inclusion criteria; their age between 18-65 years, and able to provide oral consent they were followed up for three months. **Tools:** Three tools were used for data collection; (I) patient's assessment sheet, (II) the hemodialysis knowledge questionnaire and (III) the hemodialysis self-management instrument. **Results:** Main results for this study showed that only 17% of studied patients had satisfactory level of knowledge in pretest, which increased to 93% in post-test. There was a statistically significant difference as regard hemodialysis self-management behaviors post implementing the structured teaching program P- value <0.001*. **Recommendations:** Continuous educational programs should be planned and offered to patients on regular basis in hemodialysis units. Also, further studies about home self- management of hemodialysis patients should be conducted.

Key words: Hemodialysis, Educational Program, Knowledge, Self-management Behavior.

Introduction

Chronic Renal Failure (CRF) is a progressive irreversible decline in renal function in which body is unable to keep metabolic fluid and electrolyte balance resulting in uremia and azotemia [(1)]. The occurrence and the prevalence of CRF are gradually increasing-by 8%-worldwide, mainly in developing countries [(2)]. Chronic kidney disease takes about 10 to 15 years to set in and therefore, it is vital to take the preventive measures at the earliest stage. If not doing it can lead to kidney failure, which is managed in two ways i.e., dialysis and/or transplant[(3)].

Hemodialysis (HD) is a technique that is used to accomplish the extracorporeal removal of waste substances such as urea, creatinine and free water from the blood when kidneys are in a state of renal replacement therapies [(4)]. Patients undergoing HD have multiple problems, such as retention of water and sodium, anemia, hypertension, and heart disease [(5)]. These patients are not only treated for problems associated with HD, such as atherosclerosis, left ventricular hypertrophy [(6)] and secondary hyperparathyroidism, but also for changes in self-perception and sometimes for reversal of roles in the family [(7,8)]. Patient start dialysis treatment, his life will be thoroughly changed, he should attend regularly the dialysis session, modify anything eats or drink, and use of prescribed drugs [(9,10)].

Disease related knowledge for patients undergoing HD is a vital part for health-related quality of life [(11)]. Many benefits associated with improving patients' knowledge of their HD treatment and improve ability to management their selves, including that it can empower individuals to become confident enough to make medical decisions [(12)]. High levels of disease-related knowledge can lead to self-efficacy, autonomy, and participation in clinical decision-making [(13)].

Self-management is defined as patient's skills to handle the symptoms, treatments, psychosocial and physical impacts and to adopt the style of living with a chronic disease [(14)]. Self-management needs patient engagement; however, the degree to which patients are able or willing to participate in self-management can differ, and individual and health system factors may serve as barriers or facilitators to self-management processes [(15)]. One strategy to improve patient outcomes is to improve the self-management using appropriate training or educational programs [(16)]. Patients' understanding of disease related knowledge is a vital aspect of successful self-management [(17)].

Several studies have indicated that patient who are self-managing their care process, improved coping and adjustment with

long-term health problems, quality of life, treatment adherence, physical and psychological well-being and reducing the risk of morbidity and mortality [18]. Educational interventions for patients undergoing HD can lead to a change in their behaviors. This may affect, in the long term, the frequency of associated complications and improve their live. So, nurse working in HD unit should plan and manage the care that patients receive [19].

Significant of the study

Improving self-management level in patients undergoing hemodialysis is an effective way to decrease the incidence of complications and mortality. Self-management education is not only intended to assist patients to live better but also it reduces the cost of the disease by increasing the skills of the patients in dealing with a serious illness [20]. Therefore**,** the researchers choose Qena General Hospital to conduct this study.

Aim of the Study

To assess the effect of structured teaching program on knowledge and self-management behaviors for patients undergoing hemodialysis.

Specific objectives:

1. To assess patients' knowledge regarding hemodialysis.
2. To assess patients' self-management behavior regarding hemodialysis.
3- To explore relationship between patients' knowledge and their self-management behaviors.

Research Hypothesis:

1. Knowledge of the study patients will be improved after implementing structured teaching program.
2. Self-management behaviors of the study patients will be improved after implementing the nursing teaching program.
3- Patients who have satisfactory knowledge will have better self-management behaviors.

Subjects and Methods

Research design: -

A quasi-experimental pre-posttest design was utilized to conduct this study.

Study Setting:

The study was conducted in hemodialysis unit at Qena General Hospital.

Study Duration: the study took about one year from the beginning of May 2019 until the end of May 2020.

Sample size: Convenience sample was used to achieve the aim of the study. It composed of 100 adult patients diagnosed with chronic renal failure (undergoing HD), and the patients were recruited based on the following inclusion criteria. Aged 18-65 years of both genders, and able to communicate effectively and provide oral consent.

Tools for Data Collection:

Three tools were used for data collection:

Tool I- Patients' assessment sheet: It was developed and utilized by the researchers based on literature review. This tool consists of the following two parts:

Part 1: Socio demographic data include (name, age, gender, education, employment and marital status).

Part 2: Medical data including: years on HD, type of vascular access, number of dialysis sessions per week, etiology of chronic kidney diseases and associated diseases.

Tool II- The Hemodialysis Knowledge Questionnaire: It was established by Gela and Mengistu, (2018) [21] to measure the knowledge about hemodialysis. It contains 16 items include (Lab tests: hematocrit and/or hemoglobin are used to detect anemia, creatinine is a lab test that measures kidney function, during dialysis, good things (like medication) are removed along with waste, when kidneys fail, they stop making the hormone called erythropoietin, healthy kidneys control balance of fluid, glucose, proteins, sodium and potassium, the target blood phosphorus for dialysis patients is about 3.5 to 5.3mg/dl, regular exercise has been linked with fewer hospital stays, phosphorus is quite rare and is not present in many foods, the machine alarms mean patients never have to worry about safety, a low protein diet may be recommended while kidneys are failing, untreated anemia causes low energy feeling cold all the time and sometimes shortness of breath, limiting dietary potassium helps prevent heart problems, low fluid intake between dialysis treatments helps make treatments comfortable, dry weight is what a person weighs without the build-up of excess fluid, during dialysis wastes from blood move into the dialysis fluid, and more dialysis is better, because healthy kidneys work 24 hours a day).

Scoring system:

For each question the score was graded as "1" for correct answer, and "0" incorrect answer. The scores were totaled and converted into a percentage score. The total score is divided into the following: Satisfactory level of knowledge ≥50 % and unsatisfactory knowledge <50%.

Tool III - Hemodialysis Self-Management Instrument (HDSMI): It was established by Gela and Mengistu, (2018) [21] to assess self-management behaviors about HD. This scale consists of 20 items, which are divided into four subsequent subscales: problem solving (5) items, self-care (7) items, partnership (4) items and emotional management (4) items. Patients were asked to provide answers to each item on 4-point scale ranging from never (1) to always (4).

Scoring system:

The scores ranged from 20 to 80. The scores of each question were summed up and then converted into a percent score. A score of 50% or higher was considered satisfactory level of self-management and less than 50% considered un satisfactory level of self-management.

Validity of the Study Tools:

Content validity was tested by five experts from Faculty of Nursing in the field of medical surgical and administration at Qena University.

Administrative Design:

Permissions for data collection were obtained from the Hospital directors and head managers of the Hemodialysis Unit, and by the submission of a formal letter from the Faculty of Nursing, Qena University. An exploratory visit was done to HD unit to evaluate the rate of admission and suitable time for collecting data. Moreover, personal communication was done with nurses and physicians to explain the purpose of the study and gain their best possible cooperation.

Operational Design:

It clarifies steps of actual application of the study, and includes preparatory phase, pilot study, and field work.

Preparatory phase:

It took about two months started in May 2019 to end of June 2019 which included reviewing related literatures. Tools were translated by researchers into Arabic language and retranslated into English for correctness. The structured nursing program developed by the researchers. It comprises knowledge and self-management behavior needed for patient under HD, which in turn reflected on their health condition.

Pilot Study: A pilot study was conducted on (10%) 10 patients to test the clarity and applicability of the tools, test wording of the questions and estimate the time needed for the interview. Also, to detect any obstacles or problems that might arise in data collection. Data obtained from the pilot study were analyzed; no modifications were done, so, the patients participated in the pilot study were included in the main study.

Reliability: The reliability of tools was tested on 10 patients under hemodialysis order to measure the internal consistency of these tools by using Cornbrash's alpha test for knowledge was 0.81 and for self-management 0.84 in this study.

Field Work: After warranting the suitability and easiness of study tool, the researchers met with patients to explain study aim to them, and to get oral consent for participation; then, patients who fulfilled the inclusion criteria were interviewed individually by the researchers using previous tools to obtain the baseline data (pretest phase). The interview took

around 30-45 minutes according to the interviewers' level of understanding and comfort. The numbers of telephone of all patients under study or caregivers were taken to arrange for program sessions.

The structured educational program conducted on 5 groups. Each group included 20 patients; time elapsed 30-45 minutes/session. Teaching methods included demonstration, Power Point and pictures use). Each patient obtained a copy of the nursing teaching program booklet in simple Arabic language. Evaluation phase made immediately after implementing the program and after 3 months.

Ethical Consideration

There was no risk for study subjects during application of the research, the study followed ethical principles in clinical research, and formal consent was gained from patients who were willing to participate in the study, after clarifying the nature and aim of the study, confidentiality and anonymity were assured, patient had the right to refuse to participate and/or withdraw from the study without any rational at any time, and patent's privacy was considered during data collection.

Statistical Analysis:

Data entry and data analysis was done using compatible personal computer by investigator. The statistical analysis was done using SPSS version 22 (Statistical package for Social Science). Data were presented as number, percentages, mean, and standard deviation. Chi –Square test was used to compare between qualitative variables. An independent sample t-test was used to compare quantitative. P –value considered statistically significant when P value < 0.05.

Results:

Table (1): illustrates socio-demographic characteristics of the studied patients. The data in this table showed that (35%) between 35-40 years old. Regarding Gender; slightly more than half of the studied patient (51.0%) were female. Looking at level of education it was found that more than half of the studied samples **(58.0%)** were illiterate. In addition to marital status, it was observed that (64.0%) of them were married. Regarding to employment, it was noticed that (42.0 %) were skilled worker.

Table (2): reveals medical data of the studied patients. The data in this table demonstrated that the majority of the studied patients (92.0%) have Arterio Venous Fistula (AVF) as vascular access and all patients (100.0%) perform hemodialysis three times per week. In addition, it was found that slightly more than half (53.0%) of the studied sample hadn't associated disease and more than one third (35.0%) were hypertensive.

Table (3): illustrates distribution of the studied patients regarding to their

Knowledge about HD pre and post-tests. It was notice that, there were statistically significant differences for all items of hemodialysis knowledge except for items eight and eleven (P-value = 0.159 and 0.228) respectively.

Table (4): this table demonstrated that, there was a statistically significant difference as regard hemodialysis self-management behaviors in pre and post test. P- Value <0.001*.

Table (5): showed that, there was a statistically significant mean knowledge score of the studied patients were aged < 35 years was 7.88 ± 1.93 in pre- tests; it was improved to 13.06 ± 1.65 in post- test. This was significantly better than in pretest P= 0.002*. Also, it was found that the studied patients who are illiterate the mean score was 7.38 ± 1.36 in pre- test and it was improved to 11.86 ± 1.82 in post-test. This was significantly better than in pretest. P = 0.000.

Table (6): reveals relation between knowledge score and HDSM score and its domains pre and post tests. The data in this table illustrated that; there was a statistically significant relation between level of knowledge and self-management behavior with P-value= 0.000.

Fig (1): The data in this figure demonstrated that only 17 of studied patients have had satisfactory level of knowledge and 83 unsatisfactory in pretest while, about 93 have had satisfactory level of knowledge and only 7 of them have had unsatisfactory knowledge in post test.

Table (1): Distribution of Studied Patients regarding to their Socio-Demographic Characteristics **(N=100)**

Variables	No.	%
Age: (years)		
< 35	34	34.0%
35- 40	35	**35.0%**
≥ 40	31	31.0%
Mean ± SD (Range)	**39.28 ± 11.66**	
Gender:		
Male	49	49.0%
Female	51	**51.0%**
Level of education:		
Illiterate	58	**58.0%**
Read & write	28	28.0%
Basic education	2	2.0%
Secondary	6	6.0%
University	6	6.0%
Marital status:		
Single	26	26.0%
Married	64	**64.0%**
Divorced	6	6.0%
Widowed	4	4.0%
Employment:		
Employee	31	31.0%
Skilled worker	42	**42.0%**
Housewife	27	27.0%

Table (2): Distribution of the Studied Patients as regard their Medical Data **(N=100)**

Variables	No. (100)	%
Years on hemodialysis:		
1-3	39	**39.0%**
4-6	23	23.0%
> 6	38	38.0%
Mean ± SD (Range)	**5.13 ± 2.86 (1.0-13.0)**	
Vascular access:		
Arteriovenous Fistula (AVF)	92	**92.0%**
Arteriovenous Shunt (prosthesis)	18	18.0%
Etiology of CKD:		
Recurrent nephritis and pyelonephritis	21	21.0%
Analgesics	19	19.0%
Hypertension	35	**35.0%**
Kidney stones (Calcium oxalate)	21	21.0%
Pre-eclampsia	4	4.0%
Number of dialysis sessions per week:		
Three times	100	100.0%
Associated diseases:		
No	53	**53.0%**
Diabetes mellitus (DM)	4	4.0%
Hypertension (HTN)	35	35.0%
Cardiac diseases	8	8.0%

Table (3): Distribution of the Studied Patients regarding to their Knowledge about HD pre and post tests **(N=100)**

Variables	Pre-test				Post-test				P-value
	Correct		Incorrect		Correct		Incorrect		
	No.	%	No.	%	No.	%	No.	%	
1-Lab tests: hematocrit and/or hemoglobin are used to detect anemia	48	48.0	52	52.0	100	100.0	0	0.0	0.000*
2-Creatinine is a lab test that measures kidney function	47	47.0	53	53.0	92	92.0	8	8.0	0.000*
3-During dialysis, good things (like meds) are removed along with waste	47	47.0	53	53.0	89	89.0	11	11.0	0.000*
4-When kidneys fail, they stop making the hormone called erythropoietin	26	26.0	74	74.0	68	68.0	32	32.0	0.000*
5-Healthy kidneys control balance of fluid, glucose, proteins, sodium & potassium	65	65.0	35	35.0	85	85.0	15	15.0	0.001*
6-The target blood phosphorus for dialysis patients is about 3.5 to 5.3	30	30.0	70	70.0	58	58.0	42	42.0	0.000*
7-Regular exercise has been linked with fewer hospital stays and better overall health for people on dialysis	10	10.0	90	90.0	47	47.0	53	53.0	0.000*
8-Phosphorus is quite rare and is not present in many foods	67	67.0	33	33.0	76	76.0	24	24.0	0.159
9-The machine alarms mean patients never have to worry about safety.	54	54.0	46	46.0	81	81.0	19	19.0	0.000*
10-A low protein diet may be recommended while kidneys are failing, but a high protein diet is better once they have failed completely	41	41.0	59	59.0	71	71.0	29	29.0	0.000*
11-Untreated anemia causes low energy feeling cold all the time and sometimes shortness of breath	88	88.0	12	12.0	93	93.0	7	7.0	0.228
12-Limiting dietary	36	36.0	64	64.0	54	54.0	46	46.0	0.011*

potassium helps prevent heart problems in dialysis patients									
13-Low fluid intake between dialysis treatments helps make treatments comfortable	42	42.0	58	58.0	73	73.0	27	27.0	0.000*
14- Dry weight is what a person weighs without the build-up of excess fluid.	67	67.0	33	33.0	84	84.0	16	16.0	0.005*
15-During dialysis, wastes from blood move into the dialysis fluid	59	59.0	41	41.0	80	80.0	20	20.0	0.001*
16-More dialysis is better, because healthy kidneys work 24 hours a day	67	67.0	33	33.0	84	84.0	16	16.0	0.000*

* Statistically significant at p<0.05

Table (4): Distribution of studied sample regarding to their Hemodialysis Self-Management (HDSM) and their total score pre and posttests (N=100)

HDSMI	Pre-test	Post-test	P-value
	Mean ± SD	Mean ± SD	
1-Partnership	12.25 ± 2.13	13.84 ± 1.72	<0.001*
2-Problem-solving	12.28 ± 2.81	15.77 ± 2.50	<0.001*
3-Self-care	20.80 ± 2.51	24.38 ± 2.89	<0.001*
4-Emotional-management	9.08 ± 2.41	12.60 ± 2.25	<0.001*
HDSMI	54.41 ± 6.23	66.59 ± 6.37	<0.001*

* Statistically significant at p<0.05

Table (5): Relationship between knowledge score and HDSMI score with socio demographic (N= 100)

	Knowledge score		**HDSMI score**	
	Pre-test	**Post-test**	**Pre-test**	**Post-test**
	Mean ± SD	**Mean ± SD**	**Mean ± SD**	**Mean ± SD**
Age: (years)				
< 35	7.88 ± 1.93	13.06 ± 1.65	54.71 ± 7.23	68.06 ± 7.04
35-40	7.97 ± 1.58	11.43 ± 1.67	54.46 ± 3.13	64.97 ± 5.17
≥ 40	7.97 ± 2.14	12.10 ± 2.17	54.03 ± 7.70	66.81 ± 6.60
P-value	**0.976**	**0.002***	**0.910**	**0.128**
Gender:				
Male	7.98 ± 2.30	13.06 ± 1.72	53.84 ± 6.58	67.78 ± 6.32
Female	7.90 ± 1.36	11.35 ± 1.76	54.96 ± 5.89	65.45 ± 6.26
P-value	**0.837**	**0.000***	**0.370**	**0.068**
Level of education:				
Illiterate	7.38 ± 1.36	11.86 ± 1.82	52.81 ± 4.67	65.59 ± 6.36
Read & write	8.21 ± 1.64	12.54 ± 2.08	54.29 ± 5.13	68.32 ± 4.86
Basic education or more.	9.71 ± 2.81	12.86 ± 1.96	61.29 ± 9.13	67.29 ± 8.41
P-value	**0.121**	**0.000***	**0.000***	**0.159**
Marital status:				
Single	8.08 ± 2.02	12.85 ± 1.99	55.31 ± 7.02	66.92 ± 8.36
Ever-married	7.89 ± 1.82	11.96 ± 1.88	54.09 ± 5.95	66.47 ± 5.57
P-value	**0.666**	**0.044***	**0.396**	**0.758**

* Statistically significant at $p<0.05$

Table (6): Relation between knowledge score and HDSM score and its domains pre and post tests (N=100)

HDSM score	Knowledge Score	
	Pre-test	Post test
	P-value	P-value
1- Partnership	0.011*	0.000*
2- Problem-solving	0.032*	0.000*
3- Self-care	0.010*	0.001*
4- Emotional-management	0.006*	0.000*
HDSMI	**0.000***	**0.000***

* Statistically significant at p<0.05

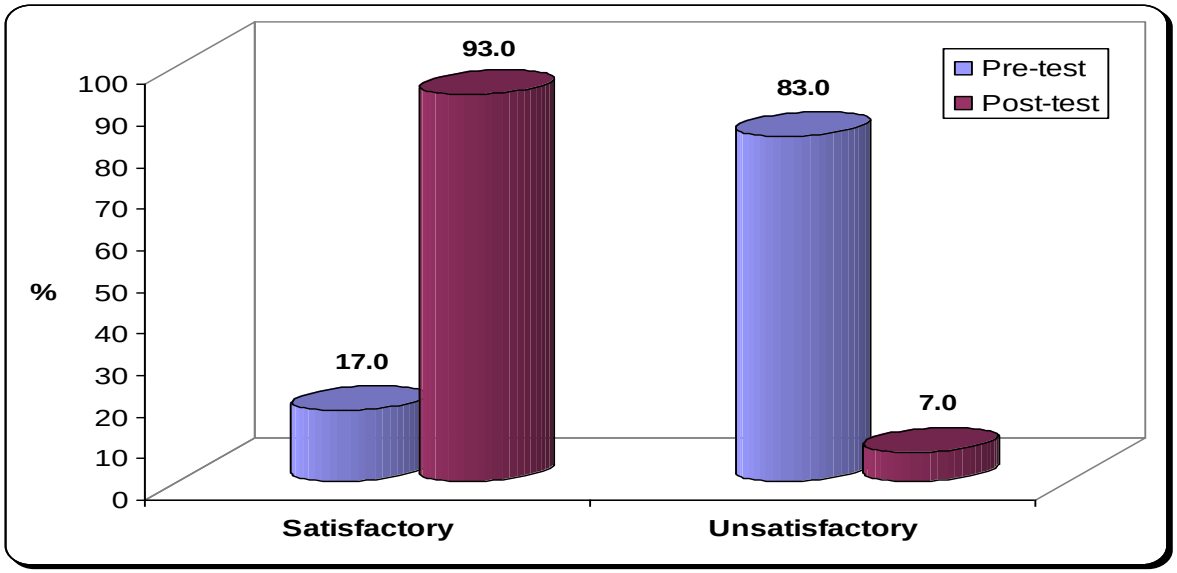

Fig (1): Percentage of total knowledge of Studied Patients regarding HD pre and post tests (N=100)

< 50% Unsatisfactory ≥ 50% Satisfactory

Discussion

Chronic renal failure is a universal community health problem. It is defined as a decrease in the renal function from mild damage to moderate and severe chronic kidney failure [22]. HD is the most frequently used treatment method for chronic renal failure [23]. HD is a treatment to filter wastes and water from the blood. It helps control blood pressure and balance important minerals, such as sodium, potassium, and calcium, in blood [24].

Patients maintained on HD who learn about their disease and its treatment, and who successfully self-manage at least some aspects of their own health care, may experience improved functioning and well-being and increased overall quality of life, while simultaneously experiencing decreased risk for hospitalization and mortality [25].

Findings regarding Socio- demographic characteristics of the study sample; the present study revealed that; more than two quarters of the study sample were married and more than thirds were skilled worker. These results in line with **Ali et al. (2011)** [26] who found in their study that, the highest proportion of patients were married and skilled worker. Slightly more than one third of the studied sample their ages range between 35-40 years old which came in accordance with **Mahmoud and Abd Elaziz (2015)** [27] who reported that slightly more than one third of the studied sample their ages range between 40- 50 years old. Also, the result is consistent with **Shah and Pokhare (2013)** [28] who found that the majority of the patients belonged to age group of 52-72 years.

The study results revealed that, slightly more than half of the study samples were female. This result is agreement with **Sittisongkram et al. (2019)** [29] who reported that more than half of the studied patients were female. Also, this result is contradicting with **Fernandes and D'silva (2020)** [30] who found that the majority of clients were males. Also, more than half of the sample were illiterate this finding in line with **Bahadori et al. (2014)** [31] who reported that the highest percentage of the studied sample were illiterate.

Findings regarding medical data of the study sample; in this study all studied patients perform dialysis sessions three times per week. This result inconstant with **Ranadive et al. (2019)** [32] who found that more half of patients perform dialysis session 3 times per week. The present study revealed that hypertension was the main etiology of chronic renal failure (CRF) which came in accordance with **Jebraeily and Makhdoomi (2018)** [14] who reported that hypertension was the most common cause of CRF among the studied patients.

The current study reported that the majority of studied patients have AVF as vascular access. This finding consistent with **Ferreira et al. (2018)** [33] in a study about Knowledge: disease process in patients undergoing hemodialysis who found that the prevalent dialysis site was AVF.

Findings regarding knowledge of studied patients about hemodialysis; the finding of this study denote that the majority of patients have unsatisfactory knowledge about hemodialysis. Meanwhile, this finding isn't confirmed with **Gela and Mengistu (2018)** [21] who found that more than half of the respondents had knowledge about hemodialysis. This finding may be attributed to the nature that highest proportion of patients is illiterate and this may affect their ability to learn and seek help and information.

The results of this study showed significantly increased of total knowledge score of studied patients about hemodialysis post implementing the teaching program. This finding came in agreement with **Saelim et al. (2011)** [34] who revealed that, the health education program significantly improved knowledge of hemodialysis patients about the disease.

This study also revealed that there was positive significant relation between total knowledge score and the studied patients who their age < 35 years post implementing the program. This could be explained by the fact that this age group has more motivation and a willingness to learn and acquire information. Also, positive significant relation between total knowledge score and illiterate patients was found after implementing the teaching program. This is because they represent the majority of the study patients.

The present study also showed that there was positive significant relation between total knowledge score and single patients post implementing the nursing program. This result may be because singles have fewer responsibilities and psychological pressures, so they are better prepared to receive the information.

Findings regarding self-management of study sample regarding hemodialysis; this study declared that, there was a statistically significant difference after implementing the nursing teaching program as regard self-management behaviors about hemodialysis. In line with this result of the current study, the study of **Ramezani et al. (2019)** [35] showed that educational approach was effective in improving self-management of patients.

Lastly, the present study reported that there was a statistically significant relation between level of knowledge and self-management behavior. This result came in line with **Gela and Mengistu (2018)** [21]

who reported that patients' knowledge was found to be independent predictors of self-management. This result may be attributed to the nature that as the patient become more knowledgeable about his disease his self-management level will be better.

Conclusion

Based on the results of the present study we can be concluded that structured teaching program was found to be effective in enhancing knowledge and self-management behaviors among patients undergoing hemodialysis.

Recommendations

Based on the results of the study, the following recommendations are suggested:

1.Continuous educational program should be planned and offered to patients on regular basis in hemodialysis units.

2.Using strategies for knowledge reinforcement and skills improvement can improve patients' knowledge and self-management regarding hemodialysis.

3. Replication of the study on different settings and large sample size to generalize the results.

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Effect of Psycho-educational Intervention for Obese Women Post Bariatric Surgery on Body Image and Self-esteem

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Abstract

Background: Bariatric is a branch of medicine dealing with the causes, prevention, and treatment of obesity. It leads to massive and rapid weight loss in severely obese patients. This may result in numerous complications that affect body image satisfaction and self-esteem. **Aim of the study**: this study sought to evaluate the effect of a psycho-educational intervention for obese women after bariatric surgery on body image and self-esteem. **Study design:** A quasi-experimental design was followed. **Study setting:** This study was conducted in two settings namely the surgical department at University Hospital in Benha and the Gastroenterology ward in the Main University hospital in Alexandria. **Subject**: A convenient sample of 40 women who had bariatric surgery constituted the study subject. They were divided into two equal groups randomly; a study group that received the nursing psychological educational intervention and a control group that was exposed to routine care only. **Tools of the study:** Rosenberg Self-Esteem Scale and The Multidimensional body self-relations questionnaire appearance scale (MBSRQ-AS) and sociodemographic and clinical characteristics sheet. **Results:** Study group who received psychoeducational program show higher mean in self-esteem scale than the control group with Mean ± SD (33.55±2.25 and 29.10±2.59 respectively) with highly statistical significant difference between the study and control group. Also, the Mean ± SD of different domains of body image satisfaction in study group were higher than control group with highly statistical significant differences. **Conclusion:** The psychoeducational program implementation had a positive effect in self-esteem and all domains of body image satisfaction for studied subjects undergoing bariatric surgery. **The study recommended that the** Psychoeducational programs should be offered for obese women' undergoing bariatric surgery as a regular and integral component of health care.

Key words: Obesity, Bariatric Surgery, Psychoeducational, Self-esteem, Body Image

Introduction

Obesity is now considered as a chronic disease, causing an increased likelihood of developing comorbidities, such as diabetes, hypertension, cardiovascular syndromes, respiratory abnormalities and psychiatric conditions [(1)] .Data published by the World Health Organization revealed that in 2016 more than 1.9 billion adults were overweight. Obesity has approximately tripled since 1975 and has become a worldwide epidemic. It is recently the focus of numerous studies[(2)].

Obese person usually exposure to weight stigma that effect negatively on body image satisfaction and self-esteem level [(3)]**,** Also the obese women exposed to discrimination and sarcasm that lead to social isolation, loneliness, poor body image satisfaction, and low self-esteem. [(4,5)]

Bariatric is a branch of medicine dealing with the causes, prevention, and management of obesity[(6)] Weight loss is attained by reducing the size of the stomach through an implanted of medical device (gastric banding) or by removal of a portion of the stomach (biliopancreatic diversion with duodenal switch or sleeve gastrectomy) or through resecting and re-routing the small intestines to a small stomach pouch (gastric bypass surgery) [(7)]. A person is considered a candidate for bariatric surgery, if Body Mass Index (BMI) is higher than 40 kg/m^2 or above 35 kg/m^2 in the presence of associated co-morbidities e.g. type II diabetes, sleep apnea, arterial hypertension and others [(8)]**.**

Bariatric surgery leads to massive and rapid weight loss in severely obese patients [(9)]. This may result in numerous complications that affect the body image satisfaction and self-esteem. Thus, the increase loose and/or sagging skin after surgery are as high as 89.2%. Moreover extensive scars add to the dissatisfaction with body image [(10,11)] also found that hair loss after bariatric surgery is more frequent in female patients and may lead to changes in body image and low self-esteem**.**

Many post bariatric surgery patients stated that they hold unrealistic expectations about the bariatric outcomes. Some may anticipate that bariatric surgery will result in a total body transformation that makes their bodies comparable to persons who never experienced excessive body weight. Others may not fully understand that bariatric surgery cause skin hanging especially in the areas of chest and abdomen, large and visible scars, skin irregularities, as well as residual deformities in body shape**.** In this respect, the role of psychiatry and psychiatric nursing is to manage bariatric surgery patients' and to evaluate the patients' expectations and their degree of satisfaction about the results of bariatric

surgery[12]. Mental health nurses play a significant role in obesity psychological pre and postoperative assessment to help patients adjust to the post-operative lifestyle and subsequent emotional, behavioral, and social changes that often occur [13]. Furthermore, the assessment of psychiatric status , pre and post bariatric surgery, and treatment if needed, play a crucial role in maximizing successful postoperative outcomes [14]. Therefore, currently the preoperative psychosocial assessment is the standard care for patients undergoing bariatric surgery. Comprehensive assessments include the information that assist both the patient and the management team, anticipate and prepare patients for challenges associated with extensive behavioral and lifestyle changes that are required post bariatric surgery [13].

In addition, psychoeducational intervention was found to have a positive effect on post bariatric surgery patients outcomes who attend at least four sessions of psychoeducation intervention were experienced greater improvements in social function and showed better in general health aspects of quality of life [15]. Also , [16] found that psychoeducational intervention for bariatric patients shows sustained greater effects on both depression severity scores and self-efficacy.

Significance of the study:

Egypt has high percentage of obese adults. Around nineteen million Egyptians i.e. 35 % of the adult population are obese [17]. Study about obesity in 24 African countries exhibited that Egypt has the highest level of overweight and obesity [18]. The same study confirmed that the prevalence of overweight and obesity among urban women has rapidly increased in the last two and half decades.

Obesity is increasingly conceptualized and accepted as a chronic illness caused by a complex interchange of genetic, behavioral, environmental, and physiological factors [19]. Moreover results in body image dissatisfaction and low self-esteem in turn lead to harmful health behaviors such as non-adherence to diet recommendations after surgery, and the emergence of eating disorders such as anorexia, bulimia and body dysmorphia. Thus, this study sought to investigate the effect of psycho-educational intervention for obese women after bariatric surgery on body image and self-esteem.

Aim of the study

The aim of the present study was to evaluate the effect of psycho-educational intervention for obese women after bariatric surgery on body image and self-esteem through:

- Assessing body image and self-esteem for obese women

- Implementing psychoeducational intervention sessions for obese women regarding body image and self-esteem
- Evaluation of the effect of psychoeducational intervention sessions for obese women on body image and self-esteem

Research Hypothesis:

Obese women after bariatric surgery who attended a psycho-educational intervention will show better satisfaction with body image and higher self-esteem than those who did not.

Subject and Methods

Research design: A quasi-experimental design was followed to fulfill the aim of this study.

Research Setting: This study was conducted in two settings; the general surgical ward and the outpatient clinics of University Hospital in Benha and the Gastroenterology ward and the outpatient clinic of the Main University hospital in Alexandria.

