

Effect of Educational Nursing Intervention on Nurse's Practice among Patients with Upper Gastrointestinal Endoscopy

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Abstract: Educational nursing intervention is performed to help the nurses to perform their roles and activities that are given to patients. **Purpose of the study:** to determine the effect of educational nursing intervention on Nurse's Practice among Patients with Upper Gastrointestinal Endoscopy. **Design:** A quasi-experimental design was utilized (pre and posttest). **Setting:** The study was carried out at the endoscopic unit of Liver Institute at Shebin EL Kom District, Menoufia Governorate. **Sample:** A convenient sample of 25 nurses was selected for this study. **Instruments:** Two instruments were used. First instrument was a structured interviewing questionnaire. Second instrument was observation checklist for nurse's practice. Results: There was an improvement in total mean score of nurses' knowledge from 0.63 ± 0.15 pre intervention to 0.90 ± 0.071 post intervention. There was an improvement in the total nurse's practice score from 0.35 ± 0.82 pre intervention to 0.74 ± 0.064 post intervention. **Conclusion:** Total knowledge, practice scores of nurses were improved after implementing of nursing intervention. **Recommendation:** Periodic training programs should be carried out for nurses in endoscopic unit to improve, update, refreshing their knowledge and practice regarding endoscope

Key words: *Educational nursing intervention, nurse's practice, upper gastrointestinal endoscopy.*

Introduction

Upper gastrointestinal (GI) endoscopy is a diagnostic and therapeutic procedure that provides good view of the mucosal surfaces of the upper gastrointestinal tract. It is an important procedure in the evaluation and management of many gastrointestinal conditions. (Metwally et al ., 2018)

In Egypt, Average endoscopy procedures are 15 million procedures per year. 55% are esophago-gastro-duodenoscopy and 15% lower GI endoscopy and 30% for colonoscopy procedure. (Statistical Administrative Records of liver institute Hospital, 2019.)

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Knowledge, attitude, and practice are the bedrock of public partnership and the backbone of any health policy that enlightens and protects people from ignorance and darkness in all parts of their lives. Information is considered as the major activity that prepares a person for long and fruitful life, and collecting knowledge is seen as the gasoline that propels human existence onward. (Abdelhafiz et al., 2020)

The nurse endoscopist should offer a holistic package of care to patients undergoing GI endoscopy before, during and after endoscopy procedure to prevent any hazards or complications and improve patients' satisfaction. (Moorhead et al., 2018)

The nurse must observe the patient's hemodynamics, maintain the patients in comfortable position, secure patient, manage drug administration, determine the patient's level of arousal, report changes in the respiratory and circulatory dynamics and changes in body movement, sweating, and facial expressions during treatment. (Yato et al., 2019)

Also, the nurse must have the skills and knowledge to assess the needs of each individual attending for endoscopy from admission to discharge. She gives advice on admission and discharge, ensures safe delivery of endoscopic equipment. Also, the nurses follow the courses to keep up-dated in this field because of the constant evolution of the endoscopic instruments and techniques. (Moorhead et al., 2018)

It is important to counsel the patient about the dietary and other lifestyle measures. The nurse will review with the patient and family the signs and symptoms of complications to be reported. The nurse should reinforce the importance of follow-up care after upper GIT endoscopy. (Kahaleh and Freeman, 2018). It was reported that

continuing education must result in practice change to be effective. Integration of knowledge occurs when information is combined with performance. (Friese, 2018)

Currently, economic evaluations of health interventions are an interesting point for many studies and publications by integrating the quality of care with the education or created the statements or models and if the nurses had knowledge of the endoscopic care allowing them to minimize unwanted costs and improve the quality of endoscopic patient care (Maloney et al., 2019). So the aim of this study is to assess the effect of educational nursing intervention on nurse's practice among patients with upper gastrointestinal endoscopy.

Significance of the Study

Endoscopy is a widely used procedure in medicine today. Endoscope is in general a safe procedure, but serious adverse events do occur. In Egypt, Average endoscopy procedures are 15 million procedures per year. 55% are esophagogastroduodenoscopy and in endoscopic unit in liver institute hospital 14726 patients were admitted to perform endoscopy. (Statistical Administrative Records of Liver institute hospital, 2021).

