

## **Effect of Educational Nursing Intervention on Selected Patient's Outcomes among Patients with Upper Gastrointestinal Endoscopy**

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**Abstract:** Nurses should offer a holistic package of care to patients undergoing **gastrointestinal** endoscopy before, during and after endoscopy procedure to prevent any hazards or complications and improve patients' satisfaction **Purpose:** To examine the effect of educational nursing intervention on selected patient's outcomes among patients with upper gastrointestinal endoscopy. **Design:** A quasi-experimental research design was utilized. Setting: The study was carried out at the endoscopic unit of Liver Institute at Shebin EL Kom District, Menoufia Governorate. **Sample:** A purposive sample of one hundred of patients was selected. **Instruments:** Two instruments were used. Instrument one: structured interview questionnaire. Instrument two: patient evaluation sheet. **Results:** there was improvement in patient's knowledge related to endoscopy care post intervention (54%) than pre intervention (zero %). Complications related to patients were decreased post intervention than pre intervention. **Conclusion:** The study concluded that implementing nursing intervention on patients with upper gastrointestinal endoscopy had a positive effect on patients' outcomes. **Recommendation:** A simple booklet includes the most important instructional points regarding endoscope that should be given to all patients.

**Key words:** Educational nursing intervention, selected patient's outcomes, upper gastrointestinal endoscopy.

### **Introduction**

American Society for Gastrointestinal Endoscopy , 2018 show the benefits of

implementing educational nursing intervention when providing care of

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endoscopic patients that induce improvements in nurses' related practice, with better achievement of patients' needs, enhance the quality, safety, effectiveness and availability of the care for the patient and decreasing the incidence of complications so the current study was conducted to meet patients' needs, help the nurses picking up as early as possible to prevent or delay the occurrence of problems or complications and promptly manage any problem was occur to patients.

Endoscopic procedures should be performed by senior/independent endoscopists with on-hands training. Nursing and other supporting staff present in the room should also be limited to the absolute minimum required for patient care and safety. (Pan and Mu et al., 2020).

Complications following EGD could be related to sedation, endoscopy, and complications related to diagnostic or therapeutic maneuvers. The most frequent and serious complications of sedation are cardiopulmonary. Adverse events from over sedation include hypoxemia, hypoventilation, hypotension, airway obstruction, arrhythmias, and aspiration. The complications following diagnostic EGD include infection, hemorrhage, duodenal hematoma, and perforation. Complications typically are identified in the first 24 hours after the procedure. (Banerjee and Cash et al., 2017)

Measures to prevent infection include all patients who are indicated for urgent endoscopy will be required to wear surgical masks, perform hand hygiene with alcohol-based hand rub, and/or wear gloves. Patients should be spaced apart to avoid close contact in the endoscopy unit with a distance of at least 1 to 1.8 m. Close communication with wards should be encouraged to restrict the number of

patients in the waiting areas at any given time to avoid overcrowding. . (World Health Organization, 2020).

Follow-up is performed by contacting patients, preferably by phone to ask about any new diagnosis, or development of COVID-19 symptoms. If present, pathways for referral of the patient to seek medical attention, together with contact tracing of possible staff that have been exposed, are required according to hospital infection prevention and control policies. Telehealth for follow-up may be helpful if the expertise and infrastructure are available. (Joint GI Society message, 2020). It is hoped that the current study open the door for evidence based practice to determine the effect of educational nursing intervention on selected patient's outcomes among patients with upper gastrointestinal endoscopy.

**Significance of the Study:**

Endoscope is in general a safe procedure, but serious adverse events do occur. Studies found that there is a gap aroused between the nurse's knowledge and their practices regarding endoscopy procedures and these results have a negative impacts or effects on patients with endoscopic complications. In endoscopic unit in liver institute hospital 70% (14726) of patients were admitted to perform endoscope with different diagnosis. (Statistical Administrative Records of Liver institute hospital, 2021). Endoscopy nurses play a vital role in the medical care of those with endoscopic and gastroenterology issues. They have a wide range of responsibilities on their shoulders, they conduct endoscopic procedures and are responsible for providing sedation, monitoring patients' vitals while they are out, and providing post-procedure care and follow-ups.

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### **Purpose of the Study**

The Purpose of the current study was to determine effect of educational nursing interventions on selected patient's outcomes among patients with upper gastrointestinal endoscopy.