Subject:

A convenient sample of 40 women who had bariatric surgery constituted the study subject. The number of subjects with the following inclusion criteria was selected over a period 6 months.

Inclusion criteria: The patients, involved in this study were selected according to the following criteria:

- Obese Female patients admitted for bariatric surgery,
- Willing to participate in the study
- More than 18 years old,
- Free from co-morbid psychiatric disorders.

Subjects were divided into two equal groups randomly; a study group who received the nursing psycho-educational intervention and control group who were exposed to routine care only

Tools of the study:

The study data were collected using the following tools:

Tool I: Rosenberg Self-Esteem Scale (RSE):

Rosenberg Self-Esteem Scale (RSE) was developed by [20]**.** It is composed of 10 items that measure overall feeling of self-worth and self- acceptance. It is used to measure global self-esteem. Arabic version of Rosenberg Self-Esteem Scale was used in Egypt and showed to be valid and reliable [21]**.**

Scoring system of Rosenberg Self-Esteem Scale was as follow; 34 -40 score was considered high self-esteem, 23-33 score was considered moderate self – esteem and 22 and less score was considered low self-esteem.

Tool II: The Multidimensional body self-relations questionnaire appearance scale (MBSRQ-AS)

It is composed of 34-items, developed by [22] to assess body image. MBSRQ-AS proved to be valid and reliable on Egyptian population [23]. (MBSRQ-AS) is well validated measure that evaluates appearance related component of body image and each (MBSRQ-AS) is the mean of its subscale score It is used to assess Appearance Evaluation (7 items), Appearance Orientation (12 items), Body Areas Satisfaction (9 items), Overweight Preoccupation (4 items), and Self-Classified Weight (2 items) [24].

Scoring system of (MBSRQ-AS) as followed; A 5-point Likert Scale; a low score of "1" indicates that the participant highly disagrees with a given statement, whereas a high score of 5 indicates that the participant highly agrees with it. Higher scores reflect greater satisfaction with the specific domain ***(MacKean et al., 2010).***

Sociodemographic and clinical data structured interview schedule: this sheet was attached to the tools of the study. It was developed by the researcher and comprised the Socio-demographic data and Clinical data related to study subjects such as, age, education, marital status, residence, occupation, role in family, presence of chronic illness, behavioral approaches for weigh management, Wight/Body Mass Index, family history of overweight, diet pattern pre and post bariatric surgery, exposure to discrimination, being ridiculed, available of psychosocial support as well as the impact of obesity on their social relationship.

Validity and Reliability:

- Tool I was translated into Arabic language and back-translated into English by [21] tool proved to be valid and reliable on Egyptian population; Cronbach's alpha test up to 0.88
- Tool II was translated into Arabic language and retranslated into English by [23] tool proved to be valid and reliable on Egyptian population; Cronbach's alpha test = 0.76

Methods

Official permission:

Before conducting the study, an official approval was obtained from the Dean of the Faculty of Nursing and from the directors of Benha University Hospital and Alexandria Main University Hospital.

Pilot study:

- A pilot study was carried out to test the clarity, feasibility and applicability of tools as well as to estimate the time needed for data collection. Few modifications were made on sociodemographic and clinical data sheet such as exposure to discrimination, and sarcasm,

social relationship and availability of psychosocial support.

Field work:

- Data collection was carried out over 10 months from August 2019 to May 2020. Through individual interview the Nursing Psychoeducational Interventions for obese women patients undergoing bariatric surgery was conducted throughout 4 phases:

I: Assessment phase:

During this phase, the researcher met the study subjects individually for the initial assessment. A consent was obtained from each patient after the explanation the purpose of the study. Baseline data for both groups such as age, education, marital status, residence, occupation, past history, treatment, Wight/Body Mass Index, family history of overweight, diet pattern was collected. Additionally, Body image and self-esteem were assessed for both groups (before psychoeducational program) each interviewed last about 30 minutes.

II: Planning and development phase:

During this phase the researcher developed the psychoeducational intervention according to pretest assessment by using tools I and II and review of related literature.

III: Implementation phase:

This phase began by data collection then implementation of a psycho-educational intervention for patients who met previously mentioned inclusion criteria in nine sessions. Each session was continued for approximately 60 minutes.

I. Sessions (I): Introductory session: (Theoretical)

Time required: 60 minutes

Setting: The Gastroenterology Ward.

Aims of the first session :

- Emphasize rapport between patients and researcher
- Identify the purpose of the program.
- Orient patients about the program and its expected outcomes.
- Describe schedule of the program.
- Outline the content of the program .

Contents :

- Introduction
- Expected outcomes
- Aim of the program
- Schedule of the program.
- Content of the program

Method of teaching:

- Discussion
- Face to face interview

Media used:

- Booklet

Evaluation method:

- Feedback through oral question/ pretest questionnaire

II. Sessions (2 and 3): Theoretical part:

Time required: 60 minutes

Setting*:* The Gastroenterology Ward and out patients clinic.

Aim of the theoretical sessions:

At the end of the above sessions, the patients will be able to:

- Define the obesity and Body Mass Index
- Recognize the physical and psychological causes of obesity.
- Enumerate the complication of obesity
- Discuss the different methods of treatment of obesity
- Identify the bariatric surgery
- Count the reasons for bariatric surgery and it is complications.
- Discuss the importance of healthy food
- Explain the importance of adherence to dietitian advice.
- Show off the importance of the activity for physical and mental health status post-bariatric surgery
- Demonstrate the past experiences of activity and exercise and how to take up new interests and activities

Content:

Definition of the obesity, classifications of the obesity, causes of obesity, consequences of obesity, psychological consequences of obesity, psychosocial concern related to obesity, methods of obesity treatment, bariatric surgery, types of bariatric surgery, complications of bariatric surgery, how to cope with complication of bariatric surgery, healthy food behaviors, the importance of adherence to dietitian advice, as well as allowed and unallowed food after bariatric surgery.

Method of teaching:

- One to one instruction
- Group Discussion
- Brainstorming

Media used:

- Booklet
- Colored Pictures

Evaluation method:

- Feedback through oral question

III. Sessions (4, 5, 6, 7 and 8): Practical part

Time required: 60 minutes

Setting*:* Out patients clinic.

Aim of the practical sessions:

- Explore the psychosocial influences (trigger for eating)
- Identify the unhealthy behavior, pattern, beliefs, and attitudes about eating
- Discuss the stimulus control techniques and coping strategies to deal with unhealthy eating behavior.
- Understand the meaning of body image
- Recognize the reasons for negative body image
- Know different methods to improve body image satisfaction

- Explore the different aspect of caring for their body
- Practice the assertiveness techniques against negative comments
- Encourage patient to express their feeling about their body
- Apply the different methods of coping with low self-esteem
- Learn the approaches that can be used to alleviate anxiety
- Apply deep breathing exercise to decrease stress
- Use muscle relaxation and other techniques e.g. Yoga, Meditation
- Illustrate the importance of body exercises and a healthy lifestyle
- Modify their lifestyle in order to improve body image satisfaction and improve self-esteem
- List the exercises that used to improve their body appearance
- Show of the different approaches to relieve the depression
- Illustrate the importance of friendships and social support to decrease loneliness and social isolation.

Contents:

The reason of unhealthy eating and its psychological management, exercise how to overcome on psychosocial influences for unhealthy eating behaviors, skills to improve body image satisfaction, practices that affect negatively on body image satisfaction, how to care for their body, relaxation techniques, physical exercises, different methods to improve self-esteem, modify the lifestyle, different strategies to reduce stress, and importance of social support.

Method of teaching:

- Discussion
- Role play
- Demonstration and redemonstrations

Media used:

- Booklet
- Pictures
- Audiovisual
- Color pens and cards
- Paper and pen

Evaluation method:

- Feedback through oral question, redemonstration and positive participation.

IV. Session (9): Ending of the psychoeducational program (last session)

Setting: out patients clinic.

Time required for session: 60 minutes

Aim of this session :

At the end of this session the patients will be able to recall the main points of the program's content.

Contents:

Revision of the program's content was done and researcher welcomed and required clarification.

-Methods of teaching: Discussion and demonstration

-Media used: Booklet and flipchart.

Methods of evaluation: Feedback, redemonstration and positive participation

Suitable teaching aids prepared specially for the program were: booklet (handout), videos, and pictures. At the end of every session, the patient's questions were discussed to clarify any misunderstanding that happened during it.

Phase IV: - Evaluation phase :

Three months followed the implementation of psychoeducational intervention, each subject in the study group and control group was interviewed to evaluate her body image and self-esteem using the tool I and II. A comparison between the study and control groups was done.

Ethical considerations:

The ethical research consideration in this study include the following:

- No name was included in the questionnaire sheet.
- The researcher has clarified the objectives and the aims of the study to each subject included in the study assuring the anonymity and confidently of data
- Subjects were informed that they were allowed to choose to participate or refuse in the study and they have the right to withdraw at any time.

Statistical design

- The Statistical Package for Social Sciences (SPSS) program version 25.0 was utilized for data analysis.
- Frequency tables and cross-tabulations were employed to clarify the results of categorical data and tested by the Chi Square Test or Fisher's Exact Test.
- Qualitative data were described using numbers and percent, and quantitative data were described using mean and standard deviation.
- Comparison between both groups were carried out using independent t test and paired t test for the quantitative variable while Chi-Square ($\chi 2$) for qualitative variables.
- The level of significance selected for this study was P equal to or less than 0.05.

Limitations of the study

- Due to the COVID-19 pandemic, the last cases were followed up at 3 months post-surgery through phone contact.

Results:

The results of the study revealed that (47.5%) of studied subjects, age ranged between 35- < 45 years old with Mean ± SD = 37.05 ± 8.52 years old, (45.0%) were married, (42.5%) had basic education,

(52.5%) were not working and (77.5%) were living in an urban area **(Table 1).** Also 80.0% of the studied subjects have a chronic illness. Body mass index for 55.0% was more than 45, and most of the studied subjects have tried previous methods of weight loss as diet, exercise, diet and exercise, or use of medications **(Table 2).** The majority of the studied subjects in both groups were exposed to sarcasm and discrimination and their social relation was affected due to the obesity as well they did not receive any psychosocial support **(Table 3).**

Furthermore, more than two third of the subjects in the study and control groups (70.0% and 65.0% respectively) pre-implementation of psychoeducational program had low self-esteem without any statistical significant difference between the two groups pre-implementation of the psychoeducational program with (χ^2=0.114 P=1.000). After the implementation of the psychoeducational program, 95.0% of the study group had moderate self-esteem as compared to 75.0% of the control group with statistically significant difference (χ^2=6.471 P=0.039). In the same line, the mean of the self-esteem was higher in the study group than the control group with 33.55±2.25, and 29.10±2.59 respectively with a statistically significant difference between the study and control group (χ^2=0.189 P=0.00) **(Table 4).**

Moreover, Before the implementation of the psychoeducational program there were no statistically significant differences between the study and control group in all body image satisfaction domains, while there were statistically significant differences between study and control groups after implementation of the psychoeducational program in almost all body image satisfaction domains; appearance evaluation, appearance orientation, overweight preoccupation, body area satisfaction as well as in a total mean of body image satisfaction with P value 0.00 in all domain**(Table 5).**

Regarding the correlation between self-esteem and body image before and after three months of implementation of psychoeducational program in both groups. A statistically significant correlation was found between body image satisfaction and self-esteem values before and three months after the implementation of psychoeducational program **(Table 6).**

Table (1): Distribution of the study and control group according to their socio-demographic characteristics

Socio-demographic characteristics	Study Group (n = 20)		Control Group (n = 20)		Total (n=40)		χ^2	P
	No.	%	No.	%	No.	%		
Age								
19- < 25	2	10.0	3	15.0	5	12.5	0.544	0.909
25- < 35	6	30.0	5	25.0	11	27.5		
35- < 45	9	45.0	10	50.0	19	47.5		
45- < 55	3	15.0	2	10.0	5	12.5		
Min - Max	19- 50		20 – 52		19 - 52		t=0.110	tP=0.913
Mean ± SD	37.2 ± 8.62		36.9 ±8.99		37.05± 8.52			
Marital status								
Single	5	25.0	6	30.0	11	27.5	0.513	0.916
Married	10	50.0	8	40.0	18	45.0		
Widowed	3	15.0	3	15.0	6	15.0		
Separated/Divorced	2	10.0	3	15.0	5	12.5		
Educational level								
Illiterate	2	10.0	2	10.0	4	10.0	0.545	0.909
Basic Education	8	40.0	9	45.0	17	42.5		
Secondary school	2	10.0	3	10.0	5	12.5		
Diploma/Bachelor	8	40.0	6	30.0	14	35.0		
Occupation								
Working	10	50.0	9	45.0	19	47.5	0.100	FET= 1.000
Not working	10	50.0	11	55.0	21	52.5		
Residence								
Rural	3	15.0	6	30.0	9	22.5	1.290	FET= 0.225
Urban	17	85.0	14	70.0	31	77.5		

Table (2): Distribution of the study and control group according to their clinical characteristics

Clinical characteristics	Study Group (n = 20)		Control Group (n = 20)		Total (n=40)		χ^2	P
	No.	%	No.	%	No.	%		
Presence of chronic illness								
Yes	15	75.0	17	85.0	32	80.0	0.625	FET=0.347
No	5	25.0	3	15.0	8	20.0		
Type of chronic illness#	n=15		n=17		n= 32			
Hypertension	4	26.7	3	17.6	7	21.9	0.173	FET=0.500
Diabetes Mellitus	4	26.7	6	35.3	10	31.3	0.533	FET=0.358
Arthritis	9	60.0	7	41.2	16	50.0	0.417	FET=0.374
Others*	4	26.7	5	29.4	9	28.1	0.143	FET=1.000
Family history of obesity								
Yes	9	45.0	6	30.0	15	37.5	0.960	FET=0.514
No	11	55.0	14	70.0	25	62.5		
Body Mass Index								
30- <40	5	25.0	4	20.0	9	22.5		
40- <45	6	30.0	3	15.0	9	22.5	2.444	χ^2 =0.485
45- <50	4	20.0	8	40.0	12	30.0		
≥ 50	5	25.0	5	25.0	10	25.0		
Min - Max	33.6 - 55		34.1 - 55		33.6 - 55		t= -0.884	^{t}P= 0.382
Mean ± SD	44.83±6.18		46.53±5.97		45.68±6.06			
Previous methods of weight loss								
No	6	30.0	5	25.0	11	27.5		
Diet	4	20.0	6	30.0	10	25.0		
Exercise	4	20.0	4	20.0	8	20.0	1.324	χ^2 =0.857
Diet and exercise	5	25.0	3	15.0	8	20.0		
Medications	1	5.0	2	10.0	3	7.5		

χ^2: **Chi square test** ^{FE}p**:** p value for **Fisher Exact** P, t: **Student t test**
p: p value for comparing between the studied groups *: Statistically significant at $p \leq 0.05$
More than one disease at one time Others* : Liver diseases, Cholelithiasis, Cardiac diseases and GIT disorders

Table (3): Psychosocial factors affecting the study and control group.

Subjects' state of Self-esteem	Study Group (n=20)		Control Group (n=20)		Test of significance
	No.	%	No.	%	
Before Psychoeducational intervention					
≤ 22 (low self-esteem)	14	70.0	13	65.0	χ^2= 0.114
22-33 (Moderate Self-esteem)	6	30.0	7	35.0	FET= 1.000
≥ 34 (high self-esteem)	0	0.0	0	0.0	
Min. – Max.	16 – 26		16 – 26		t= 0.701
Mean ± SD.	21.30±2.67		20.7±2.73		^{t}P= 0.488
3 months after Psychoeducational intervention					
≤ 22 (low self-esteem)	0	0.0	5	25.0	χ^2= 6.471
22-33 (Moderate Self-esteem)	19	95.0	15	75.0	*P= 0.039
≥ 34 (high self-esteem)	1	5.0	0	0.0	
Min. – Max.	30 – 39		22 – 33		t= 5.786
Mean ± SD.	33.55±2.25		29.10±2.59		**^{t}P= 0.00

P, $\chi^{2:}$ for **Chi square test** P, t: for **Student t test** FET= Fisher exact test

*Significant difference at P level ≤ 0.05. **Highly Significant difference at P level ≤ 0.01

Table (4): Comparison between the studied subjects in both groups regarding level of self-esteem before and 3 months after implementation of the psychoeducational program.

Psychosocial relationship	Study Group (n = 20)		Control Group (n = 20)		χ^2	FET
	No.	%	No.	%		
Exposure to sarcasm						
Yes	13	65.0	14	70.0	0.114	0.500
No	7	35.0	6	30.0		
Exposure to discrimination						
Yes	13	65.0	15	75.0	0.476	0.366
No	7	35.0	5	25.0		
Effect of obesity on social relationship						
Yes	11	55.0	10	50.0		
No	9	45.0	10	50.0	0.100	0.500
Receive psychological or social support						
Yes	5	45.0	9	45.0	1.758	0.320
No	15	75.0	11	55.0		
Source of psychosocial support	n= 5	%	n= 9	%		
Family	2	40.0	5	55.6		
Friends	2	40.0	2	22.2	0.519	0.790
Other patients	1	20.0	2	22.2		

χ^2: **Chi square test** ^{FE}p: p value for **Fisher Exact**
p: p value for comparing between the studied groups *: Statistically significant at p ≤ 0.05

Table (5): Comparison between means of body image satisfaction and their related domain of studied subjects in both groups before and after implementation of psychoeducational program

Q	Body image satisfaction domain	Subjects N= 20	Pre Mean ±SD	After 3 months Mean ± SD	P1	P2
1.	**Appearance evaluation**	**Study**	14.25±3.52	24.50±2.30	0.531	**0.00
		Control	13.65±2.36	20.80±1.98		
2.	**Appearance orientation**	**Study**	31.35±4.41	45.05±2.83	0.59	**0.00
		Control	32.05±3.81	41.65±2.05		
3.	**Body area satisfactions**	**Study**	17.90±1.77	23.10±1.61	0.49	**0.000
		Control	18.35±2.32	20.30±2.22		
4.	**Overweight preoccupation**	**Study**	12.95±1.53	10.40±2.16	0.62	**0.00
		Control	13.15±0.98	13.10±1.99		
5.	**Self-classified weight**	**Study**	9.6±0.75	8.7±0.86	0.30	0.525
		Control	9.8±0.41	8.85±0.58		

P= **Student t test.** *Significant difference at P level ≤ 0.05. **Highly Significant difference at P level ≤ 0.01

P1=p value comparing between both groups pre surgery. P2=p value comparing between both groups after psychoeducational intervention.

Table (6): Correlation between self-esteem and body image before and after three months of implementation of psychoeducational program in both groups.

Correlations	Body Image Satisfaction			
	Before		After 3 Months	
	r1	p1	r2	p2
Self-esteem Scale	**0.669**	**0.000**	**0.488**	**0.001**

R, P: Pearson correlation test

R1, P1: correlation between body image satisfaction and self-esteem scale at pre surgery in both groups.

R2, P2: correlation between body image satisfaction and self-esteem scale at post psychoeducational intervention in both groups

Discussion

Management of obesity is not only important for the prevention of physical diseases but also for the prevention of psychiatric and emotional problems ***Unlu et al., (2019)*** [25]. Obesity is one of the most important determinants of self-esteem scale and body image satisfactions among women. In fact body image dissatisfaction and low self-esteem become silent attributes in obese people. The seriousness of this matter has led to the emergence of body image therapy as a psychological approach to alleviate psychological disturbances related to obesity. The importance of body image is not confined only to self-esteem and satisfaction it also has an impact on mental health-related issues ***Hamdan et al., (2019)*** [26]. It has also been found that poor body image and low self-esteem are more common symptoms among people with obesity leading to psychological adverse effects ***Ivezaj and Grilo, (2018)*** [27].

The obesity epidemic showed accelerated growth in the number of bariatric surgeries performed worldwide including Egypt. The reported number of bariatric surgeries in Egypt is around 30,000 operations annually ***Sabri, (2018)*** [28]. Bariatric procedures result in massive weight loss that gives rapid changes in physical appearance. This may result in altered body perception that may add to the disturbed body image and self-esteem. Consequently, the current study aimed to evaluate the effect of a psycho-educational intervention for obese women after bariatric surgery on body image and self-esteem.

At pre bariatric surgery, the present study indicates that obese women undergoing bariatric surgery have worsened body image as well as self-esteem disturbances. Many causes can be explained such as the negative representation of obese women in the media as nowadays, beauty is associated with slim being. This finding is in agreement with a number of previous studies that showed that obese women have lower self-esteem and that most obese women were dissatisfied with their body image***Mar et al., (2017)*** [29]***, Raso et al., (2016)*** [30]***, Pop, (2016)*** [31] . In the same line, ***Musaiger and Al-Mannai, (2013)*** [32] study conducted on female university students in Kuwait showed that the majority of obese females were dissatisfied with their current weight and figure. Obese women are usually ridiculed and discriminated. This opinion is supported by numerous studies that concluded that an obese person is usually exposed to discrimination and sarcasm that lead to social isolation, loneliness, poor body image satisfaction, and low self-esteem. ***Jung and Sikorski, (2019)*** [4] **,** ***Ozcanarslan et al., (2018)***. [5]

The result of this study may also explain the negative impact of obesity on body image and self-esteem, it showed that most of the obese women experienced discrimination and were exposed to ridicule, Society repeatedly blames the obese person for their own ill-health because of laziness and overeating. Unfortunately, in communities that thought weight discrimination might encourage individuals with obesity to lose weight, the opposite is happening.

These findings were concurrent with ***Johnson et al., (2018)*** [33] that showed obese women who underwent bariatric surgery had experienced weight discrimination as well as in all of the interviews of the same study, the participants recalled situations of "fat-shaming" by peers, family members, and colleagues. Also, ***Jackson et al.,(2015)*** [34] documented harmful weight-based stereotypes describing overweight and obese individuals as lazy, weak-willed, unsuccessful, and unintelligent. They were also represented as lacking self-discipline, having poor willpower, and are noncompliant with weight loss treatment.

Furthermore, obese people usually perceive that obesity is life threatening as obesity is usually associated with comorbidities. In general obesity also has an effect on quality of life and acceptance of self ***Okop et al.,(2019)*** [35]. In this respect, ***Peralta et al., (2016)*** [36] found that overweight persons feel less athletic and agile, slow, and unfit and have overall lower self-image perception than normal-weight participants. Thus, it is expected for an obese person to lose their happiness, feel hopeless and increasing their body image dissatisfaction.

Considering the effect of obesity on the social relationship, this study exhibits negative impact of obesity on social relationship that add more to low self-esteem and altered body image. This may be due to that obesity and social withdrawal are connected with social isolation results less physical activity and unhealthy eating behavior that result in an increased body mass index and lead to more isolation. These findings are concurrent with those of ***Jung and Sikorski,(2019)*** [4] that showed the obesity associate with higher levels of loneliness regardless of the class of obesity. On the same line, ***Varela et al., (2019)*** [37] showed that overweight participants score significantly higher social withdrawal than normal weight persons. However, The finding of this study is incongruent with that of ***Al-Ateeq and Al-Hargan,(2014)*** [38] conducted in Saudi Arabia which showed that the majority of the obese population still engage in a social environment and social life.

Regarding lack of support for obese women either from family members or friends the result of this study showed that obese women are predispose to depression, hopelessness, helplessness as well as low self-esteem. This finding is in agreement with ***Kiernan et al., (2012)*** [39] that indicated lack of support among overweight and obese women was prevalent, with the most obese women reporting never or rarely receiving support from members of family and friends for their weight loss efforts. Additionally**,** ***Martínez, (2019)*** [40] showed that social support has a positive effect on weight loss in women**.** Also, ***Kvalem et al., (2016)*** [41] study showed that Post-bariatric patients who live with discouraging families report episodes of overeating post-surgery while the patients who live with a supportive family did not. Also***Voller et al., (2016)*** [42] stated that social support help in long-term weight loss and suggested peer sponsorship as a unique strategy to maintain proper bariatric lifestyle practices over time.

Another cause that may affect body image satisfaction and self-esteem is clothing size. The study of ***Kinley, (2010)*** [43] study showed that smaller and fit sizes clothes have a positive effect on body image and self-esteem particularly for younger women. Stylists in general design clothes of smaller sizes, and if obese women can fit in a smaller size, they are more satisfied. Therefore**,** obese women may compare themselves with model of smaller body sizes which resulting in damaged body image and self-esteem. Furthermore, fashion and thin-ideal media concept were found to result in more negative effect on body satisfaction as well as self-esteem***Mask and Blanchard, (2011)***[44]**,** ***Boothroyd et al., (2016)***[45] .

Considering, results of the study three months after implementation of psycho educational program, the present study shows that bariatric patients who received psychoeducational intervention exhibit better self-esteem and body image satisfaction. This finding is consistent with ***Williams et al., (2018)*** [46] which reported that the psychoeducation intervention for bariatric surgery has a significant role in decreasing body image dissatisfaction, feeling of fatness, and body image avoidance after one and six months of bariatric surgery. Also, the current results are in agreement with ***Delparte, (2016)*** [47] who stated that designed psychoeducational intervention improved post-surgical outcomes, which is in the long-term beneficial to physical health, mental health, and quality of life of bariatric patients. Besides, reductions in rates of morbid obesity in the long-term may reduce the costs and resources required to treat this population, which is

beneficial to society over time ***(Blüher, 2019)*** [48].

Likewise, ***(Güven and Akyolcu, 2019)*** [49] study showed that the patients receiving health education and follow-ups experienced improvements in physical functioning and role performance, physiological and mental health, social functioning, and vitality. In this respect, ***Brown et al.,(2016)*** [50] found that pre-hospital assessment and education program including psychoeducation about how stress affects eating, psychological triggers of eating, negative thought as well as motivation were found to improve both compliance and weight loss outcomes following bariatric surgery. These results are inconsistent with the study of ***Cassin et al., (2013)*** [51] that showed six sessions for patients with bariatric or undergoing bariatric surgery had no effect on their psychosocial concerns.

Talking about self-weight classified, this study unsurprisingly showed that the patients in both groups did not show improvement in self weight classified at the post psychoeducational intervention. This finding, it could be due to that the follow up of patients in this study was within six months after bariatric surgery which is short period for patients with high body mass index to reach the healthy body weight so they were still classified as obese. This result concord with ***De Zwaan et al., (2014)*** [52] who reported that after bariatric surgery, appearance evaluation, and body area satisfaction improved, but the self-weight classified still did not improve. Moreover, ***(Rudolph and Hilbert, 2020*** [53]***, Song et al., 2016)*** [54] showed that after bariatric surgery patients did not reach the ideal body weight after six months. Also, ***Raaijmakers et al., (2017)*** [55] suggested that the weight loss after bariatric surgery will stabilize as long as after one or two years. In the same line, ***Campbell et al., (2018)*** [56] followed up the bariatric surgery patients at three months after surgery and found that almost all patients three months of bariatric still their body mass index obese.

Conclusion

Based on the findings of the present study, it can be concluded that: The psychoeducational intervention session played an important role on psychological problems (Body image dissatisfaction and low self-esteem) in obese women undergoing bariatric surgery. The psychoeducational program implementation had a positive effect in self-esteem scale and all domains of body image satisfaction (appearance evaluation, appearance orientation, overweight preoccupation, body area satisfaction and self-classified weight) for studied subjects undergoing bariatric surgery.

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Effect of passage meditation program on nurses' level of hope and resilience who caring for patients with COVID 19

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Abstract

Background: COVID-19 is an acute resolved disease but it can also be deadly, with a 2% case fatality rate. Health care workers are the frontline soldiers against COVID-19. They experienced fear, high level of stress, fatigue, grief and anxiety during facing pandemic. So, development and application of a meditative program that consistent with our culture can be valuable to control and overcome stress, building resilience and hope. **Aim**: To evaluate the effect of passage meditation program on nurses' level of hope and resilience who working with COVID 19 patients**. Subjects and method: Study Design:** A quasi-experimental, pre- post-test design was utilized in the current study. The study was conducted at Tanta chest hospital affiliated to Ministry of health. It was an online study through using Google forms (Google drive). **Subjects:** All of nurses (fifty nurses) working at Tanta chest hospital. **Tools:** two tools were used to gather data for this research, Hearth hope scale and the brief resilience scale (BRS). **Method:** a WhatsApp group were introduced for all nurses, the studied nurses were divided into five subgroups; each subgroup encompassed 10 nurses. Each subgroup was attending a total of 6 sessions. These sessions were scheduled as 3 sessions per week for duration of 2 weeks. Each session was lasted for about an hour. **Results**: there is a positive statistically significant relationship between the nurse total resilience score and hope score. **Conclusion:** the passage meditation program was effective in elevation hope level and improving resilience among nurses **Recommendation: the** current study suggested, the global nursing organizations work on drafting effective and proactive nurses' human-factor guidelines and network that embeds human factor as a dynamic shock absorber.

Key words: Passage meditation, hope, resilience**,** COVID 19.

Introduction

Since late December, 2019, an outbreak of a novel coronavirus disease (COVID-19) was reported in Wuhan, China, which has subsequently affected the whole world [(1)]. The pandemic of COVID-19 has clearly entered a new stage with rapid spread in countries outside China and all members of society must understand and practice measures for self-protection and for prevention of transmission of infection to others [(2)]. In general, COVID-19 is an acute resolved disease but it can also be deadly, with a 2% case fatality rate. Severe disease onset might result in death due to massive alveolar damage and progressive respiratory failure [(2, 3)].

Health care workers are the frontline soldiers against COVID-19 [(3)], they provide caring for patients during the severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) outbreaks were experienced extraordinary stress related to high risk of infection, stigmatization, understaffing, and uncertainty [(4,5)]. An important sector of this army are nurses, they play a very crucial role in predestining the healthcare services for managing and extenuating infectious diseases, as COVID-19, which are considered to be the third leading cause of death worldwide [(6)]. Yet, they face tremendous physical and mental stress as they facing challenges during pandemic, but also, introducing may influential roles[(4)].

Firstly, one of the most horrific challenge of the COVID-19 is the time delay in the early identification of infections, due to its long incubation period that might extend to about fourteen days on average. This poses a threat to nurses as they considered the initial point of contact with the infected person [(6, 7)]. Second challenge is the number of patients that required ventilatory support outnumbered the available intensive care unit (ICU) beds. Moreover the nurse-patient ratio is unbalanced. This put authorities to submit another places as University cities to providing care to those less severity in their signs and symptoms [(8)].

Third one is to stay healthy so that nurses can continue to care for others. Unfortunately with lack of personal protection equipment (PPE), nurses had to set up a clean area at the entrance to their homes to change in and out of scrubs, besides change and shower at work as well. Unquestionably, they have families, and so will naturally be fearful that the virus might reach those they love most. After then they return their home and isolate themselves from their loving family, another rent a separate house to avoid contact with their families [(9)].

Lastly, the most tragic and shameful in some communities is harassment,

stigmatization, and attacking nurses during their work, while they are sacrificing their life and time in giving care to those clients with COVID -19 [7,9]. Certainly, nurses play a great role in caring the patient during the different phases of the COVID-19. Besides, providing public education, to prevent and reduce the spread of misinformation around the disease outbreak. Also, tracing of those around the infected person and guide them to prevent spread of infection [6]. Moreover, they have to find a specific balance between professional standards and crisis standards of care which based on the reality of the specific situation, such as the presence or absence of necessary equipment, medications or colleagues [8].

Among nurses, stress has been linked to problems ranging from depression, decreased job satisfaction, and disrupted personal relationships to reduced concentration, impaired decision making, and poorer relationships with patients [10]. Accordingly nurses' health and safety are crucial not only for continuous and safe patient care, but also for control of any outbreak. Nurses can experience fear, high level of stress, fatigue, grief and anxiety during facing pandemic. Consequently, through improving the human factor, the nurses could perform at their best while caring for patients [6].

The repeated surge demand from the critically ill patients required the nurse to work with high resilience with a responsible team consisted of medical rescue team, infection control specialists, local health authorities representative, and centre for disease control and prevention [6, 11].