Ongoing training for nursing is critical to maintain high-quality, effective, and efficient nursing care. Training has a significant impact, when clinical expertise is passed down from more experienced to expand their knowledge (Bao et al., 2020). So the purpose of the study is to determine the effect of educational nursing intervention on nurse's practice among patients with upper gastrointestinal endoscopy.

Purpose of the Study

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among patients with upper gastrointestinal endoscopy.

Operational definitions:

Educational nursing intervention

It is the nursing teaching instructions for the development of nursing practice for endoscopic patient to improve patients' outcomes such as care before, during and after procedure, gives advice on admission and discharge.

Nurse's practice:

Nurse's practice is the nursing care given to the patients.

Research hypotheses

- Nurses who receive educational nursing intervention will have higher level of knowledge on posttest than pretest.
- Nurses who have the educational nursing intervention will exhibit improvement in nurse's practice through the study phases.

Methods:

Research design:

Quasi-experimental research (pre-post-test) design was used to achieve the purpose of this study.

Research Setting:

The study was conducted in endoscopic unit of Liver Institute at Shebin EL Kom District, Menoufia Governorate.

Sample:

A convenience sample of 25 nurses (all nurses in the unit) was selected for this study. Nurses were examined before and after nursing intervention.

Instruments:

Two instruments were used by the researchers to collect the necessary data; these instruments were:

Instrument one: structured interviewing questionnaire

This instrument was developed by the researcher to assess sociodemographic data of the nurses it was comprised of two parts.

- **Part 1: socio demographic characteristics of the nurse:** It was used to collect data about the following: age, gender, marital status, educational level, occupation, years of clinical experiences and training courses in endoscopy.
- **Part 2: knowledge assessment:** It included questions to assess nurse's knowledge after reviewing the related literature (Mohammed, 2016) and (Amer et al., 2015) before and after implementation of educational nursing intervention about Definition, types, Composition, Uses, Contraindications, Complications, nursing care before, during and after endoscope, dietary and lifestyle measures.

Scoring system: -

Scoring system for each question was as the following:

Answer	Score
▪ Correct and complete answer	2
▪ Correct and incomplete answer	1
▪ Incorrect answer or don't know	0

Nurse's knowledge was clarified on a 3-point scale consisting of complete correct answer, incomplete correct answer and incorrect answer or don't know. Each item was given score of two marks for complete correct answer, one mark for incomplete correct answer and zero mark for incorrect answer or don't know. The

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total score ranged from zero to 18. The higher score, the higher knowledge level & vice versa.

The total score of knowledge:

It was categorized according to Mohammed, (2016) and Amer et al., (2018) as:

- A score from zero to 9 marks represent from 0% to 50% denoted poor level of knowledge.
- A score from more than 9 to 12.6 marks represent more than 50% to 70% denoted fair level of knowledge.

A score more than 12.6 marks represent more than 70% denoted good level of knowledge.

Instrument two: An observational checklist:

It was developed by researcher after reviewing the related literature (Amer et al., 2015) and (Mohammed and Sayed , 2014). It was used to assess the nursing practices and intervention for patients undergoing upper gastrointestinal endoscopy.

Scoring system of the scale:

Practice	Score
▪ Not done	0
▪ Incomplete done	1
▪ Complete done	2

The total score ranged from zero to 84. The higher score represents the higher nurses' practices level & vice versa.

The total score of nurses' practices:

It was categorized according to Amer et al., (2018) and Mohamad and Sayed, (2017) as: A score from zero to less than 63 marks represent <75% denoted unsatisfactory practice level, A score more than 63 marks represent more than 75% denoted satisfactory practice level.

Validity and reliability of the study instruments:

Validity:

All instruments of the study were developed by the researcher. They were tested for content validity by five experts in the field of medical surgical nursing, Faculty of Nursing, Menoufia University to ascertain relevance and completeness.