### **Operational definitions:**

#### **Educational nursing intervention:**

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

#### **Patient's outcomes**

Patient's outcomes are the consequences of nursing care to decrease patient complication such as aspiration, bleeding, perforation, pain, infection, change in vital signs, discomfort, vomiting and patients' knowledge.

#### **Research Hypothesis:**

- Patients who receive the educational intervention (study group) are expected to have higher level of knowledge than patients who do not (control group).
- Patients who receive educational intervention from nurses (study group) have lower incidence rate of complications than patients who do not (control group).

#### **Methods:**

##### **Research design:**

Quasi-experimental research (pre-posttest) design was used to achieve the aim of this study.

##### **Research Setting:**

The study was conducted at endoscopic unit in the National Liver

Institute at Shebin EL Kom , Menoufia Governorate.

### **Sample:**

A purposive sample of 100 adult patients was selected for this study. Patients meeting the inclusion criteria were chosen

#### **Inclusion criteria**

- Adult patients of both sexes
- Conscious patients with age range from 18 to 60 years.
- Patient undergoing liver disorder.
- Newly endoscopic patients.

#### **Exclusion criteria**

- Patients on mechanical ventilation .because they are liable to having difficulty in following instructions
- End stage liver disease because they are liable to deterioration in his status and need special care
- Patients with psychological disorder because they are liable to misunderstanding to instructions
- Chronic gastrointestinal complications because they are liable to interference among outcomes

#### **Sample size calculation:**

Patients were divided into two equal groups; 50 for each group:

- **Control group** (I) of 50 patients was examined before educational intervention and exposed only to routine hospital nursing care.
- **Study group** (II) of 50 patients who were examined post educational intervention given for nurses to measure patient's outcomes.

#### **Instruments:**

Two instruments were used by the researcher for collecting the necessary data, these instruments were:

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**Instrument one: Structured interviewing questionnaire for patients:**

This instrument was developed by researcher to assess biosociodemographic data for patients. It was divided into two parts as the following: -

- **Part one** patients' socio demographic data such as age, sex, marital status, occupation, level of occupation, level of education, and monthly income.
- **Part two:** Medical data it included past and present medical history such as, previous hospitalization, previous surgery, chief complain and current medication used.

**Instrument two:-patient evaluation sheet:**

It was developed by the researcher after reviewing the related literature: (Society of Gastroenterology Nurses and Associates, 2017), (Decristoforo et al., 2018) and (Tan, Thompson and Sharma, 2018). It was used to assess patients' outcomes (knowledge and complications such as aspiration, bleeding, perforation, pain, infection and change of vital signs, discomfort and vomiting) that developed among patients admitted to upper endoscopy until patient discharging.

**Validity and reliability of the study instrument:**

**Validity:**

All instruments of the study were developed by the researcher. They were tested for face and content validity by five academic staff who are experts in the field of Medical Surgical Nursing, Faculty of Nursing, Menoufia University to ascertain relevance and completeness.

**Reliability:**

Test-retest method was used to assess the reliability of instruments. Reliability for the first instrument was 0.89 and 0.91 for the second instrument.

**Pilot study:**

A Pilot study was carried out prior to data collection on 10% of the subjects (three nurses and ten patients) to examine the feasibility, applicability and practicability of the instruments. Then, necessary modifications were carried out. These patients were excluded from the study sample.

**Ethical Consideration:**

Approval of the Faculty of Nursing Ethical and Research Committee was obtained. A formal written consent was obtained from participants regarding their acceptance to share in the study. After explaining the purpose of the study for every participant and assuring that confidentiality and privacy was maintained. Patients were informed that they had the right to withdraw from the study at any time without affecting their care.

**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 purpose of the study and methods of data collection to obtain the acceptance of data collection. Then, this letter was provided to the head of endoscopic unit.
- Data collection extended over a period of 9 months extended from September 2020 to May 2021.
- After developing instruments and getting the official permission. The researcher started to collect data

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according to the inclusion criteria and agreed to participate in the study.

- The study was conducted throughout four phases: Assessment, planning, implementation and evaluation phases as following:

**1.Assessment phase:** During this phase the researcher interviewed each subject of both groups to collect base line data by using the first instrument as follow:

All subjects of both groups were assessed for sociodemographic data and knowledge about endoscope.