Resilience can be promoted by many factors like as optimism, sense of purpose, faith, belief, sense of self, empathy, insight, self-care, hope, self-efficacy, coping, control, flexibility, adaptability and emotional intelligence [7,12]. Some particular personal attributes associated with resilience include optimism, intelligence, creativity, a sense of humour, a belief system that provides existential meaning, a range of coping skills, social skills and an appreciation of the uniqueness of self [13]. Resilience is experienced when individuals have insight into their ability to recognize stressors and put strategies in place such as humor to minimize the effects. Resilience is enhanced by ensuring exercise, rest, social support and interests are maintained to maximize work– life balance [14].

Hope is the act by which despair is actively overcome. As an inner strength, hope is perceived as a resource for living in the present and is central to a dignified end of lifetime. Besides, hope for nursing is

identifying as this deep-grounded hope that is most germane to our patients and to our practice [15]. Furthermore, inner strength among experienced nurses has been associated with connectedness, firmness, flexibility, creativity, a sense of confidence in oneself yet having faith in others, accepting both the light and the dark side of life, and being the same yet growing into a new garment [16].

In recent decades, meditation has drawn increasing attention as a modality for reducing stress in clinical and general populations. One form of meditation, the Eight-Point Program (EPP), possesses both important similarities to and key differences from other well-known methods of meditation (Easwaran, 1978/1991) as with well-documented work into the remainder of daily living by Kabat-Zinn (2003) and others, the EPP uses a variety of related methods to integrate meditative states of mind, experienced during formal sitting practice [10].

In passage meditation, the object of attention is not an image or an external object but an inspirational passage chosen from any of the world's great spiritual traditions and memorized ahead of time [17]. The WHO determine such workplace health programs as one of the best options for mental health and well-being of employees [18]. On top of that, development and application of a meditative program that consistent with our culture can be valuable to control and overcome stress, building resilience and hope.

Aim of the study

To evaluate the effect of passage meditation program on nurses' level of hope and resilience who working with COVID 19 patients.

Research questions:

What is the effect of passage meditation program on nurses' level of hope and resilience who working with COVID 19 patients?

Research hypothesis:

1- Directional hypothesis: the passage meditation program would improve level of hope and resilience who working with COVID 19 patients.
2- Null hypothesis: the passage meditation program hasn't any effect on the level of hope and resilience who working with COVID 19 patients.

Subject and method

Study Design: A quasi-experimental, pre- posttest design was utilized in the current study.

Setting*:* The study was conducted at Tanta chest hospital affiliated to Ministry of health. It was an online study through using Google forms (Google drive). The respondents fill in an online electronic questionnaire by

submit the following link https://forms.gle/uCpFZQ9zYm9Nfbwx9 related to electronic questionnaire.

Subjects:

All of nurses (fifty nurses) working at Tanta chest hospital.

Tools of the study:

Tool I: Hearth hope scale:

It was developed by Kaye Herth 1998 [19]. It was intended to measure level of hope. It is a 30- item, 4- point likert scale started with Strongly Disagree = 1, Disagree = 2, Agree = 3 and Strongly Agree = 4. In order to prevent mistakes during answering the scale, note the following items need to be reversed scored: 6, 10, 13, 17, 22, and26.

Tool II: The brief resilience scale (BRS):

It was developed by Smith et al. (2008) [20]. It aimed to assessing individuals' ability to recover from stressful circumstances. It composed of six statements of Items 1, 3, and 5 are positively worded, and items 2, 4, and 6 are negatively worded. The BRS is scored by reverse coding items 2, 4, and 6 and finding the mean of the six items. The items are rated on a five-point Likert Scale 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

- ❖ In addition a Socio-demographic and clinical data Questionnaire was used. It was designed by the researchers to elicit data about socio-demographic and clinical characteristics of the studied subjects such as sex, age, residence, level of education, years of experience, knowledge about Covid 19 and provision of personal protection equipment.

Method:

1-Official permission to conduct the study was obtained from the responsible authorities.

2-Ethical Considerations**:**

- Online consent was obtained from nurses after explanation of the aim of the study.
- Privacy and confidentiality was assured. Nurses were reassured that the obtained information is confidential and used only for purpose of the study.
- Nurses' right to withdraw from the study at any phase were respected.

3-All tools were tested for content validity by a jury of five experts in the field of psychiatric nursing.

4-Tools of the study were translated into Arabic language and designed by Google forms to be an online questionnaire.

5-All tools were tested for reliability using Cornbrash's Alpha test and found to be (n=0.785, 0.64 respectively).

6-Online Pilot study was carried out with 10 undergraduate nursing students to evaluate the tentatively tools for the

clarity, feasibility and the applicability and necessary modifications were done accordingly. Those10 undergraduate nursing students were excluded later from the actual study.

The actual study was divided into four phases:

A-Assessment phase:

In this phase, a Whats App group were introduced for all nurses and were informed to explain the purpose of the study and to gain their cooperation. The researchers assigns the study tools on the respondents and explains how to fill an online questioner.

B-Planning Phase:

This phase was formulated based on assessment phase and extensive literature review. Goals and expected outcome criteria were taking into consideration when planning passage meditation program.

The studied nurses were divided into subgroups; each subgroup encompassed 10 nurses. Each subgroup was attending a total of 6 sessions. These sessions were scheduled as 3 sessions per week for duration of 2 weeks. Each session was lasted for about an hour.

The researchers was used the following learning materials:

-Images.

-Videos.

C- Implementing Phase:

- In this phase, the researchers were meet the study subjects in online bases through Whats App group.

The content of the program was presented in the following sequences:

-The first session:

- An introductory session that emphasized establishing rapport between the researchers and the respondents participating in the study and explanation of the purpose of the program.

- The second session: It involves *Meditation on a passage* which means silent repetition in the mind of memorized inspirational passages from the Holly Quraan and *repetition of a HolyWord or Mantram* which contains silent repetition in the mind at times other than meditation of a single chosen Holy Name, hallowed phrase or mantram from a major religious tradition which known as Tasbih.

- The third session; includes education about *Slowing Down* which is an important spiritual discipline. Living faster and faster gives no time for inner reflection or sensitivity to others, making our lives tense, insecure, inefficient, and superficial. Slowing

down helps to achieve freedom of action, good relations with others, health and vitality, calmness of mind, and the ability to grow. Besides training about Focused/One-pointed Attention through giving full concentration to the matter at hand.

- **The fourth session**: It composed of *Training the Senses* which known as overcoming conditioned habits and learning to enjoy what is beneficial and *Putting Others First* through gaining freedom from selfishness and separateness; finding joy in helping Others.

- **The fifth session:** It consists of *Spiritual Association* through spending time regularly with others following the EPP for mutual inspiration and support *Inspirational Reading* through reading about great spiritual figures and from religious scriptures as prophet Mohamed.

- **The sixth session:** Summary of the program and the questionnaires were given to the subjects to submit them as an immediate evaluation of the program.

Statistical analysis:

The collected data was organized, tabulated, coded and statistically analyzed using the mean, standard deviation standard error, unpaired student t-test, the linear correlation coefficient, Analysis of variance [ANOVA] tests Paired t-test and chi-square by SPSS V19 (Statistical Package for Social Studies) created by IBM, Illinois, Chicago, USA. The level of significance was adopted at $p<0.05$.

Result

Table (1): presents the socio-demographic and clinical characteristics of the studied nurses. The results revealed that the majority of nurses were male with age ranging from (30-40 years). In relation to social status about 42% were single, regarding their educational level, 70%of them had Bacheloric degree in nursing. In relation to experience year in nursing, the most of them 84.0% had experience from 1-10 years, and more than half of them have Knowledge about corona. Regarding to ability of them for provision of PPE (personal protective equipment) about 70%of them have this ability.

Table (2): Show Distribution of The Studied Nurses in Relation to Their Level of Resilience and Hope Pre and Post the Implementation of educational Program. It noted that there is highly statistically significant between nurses resilience score before, and after implementation of the educational program in which (P-value<0.000*), this donates that nurses score had improved through the phases of training program. In relation to hope it was founded that 38% of studied nurses have weak level of hope before program,

while this level decreased gradually to become 0% immediately after program .on the other hand, there were about 0% of studied nurses have high level of hope before program, while this level increased to become 80% of studied nurses after program**.**

Table (3): show the mean difference scores of Resilience and hope among studied nurses at pre and post intervention. It Can be noticed a that the Mean score Of resilience Increased from (9.460± 1.593) Pre- intervention to (15.800± 1.525)post intervention with highly statistically significant difference ,Regarding to nurses hope The results revealed that there is highly statistically significant relation between nurses mean score of hope before and post implementation of the training program in which (P-value=0.000***).**

Table (4): illustrates the correlation between the total score of Resilience and Hope, The results revealed that there is a positive statistically significant relationship between the nurse total resilience score and hope score as P-value = (0.001). r =0.448**.this mean that the better the nurses have high resilience level, the more hope level that nurses provide to covide 19 patients.

Tables (5): reveal correlation between the Total nurses hope Score and Demographic Data for studied sample. It was found that there was non-significant relation between total nurse's hope score and demographic data for studied sample.

Tables (6): reveal relation between the Total nurses resilience Score and Demographic Data for studied sample. It was found that there was non-significant relation between total nurse's resilience score and demographic data for studied sample on other hands it was noticed that there was significant relation between total nurse's resilience score and demographic data for studied sample related to years of experience and provision of PPE (personal protective equipment).

Table (1): Distribution of Studied Nurses According to Their Socio-Demographic Characteristics

Socio-Demographic Characteristic	N	%
Sex		
Male	**40**	80.0
Female	10	20.0
Age		
20-30	15	30.0
30-40	**35**	70.0
Education		
Bachelor	**35**	70.0
M.A.	15	30.0
social status		
Single	**42**	84.0
Married	8	16.0
years of experience		
Less than one year	4	8.0
1-10 years	**42**	84.0
More than 10years	4	8.0
Knowledge about corona		
Yes	**26**	52.0
No	24	48.0
provision of PPE		
Yes	**35**	70.0
No	15	30.0

Table (2): Distribution of The Studied Nurses in Relation to Their Level of Resilience and Hope Pre and Post the Implementation of educational Program

Level of Resilience and Hope		Pre		Post		Chi-square	
		N	%	N	%	X^2	P-value
Resilience	Week	**37**	74.0	**0**	0.0	76.893	<0.001*
	Average	12	24.0	8	16.00		
	High	**1**	2.0	42	**84.00**		
Hop	Week	**19**	38.00	0	**0**	69.756	<0.001*
	Average	31	62.00	10	20.0		
	High	**0**	0.0	40	**80.0**		

Table (3): Distribution of The Studied Nurses in Relation to Their Total Mean Score of Resilience and Hope Pre and Post the Implementation of educational Program

Phases of the program	Pre		Post		Difference		Paired T-test	
	Mean	SD	Mean	SD	Mean	SD	t	P-value
Resilience	9.460	1.593	15.800	1.525	-6.340	2.006	-22.346	<0.001*
Hope	55.200	3.251	83.600	3.344	-28.400	4.435	-45.275	<0.001*

Table (4): Correlation between the Total score of Resilience and Hope

Correlation between Resilience and Hope		
	Pre	Post
r	-0.042	0.448**
P-value	0.773	0.001

Table (5): Relation between the Total nurses hope Score and Demographic Data

Items		N	Hope			f or t	ANOVA or T-test	
			Mean	±	SD		test value	P-value
Sex	**Male**	40	54.775	±	3.034	t	-1.897	0.064
	Female	10	56.900	±	3.695			
Age	**20-30**	15	55.733	±	3.900	t	0.756	0.453
	30-40	35	54.971	±	2.965			
Education	**Bachelor**	35	54.886	±	3.252	t	-1.045	0.301
	M.A.	15	55.933	±	3.240			
social status	**Single**	42	55.405	±	3.069	t	1.021	0.312
	Married	8	54.125	±	4.155			
years of experience	**Less than one year**	4	55.750	±	3.594	f	0.204	0.816
	1-10 years	42	55.071	±	3.119			
	More than 10years	4	56.000	±	5.033			
Knowledge about corona	**Yes**	26	54.577	±	3.635	t	-1.425	0.161
	No	24	55.875	±	2.692			
provision of PPE	**Yes**	35	54.914	±	2.974	t	-0.948	0.348
	No	15	55.867	±	3.852			

Table (6): Relation between the Total nurses Resilience Score and Demographic Data

Items		N	Resilience	f or t	ANOVA or T-test	
			Mean ± SD		test value	P-value
Sex	Male	40	9.575 ± 1.599	t	1.021	0.312
	Female	10	9.000 ± 1.563			
Age	20-30	15	9.467 ± 1.407	t	0.019	0.985
	30-40	35	9.457 ± 1.686			
Education	Bachelor	35	9.543 ± 1.633	t	0.558	0.580
	M.A.	15	9.267 ± 1.534			
social status	Single	42	9.619 ± 1.607	t	1.645	0.106
	Married	8	8.625 ± 1.302			
years of experience	Less than one year	4	6.500 ± 1.000	f	14.525	<0.001*
	1-10 years	42	9.857 ± 1.299			
	More than 10years	4	8.250 ± 1.258			
Knowledge about corona	Yes	26	9.462 ± 1.749	t	0.007	0.994
	No	24	9.458 ± 1.444			
provision of PPE	Yes	35	9.743 ± 1.400	t	1.973	0.05*
	No	15	8.800 ± 1.859			

Discussion

The world is facing the worst public health crisis in recent history. The coronavirus disease (COVID-19) pandemic has directly and indirectly affected more than four million people across the globe, disrupting health systems and economies. It has placed unprecedented pressure on health care worker during providing care for patient with Covide 19, this repeated stress and fear required the nurse to work with high level with hope and resilience in order to provide high qualified nursing care for those patients through following passage meditation program as mentioned before , Alongside with this, the present study conducted to evaluate the effect of passage meditation program on nurses level of hope and resilience who take care of patients with COVID 19[21, 22].

Emerging result of the present study revealed that the program has positive effect on nurse level of hope and resilience during giving care for patent with covide19 immediately and after implementation of the program. This result may be due to effective developing of the program which contained of six training sessions about passage meditation and mainly based on the studied nurses' needs in addition to its clarity, simplicity, frequent repetition, motivating staff to participate in sessions of the program and also As a result of the way of implementation of program in which researcher used online discussion through WhatsApp group and zoom as a method of teaching and implementing of passage meditation, This enhancement of the nurses also may be due to a magical and psychological impact of passage meditation on raising hope and resilience. This result is supported by **Oman (2015)** in his study about Passage Meditation Reduces Perceived Stress in Health Professionals, founded that passage meditation has critical effect in reduce health care worker stress In the same stream with this current study **Clare et al., (2015)** in his study of Understanding individual resilience in the workplace pointed out the resilience of individuals in work place shaped positively after the implementation of program [23, 24].

Hope of nurses toward patients with Covide 19 considers the main factor and helpful entrance to improve nurses' resilience score, and on the other hand low level of hope acts as a huge barrier to improve nurses' resilience score. Consistent with this point, the present study indicated that there is a positive statistically significant relationship between the nurse total resilience score and hope score. This mean that the better the nurses have high resilience level, the more hope level that nurses provide to

Covide 19 patients. This result matched with **Gito (2013)** in his study of The relationship of resilience, hardiness, depression and burnout among Japanese psychiatric hospital nurses, proved that there are negative correlation between nurse hardness, depression and resilience[25].

Finally, it is worth to mention that there was non-significant relation between total nurse's hope score and demographic data for studied sample. This result mean that there aren't any effect of demographic data on enhancement of nurses hope score this refer to high success rate of this program as researcher use simple language during implementation of program that was suitable to all educational level, and cover wide range of knowledge about passage meditation, in contrary to this study **Stavarski et al., (2018)** in his study of exploring nurses' and patients' perceptions of hope and hope- engendering nurse interventions in an eating disorder facility founded that female nurses had significantly higher hope scores compared to males [26].

Similarly to what mention in previous result. It was found that there was a negative and non-significant correlation between nurses resilience score and demographic data also there was a positive relationship pre, post program regarding their total resilience score and years of experience, where the more years of experience, the more level of resilience toward those patients . This can be explained that years of experience of nurse plays a significant part in care and can impact the nurses' level resilience toward those patients when compared with nurse who have low experience, in the same streem, general **Gito et al., (2013)** proposed that years of experience consider favorable starting point in developing nurse resilience [25].

In addition to what mention before there was a positive relationship pre, post program regarding their total resilience score and provision of protective equipment, this mean that nurse who has ability to use all protective equipment all time during contact with those highly infected patients, keep nurse more flexible and have high level of resilience during giving care to this patients than other nurse who can't use this protective

equipment. This result was in keeping with **Zhang et al., (2020**) in their research of protecting healthcare personnel from corona virus infection risks [27].

Conclusion

Based on the results of the current study, it can be concluded that the passage meditation program was effective in elevation hope level and improving resilience among nurses.

Recommendation

Based on the findings of the current study the following recommendation was suggested:

1- Nurses should be involved in the details of the national plan for high preparedness.

2- The global nursing organizations work on drafting effective and proactive nurses' human-factor guidelines and network that embeds human factor as a dynamic shock absorber.

3- The role of the psychiatric nursing and mental health department should not be ignored, because they can have a valuable role in reducing the stress and helping nurses in hard times.

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Effect of Implementing Transformational Leadership Educational Program on Sense of Responsibility of Nursing Clinical Educators at Faculty of Nursing

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Abstract

Background: Transformational leadership of nursing clinical educators is preferred for facing challenges that arise from the technological changes of globalization in nursing clinical education. It is also a creative approach which needed to deal with these challenges through enhancement of nursing clinical educators' sense of responsibility. The study was aimed to determine the effect of implementing transformational leadership educational program on sense of responsibility of nursing clinical educators at Faculty of Nursing. **Subjects and Method: Design**: Quasi-experimental design was used. **Setting**: Tanta University, Faculty of Nursing. **Subject:** All (80) nursing clinical educators at the above mentioned setting. **Tools:** Three tools were used to collect data; **I:** Nursing clinical educators' knowledge questionnaire about transformational leadership and sense of responsibility. **II:** Nursing clinical educators' transformational leadership questionnaire. **III:** Nursing clinical educators' sense of responsibility questionnaire. **Results:** Majority of nursing clinical educators had poor knowledge level of transformational leadership and sense of responsibility at pre-educational program, while at immediate post and 3 months post educational program, majority of them had good knowledge level. Majority of nursing clinical educators rated themselves as low level of transformational leadership and sense of responsibility at pre-educational program decreased to low percent at immediate post educational program, and at 3 months post educational program. **Conclusion:** Nursing clinical educators at Tanta University Faculty of Nursing showed low knowledge level of transformational leadership and sense of responsibility. Also, they rated themselves as low level of transformational leadership and sense of responsibility. Nursing clinical educators develop transformational leadership and sense of responsibility after implementation of program. **Recommendations:** Nursing faculty give more consideration to the crucial role of transformational leadership and sense of responsibility to upgrade the nursing clinical educators.

***Keywords*:** Nursing clinical educators, Sense of responsibility, Transformational leadership

Introduction

Nursing Clinical Educators (NCEs) are full time clinical teaching staff employed by a university to provide clinical supervision and training for nursing students [1,2]. NCEs teach student nurses in clinical class, laboratory, and clinical environments. They play several roles during the clinical learning, including leader role [2-4].

The NCEs' leadership refers to skills exhibited by NCEs to influence nursing students during the clinical training. The most preferred leadership style used is transformational leadership (TL). TL is leadership behaviors that inspire students, result in both NCE and students raising each other up to higher levels of morality, responsibility, motivation, and performance [5-8].

Transformational leadership is characterized by four dimensions, namely idealized influence, intellectual stimulation, individualized consideration, and inspirational motivation [8,9]. Idealized influence dimension occurs when transformational NCEs (TNCEs) serve as role model, demonstrate high standards of ethical and moral excellence, and engender admiration, trust, and respect from their students. While intellectual stimulation dimension occurs when TNCEs instill more flexible and creative patterns of thinking by prompting students to think independently, and view problems from different perspectives [9,10].

Whereas, individualized consideration dimension occurs when TNCEs treat students as unique individuals; and consider the student's needs, abilities, and individual differences. Finally, inspirational motivation dimension involves promoting optimism and enthusiasm, treating students as capable and responsible; and recognizing good performance of the students. TNCEs encourages and motivates students to exceed expectations; realize a shared vision of excellence during clinical training; and maximize their personal and collective potential [8,10,11].

The NCEs who use transformational leadership increase nursing students' retention and overall nursing students' outcomes. Also, they emphasize teamwork, ethics, and compassion; devote extra effort; to promote their teaching practices or attitudes; enhance professional learning; improve faculty working environment; and optimize their sense of responsibility [12-14].

Nursing clinical educators' sense of responsibility is a sense of internal obligation and commitment to produce or prevent designated outcomes. It includes four dimensions; responsibility for the clinical teaching, student motivation, having positive relationships with students,

and student achievement. First, responsibility for clinical teaching clarifies the responsibility of TNCEs as educators through assessing student's learning style, abilities, and needs; supporting the learning objectives through the given information and skills for students [14,15].

Second, responsibility for student motivation involves direct students to plan and organize the clinical training; and give examples of noble work of great personalities. Third, responsibility got having positive relationships with students illustrates TNCE's responsibility to build a positive rapport with students. Finally, responsibility for student achievement involves grading the students; provision of honest, constructive, fair, and positive feedback; documenting student's progress on an ongoing basis; and making students' success top priority [15,16].

Significance of the study

Nursing clinical educators are challenged to prepare the increasing number of nursing students and seek specialist knowledge to meet the needs of patients, families, and society. Also, changes in the healthcare environment require movement from traditional to more innovative ways of nursing clinical education [5, 14, 17].

With this dynamic change, the TNCEs with high sense of responsibility become important aspect to put into consideration. So, the need for education and training on transformational leadership for NCEs is critical for the quality improvement of nursing education [8]. Accordingly, it was recommended by **Edrees (2018)** [18] to design an education program for NCEs about transformational leadership to enhance their knowledge and practice. Thus, this study aims to determine effect of implementing transformational leadership educational program for nursing clinical educators on their sense of responsibility.

Aim of the study

Determine the effect of implementing transformational leadership educational program on sense of responsibility of nursing clinical educators at Faculty of Nursing.

Research hypothesis

After implementing of the educational program for nursing clinical educators, levels of nursing clinical educators' transformational leadership and their sense of responsibility expected to be improved.

Subjects and Method

Study design:

Quasi experimental research design was used to achieve the aim of the present study.

Setting:

The present study was conducted at Faculty of Nursing, Tanta University. The Faculty consisted of seven academic nursing departments' namely Medical-Surgical Nursing, Maternal and Neonatal Nursing, Pediatric Nursing, Community

Health and Geriatric Nursing, Nursing Services Administration, Psychiatric and Mental Health Nursing, and Emergency and Critical Care Nursing Department.

Subjects:

The study subject consisted of all (80) nursing clinical educators who are responsible for students training in clinical areas and working at the above mentioned setting and available at time of data collection.

Tools:

The data of the study collected using three tools:

Tool I: Nursing clinical educators' knowledge questionnaire about transformational leadership and sense of responsibility.

This tool was developed by the researcher guided Harrison (2011) [8], Lauermann and Karabenick (2013) [15], and recent related literatures. [12, 16, 17, 19-21]. It was used to test the nursing clinical educators' knowledge about transformational leadership and sense of responsibility. It included three parts:

Part I: Nursing clinical educators' characteristics as code, age, qualification, academic position, department, years of experience, and previous attending educational program.

Part II: Nursing clinical educators' knowledge test about transformational leadership. It contained 29questions in the form of true & false (15 questions), multiple choices (5 questions), and cross matching (9 questions). It was classified as follows:-

- Basic concepts of nursing clinical educators' transformational leadership included 11 questions.
- Dimensions of nursing clinical educators' transformational leadership included 11 questions.
- Benefits of using transformational leadership by nursing clinical educators included 10 questions.

Part III: Nursing clinical educators' knowledge test about sense of responsibility. It contained 21 questions in the form of true & false (15 questions), multiple choices (6 questions), and cross matching (4 questions).

It was classified as follows:-

- Basic concepts and dimensions of nursing clinical educators' sense of responsibility included 9 questions.
- Factors affecting, components, and importance of sense of responsibility included 9 questions.

Scoring system:

Each question was allotted score of one for correct answer and zero for wrong answer. The total score was determined by adding scores of all questions' answers. The cut point was 60%, and this means the total

score represented varying levels of nursing clinical educators' knowledge as follows:-

- Good level of knowledge > 75%
- Fair level of knowledge 60 - 75%
- Poor level of knowledge < 60%

Tool II: Nursing clinical educators' transformational leadership questionnaire

This tool was developed by researcher guided by Harrison (2011) [8], Bryant (2015) [22], and recent related literatures [13, 19, 23-25]. It was used to assess nursing clinical educators' transformational leadership from their viewpoint. It included 43 items divided into four dimensions as follows:

- **Idealized influence** included 14 items.
- **Intellectual stimulation** included 8 items.
- **Individualized consideration** included 12 items.
- **Inspirational motivation** included 9 items.

Scoring system:

Nursing clinical educators' responses was measured on a five points Likert Scale ranging from (1) never to (5) always, Never= 1, rarely= 2, sometimes= 3, often= 4, and always= 5. The total score was determined by adding scores of all categories. The cut point was 60%, and this means the total score represented varying levels transformational leadership as follows:

- High transformational leadership level > 75%
- Moderate transformational leadership level 60-75%
- Low transformational leadership level < 60%

Tool III: Nursing clinical educators' sense of responsibility questionnaire

This tool was developed by the researcher guided by Lauermann and Karabenick (2013) [15] and recent related literature [16, 26-31]. It was used to assess nursing clinical educators' sense of responsibility from their viewpoint. It included 70 items divided into four dimensions as follow:

- **Responsibility for clinical teaching** contained 23 items.
- **Responsibility for student motivation** contained 14 items.
- **Responsibility for relationships with students** contained 18 items.
- **Responsibility for student achievement** contained 15 items.

Scoring system:

Nursing clinical educators' responses were measured on a five points Likert Scale ranging from (1) not at all responsible to (5) completely responsible, Not at all responsible = 1, less responsible = 2, somewhat responsible= 3, responsible= 4, and completely responsible = 5. The total

score was determined by adding scores of all categories. The cut point was 60%, and this means the total score represented varying levels sense of responsibility as follows:

- High sense of responsibility level > 75%
- Moderate sense of responsibility level 60-75%
- Low sense of responsibility level < 60%

Method

1. An official permission to conduct the study was obtained from Dean of Faculty of Nursing, Tanta University.
2. **Ethical consideration:**

a) Approval of ethical committee at faculty of Nursing was obtained.

b) Informed consent was obtained from nursing clinical educators after explanation of the nature and the aim of the study.

c) Confidentiality and the privacy was taken into consideration regarding to data collection.

3. Tools I, II, and III were developed and designed by the researcher based on review of recent related literatures.
4. The tools were reviewed with supervisors, then submitted to nine experts for testing the content and face validity. They were classified into two professor of Nursing Administration at Faculty of Nursing, Menoufia University, three assistant professor of Nursing Service Administration, one professor, one assistance professor of Community Health and Geriatric Nursing, one professor of Medical Surgical Nursing, and one professor of Maternal and Neonatal Nursing at Faculty of Nursing, Tanta University.
5. The experts responses were represented in four points rating score ranging from; 4 =strongly relevant, 3 = relevant, 2= little relevant, and 1= not relevant. Necessary modifications were done, included clarification, omission of certain items and simplifying work related words. The face validity value of tool (I) Nursing clinical educators' transformational leadership questionnaire = 98.37% and tool (II) Nursing clinical educators' sense of responsibility questionnaire = 99.43%.
6. Pilot study was carried out on a sample (n=8) 10% of nursing clinical educators. A pilot study was carried out after the experts' opinion and before starting the actual data collection. The aim of pilot study was to test the sequence, clarity and applicability of the questions.
7. The estimated time needed to complete the questionnaire items were approximately 50 minutes for

knowledge test tool (I), approximately 20 minutes for nursing clinical educators' transformational leadership questionnaire tool (II), and 35 minutes for nursing clinical educators' sense of responsibility questionnaire tool (III).

8. Reliability of tools were tested using Cronbach Alpha Coefficient test, its value for nursing clinical educators' knowledge questionnaire about transformational leadership and sense of responsibility tool (I) was **0.839**, for nursing clinical educators' transformational leadership questionnaire tool (II) was **0.935**, for nursing clinical educators' sense of responsibility questionnaire (III) was **0.922.**
9. **Data collection**: The tools I, II, and III were used before, immediately after, and three months after implementation of the program.
10. Duration of data collection lasted 18 months beginning from July 2019 till December 2020. The assessment phase (pre-test) initiated from July 2019 and followed by period of preparation of the program. Implementation of the program and post-test beginning from July 2020 and finished in September 2020. After 3 months (follow up) phase done from October 2020 to December 2020.
11. The education program for nursing clinical educators was prepared by the researcher based on review of recent relevant different literature.

The educational program

The educational program was conducted in four phases: Assessment phase, development of the educational program phase, implementation of the educational program phase, and finally evaluation phase.

Phase I: Assessment phase

- The researcher assessed nursing clinical educators' knowledge about transformational leadership and sense of responsibility through filling part (II) and part (II) of tool (I) before the educational program.
- The researcher assessed levels of nursing clinical educators' transformational leadership and sense of responsibility from their viewpoint by using tool (II) and (III) before implementation of the educational program.

Phase II: Development of the educational program

The first step in the development of the educational program was the statement of instructional objectives based on assessed need of the sample and literature review.

Aim of the educational program was to determine effect of implementing

transformational leadership educational program on sense of responsibility of nursing clinical educators at Tanta University.

Objectives of the educational program

Explain basic concepts of nursing clinical educators' transformational leadership

- Identify dimensions of nursing clinical educators' transformational leadership
- Discuss benefits of nursing clinical educators' transformational leadership.
- Explain basic concepts and dimensions of nursing clinical educators' sense of responsibility.
- Identify factors affecting, components, and importance of sense of responsibility

Selection and organization of content

The second step after determining the objectives of program was specifically designing the content, and method of teaching. Simple scientific language was used. The content was designed to provide knowledge and practices related to transformational leadership and sense of responsibility. The program contents included five sessions about:

1- Basic concepts of nursing clinical educators' transformational leadership
2- Dimensions of nursing clinical educators' transformational leadership.
3- Benefits of nursing clinical educators' transformational leadership.
4- Basic concepts and dimensions of nursing clinical educators' sense of responsibility.
5- Factors affecting, components, and importance of sense of responsibility.

Teaching – learning strategies

Selection of teaching method was governed by studying the subject themselves and content of the program. The methods used in teaching of the program were lecture, group discussion, and role play.

Teaching aids

The teaching aids that were used in the program will be power point (PPT), handout, and example from clinical experience.

Phase III: Implementation of the educational program

- The researcher informed nursing clinical educators about objectives of the educational program and encourage them to participate in the program. The researcher built good relationship with nursing clinical educators to enhance their participation and more involvement in the program.
- **Data collection phase:** the data was collected from nursing clinical educators by the researcher. Due to the crisis of corona virus and its restrictions

during the data collection, the researcher conduct the program sessions on-line for 50 nursing clinical educators through Zoom Cloud Meetings Application.

- The tools send to them through WhatsApp Messenger. The researcher divided those nursing clinical educators into ten group. When the restrictions of corona virus decreased, the researcher met the rest (30) of nursing clinical educators in their work place in conference room and nursing clinical educators' room at Faculty of Nursing, Tanta University. The researcher divided them into six groups.
- The program for 80 nursing clinical educators. The program time was 10 hours for each group. One session every day (2hrs every day for 5 days).

Phase IV: Evaluation of the educational program

- The researcher evaluated the program by using the tools (I), (II), and (III) pre, immediately post, and three months after the implementation of the program. The program for nursing clinical educators was evaluated to determine the extent to which nursing clinical educators changed in their practice and knowledge about their transformational leadership and sense of responsibility.
- The levels of nursing clinical educators' knowledge of transformational leadership and sense of responsibility were improved significantly post educational program and at 3 month post educational program than pre- educational program.
- The levels of transformational leadership and sense of responsibility from nursing clinical educators' viewpoint were improved significantly post educational program and at 3 month post educational program than pre-educational program.