Reliability of the instruments:

All instruments were tested using a test retest method and a Pearson Correlation Coefficient formula was used and the period between each test was 2 weeks. The results were 0.97 for first instrument, 0.91 for the second one.

Pilot study:

A Pilot study was carried out prior to data collection on 10% of the subjects (3 nurses) to examine the tentative developed instruments for testing feasibility, applicability and practicability of the tools. Then, necessary modifications were carried out. The pilot sample was excluded.

Ethical Consideration:

Approval of the Faculty of Nursing, Ethical and Research Committee in Menoufia University was obtained. A formal written consent for acceptance to share in the study was obtained from the participants in the study after explaining the purpose of the study and methods of data collection. They were also assured of the confidentiality and privacy of their data . They were assured that they have the right to withdraw from the study at any time.

Procedure:

- An official permission to carry out the study was obtained from the directors of the selected setting after submitting an official letter from the Dean of the faculty of nursing at Menoufia University explaining the

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purpose of the study and methods of data collection to obtain the acceptance for data collection. Then, this letter was provided to the head of endoscopic unit.

- Data collection extended over a period of 8 months extended from end of September 2020 to beginning of May 2021.
- The educational intervention for nurses was conducted in four consecutive phases namely: assessment, planning, implementation and evaluation
- Assessment phase included assessment of nurses' sociodemographic data and knowledge about endoscope. This session lasted for 30 -45 minutes.
- Planning phase included preparing colored illustrative booklet with pictures and a video about the endoscope and care given from nurses to patients such as preparation (before, during and after endoscopy), signs of complications, diet and lifestyle change for patients.
- Observing nurse's practice with patients in different shifts using instrument two (observational checklist).
- Implementation phase: All nurses were divided into 5 groups, each group contained 5 nurses. Educational intervention was provided at the break time from 12.30 pm. Each group received 3 sessions, each session ranged between 30 to 45 minutes.
- First session: Basic knowledge regarding gastrointestinal endoscopy anatomy of liver, function, definition of endoscope, composition, indication and contraindication.
- Second session: Knowledge regarding practice before, during and after gastrointestinal endoscopy.

- Third teaching session: Knowledge regarding predischarge instructions for patient about dietary habits, medication, life style, signs of complication and importance of follow up.
- Evaluation phase: Each nurse was evaluated before and after implementing nursing interventions using instrument one (knowledge assessment), instrument two (observational checklist) for determining knowledge and practice.

Statistical Analysis

Data were collected, tabulated, statistically analyzed using an IBM personal computer with Statistical Package of Social Science (SPSS) version 20 (IBM Corporations, 2011), Armonk, NY and Epi Info 2000 programs, where the following statistics were applied. Mean and standard deviation (X+SD) for quantitative data. Number and percentage (No and %) were used for qualitative data. Analytic statistics like ANOVA was used. If $P > .05$, no statistical significant difference was found. If $P \leq .05$, a statistical significant difference was found. A highly statistical significant difference was found if $P \leq .01$.

Results

Table 1 showed the sociodemographic characteristics among nurses group. The majority of nurses were females and married. For age, more than half of them were between 18 to 30years. Regarding educational level, it was observed that less than half of nurses had diploma education (48%) and one third had nursing technical degree (32%). As regard years of experiences, it was observed that the majority of years of nurses (80%) had less than ten years in endoscopy unit.

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Table 2:- revealed that previous training courses of studied nurses. Less than one third of nurses (28%) attended previous training courses. Regarding the duration of training course, the nurses who attended the training course attended less than one month.

Figure 1:- showed that the level of nurses' knowledge, about one quarter of nurses (24%) had poor level of knowledge pre intervention, 32% had fair level of knowledge, 44% had good level of knowledge post intervention, and the majority of nurses had good level of knowledge.

Table 3:- showed distribution of nurses according to their level of practice among nurses group on pre and post intervention .All of nurses

(100%) had unsatisfactory level of practice with mean 0.35 ± 0.82 pre-intervention that changed to 52%. On post intervention, they had a satisfactory level of practice with mean 0.74 ± 0.064 post – intervention. Therefore, there was a highly statistically significant difference $P < 0.001$.