**2.Planning phase:** Based on information and knowledge level of patients which was collected during the assessment phase, colored illustrative booklet with pictures and video were prepared about the endoscope and care given from nurses to patients which contain anatomy of liver, definition of gastrointestinal endoscopy, indications, preparation before, during, after endoscopy, signs of complications, list of prohibited, allowed diet and lifestyle change for patients after endoscopy.

**3.Implementation phase:** patients were divided into 5 groups, each group contained 10 patients. They were provided health education, each group received 3 sessions, each session ranged between 45 to 60 minutes.

The teaching methods involved lectures, group discussions; the utilized teaching media included illustrative pictures, videotapes and handouts.

- **During the first session:** basic knowledge regarding gastrointestinal endoscopy anatomy of liver, function, definition of endoscope,

composition, indication and contraindication were provided.

- **During second session:** Knowledge was provided regarding care before, during and after gastrointestinal endoscopy.

- **During third teaching session:** A colored booklet and video were provided from nurses to patients includes knowledge regarding pre-discharge instructions for patient about dietary habits, medication, life style, signs of complication and importance of follow up.

**4.Evaluation phase:** each patient was assessed before the educational intervention and evaluated post intervention for nurses for determining knowledge, complications and their lifestyle by using instrument IV (patient's evaluation sheet), this phase took about 30-45 minutes.

### **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 or number and percentage (No and %) for qualitative data. Analytic statistics like ANOVA was used. If  $P > .05$ , no statistical significant difference is found. If  $P \leq .05$ , a statistical significant difference is found. A highly statistical significant difference is found if  $P \leq .01$ .

### **Results**

**Table 1:-** showed the social characteristics of the studied group. The mean age of patients in the studied group was  $58.1 \pm 6.8$  years old. More than half of study groups (56%) were

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male and the majority of study group were married

Regarding educational level, half of the study group had secondary education one third of had administrative job. More than two thirds (72%) of study group lived in rural areas, their income wasn't enough **Table 2:-** revealed distribution of patient's knowledge pre and post nursing intervention

Regarding definition of gastrointestinal endoscope less than two third (64%) of patients had incorrect answer pre nursing intervention and more than two thirds (66%) post intervention had correct complete answer. As regards uses of gastrointestinal endoscope, more than two thirds (68%) had incorrect answer preintervention, while post intervention more than half (58%) had correct complete answer.

The majority of patients (90%) had incorrect answer regarding contraindication of gastrointestinal endoscope preintervention, while less than half (48%) had correct complete answer post intervention. As regards nursing care before endoscope, more than half (54%) of patients had correct incomplete answer preintervention, more than half (56%) post intervention had correct complete answer.

Regarding nursing care during and after endoscope, less than two thirds (64%) of patients had incorrect answer pre nursing intervention and more than half (54%) had correct complete answer post intervention. There were statistical significant differences among studied patients pre and post intervention related to total level of knowledge.

**Table 3:-** illustrated complication among studied patients pre and post intervention.

Two thirds (66%) of patients didn't have aspiration pre intervention while the majority (96%) didn't have it post intervention.

More than half (52%) had bleeding preintervention, the majority (82%) didn't have bleeding post intervention. The majority (88% and 100%) of studied patients didn't have perforation pre intervention and Post intervention. More than two thirds (70%) of patients had chest pain preintervention, more than two thirds (72%) didn't have chest pain post intervention. More than two thirds (70%) and the majority ( 98%) of patients didn't have infection pre intervention and post intervention respectively. The majority of patients (84%) had changes in vital signs pre intervention, less than two thirds (62%) didn't have change of vital signs post intervention. More than two thirds of patients (66%) had nausea and vomiting pre intervention. More than two thirds of patients (76%) didn't have nausea and vomiting post intervention. There was highly statistically significant difference in complications among studied patients on pre and post intervention.

**Table 4:-** illustrated that less than two thirds (60%) of patients had Correct incomplete answer regarding allowed food after endoscopy pre intervention, while post intervention less than two thirds (64%) had Correct complete answer. As regard Prohibited food after endoscopy, more than half (56%) had incorrect answer pre intervention and less than two thirds (60%) had Correct complete answer post intervention.