Statistical analysis

Data were analyzed by using IBM SPSS software package version 20.0**.** Qualitative data were termed by percent and number. Quantitative data were analyzed through mean, range (minimum and maximum), standard deviation. Significance of the results was judged at the 5% level. The used tests were ANOVA with repeated measures, Friedman test, Post Hoc Test (Dunn's), Cronbach's Alpha test, and Pearson coefficient [(32)].

Results

Table (1): Shows distribution of nursing clinical educators' characteristics including the age, marital status, qualification, academic position, years of experience, attendance of previous teaching program as well as departments. It was observed

that, sixty (60%) of nursing clinical educators aged less than 30 years with mean 28.84 ±3.23, more than two third (75%) of them were married, and more than half (58.8%) of them had bachelor degree and worked as a demonstrator. More than half (52.5) of nursing clinical educators not attended previous teaching training program, and 51.3%of them had less than 5 years of experience with mean years of experience 4.95±3.60.

Regarding department, 20% of nursing clinical educators were from Maternal and Neonatal Nursing, 17.5% from Med-Surgical Nursing, 16.3% from Nursing Services Administration, 12.5% from Pediatric Nursing, 12.5% from Psychiatric and Mental Health Nursing, 11.2% Community Health & Geriatric Nursing, and 10% from Emergency and Critical Care Nursing Department.

Table (2) and figure (1): Represents levels, mean score, and mean percent of nursing clinical educators' transformational leadership knowledge pre, immediate post, and at 3 months post educational program. It was observed that high percent (97.5%) of nursing clinical educators had poor level of transformational leadership knowledge at pre educational program, while at immediate post educational program majority (98.8%) of them had good level of transformational leadership knowledge and 3 months post educational program majority (91.3%) of them had good level of knowledge

Moreover, the table shows there were significant improvement in overall mean score and mean percent of nursing clinical educators' transformational leadership knowledge at P≤ 0.05 immediate post educational program and at 3 month post educational program than pre-educational program. The total mean score of nursing clinical educators' transformational leadership knowledge was 5.94 ± 4.42with low mean percent (20.47 %) at pre educational program which increased to 28.11 ± 1.24 with high mean percent (96.94%) at post educational program, and reached to 25.65 ± 2.72 with mean percent (88.45 %) at 3 months post educational program.

Table (3) and figure (2): Represent levels, mean scores, mean percent of nursing clinical educators' knowledge regarding sense of responsibility at pre, immediate post, and 3 months post educational program. It was observed that majority (97.5%) of nursing clinical educators had poor level of sense of responsibility knowledge at pre-educational program, while at immediate post educational program majority (100%) of them had good level of sense of responsibility knowledge and 3 months post educational

program majority (83.8%) of them had good level of knowledge.

Moreover, the table shows there were significant improvement in overall mean score and mean percent of nursing clinical educators' knowledge about sense of responsibility at P≤ 0.05 immediate post educational program and at 3 month post educational program than pre educational program. The total mean score of nursing clinical educators' knowledge about sense of responsibility was 3.83 ± 2.82 with low mean percent (18.21 %) at pre educational program which increased to 19.83 ± 1.18 with high mean percent (94.40 %) at immediate post educational program , and reached to 17.39 ± 2.16 with mean percent (82.80 %) at 3 months post educational program.

Table (4) and figure (3): Illustrates levels, mean score, mean percent of transformational leadership from nursing clinical educators' viewpoint pre, immediate post, and 3 months post program. It was observed that the majority (86.3%) of nursing clinical educators rated themselves as low level of transformational leadership at pre-educational program decreased to low percent (2.5%) immediate post educational program. and reach to 12.5% at 3 months post educational program.

As shown in the table (4), It was observed that the overall levels of transformational leadership from nursing clinical educators' viewpoint were improved significantly at P ≤0.05 immediate post educational program and at 3 month post educational program than pre-educational program. Also, there were significant improvement in overall mean score and mean percent of nursing clinical educators' transformational leadership at P≤ 0.05 immediate post educational program and at 3 month post educational program than pre-educational program. The total mean score of nursing clinical educators' transformational leadership was 80.0 ± 12.71 with low mean percent (43.02%) at pre educational program which increased to 111.51±8.87with high mean percent (79.67 %) at immediate post educational program, and reached to 107.3±8.48 with mean percent (74.78 %) at 3 months post educational program**.**

Table (5) and figure (4): Illustrates levels, mean score, and mean percent sense of responsibility from nursing clinical educators' viewpoint at pre, immediate post, and 3 months post program. The majority (92.5%) of nursing clinical educators felt themselves as low level of sense of responsibility at pre-educational program decreased to low percent (0%) immediate post educational program. and reach to 1.3% at 3 months post educational program.

As shown in the table (5), It was observed that, the overall levels of sense of responsibility from nursing clinical educators' viewpoint were improved significantly at P ≤0.05 immediate post educational program and at 3 month post educational program than pre-educational program. Also, there were significant improvement in overall mean score and mean percent of nursing clinical educators' sense of responsibility at P≤ 0.05 immediate post educational program and at 3 month post educational program than pre-educational program. The total mean score of nursing clinical educators' sense of responsibility was 132.68 ± 17.37 with low mean percent (44.77 %) at pre-educational program which increased to 192.80 ± 12.18 with high mean percent (87.71 %) at immediate post educational program and reached to 185.71 ± 14.45with mean percent (82.65 %) at 3 months post educational program.

Table (6): Illustrates correlation between nursing clinical educators' transformational leadership knowledge and their knowledge about sense of responsibility at pre, immediate post, and 3 months post educational program. From the table, there was a statistically significant positive correlation between nursing clinical educators' transformational leadership knowledge and their knowledge about sense of responsibility at pre, immediate post, and 3 months post educational program (at P ≤ 0.05).

Table (7): Illustrates correlation between nursing clinical educators' transformational leadership knowledge and transformational leadership from their viewpoint at pre, immediate post, and 3 months post educational program. From the table, there was a statistically significant positive correlation between nursing clinical educators' transformational leadership knowledge and transformational leadership from their viewpoint at pre, immediate post, and 3 months post educational program (at P ≤ 0.05).

Table (8): Illustrates correlation between nursing clinical educators' knowledge about sense of responsibility and sense of responsibility from their viewpoint at pre, immediate post, and 3 months post educational program. From the table, there was a statistically significant positive correlation between nursing clinical educators' knowledge about sense of responsibility and sense of responsibility from their viewpoint at pre, immediate post, and 3 months post educational program (at P ≤ 0.05).

Table (9): Illustrates correlation between transformational leadership from nursing clinical educators' viewpoint and sense of responsibility from their viewpoint at pre, immediate post, and 3 months post educational program. From the table, there was a statistically significant positive correlation between transformational leadership from nursing clinical educators' viewpoint and sense of responsibility from their viewpoint at pre, immediate post, and 3 months post educational program (at P ≤ 0.05).

Table (1): Distribution of nursing clinical educators' according to their characteristics (n=80)

Nursing clinical educators' characteristics	No.	%
Age (years)		
<30	48	60.0
30-<35	27	33.8
≥35	5	6.2
Min. – Max.	24.0 – 38.0	
Mean ± SD.	28.84 ±3.23	
Marital status		
Married	60	75.0
Divorced	1	1.2
Single	19	23.8
Widow	0	0.0
Qualification		
Bachelor degree	47	58.8
Master degree	33	41.2
Academic position		
Demonstrator	47	58.8
Assistant lecturer	33	41.2
Years of experience (years)		
<5	41	51.3
5-<10	26	32.5
≥10	13	16.2
Min. – Max.	0.0 – 13.0	
Mean ± SD.	4.95 ±3.60	
Attendance of previous teaching training		
Yes	38	47.5
No	42	52.5
Department		
-Med-Surgical Nursing	14	17.5
- Community Health & Geriatric Nursing	9	11.3
- Pediatric Nursing	10	12.5
- Nursing Services Administration	13	16.2
- Psychiatric and Mental Health Nursing	10	12.5
- Maternal and Neonatal Nursing	16	20.0
- Emergency and Critical Care Nursing	8	10.0

Table (2): Levels, mean score, and mean percent of nursing clinical educators' transformational leadership knowledge pre, immediate post, and at 3 months post educational program (n = 80)

levels of Transformational leadership Knowledge	Nursing clinical educators (n=80)						Test of sig.(P)	P_1 P2 P3
	Pre		Immediate Post		3 months post			
	No.	%	No.	%	No.	%		
Poor	78	97.5	0	0.0	0	0.0	Fr=156.390* (<0.001*)	<0.001*
Fair	2	2.5	1	1.3	7	8.8		<0.001*
Good	0	0.0	79	98.8	73	91.3		0.635
Total score							F=1735.504* (<0.001*)	<0.001*
Min. – Max.	0.0 – 19.0		21.0 – 29.0		18.0 – 29.0			
Mean ± SD	5.94 ± 4.42		28.11 ± 1.24		25.65 ± 2.72			
% score								<0.001*
Min. – Max.	0.0 – 65.52		72.41 – 100.0		62.07 – 100.0			<0.001*
Mean ± SD	20.47 ± 15.24		96.94 ± 4.28		88.45 ± 9.38			

Fr: **Friedman test**, Sig. bet. periods was done using **Post Hoc Test** (**Dunn's)**

F: F test (ANOVA) with repeated measures, Sig. bet. periods was done using **Post Hoc Test** (**adjusted Bonferroni)**

P: p value for comparison between the studied periods

P_1: p value for comparison between **Pre** and **Post**

P_2: p value for comparison between **Pre** and **3 month Post**

P_3: p value for comparison between **Post** and **3 month Post**

*: Statistically significant at $p \leq 0.05$

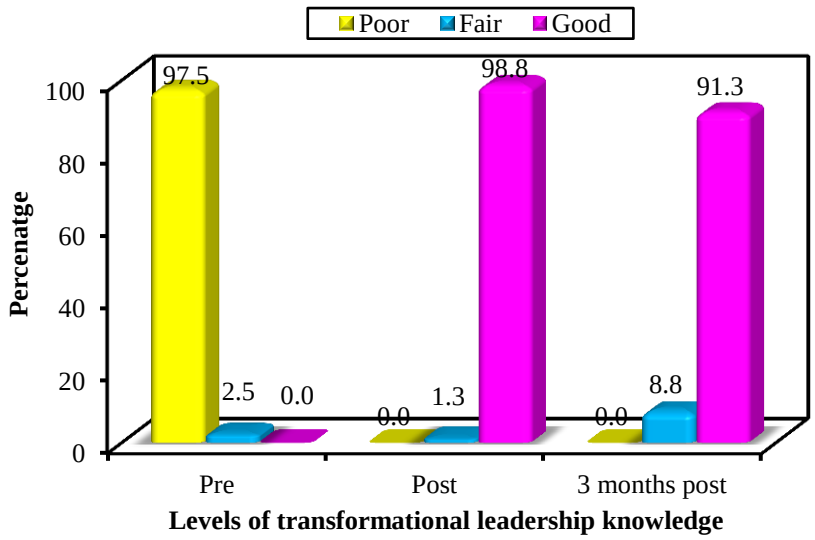

Figure (1): Levels of nursing clinical educators' transformational leadership knowledge pre, immediate post, and at 3 months post educational program (n = 80)

Table (3): Levels, mean scores, mean percent of nursing clinical educators' knowledge regarding sense of responsibility at pre, immediate post, and 3 months post educational program (n= 80)

Knowledge levels of sense of responsibility	Nursing clinical educators (n= 80)						Test of sig.(P)	P1 P2 P3
	Pre		Immediate post		3 months post educational program			
	No.	%	No.	%	No.	%		
Poor	78	97.5	0	0.0	0	0.0	Fr=153.115* (<0.001*)	<0.001* <0.001* 0.304
Fair	2	2.5	0	0.0	13	16.3		
Good	0	0.0	80	100.0	67	83.8		
Total score							F=2330.112* (<0.001*)	<0.001* <0.001* <0.001*
Min. – Max.	0.0 – 15.0		16.0 – 21.0		13.0 – 21.0			
Mean ± SD	3.83 ± 2.82		19.83 ± 1.18		17.39 ± 2.16			
% score								
Min. – Max.	0.0 – 71.43		76.19 – 100.0		61.90 – 100.0			
Mean ± SD	18.21 ± 13.44		94.40 ± 5.61		82.80 ± 10.26			

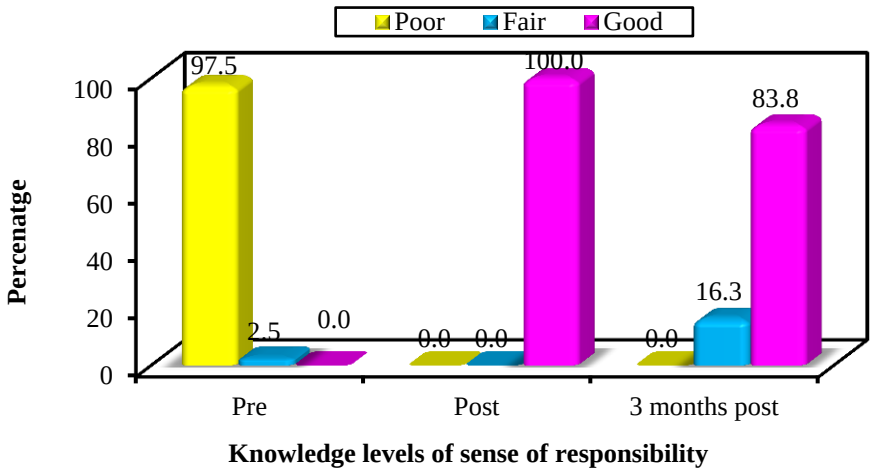

Figure (2): Levels of nursing clinical educators' knowledge regarding sense of responsibility pre, immediate post, and at 3 months post educational program (n = 80)

Table (4): Levels, mean score, mean percent of transformational leadership from nursing clinical educators' viewpoint pre, immediate post, and 3 months post program (n=80)

Transformational leadership from nursing clinical educators' viewpoint	Nursing clinical educators (n=80)						Test of sig.(P)	P_1 P2 P3
	Pre		immediate Post		3 months post			
	N	%	N	%	N	%		
Low	69	86.3	2	2.5	10	12.5	**Fr=139.328* (<0.001*)**	<0.001* <0.001* 0.133
Moderate	11	13.8	25	31.3	24	30.0		
High	0	0.0	53	66.3	46	57.5		
Total score							**F=926.716* (<0.001*)**	<0.001*<0.001*<0.001*
Min. – Max.	59.00 – 105.00		93.00 – 129.0		92.00 – 122.00			
Mean ± SD	12.71±80.0		8.87±111.51		8.48±107.31			
% score								
Min. – Max.	18.60 – 72.09		58.14 – 100.00		56.98 – 91.86			
Mean ± SD	14.78±43.02		10.32±79.67		9.86±74.78			

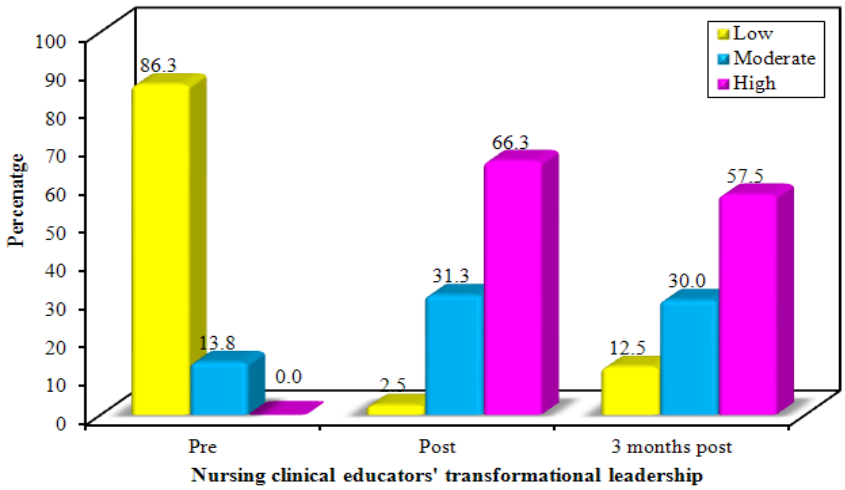

Figure (3): Levels of transformational leadership from nursing clinical educators' viewpoint pre, immediate post, and 3 months post program (n=80)

Table (5): Levels, mean score, and mean percent of sense of responsibility from nursing clinical educators' viewpoint at pre, immediate post, and 3 months post program (n=80)

Sense of responsibility from nursing clinical educators' viewpoint	Nursing clinical educators (N=80)						Test of sig.(P)	P_1 P2 P3
	Pre		Immediate post		3 months post			
	N	%	N	%	N	%		
Low	74	92.5	0	0.0	1	1.3	**Fr=152.327* (<0.001*)**	<0.001*
Moderate	6	7.5	10	12.5	20	25.0		<0.001*
High	0	0.0	70	87.5	59	73.8		0.323
Total score							**F=1906.60* (<0.001*)**	<0.001*
Min. – Max.	100.0 – 166.0		164.0 – 209.0		151.0 – 205.0			<0.001*
Mean ± SD	132.68 ± 17.37		192.80 ± 12.18		185.71 ± 14.45			<0.001*
% score								
Min. – Max.	21.43 – 68.57		67.14 – 99.29		57.86 – 96.43			
Mean ± SD	44.77 ± 12.41		87.71 ± 8.70		82.65 ± 10.32			

Fr: **Friedman test**, Sig. bet. periods was done using **Post Hoc Test** (**Dunn's)**

F: F test (ANOVA) with repeated measures, Sig. bet. periods was done using **Post Hoc Test** (**adjusted Bonferroni)**

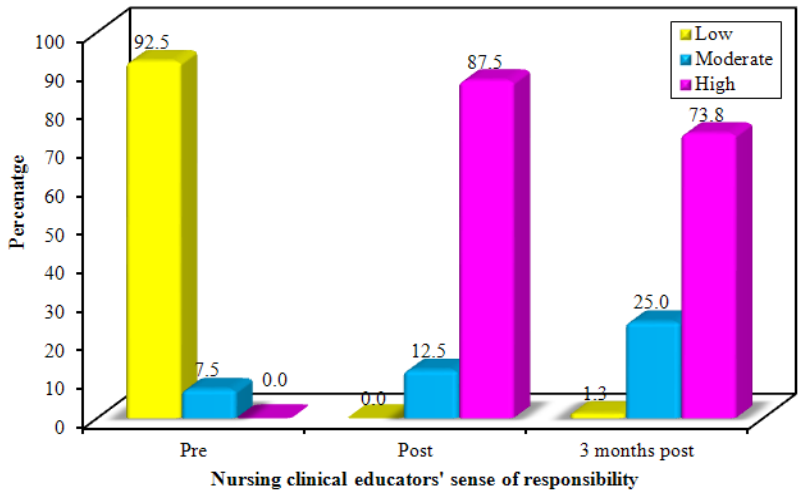

Figure (4): Levels of sense of responsibility from nursing clinical educators' viewpoint at pre, immediate post, and 3 months post program (n=80)

Table (6): Correlation between nursing clinical educators' knowledge about transformational leadership and their knowledge about sense of responsibility at pre, immediate post, and 3 months post program (n = 80)

	Transformational leadership knowledge					
	Pre-program		Immediate post - program		3 months post -program	
	r	P	r	P	r	P
Knowledge about sense of responsibility	0.739*	<0.001*	0.282*	0.011*	0.427*	<0.001*

r: Pearson coefficient

*: Statistically significant at $p \leq 0.05$

Table (7): Correlation between nursing clinical educators' transformational leadership knowledge and transformational leadership from their viewpoint at pre, immediate post, and 3 months post educational program (n = 80)

	Transformational leadership knowledge					
	Pre-program		Immediate post -program		3 months post -program	
	r	P	r	P	r	P
Transformational leadership from nursing clinical educators' viewpoint	0.720*	<0.001*	0.309*	0.005*	0.543*	<0.001*

r: Pearson coefficient

*: Statistically significant at $p \leq 0.05$

Table (8): Correlation between nursing clinical educators ' knowledge about sense of responsibility and sense of responsibility from their viewpoint at pre, immediate post, and 3 months post program (n = 80)

	Knowledge about sense of responsibility					
	Pre-program		Immediate post -program		3 months post -program	
	r	P	r	P	r	P
Sense of responsibility from nursing clinical educators' viewpoint	0.627*	<0.001*	0.529*	<0.001*	0.550*	<0.001*

r: Pearson coefficient

*: Statistically significant at $P \leq 0.05$

Table (9): Correlation between transformational leadership from nursing clinical educators' viewpoint and sense of responsibility from their viewpoint at pre, immediate post, and 3 months post program (n = 80)

	Transformational leadership from nursing clinical educators' viewpoint					
	Pre-program		Immediate post -program		3 months post -program	
	r	P	r	P	r	P
Sense of responsibility from nursing clinical educators' viewpoint	0.832*	<0.001*	0.757*	<0.001*	0.703*	<0.001*

r: Pearson coefficient

*: Statistically significant at $p \leq 0.05$

Discussion

Nursing clinical educators' transformational leadership is the most effective leadership approach. It focuses on the NCEs/students relationship with a sense of responsibility for the improvement of both NCEs and students. Transformational nursing clinical educators with high sense of responsibility engage student in communication; enhance students' learning, innovation, creativity, and ethical behavior; enrich student's abilities and skills; as well as create a learning atmosphere that promotes improved student success [14,23].

Transformational NCEs provide a strong base for professional advancement, career achievement, job autonomy, and job motivation. Hence, the TNCEs with high sense of responsibility become important characteristic to put into consideration[12,14]. Therefore, this study aimed to determine the effect of implementing transformational leadership educational program on sense of responsibility of nursing clinical educators at Faculty of Nursing.

I) Pre-educational program

A) Nursing clinical educators' transformational leadership

Pre-program assessment of nursing clinical educators' level of transformational leadership knowledge revealed that the majority of them had a low level **(Table 2)**. Also, majority of nursing clinical educators rated themselves as low level of transformational leadership at pre-educational program **(Table 4)**. This may be due to inadequate NCEs' understanding about basic concepts, dimensions, and benefits of transformational leadership.

Also, most of those NCEs were novice and didn't attend previous training program about transformational leadership **(Table 1)**. This means that majority of NCEs serve as insufficient role model for their students, poorly inspire students to think critically, and rarely treated their students as an unique individual. So, this result indicates that those NCEs are in need to sufficient knowledge and training about transformational leadership.

Along with the present finding, **Mallek and El-Hosany (2020)** [33] who revealed that all clinical instructors' level of knowledge in pre intervention was poor. Also, **Cuciac et al., (2015)** [34] found that math teachers as having less transformational leadership style. **Tessema (2015)** [35] indicated that the majority of the North Gondar Zone public preparatory school teachers' level of overall transformational leadership was low.

On the other hand, **Elsayed and Shokier (2019)** [36] found that the majority of clinical nursing educators rated themselves as high level of transformational leadership. **Edrees (2018)**[18] found high

percent of nursing students rated their clinical educator in moderate and high level transformational leadership. And **Bryant (2015)** [22] found that undergraduate nursing instructors possessed and demonstrated transformational leadership at high level.

In this respect, according to **DeDeyn (2021)** [37], the teachers should be enthusiastic, establish a vision for their class, challenge students, and use rewards strategically which are characteristics of transformational teacher.

B) Nursing clinical educators' sense of responsibility

Pre-program assessment of nursing educators' knowledge about sense of responsibility revealed that the majority of them had a low level **(Table 3)**. Also, majority of nursing clinical educators felt themselves as low level of sense of responsibility at pre-educational program **(Table 5)**. This may be due to decline in NCEs' understanding about basic concepts, dimensions, factors affecting, components, and importance of sense of responsibility. Also, this may be due to inadequate opportunities to practice their responsibilities, especially in novice NCEs, due to corona virus crisis and its consequences of work restrictions.

In this respect, **Yough et al. (2020)** [38] stated that sense of responsibility is important for acquiring the needed skills and knowledge to work effectively with students, student academic progress, and non-learning outcomes such as student well-being outside the classroom. The teachers' sense of responsibility, according to **Eren (2014)** [39], notified existing curricular and educational efforts to increase teaching and teacher quality. This achieved by drawing attention to sense of responsibility which means the degree to which an individual feels personally responsible for the results of the work she / he does. Also, **Lauermann and Karabenick (2013)** [15] stated that teachers' sense of personal responsibility is highly significant for student learning and achievement.

II)Immediate post educational program

Results of present study at immediate post program implementation revealed that there was significant improvement in nursing clinical educators' knowledge about transformational leadership and sense of responsibility **(Tables 2 & 3)**. Also, there was significant improvement in transformational leadership and their sense of responsibility from nursing clinical educators' viewpoint **(Tables 4 & 5)**.

This improvement in present study may result from utilizing new teaching approaches that facilitate the learning process. Also, this shows that the present educational program had a positive effect to improve of NCEs' knowledge.

Furthermore, this knowledge that acquired through educational program assist NCEs to improve their transformational leadership and sense of responsibility. They had understood their basic role. This understanding permits them to execute their duties effectively and efficiently.

Educational program helps those NCEs to be at good level of transformational leadership and sense of responsibility; have the capacity in the profession; be autonomous; have control over their work; and be self-directing. Additionally, program provides NCEs with a chance to develop awareness, review their practices, and alter their practices in an atmosphere that may be more comfortable than real life situations.

Along with the present study**, Singh (2020)** [40] demonstrated statistically significant increase of transformational leadership dimensions after educational sessions about the transformational leadership. **Mallek and El-Hosany (2020)**[33] found that majority of clinical instructors' level of knowledge in post intervention were excellent. **Abdel Rahiem et al. (2020)** [41] found that all clinical instructors had high skill level at immediate post of program. **Abd-Elrhaman and Abd-Allah (2018)** [42] found that a highly statistically significant improvement in knowledge scores and skills regarding transformational leadership immediate post program than pre-program scores. **Aly (2018)** [31] revealed that post program implementation, revealed that there was significant improvement in nursing demonstrators' knowledge and practice.

On the same line, **El said (2018)** [30] revealed that post program, the majority of nursing demonstrators showed satisfied level of performance positively correlated to their high mean score of knowledge about clinical teaching. **El Zeneny et al. (2017)** [43] found statistical significant differences and marked improvement in participants total knowledge as the highest percentage of them immediately and after 3months post program compared to preprogram.

Also, **El said (2013)** [30] supported study result and stressed that the importance of educational program for instructors to enable them to provide an opportunity for student nurses to improve their essential knowledge and skills.

III) Three months after educational program

Results of present study three months after educational program implementation, revealed that three months after program implementation, there was significant improvement in nursing clinical educators' knowledge about transformational leadership and sense of responsibility more than pre-educational program

implementation; but slightly decreased than immediate post educational program implementation **(Tables 2 & 3)**. Also, there was significant improvement transformational leadership and their sense of responsibility from nursing clinical educators' viewpoint; more than pre-educational program implementation; but slightly decreased than immediate post educational program implementation **(Tables 4& 5)**.

This may be due to time factor, the point that some theoretical knowledge that not utilized in regular practice is expected to be decreased, diminished or even lost with passage of time especially in corona virus crisis and its work restrictions. This indicated the importance of continuous follow up and guidance after program implementation. Giving periodical enforcement or educational program for NCEs is very important as recommended by **Aly (2018)** [31].

In the same line, **Mallek and El-Hosany (2020)** [33] found that the clinical instructors knowledge increased at follow up program compared to pre-program. **Abdel Rahiem et al. (2020)** [41] found that the skill levels of all clinical instructors were high after three months of program. Also, there was highly statistically significant increase in skills levels after three months of program.

Also, **El said (2018)** [30] found that there was a decline in participants' knowledge after three months post program and reported that the improvement in knowledge can be affected by capacity of knowledge acquisition, accumulation of learned knowledge of life, the rate of memorization, and the refreshing information using various approaches of active learning during implementation of program.

In accordance with the present study, **Burnham (2018)** [44] found that follow-up interviews with participants gave greater insight into their use of the transformative leadership qualities observed by the researcher in the classroom. **Abd-Elrhaman and Abd-Allah (2018)** [42] found that a highly statistically significant improvement in head nurses` knowledge scores and skills regarding transformational leadership three months follow up the program than pre-program scores. **El Zeneny et al. (2017)** [43] found statistically significant differences and marked improvement in participants total knowledge as the highest percentage of them after 3months post program compared to preprogram.

IV) The correlation between transformational leadership and their sense of responsibility

The present study displayed a statistically significant positive correlation between

transformational leadership and their sense of responsibility from nursing clinical educators' viewpoint. This means that transformational leadership increase NCEs' sense of responsibility. This may be because transformational leadership enhance their responsibility for clinical teaching, students' motivation, positive relationships, and students' achievement.

Along with the present finding, **Andrian et al. (2018)** [45] showed that transformational leadership has a positive and significant effect on the teachers performance of their responsibilities. **Mammen and Pushpanadham (2018)** [46] found that there was a significant correlation between transformational leadership and teachers' accountability. **Khany and Ghoreishi (2014)** [14] found that transformational leadership style was a positive predictor of teachers' sense of responsibility. It was concluded that higher transformational leadership style contributes to higher sense of responsibility.

From the definition of sense of responsibility as a sense of obligation or commitment, **Noraazian and Khalip (2016)** [47] transformational leadership had positive and significant relationship with teacher's commitment. This means that transformational leadership predicts organizational commitment. **Feizi et al.** (2014) [48] found that there was a significant positive correlation between transformational leadership and organizational commitment of teachers.

In the same line, **Ibrahim et al. (2014)** [49y] revealed that there was a significant relationship between transformational leadership and teachers' commitment to teaching profession. In contrary, **Mallek and El-Hosany (2020)**[33] found that there was no correlation between clinical instructors' performance and their knowledge in pre, post, and follow-up program.

Finally, the present study stresses that the implementation of the educational program was success as a mean to improve NCEs' knowledge and practice. That program assisted those NCEs to have better transformational leadership skills and sense of responsibility. Through transformational leadership skills and sense of responsibility. NCEs are able to perform their responsibilities efficiently and effectively. So the designed educational program was important for NCEs to promote their knowledge and practice of transformational leadership and sense of responsibility.

Conclusion

Nursing clinical educators at Tanta University Faculty of Nursing showed low knowledge level of transformational leadership and sense of responsibility Also, they rated themselves as low level of

transformational leadership and sense of responsibility. Nursing clinical educator develop transformational leadership and sense of responsibility after careful implementation of program.

Recommendations

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

- **Faculty administrator**

1. Conduct ongoing educational programs and training for the all nursing clinical educators about role of transformational leadership as a valuable strategy for upgrading their sense of responsibility
2. Teach transformational leadership and sense of responsibility is a basic part of faculty training program
3. Create a supportive environment for transformational leadership practice.
4. Set up an orientation program for preparation of novice nursing clinical educators about their responsibilities
5. Place posters about nursing clinical educators' responsibilities at various places at the nursing faculty
6. Assess nursing clinical educators' learning needs continuously and monitor their performance.

-Nursing educators

7. Guide and support continuously for nursing clinical educators to practice transformational leadership.
8. Provide greater autonomy for nursing clinical educators to enhance their transformational leadership and their sense of responsibility.
9. Encourage self-learning among nursing clinical educators.
10. Motivate nursing clinical educators to participate in various faculty educational programs and training about the transformational leadership and the sense of responsibility.

-Nursing clinical educators

11. Use transformational leadership with students in clinical training
12. Seek to know their job responsibilities.
13. Effectively apply their responsibilities.
14. Participate in various faculty educational programs and training about the transformational leadership and the sense of responsibility.

Recommendations for further research

The current study findings consider a basis for further research such as:

- Identify factors affecting nursing clinical educators' transformational leadership.
- Study the relation between nursing clinical educators' transformational leadership and their quality of work life.
- Investigate the relation between

nursing clinical educators' transformational leadership and their job satisfaction

- Expand the implementation of educational program about transformational leadership for nursing clinical educators' in various universities.
- Explain the relation of nursing clinical educators' sense of responsibility and their performance.

