

# Efficacy of Safety Measures and Discharge Planning Guidelines on Nurses for Enteral Nutrition of Comatose Patients

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**Abstract:** The aim of the research was to evaluate the efficacy of safety measures and discharge planning guidelines on nurses for enteral nutrition of comatose patients. **Research Design:** Quasi-experimental design has been used to assess the impact of tailored intervention guidelines on the understanding and performance of nurses and to attain the research objectives. **Setting:** The research was carried out at Benha and Zagazig University Hospitals ' intensive care units. **Sample:** 60 Sample of convenience chosen from the accessible nurses working in Benha and Zagazig University Hospitals ' intensive care units. **Tools:** two developed tools were used, The first tool was the interview questionnaire for nurses, which covered two parts: Part 1: demographic data for nurses (age, education level, years of experience and marital status); Part 2: questionnaire sheet for assessing nurses ' understanding of safety measures during enteral nutrition delivery and the design of the discharge plan. The second tool: an observational checklist to evaluate: the practice of nurses in implementing the safety measure and the execution of the discharge plan during enteral nutrition. **Results:** The findings of the research showed that: more than three-quarters of nurses (88.3 per cent) had inadequate understanding prior to the completing of the guidelines. On the other side, after the guidelines were implemented, more than two-thirds (75%) of nurses had a strong degree of understanding. More than half of nurses (55%) also had a decent degree of understanding after two months of application. Before the guidelines were implemented, more than three-quarters of staff (83.3%) had an unsatisfactory amount of exercise. However, the bulk of nurses (78.3 percent) had a level of excellent practice compared to pre-intervention after the instructions were applied. After two months of applying the guidelines, the significant statistical correlation coefficient was found at p-values < 0,001 between the knowledge, practice and specific demographic data of nurses. **Conclusion:** The study concluded that there was a statistically significant improvement in the overall knowledge and practice of nurses in the application of safety measures during enteral nutrition, in particular following guidelines. **Recommendations:** Based on the outcomes of the research, we suggested that: ongoing safety measure training should be implemented to refresh the understanding of nurses by providing enteral nutrition to comatose patients. In addition, he stressed how to develop a comatose discharge plan as part of safety measures in the training of nurses.

**Keywords:** Safety Measures , Discharge Planning, Enteral Nutrition, Comatose Patients.

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## I. INTRODUCTION

Comatose patients have hyper-metabolic and need high energy in case of a critical situation, so nutritional management is an essential intervention for these patients. In medical-surgical and intensive care units, enteral nutrition is based on opinions rather than evidence-based practices. However, nurses need to identify the barriers to evidence-based practice protocols for enteral feeding of patients in ICUs (Ndahimana & Kim , 2018). According to, Darawad et al., (2015);

more than one third (35%) from comatose patients are malnourished, this increases the risk for infection and decrease wound healing, increased morbidity and mortality, increases their levels of pain, also increase hospital staying and more costs for patients and agency. So the enteral nutrition (EN) is the most common method of nutritional support in (ICU) patients, it improves patient outcomes and lowers costs compared to parenteral nutrition (**Singer et al. 2009**). Insufficient enteral malnutrition of comatose patients may be promoted by nurses' practices (**Engel et al., 2003**). Therefore, to ensure the success of EN, patients with it should receive significant nursing care (**Marshall et al. 2004**).

Many types of research showed a gap between the recommended guidelines and the actual practices at bedside (**Hammad et al. 2015**). Many difference reported among nurses in Egyptian specifically regarding insertion of nasogastric tube (NGT) and medications administration (**Shahin, 2012**), and Jordanian nurses specifically in confirmation tube and assessment of tube insertion (**Al-Kalaldeh, 2011**).

In spite of there are well-acknowledged guidelines for use of EN, it is needed to recognize what barriers behind the inadequate practices regarding EN in the ICUS. A change in practice may be more likely a strategy for EN use, which is specifically chosen to address the identified barriers, curing ICU area that needs special focus (**Darawad et al. 2015**).