Table 4:- showed that there were statistical and highly statistical significant relations between nurse's practice and patient's complications.

Table 5:- showed that there was a statistically significant positive correlation between nurse's years of experience, knowledge and practice scores among nurses

Table (1): Distribution of sociodemographic characteristics among Nurses group

Item	Frequency(no=25)	Percentage
Gender		
- Males	5	20%
- Females	20	80%
Age		
- 18-30	14	56%
- 31-43	10	40%
- 44-60	1	4%
- Mean \pm SD	31.8 \pm 6.7	
- Min – max	20-55	
Marital status		
- Single	4	16%
- Married	21	84%
Educational level		
- Bachelor	4	16%
- Diploma	12	48%
- Nursing technician	8	32%
- Masters	1	4%
Years of experience in endoscopy unit		
- Less than 10 years	20	80%
- More than 10 years	5	20%
- Mean \pm SD	2.7 \pm 2.08	
- Min – max	1-8	

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Table (2): Previous training courses for studied nurses

Item	Frequency(no=25)	Percentage
Training		
- Yes	7	28%
- No	18	72%
Type of training		
- Workshops	3	42.9%
- Training course	4	57.1%
Duration of training course		
- Less than a month	7	100%
- More than a month	0	0%

Figure (1): Level of Knowledge of studied nurses' about management of patients having upper gastrointestinal endoscopy pre and post intervention

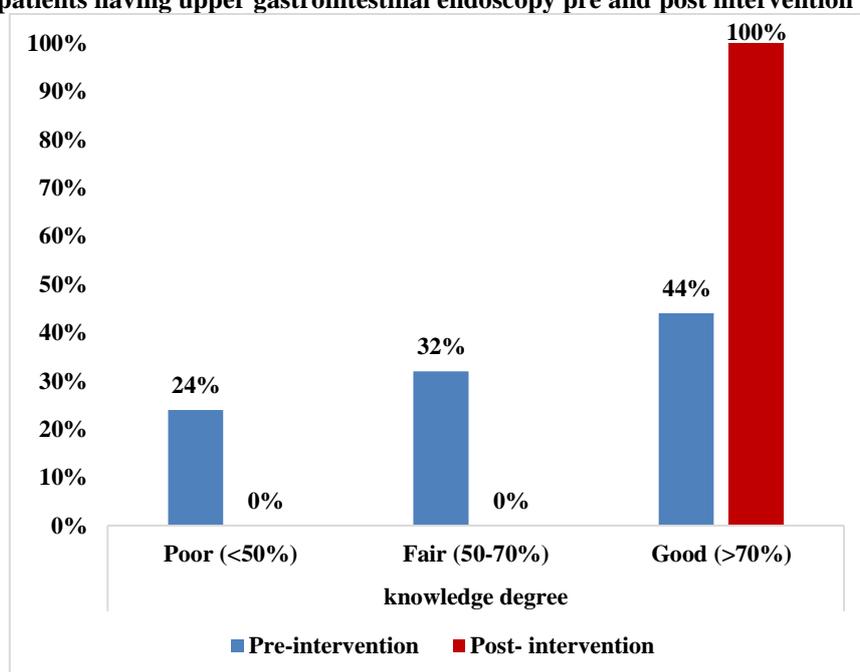


Table (3): Distribution of nurses according to their level of practice for the management of patients having upper gastrointestinal endoscopy pre and post intervention

Items	Pre intervention (No=25)		Post intervention (No=25)		Test of sig.	p-value
	No	%	No	%		
Practice degree						
- Unsatisfactory (<75%)	25	100%	12	48%	X2= 17.6	P =0.00** (≤0.001)
- Satisfactory (≥75%)	0	0%	13	52%		
- Mean ±SD	0.35±0.82		0.74±0.064		Mann Whitney = 6.1	P =0.00** (≤0.001)
- Min – max	0.24-0.49		0.64-0.85			

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Table (4): Relation between nurse's practice and patient's complications