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Parents' Perception of Quality of Life of their Elementary School Children with Hearing Impairment Using Hearing Aids

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Abstract

Background: Hearing impairment is the most common disabilities that have negative impact on the quality of life of affected children and their families**. The aim of this study was to:** assess parents' perception level of quality of life of their elementary school children with hearing impairment using hearing aids. **Subjects and method: Study design:** A descriptive study design was utilized in this study. **Study settings:** This study was conducted in audiology out-patient clinic of the School Health Insurance Hospital at Tanta City. **Study subjects:** A convenient sampling of 150 of elementary school students who diagnosed with hearing impairment using hearing aids and their parents which constitute 150 were included in the study. **Tool of data collection:** one tool was used by the researcher to collect the necessary data. **Tool I:** A structured interview schedule: this tool included five parts: **Part (1)**: Socio-demographic characteristics of the students and their parents. **Part (2):** History of hearing impairment and using hearing aids. **Part (3):** History of the academic achievement of the students**. Part (4):** Children using hearing devices quality of life. **Part (5):** Pediatric Quality of Life Inventory. **Results:** about half (47.3%) of the child's performance after fitting of hearing aids was fair, while less than half (42.7%) of them had good, less than two thirds (61.3%) of the studied school children' parents had a fair score regarding quality of life and nearly one fifth (20.0% and 18.7% respectively) of the studied school children' parents had a good and poor score. Also there was a highly significant positive correlation between levels of pediatric quality of life inventory of the studied school children and the levels of the studied school children parents of their children using hearing device quality of life as (p=0.000) and (r=0.407). **Conclusion:** It can be concluded that, less than two thirds of studied school children parents had a fair score according to their children using hearing devices quality of life. **Recommendations:** It was recommended that, written instructions about hearing aids in the form of booklets or brochures should be provided to each child with hearing impairment using hearing aids and their parents in order to encourage them in effective adherence to the plan of care.

***Key words*: Parents' Perception, Quality of life, Elementary School, Children, Hearing Impairment, Hearing Aids.**

Introduction

Hearing is one of the special senses God has bestowed upon human beings. Also hearing is the sensory function that allows us to pick up the sounds, analyze them and assign them meaning [1,2]. Furthermore, it is one of the most important functions for development of language and consequently for communication. However, the impact caused by hearing loss has been taken for granted by the society, government and health professionals [3]. Hearing impairment is the most frequent sensory deficit in human populations and affects newborns, children, adults and elderly. Therefore, it is an important public health concern with substantial economic and societal costs. Hearing impairment among infants and children retards developmental language and educational progress, but in adults, it causes difficulties in both professional and social life as well as stigmatization [4].

Hearing impairment globally is ranked fourteenth in terms of disability adjusted life years and second in years lived with disability [5]. Moreover, it is one of the commonest sensory disabilities worldwide [6]. World health organization (WHO) 2014, estimated that over 360 million people had different form of hearing impairment worldwide, and it was found that 328 million were adults while 32 million were children [7]. Also hearing impairment was found among 70% of people in low income countries, and 25% develop hearing loss during childhood. Additionally infants born in resource-rich countries compared to infants born in resource-poor countries are nearly twice as likely to have hearing loss and about 6 cases/1000 children vs. 2-4 cases/1000 children [6, 8].

In Egypt, it was found that the prevalence of hearing impairment comes to 13.8% in 0-14 year old children of 1600 surveyed population. The hearing impairment may be unavoidable disability and 75% of those who suffer from it were living in the developing countries [9]. .In South Africa, 2014 about sixteen to seventeen babies every day was born with some degree of hearing impairment [10]. In the developed societies, the hearing loss got to be a common issue due to the combined impacts of the noise and hereditary [9].

Hearing impairment results from decreased ability to hear sounds, and can affect the subject to varying degrees which may be mild, moderate, moderate-severe, severe, and profound [2,3]. The major causes for hearing impairment among children may be grouped into congenital or acquired [11]. Congenital hearing impairment includes chromosome disorder, inborn error of development with usual prelingual

presentation [12]. Acquired hearing impairment may arise from traumatic, inflammatory conditions or metabolic disorders which usually presented as perilingual or postlingual [7]. While the major causes of hearing impairment among adults are presbycusis, prolonged exposure to noise, acoustic and physical trauma, and use of ototoxic drugs, antibiotics, and industrial chemicals [4].

There are three main types of hearing impairment :conductive, sensorineural and mixed [13]. A conductive hearing impairment occurs in diseases with decreased transmitted sound through external ear canal and middle ear cleft into the inner ear[14]. Sensorineural hearing impairment affects sound energy transduction and transmission from inner ear to auditory cortex [6]. Mixed hearing impairment is combination of the types of hearing impairments and occurs when more than one type of hearing impairment contributes to the hearing loss [15]. Unless such hearing impairment was addressed in a timely manner, it would have a profound impact on the affected children as well as their families and communities, while unaddressed hearing impairment restricts social integration, educational and employment opportunities, delaying of the language acquisition in children, difficulties in communication, hampers emotional well-being, stigmatization, and poses an economic challenge at both the individual and national levels [16, 17].

Due to the high prevalence of dysacusis and the harmful consequences that may cause, so, the prevention plays a crucial role for reduction of this problem. In addition to, the prevention of deafness is evidently less expensive than its treatment[3]. WHO estimates that 60% of hearing loss occurring in childhood can be prevented through public health strategies including immunizations, better neonatal care, reduced environmental noise, decreased use of ototoxic medications and effective screening for ear infections [18].

People of all ages with hearing loss can benefit greatly from timely, appropriate and cost-effective interventions, such as speech therapy and hearing devices [19]. Early auditory rehabilitation provided by hearing aid devices enables children to substantially improve their verbal language learning and integrate into the hearing world [20]. Children with hearing loss may benefit from a range of interventions such as hearing aids, cochlear implants, captioning of text, sign language training and educational and social support [6]. Within the past few years, exciting research regarding genetic manipulation, gene therapy and stem cell transplantation as well pharmaceutical agents, suggest that a therapeutic treatment for hearing loss may eventually be possible in the future [4].

Hearing is important for achieving a good quality of life. WHO has defined quality of life as the individual's perception of their position in life, in the culture context, the value systems in which they live, and in relation to their goals, expectations, standards, and concerns [(21)]. Due to consequences of hearing impairment as difficulties in communication, social isolation, depression and negative feelings can be mentioned that can directly affect the quality of life and the perception that the individual has of their health status, evaluating the quality of life of hearing aid users can be an important indicator of the benefits of amplification, since it allows measuring the implications of a better hearing capacity in activities of daily living, leisure and communication [(2,22)].

The community health nurse plays an important role in primary health care system in which initial medical consultations are carried out at clinics that are mainly nurse-driven. The nurse gathers information about history of the child, and she should aware of risk factors and monitors the infant's health and development during their visits to the immunization and wellness clinics. Therefore, she was in a good position to integrate information and provide parents with appropriate referral sources. Furthermore, the nurse plays an important role in coordinating first-level detection and intervention. Because of any intervention that may be associated with social stigmatization, or that offends cultural norms, could result in parents missing appointments or cancelling intervention services, therefore nurse is often the best one able to use communication and language to make parents feel relaxed and confident, as well as respected for their choices and culture[(10)].

The aim of this study was to:

Assess parents' perception level of quality of life of their elementary school children with hearing impairment using hearing aids.

Research question:

What is the parents' perception level of quality of life of their elementary school children with hearing impairment using the hearing aids?

Subjects and Method

Study design:

A descriptive study design was used to conduct this study.

Study settings:

This study was conducted in audiology clinic of the School Health Insurance Hospital affiliated to Ministry of Health at Tanta City, Al-Gharbiya Governorate.

Study subjects:

A convenience sample of 150 of elementary school students that have been

diagnosed with hearing impairment using hearing aids and their parents which constitute 150 in the previous setting was included in the study.

Study tool:

A structured interview schedule was developed and used by the researcher in order to obtain the necessary data for this study. It included the following parts:-

Part (1): Socio–demographic characteristic of the studied school children and their parents [23, 24]:

a- Socio-demographic characteristic of the studied school children:

This part comprised of six questions included child age, sex, stage and grade level of education, residence and child order among his brothers.

b- Socio-demographic characteristic of the parents:

This part comprised of nine questions included data about parents' level of education, parents' occupation, income, parental consanguinity, number of children in the family, number of children using hearing aids in the family and previous experience with hearing aids.

Part (2): History of hearing impairment and using hearing aids:

a- Past history:

This part comprised of seven questions included data about the causes that lead to hearing impairment, onset and duration of hearing impairment, family history of hearing problems, previous hearing screening or not, age of first diagnoses with hearing impairment.

b- Present history:

This part comprised of ten questions included data about laterality of hearing impairment and fitting hearing device, degree of hearing impairment, main communication mode, receiving hearing rehabilitation in the first year after fitting the hearing aids, duration of using of hearing aids, duration worn per day, enrollment in speech therapy, regularity of therapy and duration of therapy.

Part (3): History of the academic achievement of the studied school children [23] as:

This part comprised of ten questions included the performance of the student in the school was (good, fair or poor), communication problems with his/her teachers and classmates after fitting of hearing aids, hard to pay attention in the class after fitting of hearing aids and had trouble kept up with schoolwork and missed school because of communication problems with his/her teachers and classmates after fitting of hearing aids.

Part (4): Children using hearing device quality of life (CuHDQOL) questionnaire [24]:

This part established by Looi et al., (2016) and was adapted by researcher. The CuHDQOL questionnaire is a new parent-administered hearing-specific QOL questionnaire, developed specifically for children fitted with hearing devices. It included 26 items CuHDQOL questionnaire used a recall period of 1 month and CUHDQOL questionnaire was divided into three subsections as follows: Parental perspectives and expectations, impact on the family and hearing-related QOL of the child.

Scoring system for children using hearing device quality of life (CuHDQOL) questionnaire was as following:

A 5-point Likert Scale was used to record children responses (0 = strongly disagree, 1 = disagree, 2 = unsure, 3 = agree, and 4 = strongly agree, with a 'not applicable' option being available), which was transformed to a score from 0 to 130 for statistical analyses. Negatively-voiced questions are reverse scored so that a higher score always indicates a more positive response.

Quality of life score had been classified into three categories as follows:

- Poor quality of life of 0 <40% of the total score.
- Fair quality of life 40%-60% of the total score.
- Good quality of life > 60% of the total score.

Part (5): Pediatric Quality of Life Inventory [25]**:**

This part established by Petersen et al., (2009) and was adopted by researcher. It was a child report tool. It included 23 items PedQL^{TM} questionnaire used a recall period of 1 month and PedQL^{TM} questionnaire was divided into four subsections: health and activities, feelings, getting along with others (social functioning) and school.

The scoring system for Pediatric Quality of Life Inventory was as follows:

Pediatric Quality of Life Inventory items comprise five response alternatives: 0 = almost always a problem, 1= often a problem, 2= sometimes a problem, 3= almost never a problem and 4= never a problem. These are reversed and transformed to a score from 0 to 100 for statistical analyses.

Pediatric Quality of Life Inventory score had been classified into three categories as follows:

- Poor quality of life of 0 <40% of the total score.
- Fair quality of life 40%-60% of the

- total score.
- Good quality of life > 60% of the total score.

Method

1- Obtaining approvals:

- An official permission to conduct the study was obtained from the Dean of Faculty of Nursing to Director of Health Insurance Organization in Tanta City, Al-Gharbiya governorate.
- The director of the outpatient department of Health Insurance was informed about the study objectives to take their permission to collect data from the selected settings.

2- **Ethical and legal considerations**:

Ethical and legal considerations that was considered all over the study phases as the following:

- The approval of the ethical committee was obtained.
- An informed consent was obtained from all study subjects after providing appropriate explanation about the purpose and the benefits of the study.
- Nature of the study were not cause any harm or pain for the entire sample.
- Privacy and confidentiality were put into consideration regarding the data collected.
- The rights to abstain or terminate participation at any time were respected.

3- Developing the tools:

- The study tools were developed and translated into Arabic language by the researcher based on literature review, modified to suit the level of understanding of all subjects and were tested for translation by experts in English language.
- The study tools were tested for its content validity by a jury of five professors in Community Health Nursing at Faculty of Nursing in Tanta University and Public Health Medicine before conducting the study.

4- **The pilot study:**

- A pilot study was carried out by the researcher on 15 school children and their parents from audiology clinic of school health insurance for testing the tool for its clarity, applicability and identifies obstacles that may be encountered during data collection. Accordingly, the necessary modifications were done. Those school children and their parents were excluded from the study sample.
- To assess the reliability, the study tool was given to fifteen school children and their parents (pilot study). By using Cronbach's alpha test, it was found to be (0.821) which indicate highly reliable tool.

5- **The actual study**:

- School children and their parents were interviewed at audiology clinic of school Health Insurance hospital by the researcher using the previous tools to collect the necessary data.
- Collection of data was continued about six months, starting at April 2019 and ending in August 2019. The time needed for each interview to complete the data collection sheet ranged from 30-40 minutes.

6- **Statistical analysis:**

- The statistical data were organized, tabulated and statistically analyzed using statistical package for the social studies (SPSS) version 25. For quantitative data, the range, mean and standard deviation were calculated. For qualitative data which describe a categorical set of data by frequency, percentage or proportion of each category, comparison was done using Chi-square test (χ^2). Correlation between variables was evaluated using Pearson and Spearman's correlation coefficient (r). The level of significance was adopted at $P<0.05$ for interpretation results of tests of significance. Also, a highly significance was adopted at $P<0.01$ for interpretation of results of tests of significance.

Results

Table (I): Distribution of the studied school children according to their history of the academic educational achievement**.** This table shows that about half (47.3%) of the child's performance after fitting of hearing aids was fair, while less than half (42.7%) of them had a good, and only few (10.0%) of them had a poor performance. As regards attention affection of the child in the classroom after fitting of hearing aids, the majority (82.0%) of them weren't affected. Concerning the child facing problem to communicate with classmates and teachers at school after fitting of hearing aids, about more than three-quarters (78.0%) of them weren't faced any problem. In relation to child absent from school due to inability to communicate with classmates and teachers, the majority (83.3%) of them weren't absent from school.

Table (2): Distribution of the studied school children' parents according to their perspectives and expectations**.** This table shows that about 35.3%, 43.3% and 42.7% of the studied school children' parents were reported that sometimes their child easily made friends with other children, their child's spoken language was similar to typically developing children their own age and they believed

that their child has greater educational opportunities and achievements with their hearing device respectively, while about less than one- half (48.7%) of them reported that their child often needs more of my daily attention than other. Also this table reveals that about 46.0%, 56.7%, 46.7% and 42.7% of them was believed that sometimes as an adult their child is able to find employment and support themselves, their child leads a happy life, their child feels safe in the world and their child feels confident in the world respectively.

Table (3): Distribution of the studied school children' parents according to the using of hearing aids impact on the family. This table reveals that more than one- third (34.0%) of the studied school children' parents reported that rarely they always worry about whether the hearing device is working correctly, while about 28.7%, 52.0%, 48.7% and 41.3% of them reported that often their financial situation is stressed by the ongoing costs to maintain the hearing device**,** they devote more time to my child than other members of my family, the hearing device has improved communication between their immediate family members and their child's hearing needs place additional stress on their immediate family respectively. It also shows that about 48.0%, 56.0% and 54.0% of them reported that sometimes their immediate family's activities are limited by their child's hearing needs**,** the future educational placement and achievement for their child is a concern for their immediate family and they have had to change their working patterns since their child received the hearing device respectively.

Table (4): Distribution of the studied school children' parents according to the hearing-related quality of life (QoL) of their children. This table shows that 38.0%, 44.7%, 45.3%, 45.3%, 42.0% and 48.7% of them reported that sometimes their child is able to communicate their needs using spoken language, their child is confident in social situations with typically developing children their his age**,** their child's speech is clear and can be understood by people who have not met them before, their child overhears conversation that is not directed at them and asks questions about what was said, their child keeps up with their peers for daily learning activities at preschool/kindergarten/school and their child is often afraid of new situations respectively. Also this table reveals that about 43.3%, 46.0%, 46.7% and 40.0% of them reported that rarely their child initiates conversations with other children and adults, their child is often ill and asks to stay home from school, their child enjoys music and their child tires more

easily than other typically developing children their own age respectively.

Table (5): Distribution of the studied school children' parents according to their domains levels of their children using hearing devices (QOL). This table illustrates that less than half (48.7% and 30.7%) of parent's perspectives and expectations of the studied school children' parents had a fair and a good score respectively and only one fifth (20.7%) had a poor score with a mean 24.68±4.969. Concerning the studied school children' parents according to their children using hearing devices impact on the family also about less than half (46.7% and 36.0%) had a fair and a poor score respectively, while only the minority (17.3%) had a good score with a mean 21.87±4.634. Regarding the studied school children' parents according to their children using hearing device hearing-related quality of life of the child about less than two-thirds (64.7%) had a fair score and only 24% and 11.3% had a good and a poor score respectively with a mean 31.17±5.149.

Table (6): Distribution of total score of the studied school children' parents according to their children using hearing device quality of life. This table shows that less than two-thirds (61.3%) of the studied school children' parents had a fair score related to their children using hearing device quality of life and nearly one-fifth (20.0% and 18.7%) of them had a good and a poor score according to their children using hearing device quality of life respectively with a mean 77.71±12.441.

Table (7): Distribution of the studied school children according to their health and activities problems. As regards to the child health and activities problems, it was found that less than three-quarters (73.3%) of them reported that never had problem to take a bath or shower by themselves, while less than one- half (49.3%, 47.3% and 48.0%) of them reported that never had these problems (hard to walk more than one block, hard to do sports activities or exercises and hard to left something heavy) respectively.

While nearly three -quarters (73.3%) of them mentioned that it is hard for them to take a bath or shower by themselves. Also more than half (56.7% and 54.0%) of their children reported that their children never had these problems (hard to do chores around the house and hard for them to run) respectively. As regards to the other child activities problems as they hurt or ache, it was reported that sometimes less than two -thirds (60.0%) of them had this problem. While less than one- half (42.7%) of them reported that almost never have low energy.

Table (8): Distribution of the studied school children according to their feelings

problems. This table reveals that about two -thirds (66.7%) of them reported that sometimes they feel sad or blue and more than half (62.0%, 56.7% and 57.3%) of them reported that sometimes they feel afraid or scared, feel angry and worry about what will happen to them respectively. While half (50.7%) of them reported that they never have trouble sleeping.

Table (9): Distribution of the studied school children according to their problems of getting along with others. This table illustrates that less than half (45.3%, 44.0%, 41.3% and 41.3%) of them reported that sometimes other children tease them, it is hard to keep up when they play with other children, have trouble getting along with other children and other children do not want to be their friends respectively. While less than one -half (42.0%) of them reported that almost never they can't do things that other children with their age can do.

Table (10): Distribution of the studied school children regarding to their problems with school. This table represents that about half (48.0%) of them reported that sometimes hard to pay attention in class, while more than one -third (44.0%, 46.7% and 38.7%) of them reported that they almost never have trouble keeping up with their school work, they often miss school because of not feeling well and they often miss school to go to the doctor or hospital respectively, while more than two- fifths (42.7%) of them reported that they never forget things.

Table (11): Distribution of the studied school children according to their domains levels of pediatric quality of life inventory. This table illustrates that the majority (82.7%) of the studied school children had a good score of pediatric quality of life inventory health and activities, while the minority (14.7% and 2.7%) of them had a fair and a poor score of pediatric quality of life inventory health and activities respectively with a mean 32.83±5.557.

Concerning the studied school children feelings more than half (60.0%) of them had a fair score, while about 34.0% and 6.0% had a good and a poor score respectively with a mean 16.75±2.999. As regards to the studied school children problems of getting along with others, about less than one- half (48.0%) of them had a fair score, while about 42.7% and 9.3% of them had a good and a poor score respectively with a mean 16.89±3.639. Regarding the studied school children problems with school the majority (75.3%) of them had a good score, while about 18.0% and 6.7% of them had a fair and a poor score respectively with a mean 18.87±3.654.

Table (12): Distribution of the studied school children according to their levels of pediatric quality of life inventory**.** This table shows that more than three -quarters (77.3%) of studied school children had a good score regarding to the levels of pediatric quality of life inventory, while about one- fifth (20.0%) of them had a fair score and the minority (2.7%) of them had a poor score as regards to the levels of pediatric quality of life inventory with a mean of 85.33±11.583.

Table (13): Correlation between levels of pediatric quality of life inventory of children and the levels of the parents according to their children using hearing device quality of life. This table shows that there was a highly significant positive correlation between levels of pediatric quality of life inventory of the studied school children and levels of the studied school children' parents according to their children using hearing device quality of life as (p=0.000) and (r=0.407).

Table (I): Distribution of the studied school children according to their history of the academic educational achievement

History of the academic educational achievement	The studied school children (n=150)	
	No	%
1.Child's performance in school after fitting of hearing aids		
- Good	64	42.7
- Fair	71	47.3
- Poor	15	10.0
2.Fitting of hearing aids affect attention of the child in the classroom		
- Affect attention	27	18.0
- Not affect attention	123	82.0
3.Child faces problem to communicate with classmates and teachers at school		
- Faces problem	33	22.0
- Not face problem	117	78.0
4.Child absent from school due to inability to communicate with classmates and teachers		
- Absent	25	16.7
- Not absent	125	83.3

Table (2): Distribution of the studied school children' parents according to their perspectives and expectations

Parents perspectives and expectations	The studied parents (n=150)									
	Never		Rarely		Sometimes		Often		Always	
	No	%	No	%	No	%	No	%	No	%
1. Child easily makes friends with other children.	2	1.3	29	19.3	53	35.3	47	31.3	19	12.7
2. Child's spoken language is similar to typically developing children their own age.	2	1.3	29	19.3	65	43.3	41	27.3	13	8.7
3. Believe child will have greater educational opportunities and achievements with their hearing device.	2	1.3	27	18.0	64	42.7	53	35.3	4	2.7
4. Child needs more of daily attention than other.	2	1.3	12	8.0	46	30.7	73	48.7	17	11.3
5. Believe that as an adult the child will be able to find employment and support themselves.	0	0.0	30	20.0	69	46.0	51	34.0	0	0.0
6. Believe that child will lead a happy life.	2	1.3	12	8.0	85	56.7	46	30.7	5	3.3
7. I believe that my child will feel safe in the world.	4	2.7	33	22.0	70	46.7	36	24.0	7	4.7
8. Believe that child will feel confident in the world.	4	2.7	37	24.7	64	42.7	38	25.3	7	4.7

Table (3): Distribution of the studied school children' parents according to the using of hearing aids impact on the family

Impact on the family	The studied parents (n=150)									
	Never		Rarely		Sometimes		Often		Always	
	No	%	No	%	No	%	No	%	No	%
1. Always worry about whether the hearing device is working correctly.	36	24.0	51	34.0	44	29.3	17	11.3	2	1.3
2. Financial situation is stressed by the ongoing costs to maintain the hearing device.	8	5.3	29	19.3	38	25.3	43	28.7	32	21.3
3. Devote more time to the child than other members of my family.	0	0.0	11	7.3	48	32.0	78	52.0	13	8.7
4. Immediate family's activities are limited by child's hearing needs.	5	3.3	19	12.7	72	48.0	52	34.7	2	1.3
5. The hearing device has improved communication between immediate family members.	4	2.7	2	1.3	55	36.7	73	48.7	16	10.7
6. The future educational placement and achievement for the child is a concern for immediate family.	4	2.7	10	6.7	84	56.0	38	25.3	14	9.3
7. Had to change our working patterns since our child received their hearing device.	5	3.3	20	13.3	81	54.0	36	24.0	8	5.3
8. Child's hearing needs place additional stress on immediate family.	2	1.3	16	10.7	61	40.7	62	41.3	9	6.0

Table (4): Distribution of the studied school children' parents according to the hearing-related quality of life (QOL) of their children

Hearing-related QOL of the child	The studied parents (n=150)									
	Never		Rarely		Sometimes		Often		Always	
	No	%	No	%	No	%	No	%	No	%
1. Child is able to communicate their needs using spoken language	2	1.3	17	11.3	57	38.0	43	28.7	31	20.7
2. Child is confident in social situations with typically developing children their own age.	2	1.3	40	26.7	67	44.7	34	22.7	7	4.7
3. Child initiates conversations with other children and adults.	2	1.3	65	43.3	55	36.7	24	16.0	4	2.7
4. Child's speech is clear and can be understood by people who have not met them before.	4	2.7	30	20.0	68	45.3	38	25.3	10	6.7
5. Child is often ill and asks to stay home from school	19	12.7	69	46.0	45	30.0	14	9.3	3	2.0
6. Child overhears conversation that is not directed at them and asks questions about what was said.	5	3.3	25	16.7	68	45.3	40	26.7	12	8.0
7. Child keeps up with their peers for daily learning activities at preschool/kindergarten/school.	5	3.3	31	20.7	63	42.0	42	28.0	9	6.0
8. Child enjoys music.	12	8.0	70	46.7	36	24.0	26	17.3	6	4.0
9. Child tires more easily than other typically developing children their own age.	16	10.7	60	40.0	48	32.0	22	14.7	4	2.7
10. Child is often afraid of new situations.	12	8.0	32	21.3	73	48.7	31	20.7	2	1.3

Table (5): Distribution of the studied school children' parents according to their domains levels of their children using hearing devices (QOL)

Domains of the hearing related QOL	The studied school children' parents (n=150)	
	No	%
1-Parent perspectives & expectations		
- Poor	31	20.7
- Fair	73	48.7
- Good	46	30.7
Range	(16-37)	
Mean ± SD	24.68±4.969	
2-Impact on family		
- Poor	54	36.0
- Fair	70	46.7
- Good	26	17.3
Range	(13-33)	
Mean ± SD	21.87±4.634	
3-Hearing-related quality of life of the child		
- Poor	17	11.3
- Fair	97	64.7
- Good	36	24.0
Range	(21-48)	
Mean ± SD	31.17±5.149	

Table (6): Distribution of total score of the studied school children' parents according to their children using hearing device quality of life

Total score Levels of the studied school children' parents according to their (CUHDQOL)	The studied school children' parents (n=150)	
	No	%
- Poor	28	18.7
- Fair	92	61.3
- Good	30	20.0
Range	(54-110)	
Mean ± SD	77.71±12.441	

Table (7): Distribution of the studied school children according to their health and activities problems

Child health and activities problems	The studied school children (n=150)									
	Almost always		Often		Sometimes		Almost never		Never	
	No	%	No	%	No	%	No	%	No	%
1. It is hard to walk more than one block.	0	0.0	2	1.3	31	20.7	43	28.7	74	49.3
2. It is hard to run.	0	0.0	4	2.7	27	18.0	38	25.3	81	54.0
3. It is hard to do sports activities or exercises.	0	0.0	6	4.0	25	16.7	48	32.0	71	47.3
4. It is hard to left something heavy	2	1.3	9	6.0	28	18.7	39	26.0	72	48.0
5. It is hard to take a bath or shower by myself.	3	2.0	4	2.7	15	10.0	18	12.0	110	73.3
6. It is hard to do chores around the house.	2	1.3	6	4.0	16	10.7	41	27.3	85	56.7
7. Hurt or ache.	2	1.3	11	7.3	90	60.0	29	19.3	18	12.0
8. Have low energy.	0	0.0	13	8.7	45	30.0	64	42.7	28	18.7

Table (8): Distribution of the studied school children according to their feelings problems

Child feelings	The studied school children (n=150)									
	Almost always		Often		Sometimes		Almost never		Never	
	No	%	No	%	No	%	No	%	No	%
1. Feeling afraid or scared.	2	1.3	9	6.0	93	62.0	38	25.3	8	5.3
2. Feeling sad or blue.	2	1.3	19	12.7	100	66.7	19	12.7	10	6.7
3. Feeling angry.	0	0.0	44	29.3	85	56.7	11	7.3	10	6.7
4. Having trouble sleeping.	4	2.7	5	3.3	28	18.7	37	24.7	76	50.7
5. Worrying about what will happen.	2	1.3	17	11.3	86	57.3	27	18.0	18	12.0

Table (9): Distribution of the studied school children according to their problems of getting along with others.

Child problems of getting along with others	The studied school children (n=150)									
	Almost always		Often		Sometimes		Almost never		Never	
	No	%	No	%	No	%	No	%	No	%
1. Having trouble for getting along with other children.	2	1.3	6	4.0	62	41.3	60	40.0	20	13.3
2. Other children do not want to be friend.	2	1.3	16	10.7	62	41.3	50	33.3	20	13.3
3. Other children tease me.	2	1.3	59	39.3	68	45.3	14	9.3	7	4.7
4. Cannot do things that other children with age can do.	4	2.7	12	8.0	52	34.7	63	42.0	19	12.7
5. It is hard to keep up when play with other children.	2	1.3	10	6.7	66	44.0	53	35.3	19	12.7

Table (10): Distribution of the studied school children regarding to their problems with school

Problems of the child with school	The studied school children (n=150)									
	Almost always		Often		Sometimes		Almost never		Never	
	No	%	No	%	No	%	No	%	No	%
1. It is hard to pay attention in class.	2	1.3	8	5.3	72	48.0	45	30.0	23	15.3
2. Forgetting things.	2	1.3	8	5.3	38	25.3	38	25.3	64	42.7
3. Having trouble keeping up with school work.	2	1.3	8	5.3	53	35.3	66	44.0	21	14.0
4. Missing school because of not feeling well.	4	2.7	10	6.7	35	23.3	70	46.7	31	20.7
5. Missing school to go to the doctor or hospital.	4	2.7	10	6.7	43	28.7	58	38.7	35	23.3

Table (11): Distribution of the studied school children according to their domains levels of pediatric quality of life inventory

Domains of pediatric quality of life inventory of the child	The studied school children (n=150)	
	No	%
1. Health and activities		
- Poor	4	2.7
- Fair	22	14.7
- Good	124	82.7
Range	(16-40)	
Mean ± SD	32.83±5.557	
2. Child feelings		
- Poor	9	6.0
- Fair	90	60.0
- Good	51	34.0
Range	(8-25)	
Mean ± SD	16.75±2.999	
3. Child problems of getting along with others		
- Poor	14	9.3
- Fair	72	48.0
- Good	64	42.7
Range	(5-25)	
Mean ± SD	16.89±3.639	
4. Child problems with school		
- Poor	10	6.7
- Fair	27	18.0
- Good	113	75.3
Range	(5-25)	
Mean ± SD	18.87±3.654	

Table (12): Distribution of the studied school children according to their levels of pediatric quality of life inventory

Levels of pediatric quality of life inventory of the child	The studied school children (n=150)	
	No	%
- **Poor**	4	2.7
- **Fair**	30	20.0
- **Good**	116	77.3
Range	(50-114)	
Mean ± SD	85.33±11.583	

Table (13): Correlation between levels of pediatric quality of life inventory of children and the levels of the parents according to their children using hearing device quality of life

Levels of quality of life inventory of the child	The studied school children (n=150)						χ^2 P
	Scores of the studied parents according to their children using hearing device quality of life.						
	Poor (n=28)		Fair (n=92)		Good (n=30)		
	No	%	No	%	No	%	
- Poor	2	1.3	2	1.3	0	0.0	**13.963**
- Fair	5	3.3	25	16.7	0	0.0	**0.007***
- Good	21	14.0	65	43.3	30	20.0	
r	**0.407**						
P	**0.000****						

* Significant at level P < 0.05.

** Highly significant at level P < 0.01

Discussion

Hearing impairment is one of the most common disabilities and has lifelong consequences for affected children and their families [26]. Hearing impairment in childhood is associated with difficulties in development of language, speech and cognition which in turn can compromise educational achievement, impair social-emotional function, lead to restricted employment opportunities that can directly affect the child quality of life [27,28]. Early detection together with appropriate intervention is critical to speech, language and cognitive development in hearing-impaired children [26].

Parents of hearing impaired children usually feel swamped and unqualified managing their children in a beneficial manner. This anxiety in their own abilities is often exhibited as affliction. The level of parental involvement, quality, quantity and timing of care services that children receive is essential to their psychosocial, academic development and ultimately the quality of life they achieve. The parents of normal children have the responsibility to meet the needs of their children and prepare an appropriate environment for their children's healthy growth and development. The parent of a disabled child, however, in addition to these responsibilities, is also burdened with additional responsibilities [29]. Therefore, the aim of this study was to assess parents' perception level of quality of life of their elementary school children with hearing impairment using hearing aids.