The research conducted by **Cahill et al. in 2012** to recognize what are the most prevalent obstacles to effective (EN) and hinder safety measures during feeding, disclosed that there was an inappropriate location for tube feeding, delaying instructions from physicians, delaying serving motility agents, lacking formula and feeding pumps, and delaying the initiation of en. The structures of the suppliers were also component of those obstacles. For instance, the gender of nurses was discovered to be a obstacle as female nurses were acknowledged more frequently than male nurses for their perception of accountability for providing EN (**Darawad et al. 2015**). The improvement of EN practices might be more likely if the strategies were specifically chosen to address these identified barriers. Limited studies were found to consider investigating the barriers of EN in ICU. Thus, this study aimed to explore the perceived barriers that hinder Jordanian ICU nurses from utilizing the recommended EN guidelines (**Ndahimana & Kim , 2018**).

Must be take care and important to begin assessment nutritional needs for patients' before using. Aspiration reduction measures are still deficient and need further attention for applying evidence-based protocol for EN (**Alkhalaldeh et al. 2015**). Moreover, Hospital departments should strengthen standardization and systematic EN training, provide ICU full-time nutritionists and distribute medical resources and personnel rationally. In addition, construction of a localized feeding process and exerting subjective initiative of clinical nurses from an evidence-based guideline are important. Multifaceted tailored interventions should be implemented to address these barriers (**Huang et al. 2018**).

Discharge planning is essential to transition patients from hospital to home successfully. As part of the continuity of care, it is seen as a key concept in the delivery of nursing care to avoid (EN) long-term side effect as malnutrition and prevent complications (**Preiser et al, 2014 & Watts & Gardner, 2005**). Comprehensive discharge care planning is recommended in clinical practice guidelines. Discharge plan is defined as being inclusive of a full assessment of patient who takes (EN) administration and family discharge needs; communication with community-based primary care health professionals including: provision and organization of all medications, equipment, and support services; and assessment of risk factors with provision of information on lifestyle modification and medications for secondary prevention and give adequate information to patients and their families following discharge (**Andrew et al. 2018 & Cuesta & Singer 2012**). A study by Watts & Gardner, 2005 concluded that at a nursing level, the discharge planning process is not well understood, and some degree of mutual exclusivity remains. There is a need for further education of critical care nurses concerning the underlying principles of the discharge planning process. **Koelling et al. (2005)** reported that discharge teaching delivered by nurses improves clinical outcomes and reduces the cost of care. **Wong et al. (2011)** stated that increased readmissions might reflect the following: sub-optimal assessment of readiness for discharge, fragmented discharge planning, a breakdown in communication and information transfer between hospital-based and community physicians, inadequate post-discharge care and follow- up, or some combination of these processes. Effective discharge planning interventions have been examined in several studies, but the data regarding nursing's role and specific components of these interventions are little (**Mabire et al. 2016**).

**I.1. Significance of the study**

From the researchers' observation of the nutrition problem in the hospital setting and its effects on the life and safety of patients, the researchers found it to be a vital researchable problem that can be used to implement safety measures and discharge planning guidelines for nurses to care of comatose patients during EN.

**I.2. Aim of the study:** The aim of the research was to evaluate the efficacy of safety measures and discharge planning guidelines on nurses for enteral nutrition of comatose patients.

**This aim achieve throughout-**

- 1- Assessing the understanding and training of Nurses with respect to safety measures and discharge planning for the comatose patient's enteral nutrition.
- 2- Assessing the efficacy of the nurse efficiency guideline intended for intervention.
- 3- Assessment of the relationship between the understanding, practice and security measures of nurses and their sociodemographic information.

**I.3. the research hypothesis**

- 1- The post implies complete nurse expertise ratings that will be subjected to the intervention guideline being intended to be greater than the pre-guide line.
- 2- The post implies complete nurse practice results that will be subjected to the intervention guideline intended to be greater than the complete mean results of the pre-guideline.
- 3- The knowledge and practice scores of nurses and demographic data of nurses will be positively correlated.

**II. SUBJECTS AND METHODS**

**Study design:** Quasi-experimental design has been used to assess the impact of tailored intervention guidelines on the understanding and performance of nurses and to attain the research objective.

**Subject:** 60 Sample of convenience chosen from the accessible nurses working in Benha and Zagazig University Hospitals' intensive care units.

**Setting:** The study was carried out at medical-surgical units received comatose patients for any reason as intensive care medical, surgical, neuropsychiatric units of Benha and Zagazig University Hospitals.