Items	Nurse's practice		Test of sig.	p-value
	Mean± SD	Min - Maximum		
Aspiration				
- Yes (no=19)	0.36±0.16	0.26-0.79	Mann Whitney= 3.6	P =0.00** (≤0.001)
- No (no=81)	0.57±0.22	0.24-0.85		
Bleeding				
- Yes (no=35)	0.44±0.18	0.24-0.82	Mann Whitney= 2.9	P =0.004* (≤0.05)
- No (no=65)	0.58±0.22	0.24-0.85		
Perforation				
- Yes (no=6)	0.29±0.023	0.27-0.33	Mann Whitney= 2.8	P =0.005** (≤0.05)
- No (no=94)	0.55±0.21	0.24-0.85		
Chest pain				
- Yes (no=49)	0.45±0.18	0.24-0.82	Mann Whitney= 3.2	P =0.001** (≤0.001)
- No (no=51)	0.61±0.22	0.24-0.85		
Infection				
- Yes (no=16)	0.35±0.12	0.24-0.69	Mann Whitney= 3.7	P =0.00** (≤0.001)
- No (no=84)	0.57±0.22	0.24-0.85		
Change of vital signs				
- Yes (no=61)	0.44±0.19	0.24-0.85	Mann Whitney= 4.95	P =0.00** (≤0.001)
- No (no=39)	0.67±0.18	0.26-0.85		
Nausea and vomiting				
- Yes (no=45)	0.46±0.21	0.24-0.85	Mann Whitney= 2.8	P =0.005* (≤0.05)
- No (no=55)	0.54±0.21	0.24-0.85		

Discussion

Ongoing training for nursing is critical to maintaining high-quality, effective, and efficient nursing care. Regarding to attending previous training courses, the current study illustrated that less than one third of nurses attended training courses for less than one month, this finding agreed with Mohamed and ELmetwaly (2021) who revealed that less than one-third of the studied nurses received training courses regarding endoscopy. From the researcher point of view this may be explained that training within the unit is not sufficient and the nurses needed periodical follow up for intervention. As regards nurses' knowledge, there was a highly statistically significant improvement in nurses' knowledge

score after structured teaching program. These findings are supported by Mohamed and ELmetwaly (2021) who found an improvement with a highly statistically significant difference between nurse's knowledge regarding gastrointestinal endoscopy pre and post one month of educational intervention. From the researcher's point of view, this may be related to the theoretical and practical sessions that were provided to cover all aspects of gastrointestinal endoscopy. As regards nurse's practice, the present study revealed that more than half of nurses had a satisfactory level of practice post intervention. This agreed with Gijare (2018) who found a significant differences between results

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of pre and post guidelines implementation which clarified that skills had improved when linked with scientific base of knowledge. From the researcher's point of view, this may be related to integration of knowledge occurs when information is combined with performance.

As regards the relation between nurse's practice and complications, there were highly significant correlations between nurse's practice and patient's complications. This finding was consistent with Zhong et al., (2020) who found that complications of endoscopy decreased due to the increase in the level of knowledge, practice and expertise of nurses and other staff. From the researcher's point of view, it may be related to continuing nursing education is very important to improve patient's outcomes and decrease the incidence of complications (hypotension, infection, nausea, vomiting, aspiration and chest pain)

As regards the relation between nurse's knowledge, practice and years of experience, the preset study showed that there was positive correlation between nurse's years of experience, knowledge and practice scores among nurses. This is in agreement with Mohamed et al.,(2019) who found that, there was statistically significant relation between nurses' performance and their demographic characteristics regards age, experience and level of education. From the researcher point of view, this may be related to decrease years of experience and knowledge among the nurses affect negatively on nurse's practice that impose need to educational intervention.

Conclusion:

Based on the findings of current study; it can be concluded that implementing nursing intervention to nurses for enhancing care of patients with upper

gastrointestinal endoscopy had a positive effect and improvements in nurses' knowledge and practice

Recommendations:

Endoscopic nurses should receive periodic training programs to improve, update, refreshing their knowledge and practice regarding endoscope.

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