Concerning the history of the academic educational achievement of the studied school children, the present study revealed that about half of the child's performance after fitting of hearing aids was fair. As regards to the effect of hearing device on the child attention in the class after fitting of the hearing device, the majority of them weren't affected and more than three quarters of them weren't faced any problem to communicate with classmates and teachers at school and the majority of them weren't absent from their school **(Table I)**. This result may be due to that the children were adapted with hearing aids and they are interested with their academic education.

This finding goes in line with a study done by **Schmucker et al., (2019**) [30], who observed that, the majority (80.9%) of children were interested with academic education and adapted with their disease. This result is contradicted with **Yeshoda et al., (2020)** [31], who revealed that, the majority (84.6%) of children didn't adapt with hearing loss.

Regarding the studied school children' parents perspectives and expectations, the findings of the present study showed that about more than one third of the studied

school children's parents were reported that, sometimes their child easily have friends with other children, about half of their children spoken language was similar to typically developing children to their own age and about less than half of them believed that their children have greater educational opportunities and achievements with their hearing aids **(Table 2)**. This result can be justified to that the studied school children try to initiate a relationship with other children to make friends rather than to be isolated with their hearing impairment. Furthermore, they are interested to play with them.

This result is in agreement with **Marriage et al., (2017)** [32], who carried out a study to assess hearing impairment among children and mentioned that, more than half of children had friends and had good relationship with others. This current result is in contrary with **Brännström et al., (2020)** [33], who conducted a study about perceived listening effort in children with hearing loss: listening to a dysphonic voice in quiet and in noise and reported that, three quarters of children were isolated due to their disease and had poor relations with others.

As regards to the studied school children's parents impact on their family, the results of the current study reveals that more than one third of the studied school children's parents reported that they rarely worry about whether the hearing device is working correctly. About half of them reported that sometimes their immediate family's activities are limited by their child's hearing needs and more than half had to change their working patterns since their child received the hearing device **(Table 3)**. This may be contributed to the effect of hearing impairment on children's activities. In addition to that children were dependent on hearing aids in their life as well as this in turn have a negative effect on the family as a unit.

This result is in accordance with **Muñoz et al., (2015)** [34], who conducted a study about pediatric hearing aid use: Parent-reported challenges and reported that, the parents changed their working times according to their children's treatment times. Furthermore, a study done by **Olusanya et al., (2014)** [35], to investigate the global burden of disabling hearing impairment and stated that less than two thirds (63.2%) of parents reported that, hearing impairment of children affected their family activities.

In relation to hearing-related quality of life of the studied school children, parents, the present study showed that more than one third of them reported that sometimes their child is able to communicate their needs using spoken language, about less than half of them were confident in social situations with typically developing children in the

same age, about less than half of them speech is clear and can be understood by people who have not met them before, about less than half of them overhear conversation that is not directed at them and ask questions about what was said, more than two fifths of them keep up with their peers for daily learning activities at preschool/kindergarten/school and nearly one half of them often afraid of new situations **(Table 4)**. This may be attributed to that the children's parents have a good communication skill with their children and they are able to adapt and accept the disease of their children in addition they are helping and encouraging them to participate in social situation.

This result is in the same line with a study done by **Bisgaard and Ruf, (2017)**[36], about hearing loss prevalence, hearing aid adoption and benefits of hearing aid use and mentioned that, the majority (82.5%) of children were participated in social situation and adapted with their disease. This result is in the opposite with the study carried out by **Timmer et al., (2018)** [37], who reported that, the majority (79.4%) of children were isolated in social situation and children speaks were unclear and didn't understood by others.

Regarding distribution of the studied school children's parents according to their domains levels of their children using hearing device (QoL). The current study illustrates that less than half of parent's perspectives and expectations of the studied school children's parents had fair and good score. Concerning the studied school children's parents according to their children using hearing devices impact on the family also about less than half had fair and poor score. Regarding the studied school children's parents according to their children using hearing device hearing-related quality of life of the child about less than two thirds had a fair score **(Table5)**.

This result may be due to that parent's perspectives and expectations about their children improved after fitting hearing aids compared to before fitting the device as a result of the effect of the device on the children life. As regards to the studied school children's parents according to their children using hearing devices impact on the family this result may be attributed to the additional needs of the hearing impaired children compared to normal hearing peers. This in turn slightly put additional stress on the hearing impaired children's families. Regarding the studied school children's parents according to their children using hearing device hearing-related quality of life of the child, this result may be due to the studied children are adapted with their hearing device which has a positive impact on the child quality of life.

This result in the same line with the study done by **Ching et al., (2018)** [38], about factors influencing speech perception in noise for children using hearing aids or cochlear implants and reported that more than one half of the participants had moderate level of quality of life. Conversely, this result is contradicted with the study done by **Lassaletta et al., (2012)** [39] who studied quality of life in hearing-impaired children with bilateral hearing devices and found that less than two thirds of families were affected by the diseased children and act as burden on them.

Regarding the total score levels of the studied school children's parents using hearing aids quality of life, the current study revealed that about two thirds of them had a fair score and nearly one fifth had a good and a few of them had a poor score **(Table 6)**. This result can be justified to that the parents were very interested with their children and they always help them to adapt with their life.

This result is in accordance with **Kheri (2018)** [40], who carried out a study to assess the knowledge of children's parents with hearing impairment regarding care of hearing aids and found that, the majority (88.3%) of children's parents had fair and good score of quality of life. Conversely, this result is contradicted with **Uhlén et al., (2017)** [41], who stated that, the majority (80.4%) of children's parents had poor score of quality of life.

Concerning the studied school children health and activities problems, the present study demonstrated that nearly one half of them reported that they never had these problems (hard to walk more than one block, hard to do sports activities or exercises and hard to left something heavy respectively). In relation to the other child activities problems as they hurt or ache, it was reported that sometimes about less than two thirds of them had this problem **(Table 7)**. This may be contributed to the effect of the disease on the physical activity of their children.

This result is congruent with a study done by **Ukoumunne et al., (2017)** [42] who stated that, more than two thirds (68.3%) of children hadn't physical difficulties or limitations of their activities. This finding is contradicted with a study done by **Saravanan et al., (2019)** [43], who found that, three quarters (75%) of children can't walk one hour a day. Also, this finding disagrees with **Mehta et al., (2017)** [44]**,** who studied the role of cortical auditory evoked potentials in reducing the age at hearing aid fitting in children with hearing loss identified by newborn hearing screening and mentioned that, the majority(81.9%) of children can't play any sport or exercises.

Regarding feelings problems of the studied school children, the present study revealed that, about two thirds of them showed that sometimes they feel sad or blue and more than half of them reported that sometimes they feel afraid or scared, feel angry and worry about what will happen to them respectively **(Table 8)**. This might be due to the negative effect of the hearing impairment on the feeling of the children.

This finding was comparable with a study done by **Alegre and Villar (2020)**[45], about exploring the emotional problems and mental health needs of elementary school children using cochlear implants or hearing aids in the Islas Canarias and stated that, the majority (84.6%) of children had feeling of worry, and angry. Also, this finding in the line with the study done by **Sofitć and Čošabić (2017)**[46], who showed that, the majority (87.1%) of children were isolated and had feeling of angry.

With regards to the studied school children problems of getting along with others, the present study illustrated that less than one half of them reported that sometimes other children tease them, it is hard to keep up when they play with other children, have trouble for getting along with other children and other children do not want to be their friends respectively **(Table 9)**. The possible explanation of this result is that, the children were isolated from other people. Moreover, the studied school children' parents were afraid on their children and also, from the negative effect of the hearing impairment on those children.

This finding is in congruence with a study performed by **Rezaei et al., (2016)**[47], who found that, the majority (87.5%) of parents were afraid on their children and they didn't able to keep their children safe. Also, this study in the contrary with another study done by **Haghjoo et al., (2018)** [48], who observed that, about three quarters (74.6%) of parents help their children to participate and play with other children to overcome isolation behaviors.

Concerning to the problems of the studied school children with their school, the present study represents that, about one half of them reported that sometimes find that it is hard to pay attention in class, while more than one third of them reported that, they often have trouble keeping up with their school work, they often miss school because they aren't feeling well and also they often miss school to go to the doctor or hospital respectively **(Table 10)**. This may be due to the effect of hearing impairment on the level of concentration of the children because they are most of the times not available in their school and this will effect on their level of education.

This result is accordance with **Appachi et al., (2017)** [49], who conducted a study to

assess auditory outcomes with hearing rehabilitation among children with unilateral hearing loss and observed that, more than three quarters (77.1%) of the children had low level of attention and difficult in understanding. Also, it is supported by another study carried out by **Runnion (2017)** [50], who observed that, the majority (83.6%) of children had difficult in understanding and hard attention.

Concerning the domains levels of pediatric quality of life inventory of studied school children, the present study illustrated that the majority of the studied school children had a good score of pediatric quality of life inventory health and activities, while more than half of them had a fair score of pediatric quality of life inventory according to child feelings. As regards to the studied school children problems of getting along with others, about less than one half of them had a fair score. Regarding the studied school children problems with school, three quarter of them had a good score, while less than fifth of them had a fair score. **(Table 11).**

This result may be attributed to that those children have no other physical disabilities or health problems and can do any activities as their normal hearing peers. As regards to child feelings, this result may be due to that the disease sometimes affects the hearing impaired children feelings. As regards to the studied school children problems of getting along with others, this result may be due to the effect of the hearing device on the studied children social development. Regarding the studied school children problems with school, this result may be attributed to that they are interested with their school.

In relation to the levels of pediatric quality of life inventory of the studied school children, the finding of the present study shows that more than three quarters of them had a good score related to the levels of pediatric quality of life inventory **(Table 12)**. The possible explanation of this result might be justified to the children were adapted with their hearing impairment and using of hearing aids.

This result is in accordance with **Nirmalasari et al., (2017)** [51], who reported that, about more than half of the children had a good score related to the levels of pediatric quality of life. Conversely, this result is in contrary with a study performed by **Lawal et al., (2016)** [52]**,** who reported that, about less than three quarters (72.3%) of the children had poor score related to the levels of pediatric quality of life.

The results of the current study present that, there was a highly statistically significant positive correlation between the levels of pediatric quality of life inventory of the studied school children and the

levels of the studied school children's parents of their children using hearing devices quality of life as (p=0.000) and (r=0.407) **(Table 13)**.

This finding of the present study is in accordance with a study done by **Cupples et al., (2018)** [53], who reported that, there was a highly significant positive correlation between the levels of pediatric quality of life inventory and their quality of life as perceived by their parents. This result is in the contrary with a study done by **Wong et al., (2017)** [54]**,** who stated that, there was a statistically significant negative correlation between levels of pediatric quality of life inventory of the studied school children and scores of the studied parents of their children using hearing devices quality of life.

Conclusion

Based on the findings of the present study, it can be concluded that less than two thirds of the studied school children' parents had a fair score according to their children using hearing devices quality of life, while nearly one fifth of them had a good and a poor score according to their children using hearing devices quality of life. More than three quarters of studied school children had a good score regarding to the levels of pediatric quality of life inventory, while about one fifth of them had a fair score and the minority of them had a poor score as regards to the levels of pediatric quality of life inventory.

Recommendations

Based on the results of the present study, it is recommended that:

1. Written instructions about hearing aids in the form of booklets or brochures should be provided to each child with hearing impairment using hearing aids and their parents in order to encourage them in effective adherence to the plan of care.
2. Regular screening for early signs of hearing impairment among school children especially children with family history of hearing impairment for early detection of children with hearing impairment as well as prevent its serious consequences.
3. Consistent training of parents on the support and communication skills with their hearing-impaired children.
4. School health nurse should develop health education programs to student's parents to enhance the parent's awareness regarding hearing impairment among children.

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Barriers of Applying the Ethical and Legal Issues in Psychiatric Nursing and Its Relation to Staff Nurses' Knowledge

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Abstract

Background: Nurses who work in psychiatry clinics encounter important ethical and legal challenges in practice and caring for mental disorders. **This study was aimed** to determine barriers of applying the ethical and legal issues in psychiatric nursing and its relation to staff nurses' knowledge. **Methods:** Descriptive design was used in this study. Purposive sample of 120 psychiatric nurses at Beni-Suef and Benha Mental Health Hospital was recruited for this study. A structured questionnaire developed by researchers was used for data collection. **Results:** Revealed that the majority (80.0%) of the subjects had unsatisfactory knowledge regarding the legal aspects. There is a positive statistically significant relationship between legal knowledge and ethical practices among participating psychiatric nurses (r=0.289, p<0.000). The barriers most frequently observed by the nurses who work in psychiatric hospitals are lack of time, the frequent number of patients with fewer nurses. **Conclusion:** Nurses had unsatisfactory knowledge and practices of on legal and ethical responsibilities in psychiatric nursing practices. **Recommendations:** Develop nursing education programs that are specifically focused on ethical problems in the fields of mental health and psychiatry to increase their awareness regarding ethics-legal aspects.

Keywords: Psychiatric nursing care, Nurses' awareness, Ethics-legal aspects, Barriers.

Introduction

Legal and ethical concerns in the psychiatric nursing profession are a significant subject as context of care is important for all psychiatric nurses because it focuses concern on the rights patients and the quality of care they receive. They are scientific concerns, for that reason the nursing profession must have its private professional ethics and laws. Understanding basic legal concepts and professional ethics help nurses develop a structure to deal effectively with complex client issues by which they can get the power to influence daily exclusion when they are dealing with psychiatric patients [(1)]. Ethical and legal concerns are critical for all health care workers. Ethics focuses on "right and wrong", though it can be challenging to agree on what is "right". Ethical and Legal Practice is a principle for nurses involved in ethical concerns on a daily foundation. The major ethical principles are fidelity, autonomy, beneficence, justice, veracity, and non-maleficence [(2)].

The ethical issue deals with standards of conduct and moral judgment [(3)]. The role of professional nurses has grown rapidly over the past decades to include expertise, specialization, autonomy, and accountability, both legally and ethically. This expansion has caused new concerns for nurses and increased awareness of the interaction of legal and ethical principles. Areas of concern contain qualified nursing practice, ethical principles, and legal concerns [(4)]. Every patient has the right to achieve his/her own decisions in accordance with his/her own beliefs and values. This is identified as autonomy. A patient's need for independence can conflict with care guidelines [(5)].

Psychiatric nursing is an extremely complicated and difficult field to handle because they are persons with different psychiatric disorders who are vulnerable to mistreatment and abuse. As a consequence, laws have been adopted to guarantee them legal protection. A registered nurse with psychiatric nursing experience should have full knowledge of the legal rights and responsibilities of a psychiatric nurse, the ethical and legal issues that affect the care, the laws that control and regulate the care, and the ethical nursing principles to be followed [(6)]. Consequently, understanding ethics allows nurses to distinguish the right way to deal with the patient. This involves respect, humanized behavior, and highlighting of the principles of bioethics and the right of health services [(7)].

Nurses are responsible for their individual activities in relative to legal concerns, and violations can cause malpractice lawsuits opposed to the doctor, hospital, and nurse [(8)]. The acquirement of professional ethics is facilitated by internal and external

influences. These issues could lead to legitimate norms and standard governs the professional behavior of nurses in their relationships with patients. Additionally, good quality of communication among health care team, development of organizational conditions, suitable supportive system, and enhancement of education and culture might lead to monitoring professional ethics in clinical practice [(9)].

Understanding ethics is critical to provide skilled professional practice. It is important for nurses to be conscious of the significance of ethics in their workplaces. Health care ethics is essential because team members have to identify health care dilemmas, make decisions, and make good judgments based on their values while recognizing the laws that govern them [(2)]. Professional ethics grow from a combination of social norms, morality, and the parameters of the relationship people have decided to have. Knowledge of ethical principles supports psychiatric nurses avoids ethical struggles (which can be defined as tension between what one wants to do and what is ethically right to do) and thinks through ethical dilemmas (conflicts between ethical perspectives or values) [(10)].

A barrier implies an obstacle or challenge that affects or hinders providing nursing care to psychiatric patients [(11)]. Some of the barriers to provision of psychiatric nursing care included lack of sufficient skills and knowledge, lack of motivation and uncertainty of role, lack of appropriate and specific training and education, lack of acquired skills used due to huge workload, time limitations and lack of psychiatric nurse's role knowledge within the psychiatric team and in the accomplishment of organizational goals [(12)]. The impact of these barriers on psychiatric nurses has also been reported that role conflict and stress are products of these barriers and contribute greatly to the decision by psychiatric nurses to stay in practice [(13)]. In this study, the researchers are trying to explore to which extent the psychiatric nurses have knowledge about legal, and ethical aspects that are important in dealing with psychiatric patients considering as a principal part of the nursing process in psychiatric nursing and distinguishing the barriers that affect nursing care**.**

Significance of the Study: A psychiatric nurse plays a very significant role from the time of admission to discharge in which orientation, meeting all types of needs, especially biological and emotional needs, explaining rights to patient, maintaining confidentiality, taking informed consent, and following so many roles when the patient goes to parole, all come under legal responsibilities of a psychiatric nurse [(4)].

Nurses need to know their legal obligation as they have to update with the fast changing and advancing professional knowledge to provide safe nursing care to their patients on the basis of their requirements. Nurses are in doubt about the 'right' approach to perform if they do not have in-depth interpretation of law and ethics concerning to the nursing profession[14].

Staff nurses have a critical role in mental health since well-qualified nurses (with both theoretical knowledge and practical experience) can perform assessments, provide help to clinical and psychosocial aspects of persons, as well as help develop health policies in their own country [15, 16]. To practice psychiatric/mental health nursing, nurses need to understand the basic legal aspects of caring for psychiatric patients. The laws regulate the care and treatment of the mentally ill. Such laws attempt to balance the protection of the mentally ill patients' civil rights with the preservation of community safety. Nursing competency and patient care responsibility are compromised when the nurse has insufficient knowledge about the laws that adjust the performance of nursing. Therefore, knowledge of the legal and ethical aspects will enhance the quality of care the provider in his or her psychiatric/mental health nursing practice and will protect the nurse [8].

Though, many barriers are mostly related to ethical issue in mental health care, a number of barriers have contributed to this respect; these barriers contain stigma, lack of resources and difficulty in accessing mental health services [17, 18]. Therefore, it is important to determine ethical problems to prevent their negative effects on nurses[19]. Ethical problems emerge as nurses care for patients. These problems may be incompatible with the code of ethics or with the nurse's ethical values [2].

Nurses usually face ethical circumstances that are not handled consistently enough and thus find themselves in an ethical dilemma. Ethical conflict is often stated to as moral disagreement and/or barriers [20]. Ethical conflict is well-defined as "any condition wherever normative factors such as moral values or principles clash and require incompatible actions [21, 22]. Nurses are continually challenged to make difficult decisions about right and wrong or life and death. Complex situations frequently arise in caring for patients with psychiatric disorders, and nurses are admitted to the maximum level of legal and ethical responsibility in their professional practice [23]. Actually, the application of ethical and patients' legal rights when delivering care is essential for all nurses because it is not only emphases on the patients' rights, but also, the quality of care that, they will receive. The reason

for conducting this study is lacking studies done in Egypt about the integrated ethical and legal obligations among psychiatric nurses. Consequently, this study was undertaken to provide a unique identification of staff nurses' level of knowledge about the ethical and legal responsibilities and identify barriers that affecting inpatient psychiatric care.

Aim of the Study:

To determine barriers of applying the ethical and legal issues in psychiatric nursing and its relation to staff nurses' knowledge

Research Questions:

- What are barriers of applying the ethical and legal issues in psychiatric nursing?
-To what extent are the relationship between barriers, staff nurses' knowledge and ethical practices?

Subjects and Methods

Study Design: A descriptive research design was used in the present study.

Settings: The study was implemented in the inpatient and outpatient departments of the Beni-Suef and Benha Psychiatric Mental Health Hospitals, both of them are government hospitals, affiliated to the Ministry of Health, Egypt. The mental health service in these hospitals provides free services for urban and rural regions and for all age groups. The hospital in Beni-Suef Governorate consists of three floors, the first floor of the hospital's administrative offices and the pharmacy: the second floor for critical, and males' sections, the third floor for females' unit and ECT room. The hospital has 130 beds, 97 patients, 78 nurses. The second hospital in Benha City, it has four floors; the hospital capacity is 277 beds, 232 patients, 163 nurses. It includes 6 departments (5 for males and 1 for females).

Subjects: A purposive sample of 120 psychiatric nurses who have agreed to participate in this study, working in the inpatient departments and outpatient clinics in the above mentioned two hospitals during the time of data collection. An equal number of 60 nurses from each psychiatric hospital were recruited for the study sample.

Inclusion and Exclusion Criteria:

Inclusion Criteria: Nurses who were involved in the direct patients' care, staff nurses having work experience of more than one month in the current area, no age limit, both genders, and willing to contribute to the study.

Exclusion Criteria: Staff nurses having work experience of less than 1 month.

The Sample Size was statistically calculated by using the equation of Steven Thompson equation at 95% confidence power.

$$n = \frac{N \times P(1-P)}{\{(N-1 \times (d^2/z^2)) + P(1-P)\}}$$

Where:

n = Sample size

N = Total psychiatric nurse's size

d = Error percentage

P = Percentage of availability of the character and objectivity

Z = The corresponding standard class of significance 95%= (1.96)

The sample size was calculated to be 120 psychiatric nurses.

Data Collection Tool

Structured questionnaire was utilized to collect the required information. Self-administered structured interviewing questionnaire was developed by the researchers based on the literature review. It was divided into four parts:

Part I: Personal and job characteristics data sheet

This part included data related to the personal and job characteristics of the studied nurses such as age, qualifications, years of experience in the nursing profession.

Part II: Self-Administered knowledge questionnaire. Developed by the researchers based on the literature review [1, 3, 4, 10]. It was used to assess the knowledge regarding legal aspects of psychiatric nursing. It consisted of 21 multiple choice statements that focused on: Admission (4 items), discharge (5 items), rights of mentally ill (8 items), and treatment (4 items).

Scoring system: The questions included items related to nurse's knowledge about legal aspects of psychiatric nursing. The nurse's knowledge was calculated for each item as follows: The right answer was recorded "1" point, while the wrong answer was scored, "0" point. The total scores ranging from 0 to 21, was summed-up and split by the number of items, providing a mean score. It is categorized as the following: Less than 60% = unsatisfactory knowledge and 60% or more = satisfactory knowledge.

Part III: Psychiatric nurses' practice checklist regarding professional ethics aspects. Developed by the researchers based on the literature review [6, 7, 8, 9]. It was used to observe psychiatric nurses' practices related to utilizing the professional ethics. It included thirteen items.

Scoring system: The items noticed to be performed were scored "1" and the items not performed were scored "0". The total scores ranging from 0 to 12, was summed-up and divided by number of items, giving a mean score. These scores were converted into percentage scores. The practice was considered adequate if the percentage score was 60% or more and inadequate if less than 60%.

Part IV: Barriers in nursing practice regarding the ethical aspects. Developed by the researchers based on the literature

review [11,17,18,19]. It was used to determine psychiatric nurse's barriers related to utilizing the ethical aspect. It includes 12 items, to be replied by a four-point Likert scale for each item, Strongly agree "3", Agree "2", Disagree "1", Strongly disagree "0". The total score ranging from 0 to 36, was summed-up and split by the number of items, providing a mean score. These scores were converted into percentage scores. The higher the score it was considered a high barrier if the percentage score was 60% or more and low barrier if less than 60%.

Methods:

- Official letters to conduct the study were issued from the Dean of Faculty of Nursing and submitted to the directors of the identified study settings to take their agreements to collect data.

Ethical Considerations:

The researchers obtained official permission for data collection, by submitting official letters from the Faculty of Nursing, Beni-Suef University to the directors of the selected hospitals. Consent and agreement from the nurses to contribute to the study was established by completion of the questionnaire after explaining the goal of the study. Anonymity of subject and confidentiality of the gathered information were secured by data coding. The researchers also emphasized that participation is voluntary and that the subjects have the right to withdraw at any time without giving any reasons and that the study nature will not cause any harm to all patients/nurses. As well they were reassured that the whole collected data will be used only for the aim of scientific research.

Content Validity:

The study tool was submitted to a jury of five experts in the psychiatric nursing field to investigate the content validity, clarity, relevance, and adequacy of the questionnaires in order to achieve the present study objectives. The experts' recommendations were taken into attention. So far, modifications were done, and the final form of the constructed instrument was completed to be an appropriate tool for conducting the study. In addition, the time needed to fill in the questionnaire was estimated.

Reliability was done by Cronbach alpha coefficient test which revealed that each item of the utilized tools consisted relatively homogenous items. The internal consistency of self-administered knowledge questionnaire was 0.81, the nurses' practices checklist regarding the ethical aspects was 0.87, and barriers in nursing practices regarding the ethical aspects was 0.89.

Pilot Study:

A pilot study was conducted to assess the clarity and understanding of the study tool before introducing it to the nurses.

Furthermore, to evaluate the usability of the study in terms of appropriateness to the participants. It also was used to estimate the approximate time required for interviewing the participants as well as to find out any problem or obstacle that might interfere with data collection. The pilot study was conducted for 12 nurses (10%) and according to its results, no modifications were made, and therefore they were included in the main study sample.

Data Collection:

Data have been collected through the utilization of the self-administered questionnaire as a means of data collection. The self-administered questionnaire was distributed to nurses working in the mental health settings and showed willingness to participate in the study; all of the subjects were cooperative with the researchers. Filling in the questionnaire takes approximately 15-30 minutes. Collection of data lasted six months in the period from the beginning of Augustus 2019 to the end of February 2020.

Data Analysis:

All data collected were tabulated and statistically analyzed by the Statistical Package for Social Science (SPSS), version 22.0 for windows, using descriptive and inferential statistics. They were analyzed by "Chi-square" "χ^2" and Pearson correlation test was used to compare mean scores and correlations between psychiatric nurses' knowledge and practices regarding ethics and legal responsibilities and barriers affecting psychiatric patients' care. P-Value < 0.05 was considered as statistically significant and P-Value <0.001 was considered highly significant.

Results

Table (1) displays the personal and job characteristics of nurses. This table shows that female nurses are more than male nurses who are working in psychiatric hospitals (81.7%). Their age group shows that the highest percentage is in the age group > 30 to 40 years old (46.7%). Concerning educational levels, the majority of them (71.7%) had a secondary nursing diploma; only two had a bachelor's degree in nursing. More than half of them (58.3%) had experience in nursing for more than 15 years. Almost two-thirds of them (65.0%) had a training course in psychiatric nursing and only 13.3% had a training course specified in dealing psychiatric patients (psychiatric ethical and legal aspects).

Table (2) shows nurses' knowledge regarding the legal aspects of the study sample. It is clear from the table that the total mean score about the legal knowledge of psychiatric nurses was 11.28 ± 2.72. The majority (80.0%) of the

subjects had unsatisfactory knowledge. The table also shows that nurses had satisfactory knowledge scores in areas like discharge (90%) and treatment (78.3%) of mentally ill patients, with a mean ± SD knowledge score of 2.433 ± 0.871 and 2.483 ± 0.930 respectively.

Table (3) reflects the nurses' practices regarding professional ethics. More than (58.3%) of the studied subjects had unsatisfactory practices. The highest percentage (80.0%) for “Satisfactory" was related to “support the patient to participate in making decisions regarding the treatment plan”, while the lowest percentage was (38.3%) for "Satisfactory" and this was elated to “the patient has the right to refuse treatment in some cases”.

As declared in table (4) the barriers most frequently observed by the nurses who work in a psychiatric hospital are: Lack of time, frequent number of patients with fewer nurses (55.1%), the community's perception of inferiority towards nursing profession (43.4%); and lack of authority to make decisions (41.7%).

Table (5) represents that there is a positive statistically significant relationship between legal knowledge and ethical practice among participating psychiatric nurses ($r = 0.289$, $p < 0.000$). Also, the result displays that there is a negative statistically significant correlation between ethical practices and barriers among participating psychiatric nurses ($r = -0.199$, $p < 0.029$).

Table (6) demonstrates that there is a statistically significant correlation between ethical practices’ aspects and education level ($r = 0.323$, $p < 0.012$); and highly statistically significant correlations with years of experience ($r = 0.492$, $p < 0.000$); had training courses in psychiatric nursing ($r = 0.616$, $p < 0.000$); had training courses in communication with patients ($r = 0.471$, $p < 0.000$); and had training course specified in dealing with psychiatric patients ($r = 0.486$, $p < 0.000$) among participating psychiatric nurses. As well, there are highly statistically significant correlations between knowledge and age ($r = 0.557$, $p < 0.000$), had training courses in psychiatric nursing ($r = 0.610$, $p < 0.000$); had training courses in communication with patients ($r = 0.645$, $p < 0.000$); and had training course specified in dealing with psychiatric patients ($r = 0.655$, $p < 0.000$) among studied psychiatric nurses.

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Table (1): Personal and Job Characteristics of the Nurses in the Study Sample (n=120).

Variables	No	%
Gender		
- Male	22	18.3
- Female	98	81.7
Age (years)		
- < 20	10	8.3
- 20 to 30	32	26.7
- > 30 to 40	56	46.7
- > 40	22	18.3
Mean±SD	**27.5 ± 8.52**	
Educational level		
- Secondary nursing diploma	86	71.7
- Technician	32	26.7
- Bachelor's degree	2	1.6
Years of experience in		
- < 5	6	5.0
- 5: 10	38	31.7
- 10: 15	6	5.0
- >15	70	58.3
Had training courses in psychiatric nursing:		
- Yes	78	65.0
- No	42	35.0
Had training courses in communication with patients.		
-Yes	78	65.0
- No	42	35.0
Had training course specified in dealing with psychiatric patients.		
- Yes	16	13.3
- No	104	86.7

Table (2): Nurses' Knowledge Regarding the Legal Aspects in the Study Sample (n=120).

Variables	Knowledge score					
	Unsatisfactory		Satisfactory		Mean	± SD
	No	%	No	%		
Admission	58	48.3	62	51.7	2.300	1.124
Discharge	10	10.0	110	90.0	2.433	0.871
Rights of mentally ill patient	62	51.7	58	48.3	4.067	1.471
Treatment	26	21.7	94	78.3	2.483	0.930
Total Legal Knowledge	**96**	**80.0**	**24**	**20.0**	**11.28**	**2.72**

Table (3): Nurses' Practices Regarding Professional Ethics Used by the Study Subjects (n=120).

Items	Unsatisfactory		Satisfactory		Mean	±SD
	No	%	No	%		
1.The patient is entitled to participate in the treatment program and is free to add or cancel part of the treatment plan.	58	48.3	62	51.7	0.52	0.50
2.Support the patient to participate in making decisions regarding the treatment plan.	24	20.0	96	80.0	0.80	0.40
3.The patient has the right to refuse treatment in some cases.	74	61.7	46	38.3	0.38	0.49
4.When the patient moves from one stage to another during the treatment plan, he/she is entitled to participate fully in the decisions of the new plan.	60	50.0	60	50.0	0.50	0.50
5.The patient is entitled to receive treatment in an environment designed to maintain his or her privacy.	60	50.0	60	50.0	0.50	0.50
6.To maintain the confidentiality of the information of each patient so that only those who have a direct relationship with his treatment can see it.	36	30.0	84	70.0	0.70	0.46
7.Treatment of patients, according to the condition of each patient.	52	43.3	68	56.7	0.57	0.50
8.Equal to all patients irrespective of race, sex, marital status, religion or cultural belief.	52	43.3	68	56.7	0.57	0.50
9.The meeting promises dealing with patients.	36	30.0	84	70.0	0.64	0.44
10. Nurses should not conceal the whole truth about patients (honesty with patients in sharing information and informing the patient of any attempt related to him).	46	38.3	74	61.7	0.62	0.49
11. Do not harm the patient intentionally or unintentionally, such as the nurse stopping the medicine required when suspected adverse consequences (sensitivity or negative reaction) with the consent of the doctor.	44	36.7	76	63.3	0.63	0.49
12. Perform the daily tasks of patients who are unable to implement them individually (personal hygiene) through the moral principle to achieve everything that is good for the patient.	46	38.3	74	61.7	0.62	0.49
13. The patient should be informed and approved of any nursing procedure.	64	53.3	56	46.7	0.47	0.50
Total	**76**	**58.3**	**44**	**41.7**	**6.936**	**2.137**

Table (4): Barriers of Applying the Ethical Aspects in Nursing Practices as Reported by Study Subjects (n=120).