**Tools of Data Collection**

Two developed tools were constructed and tested by the researchers, then piloted on five expertise before starting collect data; these tools are: **The first tool:** Nurses' interview questionnaire developed by the researchers through review of relevant literature, it includes two parts: **Part 1:** nurses' demographic data that include (age, education level, and years of experience, training, and marital status). **Part 2:** a questionnaire to assess knowledge related safety measures of (EN) and discharge planning as a part of safety measures for comatose patients; it was utilized for testing theoretical information related to safety measure and discharge planning aspects of the nursing care for EN of comatose patients. It consists of items covering the following: enteral nutrition tube insertion, connecting and secure patients to NGT, and safety measure during nutrition as factors for nutrition assessment, approach to reduce related errors, interventions to improve the safety nutrition administration, Monitor and reassessment, documentation and discharge planning.

**Scoring system:** the nurses who obtained less than 50% are considered unsatisfactory knowledge level, from 50% to 70% are considered satisfactory, and above 70% are considered good.

**The second tool:** nurses observational checklist sheet. Applied to assess: nurses' practice level related to NGT feeding, care of food and prevent complication, Central venous pressure measure, Oxygen therapy, Tracheobronchial suctioning, Auscultation of chest sounds, and infection prevention, Maintain tube patency and avoid blockage tube, deliver medication through an enteral feeding tube, Reassessment and documentation and discharge planning which part of safety measures. It developed by the researchers through reviewing of recent related literature

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**Scoring system:** each item was scored as follows: Zero for items that Not done or done incorrectly; one= Incomplete; two scores for done correctly. After that, the total score classified into Less than 50% is considered unsatisfactory, from 50% to 70% are considered satisfactory, and above 70% is considered good.

**Preparatory phase:** Researchers prepared instruments for information collection and designed intervention guidelines on the performance of nurses in the aforementioned comatose-patient nutrition units after researching all associated literature and fundamental nurses evaluation of ' information and practice on comatose-patient nutrition, safety measures then these instruments were examined by a panel of specialists in medical surgical nursing specialties –

- **A pilot study:** researchers carried out a pilot study in April (2019) on ten percent from the studied subjects (6 nurses) who dealing with comatose patients to assess applicability, clarity of tools. The pilot study sample excluded from study subjects.

### **Ethical considerations:**

The nurses received oral approval after explaining and clarifying the study's purpose for them. Researchers guarantee that nurses are confidential and voluntary to participate in the research. The nurses ensure that all data coding and all collected information will be confidential and used for research purposes only. Any chance to take part in or withdraw from the research

### **Filed work:**

#### **Data were collected in the following sequence:**

Authorizations for information compilation and execution of the Guideline for Benha and Zagazig University Hospitals have been acquired from the Director and Head Nurse. The researchers and nurses held meetings and conversations to let them be conscious of the study's goals, nature, and goals, as well as to obtain their collaboration. The tools were translated into the Arabic language. Moreover, teaching materials were prepared, i.e., audiovisual materials on safety measure and discharge planning for comatose patient nutrition by nasogastric tube care, with the pressure that covered theoretical and practical information.

- Assessment of the nurse's practice and knowledge regarding safety measure and discharge planning regarding enteral nutrition of the comatose patient. This assessment to more insight into the current nurses' practice level by using the mentioned first and second tool. This assessment took about 10 to 15 minutes. Each nurse was observed to detect their performance to determine their needs regarding Knowledge & practice and safety measures regarding the nutrition of the comatose patient.
- Implement the safety measure and discharge planning in the form of sessions. Each session started with a summary of the previous session and objectives of the new one. I was taking into consideration by the Arabic language. During session Enhancing and motivation of nurses for the sharing in this study. Finally, an evaluation of the implementation of the guideline was conducted.
- After that implementation of guideline assess the effectiveness of guideline on nurses knowledge and practice
- Data were collected from the beginning of May 2019 to the end of August 2019. In the first the pre-test was done; after that, (4 weeks) taken for implementing the guideline sessions followed by immediate post-test and after four weeks from posttest, follow-up test was done to ensure the effectiveness of the guidelines.
- The total number of sessions was six. It divided into two sessions for the theoretical part, and four sessions for the practical part.
- The designed educational guideline consisted of two parts:
- Teaching sessions were performed for theoretical content, with each session taking about 20 minutes. The number of two meetings to obtain the associated data for each group (5 nurses). The information in the form of printed hand out and videotape was added to each nurse. The instant posttest was then performed. The investigator continued to strengthen the data obtained. Announcement channel was kept open between the researcher and the study group. Then after two months, follow-up tests were carried out.