**Table 5:-** showed that more than three quarters (78%) had incorrect answer pre- intervention regarding changing daily routine after endoscopy and the majority (82%) had correct complete answer post intervention.

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**Table (1): Sociodemographic characteristics for the patient study and control group**

Items	study (No=50)		Control (No=50)		Test of sig.	p-value
	No	%	No	%		
<b>Gender</b>						
- Males	28	56%	31	62%	<b>X<sup>2</sup>= 0.372</b>	P =0.542 (>0.05)
- Females	22	44%	19	38%		
<b>Age</b>						
- Mean± SD	58.1±6.8		57.2±6.7		<b>t test =0.652</b>	P =0.516 (>0.05)
- Min - Maximum	37-70		35-68			
<b>Marital status</b>						
- Single	0	0%	3	6%	<b>X<sup>2</sup>= 9.5</b>	P =0.023* (≤0.05)
- Married	44	88%	33	66%		
- Widow	6	12%	10	20%		
- Divorced	0	0%	4	8%		
<b>Educational level</b>						
- Illiterate	3	6%	3	6%	<b>X<sup>2</sup>= 0.985</b>	P =0.912(>0.05)
- Read and write	6	12%	8	16%		
- Basic	6	12%	4	8%		
- Secondary	25	50%	27	54%		
- University	10	20%	8	16%		
<b>Occupation</b>						
- Manual	13	26%	16	32%	<b>X<sup>2</sup>= 2.13</b>	P =0.712(>0.05)
- Administrative	17	34%	16	32%		
- Not working	6	12%	9	18%		
- Housewife	13	26%	8	16%		
- Nurse	1	2%	1	2%		
<b>Residence</b>						
- Urban	14	28%	9	18%	<b>X<sup>2</sup>= 1.41</b>	P =0.235(>0.05)
- Rural	36	72%	41	82%		
<b>Monthly income</b>						
- Not enough	37	74%	35	70%	<b>X<sup>2</sup>= 0.198</b>	P =0.656(>0.05)
- Enough	13	26%	15	30%		

**Table (2): Distribution of patient's knowledge pre and post nursing intervention**

Items	Pre intervention (No=50)		Post intervention (No=50)		Test of sig.	p-value
	No	%	No	%		
<b>Definition of gastrointestinal endoscope</b>						
- Incorrect answer	32	64%	1	2%	<b>X<sup>2</sup>= 56.6</b>	P =0.00** (≤0.001)
- Correct incomplete answer	16	32%	16	32%		
- Correct complete answer	2	4%	33	66%		
<b>Uses of gastrointestinal endoscope</b>						
- Incorrect answer	34	68%	0	0%	<b>X<sup>2</sup>= 63.7</b>	P =0.00** (≤0.001)
- Correct incomplete answer	16	32%	21	42%		
- Correct complete answer	0	0%	29	58%		
<b>Contraindication of gastrointestinal endoscope</b>						
- Incorrect answer	45	90%	12	24%	<b>X<sup>2</sup>= 47.4</b>	P =0.00** (≤0.001)
- Correct incomplete answer	5	10%	14	28%		
- Correct complete answer	0	0%	24	48%		
<b>Nursing care before endoscope</b>						
- Incorrect answer	23	46%	4	8%	<b>X<sup>2</sup>= 43.2</b>	P =0.00** (≤0.001)
- Correct incomplete answer	27	54%	18	36%		
- Correct complete answer	0	0%	28	56%		
<b>Nursing care during and after endoscope</b>						
- Incorrect answer	32	64%	6	12%	<b>X<sup>2</sup>= 44.8</b>	P =0.00** (≤0.001)
- Correct incomplete answer	18	36%	17	34%		
- Correct complete answer	0	0%	54	54%		
<b>Total means score of knowledge</b>						
- Mean ±SD	0.45±0.07		0.82±0.11		Mann Whitney=8.7	P =0.00** (≤0.001)
- Min – Max	0.33-0.60		0.6-1			

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**Table (3): Distribution of patients according to the incidence of complication on pre and post intervention**