Items	Strongly disagree		Disagree		Agree		Strongly agree		Mean	±SD
	No	%	No	%	No	%	No	%		
1.Low wages, incentives, and compensation	4	3.3	14	11.7	76	63.3	26	21.7	2.03	0.69
2.Lack of public awareness of patients' rights	6	5.0	16	13.3	60	50.0	38	31.7	2.08	0.81
3.The community's perception of inferiority towards nursing profession	0	0.0	16	13.3	52	43.3	52	43.4	2.30	0.70
4.Lack of hospital resources	0	0.0	30	25.0	48	40.0	42	35.0	2.10	0.77
5.Lack of time, frequent number of patients with fewer nurses	4	3.3	22	18.3	28	23.3	66	55.1	2.30	0.89
6.Lack of efficiency among nurses	0	0.0	16	13.3	62	51.7	42	35.0	2.22	0.67
7.Lack of awareness and sensitivity between nursing supervisors and nurses.	0	0.0	22	18.3	54	45.0	44	36.7	2.18	0.72
8.Lack of authority to make decisions.	2	1.7	28	23.3	40	33.3	50	41.7	2.15	0.84
9.The working environment with the patient is unsafe.	12	10.0	18	15.0	42	35.0	48	40.0	2.05	0.98
10. Lack of adequate support from the hospital	0	0.0	16	13.3	74	61.7	30	25.0	2.12	0.61
11. Difficulties in dealing with patients or health care personnel	6	5.0	18	15.0	64	53.3	32	26.7	2.02	0.79
12. Lack of training programs related to mental health rights	2	1.6	20	16.7	60	50.0	38	31.7	2.12	0.74
Total Scores of Barriers	3	2.5	20	16.7	55	45.8	42	35.0	25.67	4.62

Table (5): Correlations between Legal and Ethical Aspects Practices and the Nurses' Knowledge, (n = 120).

Items	Legal knowledge		Barriers	
	r	**p value**	r	p value
Ethical practices	0.289	0.000**	- 0.199	0.029*
Barriers	0.061	0.645	-	-

* Significant at P < 0.05 ** Highly statistically significant at P < 0.001

Table (6): Correlation between Nurses' Knowledge, Practices and Barriers Regarding the Legal, Ethical Aspects by Personal and Job Characteristics using the Mean of Scores.

Personal and Job Characteristics Variables	Knowledge		Practices		Barriers	
	R	**p**	**r**	**p**	**r**	**p**
Age	0.557	0.000**	0.02	0.877	0.000	1.000
Sex	0.040	0.761	0.003	0.982	-0.022	0.870
Education	0.074	0.575	0.323	0.012*	-0.118	0.368
Experience	0.228	0.080	0.492	0.000**	-0.080	0.541
Had training courses in psychiatric nursing	0.610	0.000**	0.616	0.000**	0.079	0.549
Had training courses in communication with patients	0.645	0.000**	0.471	0.000**	0.105	0.425
Had training course specified in dealing with psychiatric patients	0.655	0.000**	0.486	0.000**	0.172	0.190

* Significant at P < 0.05 ** Highly statistically significant at P < 0.001

Discussion:

Psychiatric nurses must become familiar with the legal provisions of the state in which they practice. This knowledge enhances the freedom of both the nurse and the patients and ultimately results in better care for psychiatric patients. Nursing practice harmoniously consist of practical efficacy and ethics. At this time legal and ethical problems associated with caring for patients with mental disorders are rising from day to day. Consequently, nurses must have a satisfactory understanding of essential legal concepts and issues important to nursing profession in order to safeguard the rights of the patients and nursing staff[14]. The current study was carried-out to explore the staff nurses' awareness of legal and ethical aspects, and barriers affecting in psychiatric nursing practice.

The findings of the present study cleared that the total mean knowledge score of psychiatric nurses is 11.28 ± 2.72. As well, the findings of the study displayed that for the majority of the subjects their total legal knowledge was unsatisfactory. However, the outcomes of the study stated that nurses had satisfactory knowledge scores in areas like discharge and treatment of mentally ill patients, with a mean ± SD knowledge score of 2.433 ± 0.871 and 2.483 ± 0.930 respectively. In this respect, the nurses had inadequate knowledge of legal and ethical responsibilities. Furthermore, nurses who hold negative attitudes toward psychiatric patients easily neglect that they have rights as other patients. Nurses' knowledge is very low in relation to basic knowledge of ethical patients' rights.

These previous results were parallel to those of a study done in Nigeria showed that more than two-thirds of nurses, had a knowledge deficit in legal concerns of nursing practice [24]. Meanwhile, the Egyptian study conducted by **Helmy and Soliman (2003)** [25] determined that most nurses had satisfactory knowledge about professional ethics. It is obvious from the present study result that nurses' knowledge about professional ethics varied in specific areas; it was poor in some areas, as respect patient rights, sincerity, and integrity. This may be result from a deficiency of training programs about professional nursing ethics.

In a similar study conducted in India, results indicated that nearly two-thirds of psychiatric nurses have a moderate information about patients' rights, with one-third possessing a great level of knowledge about the rights [26]. This finding is incongruent with **Koshy (2016)** [27] who concluded that nurses having good and excellent knowledge concerning legal and ethical concept, while a previous study showed that less than half of nurses had satisfactory knowledge about ethical principles [28].

The findings of the current study showed that almost three-fifths of nurses had unsatisfactory practices. The highest satisfactory percentage was to support the patient to participate in making decisions regarding the treatment plan, while the lowest satisfactory percentage was for the patient has the right to refuse treatment in some cases. These outcomes go online with, those a study done in 443 (numerous specialists qualified nurses) about the responsibilities of nursing staff in administration of patient management in Trust Hospital [(29)]. This study result revealed that nursing staff had inadequate knowledge of patients' rights and similarly on their legal responsibilities for patients. This study substantiated the fact that nurses had poor knowledge of the law that regulating their profession. In dissimilarity, the study results stated that the subjects had average level of knowledge (17.44 ± 4.44) concerning legal and ethical aspects in nursing while only 7 (14.00%) had poor knowledge and maximum 43 (86.00%) nurses had good level of practice (13.36 ± 1.66) concerning legal and ethical aspects of medication administration whereas none had poor level of practice.

The legal rights of those with mental disorders and ethical health care practices of mental health providers are ongoing concerns for psychiatric nurses. People with mental disorders are vulnerable to maltreatment and abuse; subsequently, laws have been passed that guarantee them legal security. Staff nurses have a vital role in health care setting. They can provide knowledge and favorable attitude to other professionals, family members and community [(4).]

The importance of psychiatric nursing ethics has been established as it supervises the performing of nurses as professionals in providing care for patients. As well, in the clinical setting of a study on suicidal persons detected that, nurses are holding a derogatory attitude toward patients despite the regulation made by the Ministry of Health in Saudi Arabia, which emphasizes their tasks toward the patients' ethical and legal rights [(30)]. Nurses should be experienced in lawful and ethical attributes of patients' nursing interventions. In fact, the application of ethical and patients' legal rights when delivering care is critical for all nurses because it is not only importance on the patients' rights, but also, the superiority of interventions that, they will receive [(31)].

Concerning barriers in nursing practice, regarding ethical aspects the current study results showed that barriers most frequently observed by the nurses who are working in the two selected psychiatric hospitals are lack of time, frequent number of patients with fewer nurses, the community's perception of inferiority

towards nursing profession; and lack of authority to make decisions. In the same line, a study in Iran suggested a minimal number of health professional workers [32]. Another study added that the lack of nurses' number are not protecting nurses' autonomies and their employment in the wrong areas [33]. Furthermore, several studies clarified that lack of time is considered the main barrier in the implementation of evidence-based practice in nursing profession [34, 35]. Previous studies stated further barriers as low salary [36], shortage of facilities and future uncertainty [37]. Other barriers associated to psychiatric care are the stigma [38], treatment price, deficiency of knowledge, and loneliness [39]. However, another study revealed that stigma is an unimportant barrier [40]. In addition, a previous study carried out by **Hanson et al. (2013)** [41] revealed that the health professional workers' attitude about people with mental disease is the most pronounced negative attitude compared with those in other inpatient wards.

The current study results showed that the most common barriers in nursing practice regarding ethical aspects are the community's perception of inferiority towards nursing profession; and lack of authority to make decisions. As well, in a recent study by **Blackwood and Chiarella (2020)** [42] which mentioned what was stated by a Greek nurse; "Basically, I get the impression that we do not appreciate ourselves. We count on other professionals, like psychologists and doctors". Also, another study explained how much nurses in Gambia have been refused and that the same levels of authority and autonomy were approved to other healthcare specialists. As well a consequence of nursing's low prestige in culture, they claim that nurses are less concerned with supporting the integrity of the profession [43].

Inappropriate head nurse staff communication as lack of awareness and sensitivity between as supervisors and nurses were other important management barriers to observing professional ethics from the nurses' perspectives. This is concerned with the responsibilities of nursing managers in producing a work atmosphere for nurses appropriate enough to provide effective care [44]. Research findings of a previous survey on the difficulties to psychiatric treatment, highlighted that negative experience with the provider will cause the users to stop the treatment that they are receiving or select another health service for the care of people with mental illness. These problems can result in decreased patients' care management [45].

As well, the findings of the current study indicated that there is a positive

statistically significant correlation between legal knowledge and ethical practices among participating psychiatric nurses (r = 0.289, p < 0.000). Considering the association between knowledge and practices relating to legal and ethical aspects, a study showed that the mean knowledge and practice scores were 17.44 and 13.36 respectively. The statistical testing showed a correlation coefficient, (r = 0.54) and therefore there was a moderately positive association between knowledge and practice levels of subjects [(46)].

In addition, the current study results stated that there are a statistically significant correlations between ethical practice aspects and education level (r = 0.323, p < 0.012); and years of experience (r = 0.492, p < 0.000). As well, the present study finding showed that there are statistically significant correlation between ethical practice aspects among participating psychiatric nurses and had training courses in psychiatric nursing (r = 0.616, p < 0.000); had training courses in communication with patients (r = 0.471, p < 0.000); and had training course specified in dealing with psychiatric patients (r = 0.486, p < 0.000). In a previous study, that the nurses reported the lack of training on ethical issues during the undergraduate nursing education to be the most important management barrier to observance of the codes of professional ethics [(47)]. This highlights the emphasis on nursing education as a practical and effective approach to eliminate existing barriers [(48)]. Other available findings indicated that correct and continuous education of ethics, including its education to health care staff, in health care systems is necessary [(49)].

Regarding to correlations between nurses' total knowledge and practices of professional ethics and their personal characteristics, results of the current study showed that there were no statistically significant correlations between staff nurses' knowledge and their sex, educational qualification, and experience concerning ethical and legal practices in the field of psychiatric nursing. In the same manner, the study findings conducted by **Kumar et al. (2011)** [(26)] clarified that no correlations were detected between nurses' knowledge of ethics and their sex, marital status, or designation.

The results of current study showed that there are highly a statistically significant correlations between knowledge among participating psychiatric nurses and had training courses in psychiatric nursing (r = 0.610, p < 0.000); had training courses in communication with patients (r = 0.645, p < 0.000); and had training course specified in dealing with psychiatric patients (r = 0.655, p < 0.000).

These findings go with those of **Demirsoy and Kirimlioglu (2016)** [50] which showed the importance of continuing education and intensified efforts to ensure that staff nurses acquired the necessary knowledge that was needed to reduce the effects of misuse of law and negligence of psychiatric nursing performance.

The healthcare professionals at the Training and Research Hospital of the Faculty of Medicine, in Turkey, with the aim of determining nurses' attitudes towards the right of privacy and confidentiality, which are important components of patient rights. The research data reported that nurses were informed about patients' rights and strongly agree to protect the privacy and confidentiality of patient data as a patient's right. Then, with a view to protect and implement patients' rights, it is a must to inform and raise awareness of healthcare professionals about patients' rights, legal responsibilities of healthcare professionals, and communication techniques [51].

A comparative study of nurses' experiences of ethical dilemmas achieved in China and Switzerland showed that there were variations in some ethical conceptions containing belief and culture. The Chinese nurses were more dissatisfied, sad, and nervous during and after the worktime associated to nurses from Switzerland. Nevertheless, two groups experienced ethical problems of poor communication with patients due to heavy workload [52, 53]. Thus, ethical issues would be taken seriously as a basic prerequisite.

The Indian Mental Health Care Act (2017) declared the discussions about the rights of patients with psychiatric disorder and layed down the ethical and legal accountabilities of mental health professionals and the government. The human rights of patients with mental disorders are at par with the basic rights of human and want to be talk about them clearly as they belong to a susceptible group of treatment, evaluation, and research perspectives [54]. Such rights decode to the ethics of mental care that transmit to respect for autonomy, the principles of beneficence, justice, non-maleficence, confidentiality disclosure, boundary violations, informed consent, and involuntary treatment [55,56]. Disability in mental disorder is the situation in which the patient has disclosed symptomatic recovery with the existing treatment modalities, though, has insufficiencies that lead to important problems with self-care, interpersonal, occupational functioning, social, and impaired quality of life that may want aggressive rehabilitation [57].

Recommendations:

Based on the findings of the current study, the following recommendation can be suggested:

- There is a need to improve the knowledge of the nurses on legal and ethical responsibilities so that they can improve their practices, overcome barriers affecting inpatient psychiatric nursing care and uplift the quality of nursing services and effective nursing care that lead to patients' satisfaction.

-Develop nursing education programs that are specifically focused on ethical problems in the fields of mental health and psychiatry to increase their awareness regarding ethics-legal aspects.

-The nursing managers of psychiatric hospitals should value and respond promptly to the motivational, educational, psychological, social and career development needs of psychiatric nurses.

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Effect of Nursing Intervention Program related to Nursing Iatrogenic Events on Nurses Performance and Clinical Outcomes of Neonates at Neonatal Intensive Care Unit

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Abstract

Background: Iatrogenic events that cause harm to neonates in NICU is characterized as adverse events. Neonates are a particularly vulnerable population and may be at further risk of harm from medical errors because of their low birth weight, physiological immature, limited compensatory abilities and extensive exposure to medication in NICU. Nurses are the first line of defense to safeguard against iatrogenic errors. **Aim of this study** was to evaluated the effect of educational intervention program on nurses' performance and clinical outcomes of neonates related to nurses' iatrogenic at neonatal intensive care unit. **Subjects and method** The study was conducted at Neonatal Intensive Care Unit of Tanta University hospital. A quasi-experimental design was used. **Sample** All nurses (57) working in the previously mentioned setting were included the study and all neonates admitted within six months. **Tools:** Three tools were used to collect the required data; Structured Interview schedule, It was consisted of two parts, part one was biosocial data of nurses, neonate and part two was nurses' knowledge (tool I). Observation checklist to assess nurse's practice regarding iatrogenic errors at NICU (tool II). Neonate's clinical outcomes schedule to assess outcomes of neonate post program (tool III). **Results** of the study revealed that, before program the total knowledge scores of all nurses were poor while majority of them had good scores after implementing program. Total practice scores of all nurses were good also immediately and after one month. There were statistical significant difference between nursing knowledge, practice and biosocial data. The outcome of neonates showed an improvement in neonatal condition of discharge. **Conclusion** Intervention program was effective and improving nurses' knowledge and practice as well as reducing iatrogenic errors at NICU. **Recommendations** were suggested that establish continuous monitoring system to assess nurses practice in NICU settings especially for iatrogenic errors.

Key wards: Iatrogenic Events, Nurses' Performance, Clinical Outcomes, Neonatal Intensive Care Unit, Intervention Program.

Introduction

Iatrogenic errors is defined as adverse condition occurring as a result of a diagnostic procedure or treatment by a medical team including physicians, nurses, technicians, laboratories, and anyone involved in neonatal care. Iatrogenic that cause harm to neonates in neonatal intensive care unit are characterized as adverse events and it can lead to morbidity and mortality that could be prevented.[1,2] Iatrogenic events can be cause harmful effect to neonates at NICU. Neonates are a particularly vulnerable population and high risk of harm from medical errors because of small body size, weight-based dosages, off-label drug usage, availability of stock solutions in a variety of concentrations, inability to communicate with providers, and immature body organs affecting drug absorption, distribution, metabolism, and excretion.[3]

Iatrogenic effect has been increasingly seen in the neonatal intensive care unit. In addition, increased awareness and the introduction of more appropriate quality control measures have resulted in higher levels of suspicion about and increased recognition of complications associated with delivery of care. The incidence of iatrogenic effect also rises with the increased length of hospital stay and level of immaturity. Approximately half of the iatrogenic effect is related to medication error. The other iatrogenic effects are due to nosocomial infections, insertion of invasive procedure, prolonged mechanical ventilation, administration of parenteral nutrition, skin damage and environmental hazards. [4]

The incidence of iatrogenic event estimated to be 20 to 26 per 1000 neonate, and many of these events were described as preventable, because 30% to 50% of such events are harmful, iatrogenic events may have a considerable impact on neonates morbidity. Among the iatrogenic reported in the various studies reviewed, medication errors were the most frequent error type. World health organization, 2015 was estimated that 1 in 10 patients worldwide are affected by medical errors.[5]

Neonatal nursing is considered a specialty area, requiring specialized knowledge and training. By adhering to recognized and accepted internal and external policies, neonatal nurses will uphold the standard of care set for their area of practice and avoid legal liability. [6]

Aim of the Study

This study aimed to evaluate the effect of educational intervention Program about iatrogenic errors on nurses' performance and clinical outcomes of neonates at NICU.

Subjects and Method

This is a quasi experimental research design. The study was conducted at; Neonatal Intensive Care Unit of Tanta University hospital which contain 30 incubators. All nurses (57) working in the previously mentioned setting were included in this study and all neonates admitted within six months.

Three tools were used to collect data:

Tool I: Structured Interview schedule.

It was consisted of two parts:

Part one: - Biosocial data of Nurses such as: age, educational level, years of experience and any training program about neonatal care.

- Biosocial data of Neonate such as: age, sex, date of admission and diagnosis

Part two: - Nurses' Knowledge about iatrogenic errors at neonatal intensive care unit such as: (Definition, Type, Causes of iatrogenesis, How to improve neonatal safety in the NICU and prevent common adverse events).

Scoring system for nurses' knowledge: Aquestionnaire including 4 sections with the total items 21each item was as follow: the definition of iatrogenesis (1 item), type of iatrogenesis in NICU (18item), causes of iatrogenesis (1 item), How to improve neonatal safety in the NICU and prevent common adverse events (1 item).

Three level of scoring for question were used: Correct and complete answer was scored (2)**,** Correct and incomplete answer was scored (1) and Don't know or incorrect answer was scored (0)

The total scores of nurses' knowledge were classified as follows: Poor level scored < 65%, Fair level scored >65% to <75% and Good level scored > 75%.

Tool II: Observation Checklist

This tool was developed by (Wong's 2003)[7] and adapted and modified by researcher after reviewing the relevant literature to assess nurse's practice about iatrogenic errors at NICU includes:

1- infection control which contain hand washing before and after contact with neonate, handling contaminated item and collecting a specimen. Personal protective equipment. Safe handling and disposal of sharps. Environmental clean or disinfect or sterile. Use aseptic technique. Isolate infected neonate.

2- Medication administration including the 5 rights (neonate name, medication, dose, route of administration, time and frequency)

3- Mechanical ventilation includes check parameter of ventilator, suitable position of endotrachial tube, device connections are well connected with each other and Dispose of condensate water vapor on the inner walls of device connection and Note the presence of skin lesions around the nasal or lips location of the fixation

and Change the location of the installation from right to left and vice versa daily and Make physical therapy of the chest and Suction by using the largest catheter is possible to enter the laryngeal tube.

4- Phototherapy errors include Cover eye and genital organ, Monitor neonate's body temperature, Change his position every 2 hours.

5-Record and report errors :Record nursing notes every shift and explain by details all about neonate to follow their progress, Nursing care plan should be record suction, physiotherapy, and check feeding intolerance signs, intake and output and incubator temperature.-Initial assessment on admission as (anthromeasurement, vital signs and physical examination) should be recorded.

6-Invasive procedure errors include Peripheral IV line placement, Heel prick and capillary blood sampling and Arterial blood sampling.

Scoring system for nurses' practice:

Each item in the check list was scored as following Complete done was scored (2), Incomplete done was scored (1) and Not done was scored (0).

The total scores of nurses' practice were classified as follows More than 75% was considered satisfactory and Less than 75% was considered unsatisfactory.

Tool I, II were used three time before, immediate and after one month of conducting the educational program.

Tool III: Neonate's clinical outcomes schedule: It was developed by (Wong's 2003) [7] and modified by the researcher after reviewing the relevant literature and used to assess neonate's condition post intervention program. It was included hospital stay at NICU and Condition at discharge (Improved or Died).

Method

The study was accomplished through the following steps:

1- Administrative process: Official approval was obtained from the hospital administrative authorities of the previously mentioned setting after explanation the aim of the study to get their cooperation and acceptance.

2- Ethical considerations:

Approval from ethical commity to conduct this study are obtained. Confidentiality and privacy regarding data collection were taken into consideration. The researcher emphasized that participation in the study is voluntary and anonymous and nurses have the right to withdraw at any time. Informed consent was taken from all nurses working in the previously setting. Nature of the study was not causing any harm or pain to entire sample.

3-A pilot study was carried out before starting the data collection. It was done on a sample of 10% to evaluate the clarity and applicability of the research tools and the necessary modifications was done. Pilot study was excluded from the study sample.

4- Content validity was done by five experts in the field of the study.

5-Reliability of the tools was done using appropriate test.

6-Tools development: structured questionnaire sheet consisted of three tools collection; **Tool (I)** was developed by the researcher after reviewing relevant literatures and used to collect biosocial data of nurses and neonates as well as to assess nurses' knowledge about iatrogenic errors at neonatal intensive care unit. **Tool (II)** was adapted and modified by the researcher to assess nurse's practice regarding iatrogenic errors at NICU, It was used three times before, immediately and after one month of data collection. **Tool (III)** was adapted and used to assess clinical outcomes of neonate after applications of the intervention program.

7-Data collection was conducted in three phases as follows:

1. Assessment phase: To assess nurses' knowledge about nurses' iatrogenic at NICU using Tool (I) part 2 before apply the educational program.

2. Planning phase: Each nurse was observed by the researcher at different shift to evaluate their practices regarding to iatrogenic errors at NICU using Tool II. Teaching program was applied to all nurses through five sessions, Nurses were divided into six groups (each group consisted of ten nurses). The time for each session was ranged from 30- 45 minutes. Teaching methods were used when conducting session educational Group discussions, demonstration and re demonstration, power point presentation and audiovisual material were used to facilitate their learning.

3. Implementation phase: First session: covered the following topics: Definition, Type and Causes of iatrogenic errors at NICU. **Second session:** focused on How to improve neonatal safety in the NICU and prevent common adverse events. **Third session:** concentrated on as nurse's practice regarding to infection control and medication administration at NICU.

Fourth session: demonstrating mechanical ventilation and phototherapy. **Five sessions:** it was concentrated on invasive procedure and demonstrating record and report at NICU.

4. Evaluation phase: Each nurse was evaluated by the researcher post tested on an individual basis to assess their knowledge and practice about iatrogenic

errors at NICU using **Tool I part 2 and Tool II**. Each neonate in NICU was evaluated using **Tool III.** The data were collected within 6 month from the beginning of february2020 to july2020.

Results

Table (1): demonstrates the percentage distribution of biosocial data of the studied nurses. It was found that, the mean age of the participant nurses was 31.017 ± 6.629. Regarding educational level, it was found that, less than half of nurses (43.9%) had Bachelor degree of nursing science, while about (22.8%) had Technical Nursing Institute and (33.3%) had Nursing school. Concerning their years of experience, it was observed that, the mean years of experience were 7.333 ± 6.985. Regarding to Previous training program, it was found that two third of nurses (64.9%) had training about neonatal care.

Table (2): demonstrates the percentage distribution of biosocial data of the studied neonates. It was found that, the mean age was12.430 ± 8.757 days. Regarding their gender, it was found that, 48.0% of neonates were male, while 52.0% were female. Concerning Diagnosis, it was observed that, less than one third 30.0% of neonates had Low birth weight followed by jaundice 29.0%, Infant of diabetic mother 10.0%, Respiratory distress syndrome 18%, Pneumonia 9% and only 4% had Transnet tachypnea of neonates.

Figure (1) illustrates total nurses' knowledge about iatrogenic errors at neonatal intensive care unit, it was found that, before program slightly more than three quarters of nurses (77.2%) were poor while after one month of the program implementation, the answer of majority nurses (98.3%) were good, There were a statistical significant difference between nurses knowledge about iatrogenic at neonatal intensive care unit ($P < 0.05$).

Figure (2) illustrated scores of total nurses' practice about iatrogenic errors at neonatal intensive care unit. It was noticed that, the mean score of nurses' practice were 64.35±5.05before the program implementation, compared by 84.97±2.46, and 78.84±4.39 immediate and after one month of the program implementation respectively. There were improvement in total nurses' practice scores immediately and one month compared by before the program. With a statistical significant difference ($P = 0.0001$).

Table (3) illustrates that percent distribution of neonate's clinical outcomes post intervention program regarding length of hospital stay at NICU and condition at discharge, it was detected that, the mean score to length of hospital stay at NICU

were 16.690 ± 8.66, and 94% of neonates at discharge were improved.

Table (4): clarifies the correlation between total nurses' knowledge score and practice before, immediate, and after one month of the program implementation. It was found that, before the program implementation 57.8% of nurses had poor knowledge and unsatisfactory practice scores while as all of them (100.0%) and the majority of them (98.3%) had good knowledge and satisfactory practice scores immediately and one month after the program implementation respectively. There were a statistical significant difference between immediate, and after one month of the program implementation (P value > 0.05).

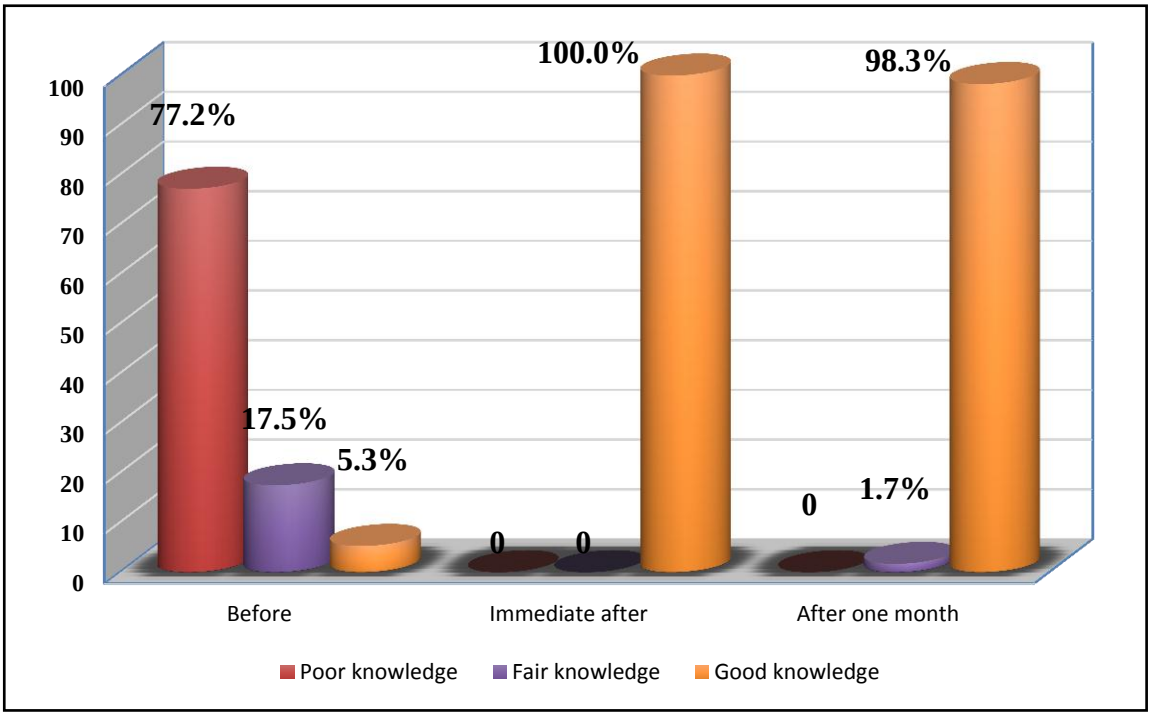
Table (5): Show relation between mean of total nurses' knowledge and practice scores and their biosocial data. It was found that Mean±SD were 15.296±4.36 and 12.148±5.76 immediate than before and after one month than before program for total knowledge score of the age between 25 - < 35years of the studied nurses while Mean±SD were 21.148±4.85 and 19.000±6.12 immediate than before and after one month than before program for total practice score. There were a statistical significant difference between mean of total nurses' knowledge and practice scores and their biosocial data (P value > 0.05).

Table (1): Percent distribution of studied nurses regarding biosocial data

Biosocial data of studied nurses	(n=57)	
	No	%
Age (years):		
< 25	12	21.0
25 - < 35 35 – 45 **Range**	27	47.4
Mean±SD	18	31.6
	20 – 45	
	31.017 ± 6.629	
Educational level		
Nursing school (3 years)	19	33.3
Health Technical Institute	13	22.8
Bachelor of nursing	25	43.9
Years of experience		
<10	40	70.2
10-<20	10	17.6
20-< 30	7	12.2
Range	1 – 23	
Mean±SD	7.333 ± 6.985	
Previous training program		
No	8	14.0
Basic life support	9	15.7
Infection control	10	17.6
Neonatal care	37	64.9
Ventilator care	4	7.0

Table (2): Percent distribution of studied neonates regarding biosocial data

Biosocial data of studied neonates	(n=100)	
	No	%
Age (days)		
< 10	50	50.0
10 - < 20	23	23.0
20 - 30	27	27.0
Range	1 – 30	
Mean±SD	12.430 ± 8.757	
Sex		
Male	48	48.0
Female	52	52.0
Diagnosis:		
Respiratory distress syndrome	18	18.0
Pneumonia	9	9.0
Transnet tachypnea of neonates	4	4.0
Infant of diabetic mother	10	10.0
Jaundice	29	29.0
Low birth weight	30	30.0



- Some neonates had more than one problem.