- The second part of designed educational guideline was the practical part. Each nurse’s skills was evaluated before donation of any information (pre-test) utilizing the second tool. Then dived the study group into the small groups (5 nurses) for demonstrations and re-demonstration of procedure were carried on 4 sessions for each nurses group. Practical video and procedure was given to each group, and the immediate post practice test was done. Then after two months, tests were are- carried out.
- Theoretical part and practical part was achieved in the nursing office and ICU. Teaching methods were lectures, group discussion, and videotape — the setting prepared by the needed equipment.
- The data collected through using the previously mentioned tools immediately after implementing the guideline, and after two months. To evaluate the effect of the guideline and retention knowledge and practice.

**Statistical design:** after complete data collection, each sheet was scored and coded using the suitable statistical method of SPSS program version 20. The following tests for significance were used as Means, and standard deviation as well as, percentage, frequency, correlation coefficient, Probability level of 0.05 was adopted as the level of significance for testing hypothesis

### III. RESULTS

Fig. (1) Showed that more than half (60%) of nurses were less than 24 years old, married (53.33%), with secondary school education (66.67%) without previous training (78.3%).

Table (1) documented that the more than three-quarter of nurses (88.3%) had unsatisfactory knowledge level pre-intervention guidelines. However, post-intervention two-third of nurses (75%) had good knowledge level, and more than half of nurses (55%) had satisfactory knowledge after two months from the application of intervention guidelines.

Table (2): It illustrated that most nurses (83.3%) had a pre-intervention level of unsatisfactory practice. However, the majority of nurses (78.3 percent) had a level of good practice after implementation of the post-guidelines ; this percentage increased after two months to (81.7 percent).

Table (3) cleared that age is positively correlated with total knowledge scores of nurses after two months of guideline implementation with p-values <0.05. Also, with practice scores, p-values of <0.01. The table also revealed that years of experience were positively correlated with total knowledge scores of nurses after two months of guideline implementation with p-values of <0.01. In addition, years of experience are positively correlated with total practice scores of nurses after two months of guideline implementation with p-values of <0.01.

Table (4) noted that there was a general improvement in mean nurses ' knowledge results of enteral nutrition products from pre- to post-intervention at p-values of < 0.001, statistically significant variations were noted.

Table (5) showed that, in all items linked to safety measure from pre-intervention to post-intervention, there was a general improvement in nurses ' complete exercise results. At p-values of < 0.001, statistically significant variations were noted.

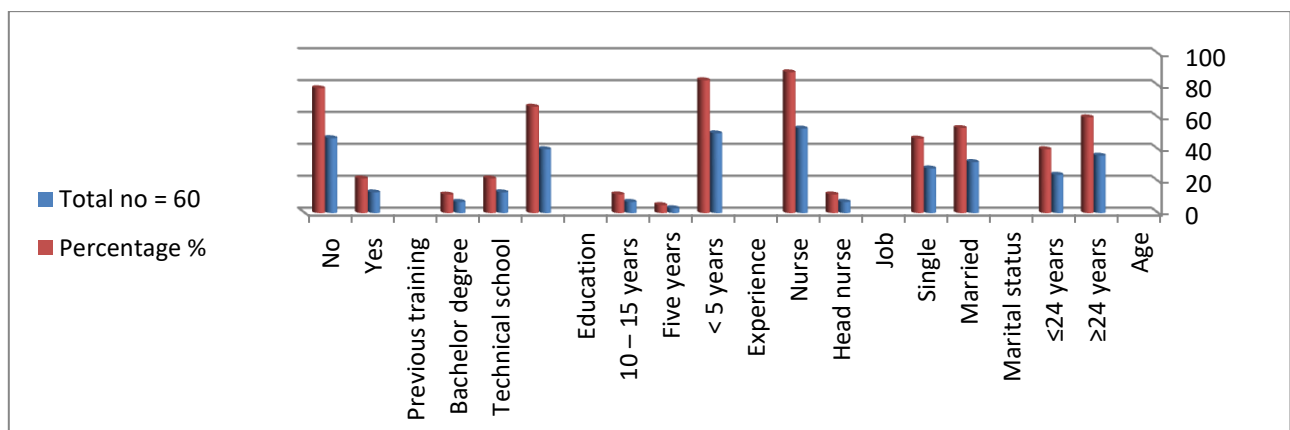


Fig. (1): Distribution of the study subjects according to demographic data

**Table (1): distribution of theoretical knowledge levels of nurses related to safety measures and enteral nutrition during intervention phases.**