Items	Pre intervention (No=25)		Post intervention (No=25)		Test of sig.	p-value
	No	%	No	%		
<b>Aspiration</b>						
- Yes	17	34%	2	4%	X2= 14.5	P =0.00** ( $\leq 0.001$ )
- No	33	66%	48	96%		
<b>Bleeding</b>						
- Yes	26	52%	9	18%	X2= 12.7	P =0.00** ( $\leq 0.001$ )
- No	24	48%	41	82%		
<b>Perforation</b>						
- Yes	6	12%	0	0%	X2= 6.4	P =0.012** ( $\leq 0.05$ )
- No	44	88%	50	100%		
<b>Chest pain</b>						
- Yes	35	70%	14	28%	X2= 17.6	P =0.00** ( $\leq 0.001$ )
- No	15	30%	36	72%		
<b>Infection</b>						
- Yes	15	30%	1	2%	X2= 14.6	P =0.00** ( $\leq 0.001$ )
- No	35	70%	49	98%		
<b>Change of vital signs</b>						
- Yes	42	84%	19	38%	X2= 22.2	P =0.00** ( $\leq 0.001$ )
- No	8	16%	31	62%		
<b>Nausea and vomiting</b>						
- Yes	33	66%	12	24%	X2= 17.8	P =0.00** ( $\leq 0.001$ )
- No	17	34%	38	76%		

**Table (4): Distribution of patients in the study group according to their lifestyle (diet) on pre and post intervention**

Items	Pre intervention (No=50)		Post intervention (No=25)		Test of sig.	p-value
	No	%	No	%		
<b>Allowed food after endoscopy</b>						
Incorrect answer	20	40%	0	0%	X2= 55.0	P =0.00** ( $\leq 0.001$ )
Correct incomplete answer	30	60%	18	36%		
Correct complete answer	0	0%	32	64%		
<b>Prohibited food after endoscopy</b>						
- Incorrect answer	28	56%	0	0%	X2= 58.1	P =0.00** ( $\leq 0.001$ )
- Correct incomplete answer	22	44%	20	40%		
- Correct incomplete answer	0	0%	30	60%		

**Table (5): Distribution of patients in the study group according to their lifestyle (daily activity) on pre and post intervention**

Items	Pre intervention (No=50)		Post intervention (No=50)		Test of sig.
	No	%	No	%	
<b>Changing daily activity after endoscopy</b>					
- Incorrect answer	39	78%	0	0%	X2= 77.1
- Correct incomplete answer	10	20%	9	18%	
- Correct complete answer	1	2%	41	82%	



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**Discussion:**

As regard patient's knowledge, the results showed that there was improvement in patients' knowledge post intervention than pre intervention. These results agreed with Mohammed (2019) who stated that there was marked deficiency in patients' knowledge related to all aspects, with none of overall satisfactory knowledge during the pre-program. While, there were statistically significant improvements in all aspects of patients' knowledge regarding endoscopy after the implementation of the program on posttest. From the researcher's point of view, this might be attributed to patients' knowledge increased due to increase of nurses' knowledge after theoretical and practical sessions given to nurses and patients.

The results illustrated that complication related to patients were decreased post intervention than pre intervention. This result is agreed with Shehab and Sultana (2021) who revealed that there was a statistically significant difference before and after guidelines implementation related to these complications (vomiting & nausea, elevated body temperature, decreased blood pressure). From the researcher's point of view, this may be related to complications of gastrointestinal endoscopy were decreased after nursing intervention due to the increase of nurses' awareness and their improved practice so it have positive effect on patients outcomes. Gastrointestinal endoscopy had a positive effect and improvements in patient's knowledge with a better achievement of patients' outcomes.

The present study illustrated that there were statistically significant improvement of patients knowledge post intervention than preintervention related to allowed, prohibited food and

daily activity after endoscopy. This agreed with El-Maghawry, and El-Hawy. (2019) who found that the majority of patients experienced an improvement in their knowledge about diet, activity after one month of educational intervention, with a statistically significant difference. From the researcher point of view, this may be due to continuing nursing education is very important to improve patient's outcomes such as knowledge about prohibited, allowed food and daily activity after endoscopy.

**Conclusion:**

Based on the findings of the current study, it can be concluded that implementing nursing intervention for enhancing care of patients with upper gastrointestinal endoscopy had a positive effect and improvements in patient's knowledge with a better achievement of patient's outcomes.

**Recommendation:**

1. A simple booklet includes the most important instructional points regarding endoscopy that should be given to all patients.
2. A comprehensive discharge plan including the importance of follow up to patients with complications should be provided for endoscopy patients

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