Figure (1): Total scores of nurses' knowledge about iatrogenic errors at neonatal intensive care unit

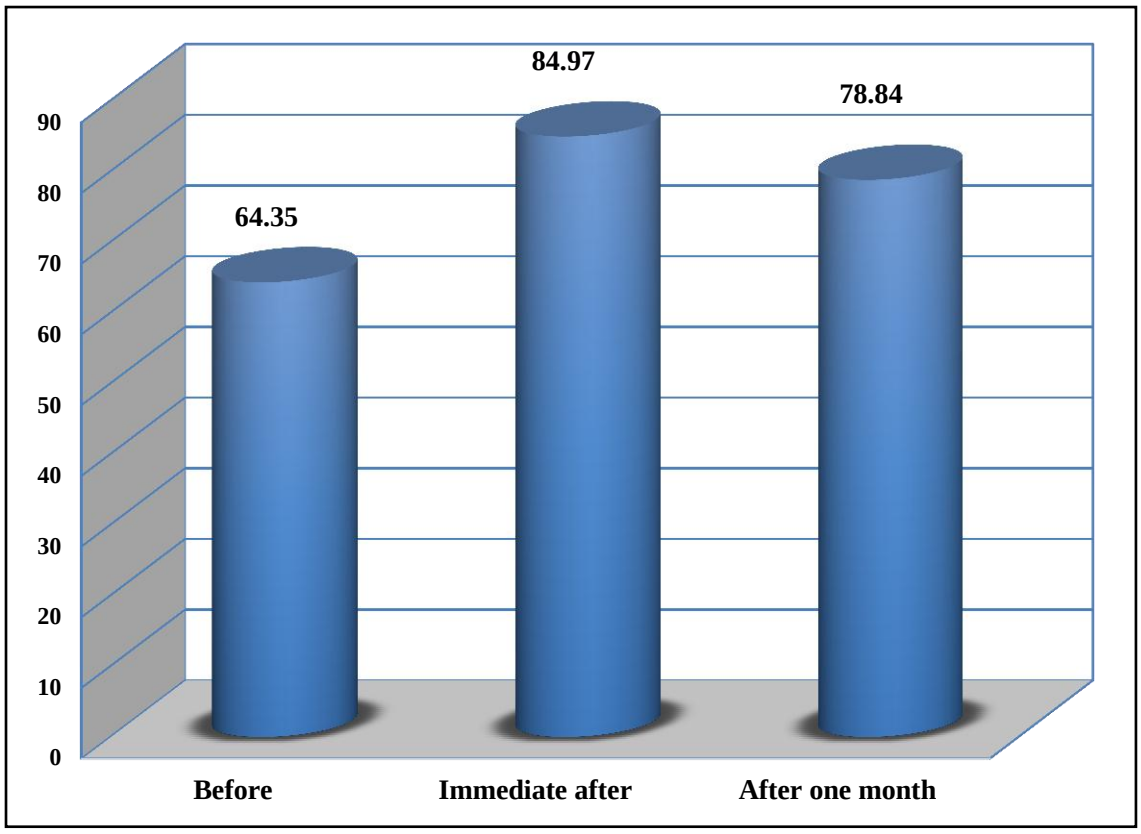


Figure (2): Scores of total nurses' practice about iatrogenic errors at NICU.

Table (3): Percent distribution of neonate's clinical outcomes related to length of hospital stay at NICU and condition at discharge post educational program.

Nursing assessment	Neonate's clinical outcomes post educational program (n=100)	
	N	%
Length of hospital stay at NICU (days)		
< 10	27	27.0
< 20	40	40.0
< 30	20	20.0
< 40	13	13.0
Range	3 – 34	
Mean±SD	16.690 ± 8.66	
Condition at discharge		
Improved	94	94.0
Died	6	6.0

Table (4): Correlation between nurses' knowledge scores and practice about iatrogenic errors at NICU.

Total practice level	Total knowledge level						R	P
	Poor Knowledge		Fair Knowledge		Good knowledge			
	No	%	No	%	No	%		
Levels of total practice before program.								
Unsatisfactory practice	33	57.8	0	0.0	0	0.0	0.403	0.002*
Satisfactory practice	11	19.3	10	17.6	3	5.3		
χ^2	**23.156**							
P	**0.000***							
Levels of total practice immediate after program.								
Unsatisfactory practice	0	0.0	0	0.0	0	0.0 100.0	0.465	0.0001*
Satisfactory practice	0	0.0	0	0.0	57			
χ^2	--							
P	--							
Levels of total practice one month after program.								
Unsatisfactory practice	0	0.0	0	0.0	0	0.0	0.382	0.006*
Satisfactory practice	0	0.0	1	1.7	56	98.3		
χ^2	--							
P	--							

*** Statistically Significant difference at (P<0.05)**

Table (5): Relation between changes in mean of total nurses' knowledge and practice scores and their biosocial data immediate and one month after than before the program intervention.

Biosocial data	Total knowledge score (n =57)				Total practice score (n =57)			
	Changes immediate after than before		Changes after one month than before		Changes immediate after than before		Changes after one month than before	
	Mean±SD	F value P	Mean±SD	F value P	Mean±SD	F value P	Mean±SD	F value P
Age in years:								
< 25	13.666±4.20	0.967	11.250±4.57	0.604	22.833±5.18	**2.907**	14.629±5.81	**5.955**
25 - < 35	15.296±4.36	0.387	12.148±5.76	0.550	21.148±4.85	**0.063***	19.000±6.12	**0.005***
35 – 45	15.888±4.45		13.333±4.72		18.277±6.05		11.333±6.09	
•Education level:								
Nursing School (3years)	13.631±4.57	2.067	11.000±5.72	1.524	19.400±5.86	1.062	12.640±6.09	**3.611**
Health Technical Institute	15.153±4.05	0.136	11.769±5.57	0.227	21.384±4.80	0.353	13.615±6.83	**0.034***
Bachelor of Nursing Science	16.280±4.15		13.640±4.40		21.631±5.42		17.578±5.85	
• Years of experience:								
< 10	14.675±4.34	1.022	11.825±5.32	0.719	21.500±5.00	1.909	15.775±6.22	2.725
10- < 20	15.600±5.05	0.367	13.100±4.67	0.492	18.800±7.40	0.158	11.500±6.51	0.075
20- < 30	17.142±3.18		14.142±5.27		18.000±4.39		11.57±6.29	

***Statistically Significant difference at (P<0.05)**

Discussion

Iatrogenic error that cause harm to neonates in neonatal intensive care unit are characterized as adverse events and it can lead to morbidity and mortality that could be prevented. (4) Iatrogenic errors affect one in ten newborn worldwide, and their implications may include death, permanent or temporary harm and financial loss. (8)

Neonate safety is a worldwide priority aimed at preventing medical errors before they cause death, harm, or injury. (5) Nursing education focus on prepare nurses for the future, as health care is dynamic. Nurses need for both strong theoretical background and an equal amount of hands-on clinical experience. (9)

The present study revealed that, one third of studied neonates were low birth weight infants. This may be due to that low birth weight infants need complex care, often critically ill, requiring intensive treatments, assisted ventilation, and prolonged length of stays, factors that independently increase their risk of adverse events including iatrogenic errors. (10) The current findings are go in the same line with **Kugelman (2018)**, **EL Meneza (2018), Kanter(2014)** who reported that higher incidence of iatrogenic errors occurring during the care of preterm infants and low birth weight infants. There were a significant inverse correlation between, birth weight and iatrogenic errors. (11, 12, 13)

In the current study, It was observed that, most of nurses' answer about iatrogenic errors were incorrect before implementing the intervention program while their knowledge improved after implementing of intervention program, it can be explained that, this improvement occurs because nurses need continuous instruction and resource to be educated and updated their knowledge.

The results of present study revealed that total nurses' practice scores were satisfactory practice immediately and one month compared by before the program nearly half of nurses' practice were satisfactory practice with a statistical significant difference.

This result was in an agreement with **Aboalyzeed (2019)** who found that, the total practice scores of all nurses' were poor before implementing practice guidelines. While all nurses' practice were good immediately after application of the practice guidelines and half of nurses' practice were good one month later with statistical significant difference. (14)The results of the present study revealed that, there was statistically significance correlation between nurses' practice and their knowledge after implementing program. Knowledge and practice were improved parallel; this reflects the importance of integration between theory and practice providing an optimum

learning and facilitates the acquisition of the clinical skills of nursing. Also this may be related to the highly expressed need of this group of nurses to learn more about iatrogenic errors.

This finding was in agreement with **Gijare (2012), and Hamid et al**., **(2015),** who found that statistically significant positive correlation between nurses' knowledge and practice about iatrogenic errors. [15, 16] While **Askarian et al., (2017), and Najeeb & Taneepanichsakul (2016)** contradicted with the current finding and they mentioned that no correlation between knowledge and practice. [17, 18]

Regarding the relation between biosocial data of nurses and their knowledge and practice about iatrogenic errors before, immediate and one month after implementing program guidelines the study revealed that, a statistically significance relation between nurses' knowledge and practice and their biosocial data. This may be related to that total number of bachelor degree of nursing was nearly half of them and, nearly half of them was aged between 25 - < 35years**.**

From my point of view the good instruction availability of resource audiovisual are very important to facilitate their understanding and reflect on good practice. it may be because their age were between 25 - < 35years or their educational level were bachelor of nursing science or their experience were less than 10 years, all together helping to understand the instruction and improve their practice.

This finding was disagree with by **Abdel Aziz (2014**) who mentioned that no significance relation between nurses' knowledge and their biosocial data. As well **Gijare (2012)** reported no significant statistical difference in pre and post test knowledge & practice scores of various age groups and different years of experience. [19, 14]

Najeeb & Taneepanichsakul (2016) reported a negative relationship between knowledge and practice regarding infection control among nurses and doctors. Moreover, age and years of experience of the studied group, were negatively correlated with their knowledge and practice of infection control. In this regards **Alwutaib et al., (2012)** revealed that, older age is an important determinant of lower level of knowledge score. [20, 17, 18] As well **Gijare (2012)** reported no significant statistical difference in pre and post test knowledge & practice scores of various age groups and different years of experience. [15]

Finally the outcome of neonate improved after program compared with pre program. The hospital stay became short period after program was given, this indicated also the good instruction was benefit to the neonate

and reflect the nurses' knowledge and practice.

Conclusion

Based on the findings of the present study, it can be concluded that nurses' knowledge and practices about iatrogenic errors were improved after program implementation.

There were a statistical significant difference between nurses' knowledge, practice and their biosocial data before, immediate and after one month of the educational program.

Recommendations

Based upon the findings of the current study the following recommendations were suggested:

-Establish continuous evaluation system to evaluate nurses' knowledge and practice about iatrogenic errors at NICU.

- Conducting continuous in service training program to nurses for update their knowledge and practice about iatrogenic errors at NICU.

-Further researches should be conducted about iatrogenic errors to find out the most errors in different pediatric care setting.

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Effect of Guideline Education on Knowledge and Performance of Mothers regarding Using of Cook Salt for Management of Infants with Granuloma Umbilical

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Abstract

Granuloma Umbilical from major problem in neonates and young infants. It is reported frequently by mothers as continuous leakage of secretion at umbilicus site following cord separation. Delayed management of granuloma, it remain oozing and causes persistent irritation for long period reach weeks. Several management modalities were performed for umbilical granuloma including; using cook salt, ligation of the granuloma, cauterization chemically with silver nitrate or copper sulphate, electro-cauterization, cryocauterization and excision surgical . **Aim of the study**: Evaluate mother knowledge and performance regarding using of cook salt for management of infants with granuloma umbilical. **Subject and Methods: Research Design:** A quasi-experimental research design was used **Setting**: The study was conducted at outpatient pediatric department of Tanta and Menoufia University Hospital. **Tools:** Two tools were used: Structure interview schedule was developed by the researcher included three parts: **Tool I:** Biosocial data of infants and their mother, mothers' knowledge and reported practice was evaluated by using observational check list about cook salt use for umbilical granuloma. **Tool II:** Guideline reported educational intervention for the mothers **Results:** Infants with granuloma showed complete resolution after course of cook salt treatment. **Conclusion**: Using of cook salt for management umbilical granuloma is cost-effective, simple curative and safe mode of treatment which can be performed by mothers at home. **Recommendation:** Using of cook salt as a treatment modality should be more encouraged by the health staff.

***Key words*:** knowledge, granuloma, cook salt.

Introduction

Umbilical granuloma occur in about 1 in 500 babies. Regardless it generally harmless to the baby, it causes mothers a lot of anxiety, parents might worry regarding their infants developed an infection, pain at the umbilical and usually the appearance is worrisome. The cord normally dries out and gradually falls off at around 5-14 days following delivery. As the cord dried and falls off, the umbilicus base rapidly heals and covered with squamous epithelium. Delayed fall of the umbilical cord stump, leukocyte adhesion disorder should be suspected. The process of formation of granuloma totally unclear. Predisposing factors including; disrupted healing process and inflammation resulting in overgrowth of endothelial cells and inadequate epithelization. Also inflamed, often pinkish fleshy swelling with exudation may be formed [1.2].

The first use of salt was in 1983, treating of over 100 infants with granuloma with no evidence of recurrence. Salt therapy has been shown to be safe and effective; it is popular with families and virtually free. Proper management of granuloma depends on corrective diagnosis confirmed by a competent professional then cook salt management can be carried out at home, with medical review only if symptoms do not resolve [3,4].

Granuloma umbilical from major problem in neonates and young infants. It is acquired abnormalities, represents inflammation of granulated tissue that still not epithelialized. Over growth of granulated tissue can occur. Persistent of the granuloma for long time will need some type of therapy. Salt therapy usually clears the granuloma within days to weeks. If a complete cure is not occurred within this time; surgical intervention can be performed [5-8].

Mechanism of cook salt work at granulated tissue; draws water out of the cells causing shirking granuloma; the skin around the umbilicus should be cleaned immediately with warm water then full dryness is obtained, soft paraffin jell to the surrounding skin, very small pinch of cook salt to the umbilical granuloma were applied, cover the affected area with a gauze swab for 30 minutes. After that time clean the affected area with warm water, remove all remaining particles of salt, then dry the area, and perform this technique twice a day for three days. After that time granuloma has become smaller, changed its color or completely dried up. A health professional should observe the granuloma after seven days [9-11].

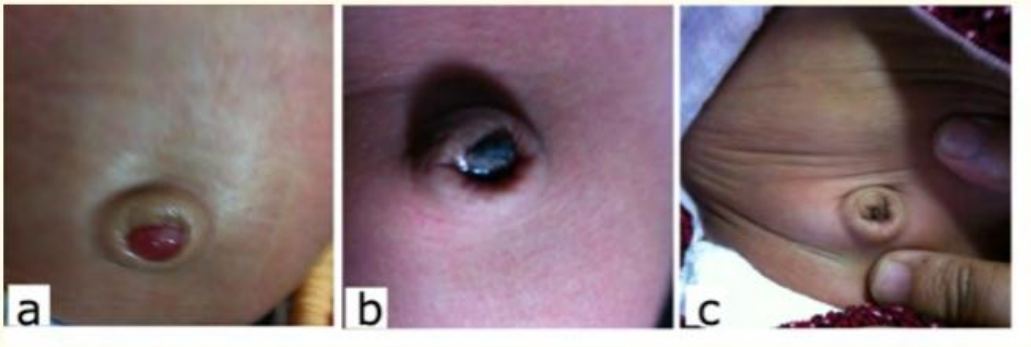

Figure 1: *(a) Prior to treatment. (b) 2nd day of salt therapy. (c) Post 3rd day of salt therapy.*

Dhungel S.,et al. Outcomes and Cost Analysis of Salt Therapy Versus Silver Nitrate for Treatment Granuloma:4 Years' Experience in Private Health Center EC paediatrics 7.7(2018):653-9

Aim of the study

Was to assess Effect of guideline education on Knowledge and performance of mothers regarding using of cook salt for management of infants with granuloma umbilical.

Research hypothesis

Guideline education expected to improve Knowledge and performance of mothers regarding using of cook salt for management of infants with umbilical granuloma.

Subjects and Method

Research Design:

A quasi-experimental research design was used

Setting:

The study was conducted at outpatient pediatric department of Tanta and Menoufia University Hospital.

Subjects:

Convenience sample of 40 mothers attending to the clinics with their infants suffering from umbilical granuloma.

Inclusion criteria

Infant's ages ranged from three to 16 weeks and both sexes attending to the outpatient's clinics with umbilical granuloma.

Exclusion criteria

Umbilical discharge with no overgrowth, patent vitellio-intestinal duct (VID), umbilical sinus, patent urachus and omphalitis, infant received prior treatment before attending the clinic.

Tools of data collection:

Two tools were used to collect data.

Tool I: Structure interview schedule was developed by the researcher included three parts: Part (1): biosocial data of the infant such as: age, gender, birth order, type of delivery, feeding type, time of cord falling and response to management of granuloma. Part (2): biosocial data of the studied mothers such as age, education

level, occupation and number of children.

Part (3): Mothers' knowledge about umbilical granuloma: it included fourteen questions related to mothers knowledge regarding definition of granuloma, time of development of granuloma after falling of umbilical stump, pain and irritation of the baby skin around the umbilical granuloma, development of rash, redness, pus, and discharge, around the umbilical granuloma, management of the umbilical granuloma by silver nitrate or stitching, using of Betadine for granuloma care , using of alcohol, using of cook salt over the stump to treat granuloma and presence of local signs of inflammation of the umbilical granuloma.

Scoring system for mothers' knowledge:

Correct answer was scored (1)

Wrong answer or don't know answer was scored (0)

The total score of Mothers' knowledge was calculated and classified as the following:

Less than 60% was considered poor knowledge.

60-74% was considered fair knowledge.

75<100 % was considered good knowledge.

Tool II: Guideline reported educational intervention for the mothers: it includes 9 health instruction related to mothers' performance to care for their infants with granuloma; expose the center of the umbilicus, pressing gently on the skin around the umbilicus , complete expose the granuloma, soft paraffin jell to the surrounding skin, clean umbilicus area gently, observe umbilicus area for infection, apply a very small pinch of cook salt over the umbilical granuloma, cover the area with a clean piece of gauze, secure the salt in place for 30 minutes, after that time clean the site using gauze swab soaked with warm water.

Scoring system for Mothers' reported guideline practice was follows:

Done correctly and complete was score (1)

Done incorrect or not done was score (0)

The total scores of Mothers' reported practice was calculated and classified into two levels as follow:

60 to less than 74 will be considered unsatisfactory.

75-100 % will be considered satisfactory.

Method:

- An official Permission was obtained from the responsible authorities.
- Ethical and legal consideration:

a-Ethical committee approval was obtained

b- The study was not harmful or painful for the participants.

c- Privacy & confidentiality was not violated throughout the study.

- The study tools were developed by researcher based on review of related literature to assess mothers' knowledge

and performance of umbilical granuloma care and the use of cook salt.

- Tools of data collection were validity by three juries (two from Pediatric nursing of Tanta University, and one from faculty of Medicine at Menoufia University.
- . A pilot study were performed on 10% of studied sample to test the tool for its clarity, applicability, feasibility and excluded from the study and the necessary modifications were done. The suitable statistical test was used for testing questionnaire reliability.
- Assessment tool for mothers' knowledge was filled in the outpatient clinic area (part 3). Mothers' reported practice observation checklist was filled out by the researcher to assess the actual mothers' practice before and after guideline intervention (Tool II). Study phases: the present study was established within four phases:

1-Assessment phase: It included assessment of mothers' knowledge and reported practice Tools I& II

2-Preparatory phase: It involves reviewing the national and international related literature concerning the studied topic and gathering the tools of the study.

3-Implementation phase: it included the following steps:

a. Setting objectives of the guideline.

b. Preparation of the content which covered the reasons behind the application of the session.

c. The teaching was conducted in two sessions. The time of each session was about 30-45 minutes or by a phone call.

d. Different methods and media of teaching were used including small lectures, discussion, demonstrations and pdf through watts-app.

- The first session include: definition of granuloma, time of development of granuloma after falling of umbilical stump, pain and irritation of the infant skin, development of rash, redness, pus, discharge, treatment by silver nitrate or stitching, using of Betadine to care for granuloma, using of alcohol as treatment of granuloma, usage of cook salt over the stump to treat granuloma and presence of signs of infection.
- The second session include: Focus on the infants with umbilical granuloma including expose the center of the umbilicus, pressing gently on the area around the umbilicus to complete expose the granuloma, soft paraffin jell to the healthy surrounding skin, clean umbilicus area gently, observe umbilicus area for infection, apply a

very small pinch of cook salt over the umbilical granuloma, cover the area with a clean piece of gauze for 30 minutes, after that time clean the site using gauze swab soaked in warm water.

4-Evaluation phase: Evaluation of mother's knowledge and reported practice was done before and after guideline education using Tools I& II.

- The data Collection was carried out from first day of January, 2018 to the last day of it, 2020. Statistical analysis: The data collected were organized, tabulated and statistically analyzed using statistical science (SPSS) version 21 for windows. Descriptive statistics were applied as frequency, percentages, means and standard deviation. Test of significance, Chi-square "X2", were used to test the study hypothesis.
- Reliability of the tools was done using Cronbach's Alpha. A significant level value was considered when $p < 0.05$ and a highly significant level value was considered

Results:

Table (1): Showed that the mean age of the studied infants group were 1.500 ±.71611, With predominance of male sex 65% more than three quarter (77.5%). of them delivered by CS. Predominance of breast feeding in the studied group (75%). The mean duration of cord falling was 2.375±0.70483 days while 92.55% showed excellence response to treatment.

Table (2): This table reported that nearly three quarter of mothers (72.5%), 50 %, and 62.5% were age less than 30 years of age, primary school, not working and had two children only.

Table (3): This table demonstrates that mothers' total knowledge score about using common salt for treating granuloma before and after health education implementation training. The table proved that mothers' knowledge were improved significantly after the educational intervention with mean± SD of 7.2±1.85 and 11.9 ± 4.07 pre and post the intervention respectively

Table (4): Revealed that more than half (52.5 %) of mothers had poor level scores of total knowledge pre the educational intervention compared to most of them 77.5 % after the educational intervention had good total knowledge score and there was significant improvement of the total mothers' knowledge level before and after the education with (p value =0.001).

Table (5): Illustrate mothers' reported practice before educational program, it was observed that all (100%) of them didn't exposure granuloma, cover area with a clean gauze, place 30 minutes and clean the site using a clean gauze soaked in warm water compared to post educational intervention where majority of them

(92.5%, 97.5%, 79.5% and 79.5%) respectively perform the steps. Difference between the two groups was highly significant correlation between before and after since P equal to .000. In addition; same table revealed that post health educational intervention majority of the studied mothers 95%, 95%, 95%,97.5% and 95 % exposed center of umbilical ,apply paraffin jelly ,clean with warm water, observe umbilical area for infection and apply small pinch of salt respectively compared to pre the intervention 25%,57.5%,45%,2.5% and 5% .

Table (6): Revealed that three quarter (75%) of mothers had poor scores of practice pre the educational guideline compared to post the educational intervention the majority of them 97.5 % had good the total knowledge score and there were statistical significant difference between the total practice pre and post the educational intervention (p value.003).

Table (7): It is evident from the table that there was a highly statistical significant correlation between mothers' age, and their total practice score pre the educational intervention where (P value .000) Also highly significant correlation was found between number of children and total mother knowledge and practice score post the educational intervention since (P value .000.) While there was no significant correlation was found between mothers of education post the educational intervention and their total knowledge and practice post educational intervention where (p value 0.350) and 0.134 respectively**.**

Table (1): Percentage distribution of studied infants related to their biosocial data

Biosocial data of studied infant	**N=(40)**	**%**
Infant age/weeks 3 >9 9>12 13≥ 16	 25 10 5	 62.5 25 12.5
Mean ±SD 1.5000±.71611		
Sex: Male Female	 30 10	 75 25
Birth Weight: 3 <5 kg ≥ 5kg More than5	 29 11 0	 72.5 27.5 0
Type of delivery Normal Cesarean	 9 31	 22.5 77.5
Type of feeding: Breast feeding Artificial feeding Mixed	 30 5 5	 75 12.5 12.5
Time the umbilical cord fall off/day from 7 to 8 from 9 to 11 more than 11	 t	 12.5 37.5 50
Mean ±SD of cord falling 2.375±0.70483		
Response of the treatment good response No response	 37 3	 92.5 7.5

Table (2): Percentage distribution of mothers related to their bio social demographic-characteristics (n=40)

Bio-social characteristics of studied mothers	**N= (40)** **No**	**%**
age/year - 20 < 30 - 30 < 40 - 40 ≥ 50	 29 10 1	 72.5 25 2.5
Mean ±SD1.30±.516		
Educational Level: - Illiterate - Primary school - Secondary education school - University education	 4 20 8 8	 10 50 20 20
Occupation: Not working Working	 29 11	 72.5 27.5
Number of children in the family:- 1 2 3 5 and more	 7 25 6 2	 17.5 62.5 15 5

Table (3): Mother's Knowledge about using salt to treat granuloma before and after implementation of health education

Mothers knowledge about granuloma	Pre health education N=(40)				After health education N=(40)				X^2	P
	True		False		True		False			
	No	%	No	%	No	%	No	%		
Granuloma										
- Definition	20*	50*	20	50	36*	90*	4	10	.333*	.036
- Time of formation	30*	75*	10	25	35*	85.5*	5	12.5	.480**	.002
- Cause of granulation pain	32	80	8*	20*	10	25	30*	75*	-.380-*	.016
- Causes of rash , Redness and pus fluid	30*	75*	10	25	36*	90*	4	10	.577**	.000
Treatment of granuloma										
- Using silver nitrate and stitching	25	62.5	15*	37.5*	7	17.5	33*	82.5*	.357*	.024
- Betadine	35	87.5	5*	12.5*	1	2.5	39*	97.5*	.424-**	.006
- Alcohol	37	92.5	3*	7.5*	18	45	22*	55*	.315*	.048
- Table salt	1*	5*	39	97.5	37*	92.5*	3	7.5	-.753-**	.000
Warning signs:-										
- Edema	35*	87.5*	5	12.5	39*	97.5*	1	2.5	.424**	.006
- Fever	36*	90*	4	10	36*	90*	4	10	.306	.055
- Redness	38*	95*	2	**5**	36*	90*	4	**10**	.688**	.000
- Pus	38*	95*	2	**5**	35*	87.5*	5	**12.5**	.607**	.000
- Pain	**38**	**95**	2*	**5***	**3**	**7.5**	37*	**92.5***	.286	.074
- Continuous cry	38	95	2*	**5***	11	27.5	29*	**72.5***	-.032-	.843
Total knowledge (mean± SD)	**%(mean± SD)** Pre				**%(mean± SD)** Post				T Paired	Sig
	7.2±1.85				11.9 ±4.07				489**	.001

***=Correct response**

***Statistical significant difference (p<0.05)**

****A highly statistical significant difference (*P* ≤0 .001)**

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Table (4): Distribution of the studied Mothers according to their total knowledge level about using of salt to treat granuloma pre and post educational intervention (n=40)

Total Knowledge	Pre Program Education (40)		After one month of Program Education (40)		X2	P-value
	No	%	No	%		
Good	1	2.5	31	77.5	489**	.001
Average	18	45	4	10		
Poor	21	52.5	5	12.5		

**. Correlation is significant at the 0.01 level (2-tailed).

Table (5): Mothers' reported Practice regarding using of salt to treat granuloma before and after educational intervention

Mothers practice	Pre Health Education (40)				(40) After health Education				T	P
	Done		Not done		Done		Not done			
	No	%	No	%	No	%	No	%		
1. Expose the center of the umbilicus.	10	25	30	75	38	95	2	5	.415	.132
2.Pressing gently on the area around the umbilicus	0	0	40	100	37	92.5	3	7.5	.806**	.000
3.Apply soft paraffin jelly to surrounding skin	23	57.5	17	42.5	38	95	2	5	.267	.096
4.Clean umbilicus area gently with warm water	18	45	22	55	38	95	2	5	.208	.199
5.Observe umbilicus area for infection	1	2.5	39	97.5	39	97.5	1	2.5	.875	.026
6.Apply table salt over the umbilical granuloma	2	5	38	95	38	95	2	5	.306	.05
7.Cover the area with a clean piece of gauze a	0	0	40	100	39	97.5	1	2.5	.806**	.000
8. Secure the salt in place for 30 minutes	0	0	40	100	39	97.5	1	2.5	.806**	.000
9.Clean the site using a clean gauze swab soaked in warm water	0	0	40	100	39	97.2	1	2.5	.806**	.000

Table (6) : Distribution of the studied mothers regarding their total practice level about using salt in the treatment of granuloma pre and post education(n=40)

Total practice of mother	Before health (n=40)		After health Education (n=40)		t	Sig
	No	%	No	%		
Good	0	0%	39	97.5	.454**	.003
Average	10	25	1	2.5		
Poor	30	75	0	0%		

**. Correlation is significant at the 0.01 level (2-tailed).

Table (7): Correlation between bio-socio characteristics and mothers' knowledge, practice pre and post the educational intervention

Variable	Mother' age		Number of children		Occupation		Level of education	
	R	p-value	R	p-value	R	p-value	R	p-value
Total knowledge pre	.135	.230	.038	.329*	.022	.360*	.040	-.325*
Total practice pre	.000	.776**	.000	.674**	.586	.089	.253	.185
Total knowledge post	.001	.516*	.000	.751**	.026	.352*	.350	.125
Total practice post	.104	.261	.000	.596**	.088	.273	.134	.240

**. Correlation is significant at the 0.01 level (2-tailed).

Discussion

An umbilical granuloma shapes like a small piece of bright red, moist flesh that still in the umbilicus after cord separation when normal healing should have occurred Child Health Information (2015)[11]. Despite the spontaneous regression of the untreated granuloma is not well documented, some authors recommend clinical follow-up (dry care) without any medication or intervention Hossain et al., (2015)[11],Lotain et al ., (2002)[14] and Whistion Hospital Children (2018)[10]. In this study pre health education the mothers did not have any knowledge about using salt for umbilical granuloma treatment but after health education the mothers had good knowledge. It was agreed with Haftu H, (2020) [16] who found after mothers were counseled on details how to apply the cooking salt and appointed for the subsequent follow-ups for assessment of the outcome, any adverse effect, and recurrences.

In this study, topical salt had a high response rate without recurrence. The curative mechanism of salt on granuloma is through its desiccant effect and other biologic properties; the high concentration of sodium ion in the area draws water out of the cells and results in shrinkage and necrosis of the wet granulation tissue. These properties are speculated to be part of the therapeutic mechanisms involved in our study. However, this effect is not so powerful as to cause damage to normal surrounding keratinized skin when applied for short duration. Sunshi et al.,(2018)[8] it was in accordance with a study conducted by Hossain., et al. [18]and Saleh .A(2016) [19] showed excellent response to the common salt over umbilical granuloma with no adverse effects. Salt therapy is associated with minor complications and less recovery time and total costs, compared with silver nitrate. The umbilical granuloma treated with common salt usually clears within 4 – days to weeks. Sunshi et al.,(2018) [18].

In this study after health education mothers had good practice response to use salt and the use of salt to treat granuloma easy to use and complete regression with no/reversible mild side effects of salt treatment are few in number. Assi (2020) [19],Lotan (2002)[14], Halftu (2020)[20] and Faranoush et al. (2006) [21].demonstrated a 100% cure rate of salt treatment with no adverse effect and no recurrence in the subsequent follow-up of the infants. Studies done by Halftu (2020)[14] show excellent response in 91.7% of infants with a clinical diagnosis of umbilical granuloma and treated with cooking salt Fahat (2008)[18], Bagadia et al. (2019)[19], Nathan (2020)[25]and Salah (2016) [10]. There were no reported side effects and no recurrence.

These infants were treated with surgery and the polyps were excised. Hossain et al (2012) [13]. This shows that the misdiagnosis of polyps for granuloma lowers the cure rate of salt treatment. We can conclude that the response rate in this study was higher than 91.7% if a corrected diagnosis of the umbilical granuloma was made. Fahat (2008)[21] who found infant's in the salt group showed an excellent response rate (95%) than silver nitrate (87.6%) and they had no reported side effects and recurrence rates. But in silver nitrate groups, 19% of them had complications, and 9% of them had a recurrence of the umbilical granuloma and infants were unresponsive to common salt and silver nitrate for the treatment due to misdiagnosis of granuloma for polyp Dhungel et al. (2018) [21].

Also. Badebrarin (2018)[22] did a clinical trial of infants with umbilical granuloma comparing the response rate of children who were treated with salt and surgical excision, which showed a 95% response rate after they were treated for five days and the unresponsive patients were treated for five additional days with salt and showed complete recovery except one who was misdiagnosed as a granuloma for a polyp and was treated surgically. Badebrarin (2018) [22] so the response rate of salt in this study was almost 100% over the duration of treatment. This study showed an extension of treatment duration gained an additional response rate.

Conclusion

Mothers had poor knowledge and practice about use salt to treat infant with umbilical granuloma pre educational intervention guideline which has been increased post the educational intervention and application of common salt (table/ cooking salt) to the umbilical granuloma is a simple highly effective and non-expensive form of treatment of umbilical granuloma with no any relapse or complications. Treatment can be performed by doctors, nurses, primary health care staffs and even by parents.

Recommendation

Increase awareness of health staff to teach mothers about using of cooking salt for the management of umbilical granuloma because it improve its effectiveness, cheap, available, and easy to apply by health and non-health professionals.

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