Intervention guidelines phases	Knowledge level					
	< 50%		50-70%		+ 70%	
	Un satisfactory n = 60 No %		Satisfactory n = 60 No %		Good % n =60 No %	
Pre guideline	53	88.3	7	11.7	0.0	0.0
Immediately post	1	1.7	14	23.3	45	75
After two months	0	0.0	27	45	33	55

**Table (2): distribution of practical score levels of nurses related to safety measures and enteral nutrition during intervention phases.**

Intervention guidelines phases	Practice level					
	< 50%		50-70%		+ 70%	
	Un satisfactory % n = 60 No %		Satisfactory n = 60 No %		Good % n = 60 No %	
Pre guideline	50	83.3	10	16.7	0.0	0.0
Immediately post	0.0	0.0	13	21.7	47	78.3
After two months	1	1.7	49	81.7	10	16.7

**Table (3): correlation coefficient between nurses' knowledge, practice, age, and years of experience intervention phases.**

Variables	R	P
<b>AGE AND KNOWLEDGE</b>		
Pre guideline	0.0448	n.s
after two months	0.2588	< 0.05*
<b>Age and practice</b>		
Pre guideline	0.1422	n.s
after two months	0.3626	< 0.001***
<b>years of experience and knowledge</b>		
Pre guideline	0.2418	<0.001***
after two months	0.4334	
<b>years of experience and practice</b>		
Pre guideline	0.2434	n.s
after two months	0.4076	<0.001***

**Table (4): distribution of mean and standard deviation of knowledge scores of study subjects through intervention phases**

Knowledge items	Pre guideline	After guideline		
	$\bar{X} \pm SD$	$\bar{X} \pm SD$	Paired t	P Value
General knowledge	0.83 ± 0.58	1.94 ± 0.25	21.4	<0.001
factors for nutrition assessment	4.62 ± 1.74	6.68 ± 1.22	17.7	<0.001
approach to reduce related errors	0.82 ± 0.59	1.93 ± 0.25	21.5	<0.001
improve the safety E N administration	3.93 ± 1.80	6.58 ± 1.02	22.8	<0.001
Monitor and reassessment	2.45 ± 1.31	5.15 ± 0.77	19	<0.001
Documentation	6.23 ± 2.82	12.1 ± 2.57	29.1	<0.001
discharge planning	5.81 ± 0.83	9.22 ± 3.27	-9.23	<0.001

**Table (5): distribution of mean and standard deviation of safety measures practice of study subjects through intervention phases**

Safety measures Practice items	Pre guideline	After guideline		
	$\bar{X} \pm SD$	$\bar{X} \pm SD$	Paired t	P Value
CVP	12.9 ± 2.91	22 ± 3.39	29.4	<0.001
Oxygen therapy	23.3 ± 5.00	37.33 ± 4.19	37.5	<0.001
Suctioning	25.23 ± 5.88	35.73 ± 3.79	31.3	<0.001
Chest sounds	0.37 ± 1.69	14.2 ± 3.91	46.6	<0.001
prevent aspiration	25.33 ± 5.87	35.74 ± 3.78	31.2	<0.001
contamination and infection	23.2 ± 5.10	37.34 ± 4.18	37.51	<0.001
Maintain tube patency and prevent tube clogging	12.8 ± 2.92	22.01 ± 3.38	29.41	<0.001
deliver medication through an enteral feeding tube	0.38 ± 1.68	14.1 ± 3.92	46.61	<0.001
Reassessment and documentation	12.7 ± 2.93	22.01 ± 3.37	29.42-	<0.001
discharge planning	10.48 ± 1.19	17.9 ± 3.4	-18.96	<0.001

#### IV. DISCUSSION

The outcome of this research showed that an increase in post-guideline expertise results of nurses was compared to understanding of pre-assessment resulting in statistically highly significant variations. This enhancement may be due to the reality that most of them are passionate about subjecting themselves. This is in line with (Mohamed, 2016), who found that nursing guidelines are highly effective in improving knowledge and practice for nurses. There is a statistically significant distinction between the pre-and post-implementation of the nursing guideline of the topics being studied. (Cahill 2013) explaining EN obstacles to enhance nursing understanding and practice and achieve optimal EN endorse this. The mean barrier score in the current research was 4.18 out of 7, representing mildly perceived obstacles accessible. The presence of barriers hinders the implementation of the recommended guidelines in clinical practice and increases the difference between recommended guidelines and practice.

As far as nurses are concerned, the general knowledge of chest auscultation is very poor in the pre-program, because many nurses believe that this is not the responsibility of nurses, and after the implementation of the guidelines, most nurses have shown adequate knowledge of breast auscultation. Because scientists clarify their significance during EN for patient safety. His explanation agrees with the (Al-Hussami et al. 2014 & Saleh et al. 2014) their study showed that this nursing problem is well documented in Jordanian nursing literature, and it appears to affect the quality of nursing care at least in EN administration.

In the current research, from evaluation to documentation, Nurse understands of following safety measure during nutrition. Post-guideline implementation has been considerably enhanced in all knowledge items than pre-implementation. This may be due to nurses' willingness to enhance themselves and raise consciousness; it may also show that the guideline introduced was effective. This finding is supported by (Saleh et al. 2014), who said that the rate of concentration ability in knowledge, as well as refreshing information, could influence this improvement in knowledge. This is also consistent with (Mohammed, 2016), who reported important improvements in the post-implementation program of information for nurses. In addition, this with (Maharmeh et al. 2016), who reported that ongoing education leads to increased understanding and efficiency

The findings of this study revealed a significant improvement in the practice scores of post-guideline nurses, particularly in the immediate post-test. The present research showed a marked distinction between pre-and instant post-and post-two months. This may show more than technique that nurses and scientists interested the training sessions in teaching practice. This result was consistent with the results of (Darawad et al. 2015), who stated that many factors were associated with EN guideline-recommended strategies and lack of familiarity with guidelines, to support the care. In literature, nurses report a lack of the necessary knowledge to give enteral nutrition and thus are uncertain to provide the needed care (Cahill et al. 2010)

The findings of the present research illustrated this inconsistency with the rise in nursing practice after two months, this inconstant with (Martin et al. 2004) reported that continuing education for practicing nurses is important in ensuring good practice. Nurses become fully qualified and trained for the tasks they undertake. Sufficient knowledge and evident guidelines help to overcome barriers toward nutritional care. Also, help reduce nurses' noncompliant practices. Educational programs are needed to promote nurses' compliance, and such programs were found to be helpful in EN (Gupta et al., 2012) and other nursing fields among Jordanian nurses (Toubasi, et al. 2015 & Yacoub, et al. 2015)

With regard to the performance of the nurse on oxygen administration, the significant difference between pre-and immediate implementation of the guideline is high. This is consistent with (Shahine et al. 2012), who showed that the efficiency of the nurse in oxygen administration was considerably enhanced after the program was implemented than before. Regarding nurse's performance related to tracheobronchial suctioning, the significant difference was high between pre-and immediately post guideline. (Baker et al. 2009) Emphasized that suctioning is imperative to promote patient airway, thus preventing the development of hypostatic pneumonia and preventing stasis of pulmonary secretion. It is the responsibility of the nurse.

With regard to the performance of nurses for auscultation of chest sounds, the current research disclosed that a very important distinction existed between pre-and immediately post-mean results. This present improvement may be due to frequent practice and education on the significance of the role of the nurse in chest sound auscultation to check safety measures. This, in agreement with (Cahil & Heyland 2010) results, underlined that the nurse should auscultate the entire pulmonary area to recognize areas of diminished breath sounds, crackles, and wheezes. Auscultation should concentrate on the dependent lung area as it tends to transfer pulmonary secretions to these lesser areas.

In addition, (Booker et al. 2000) added that by creating a thorough evaluation, the nurse contributes considerably to the care of patients with respiratory issues. Evaluation is useful if it is done before, during and after any intervention in nursing.

Regarding the efficiency of the nurse for central venous pressure measurement, the current research disclosed a very important distinction between pre-and immediate post and post-two months. This In agreement with these results, (Marshal & West 2006) clarified that although doctors have been carrying out direct CVP measurements since the early 1900s. Recently, CVP measurement is a nursing responsibility.



As regards the relationship between understanding, training scores, nurse age and experience. In the present research, the current research showed a favorable connection between understanding and age; age was strongly linked; the connection between exercise and age was extremely statistically important between age and expertise. In the present study, age was positively correlated with the practice of nurses with a highly statistical significant after one; This result agree with **(Marshall & West 2006)** who found that there was a positive correlation between knowledge and nurses age for study nurses in a follow-up test.

Concerning the correlation of years of experience, understanding and exercise. In the current research, years of experience instantly after and after one and two months after program application were positively associated with expertise results of nurses with extremely statistically significant variations. Furthermore, years of experience were favorably associated with practice results of nurses after one application with extremely statistically significant variations. These results are backed by **(Cahill et al. 2010)**, who reported that the greater the effectiveness of nurses ' clinical methods, the more years of working in ICUs and years of experience. As years of experience were positively correlated to their knowledge and performance.

This explanation disagrees with **(Krishan et al. 2003)** who mentioned that there was no significant change in the relationship between knowledge and years of experience in pre-, immediate post- and follow-up implementation of the program except after three months of implementation of the program. It was also noted **(Daraward et al. 2015)** that there is no important correlation between the years of experience of nurses and their expertise and exercise.

No important variations were discovered in relation to the overall rating of EN obstacles based on socio-demographic factors. With regard to the subscale "Resources," Master degree nurses revealed fewer obstacles than baccalaureate graduate nurses did. Similarly, EN nurses reported fewer obstacles than nurses without prior education did. It appears that nurses with upgraded knowledge understand better the significance of EN and its impact on critically ill patients ' health **(Ndahimana & Kim 2018)**. In Egypt, there were no references available that addressed the nurse's role in discharge planning. Our results indicated that the knowledge and practices of the nurses concerning discharge planning had changed. In the current study, the mean overall knowledge score of nurses was ( $\pm$  SD =  $5.81 \pm 0.83$ ), which increased to ( $\pm$  SD =  $9.22 \pm 3.27$ ) in the post-intervention phase, and the practices of nurses in the post-intervention phase were significantly higher than in the pre-intervention phase of discharge planning. This discharge-planning program was identified to benefit the family caregivers of elderly stroke patients during the transition from hospital to home one month after discharge. In particular, this caregiver-oriented discharge-planning program, with its emphasis on individualized health education and post-discharge house visits, can enhance the preparation of caregivers and the fulfillment of their needs. The results of this study, supported by several studies as discharge planning, are central to managing hospital-to-home care transitions to improve patient outcomes and to reduce readmission rates **(Hesselink et al., 2014)**. In addition, **Smith, S. (1996)** stated that insufficient understanding of discharge processes is a significant factor in reducing the quality of discharge care provided to patients by nurses. He also pointed out that nursing staff are often unaware of the policies and processes of discharge planning at the hospital. Other factors that impede this role include a lack of organizational support and resources from the community. **Lalani, & Gulzar, (2001)** studied disclosed that nurses lacked understanding of discharge planning that also affected their present procedures in discharge planning.

## V. CONCLUSION

- 1- The research found that over half (60%) of nurses were under 24 years of age, with secondary schooling (66.67%) without prior training (78.3%).
- 2- Overall improvement in mean nurses ' knowledge results concerning safety measures and discharge planning for a patient with pre-to post-intervention EN products. There were important statistical variations observed.
- 3- General improvement in complete nursing practice results in all safety measure items from pre-intervention to post-intervention. There were important statistical variations observed.
- 4- Overall knowledge scores of nurses are positively associated after two months of application of the guideline with p-values < 0.05. Even years of experience with complete expertise results of nurses have been strongly associated with practice results; years of experience are strongly associated with complete practice results of nurses.

## VI. RECOMMENDATIONS

**According to study Conclusion, the following is recommended:**

- 1- EN training for nurses before starting to work in medical-surgical units.
- 2- Continuous evaluation of the knowledge and skills of nurses working in medical-surgical units on safety measures and discharge planning for EN patients.
- 3- To determine the nurses' level of skills and knowledge, further research required to be undertaken to enhance nurses on other types of nutrition and safety measures and discharge planning as part of health-surgical nutrition security policies.

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