Effect of Nursing Instructions on Clinical Outcomes for Patients Undergoing Upper Gastrointestinal Endoscopy

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Abstract

Background: Esophagogastroduodenoscopy is gold standard procedure for detecting upper gastrointestinal disorders.**Aim:**this study was conducted to evaluate the effect of nursing instructions on clinical outcomes for patients undergoing upper gastrointestinal endoscopy.**Design:**Quasi experimental research design was utilized.**S**etting : the study conducted at New Surgeries Hospital affiliated of Tanta University Hospitals.**Subject:** It consisted of purposive sample of 60 Upper endoscopy patients who selected and divided into two equal groups.**T**ools:**Three tools used in this study for data collection:**Tool I:**Patients' Assessment Structured Interview.**Tool II:**Patient's Knowledge Assessment Questionnaire regarding Upper Gastrointestinal Endoscopy.**ToolIII:**Patients'Clinical Outcomes Assessment Tool composed from three parts: Part A: Tolerance Assessment Sheet;Part B: State Trait Anxiety Inventory.The Part C:Post endoscopy Patients' Observation for risks of Complication Checklist.**Results:**there were statistical significant improvement in total knowledge level study group had high level of knowledge(76.7) while control group had (16.7%).state anxiety score immediately post giving nursing instructions, about more than half(63.3.0%)of control group had sever level of anxiety compared to the minority of study group (10.0%).after giving nursing instructions to study group.**C**onclusion: Implementation of nursing instructions had a positive impact on clinical outcomes. **Recommendations:** Educational Program should be implemented as a routine nursing care for patients undergoing upper endoscopy procedure.

Keywords: Clinical   Outcomes,   Nursing   Instructions,   Upper   Endoscopy

Introduction

Esophagogastroduodenoscopy is the gold standard medical method for diagnosing diseases of the esophagus, stomach and upper duodenum, allowing direct inspection of mucosal surfaces, imaging, video recording, diagnostic biopsies of suspicious lesions and treatment methods**(Tae etal., 2020)**.

Diagnostic methods of upper endoscopy include diagnosis dysphagia, esophageal strictures, upper gastrointestinal bleeding such as hematemesis or melena, peptic ulcer disease and esophagitis as well as an endoscopic therapeutic function such as control bleeding from esophageal varices by injection,ligation as an endoscopic therapeutic function, stent placement in critical stricture dilating a narrow esophagus **(Agyei-Nkansah et al.,2019)**

Upper endoscopy is considered a safe and quickly procedure that offers many advantages for accurate diagnosis, which includes; identifying the cause of symptoms to start appropriate treatment. However, Upper Endoscopy can lead to complications such as infection, bleeding, perforation and rupture of the duodenal, esophageal and gastric mucosa (**Andrew Kistler et al., 2019**).

Upper endoscopy can be a stressful procedure for patients (**Walter et al., 2020**).Endoscopic patients are usually anxious. Anxiety may be due to insufficient knowledge about endoscopy procedures or fear of pain during insertion of endoscope tube or presence of false beliefs (**Nasution, 2022**). Anxiety causes incomplete, unpleasant, and difficult diagnostic processes. It also increased the use of sedatives, decrease tolerance during the procedure and increase risks of complications (**Ou et al.,2022**).

Patients must follow nursing instructions and understand what will happen during the procedure and give the opportunity to ask questions. Pre procedural instructions include definition, purposes, indication, benefits, investigation required, type of anesthesia used, perform breathing technique, position Also, physical preparation to patient before procedure .(**Saad& Srour, 2019**).

Significance of the study

Upper Endoscopy is an effective diagnostic and therapeutic procedure for upper GI diseases (**Puttaraju, 2019**).Upper endoscopy is estimated more than 20 million clients who performing the procedure yearly in the United States (**Collins, 2021**).

In Egypt, an average of 15 million GI endoscopy procedures are performed annually **(Mohamed,2020)** while percentage of patients undergoing upper gastrointestinal endoscopy at Tanta Main University Hospital documented estimation about 5000 patients in 2023.

Nurses are responsible for a variety of activities including nursing instructions prior to an endoscopy examination, in addition to prepare the endoscopic patients **(Sukartini et al.,2023.** So, providing nursing instructions regarding the procedure, teaching relaxation technique lead to decreasing patient level of anxiety, improving patient tolerance during the procedure and reduce the patient complications after the procedure

The aim of this study was to: Evaluate the effect of nursing instructions on clinical outcomes for patients undergoing upper gastrointestinal endoscopy.

Research Hypotheses: -

The patients who received nursing instructions exhibited improvement in their knowledge level and exhibited increase tolerance; reduce anxiety and risks of complications.

Subjects and Method

Design: quasi experimental design was used in this study.

Study settings: -

The study implemented in Gastrointestinal Endoscopy Unit at New Surgeries Hospital which is affiliated to Tanta Main University Hospital.

Study subjects: -

A purposive sampling of (60) adult patients who fulfilling the inclusion and exclusion criteria will be assigned based on Epi-Info software statistical to the total population admitted per year to upper endoscopy unit the sample size will be calculated as the following

Z= confidence level 95%, d= Error proportion (0.05), P= population (40%).

The sample was selected and divided into two equal groups 30 patients in each as follows;

Control Group: 30 who received routine hospital care by nursing staff.

Study Group: 30 who received nursing instructions proposed by the researcher.

-Inclusion criteria of subjects:

- Both sexes were involved.

-Adult conscious from 21- 60 years were included.

-Patient who carry out the procedure for first time.

Exclusion criteria were as follows:

-End stage of liver disease.

- Pregnancy.

Study tools:

Three tools were used in this study:-

Tool I:"Patients' Assessment Structured Interview".

This tool was developed by the researcher after reviewing recent literature review **(Bhattarai, 2020: Anwar,** *etal.***2018).** It included: Two parts as follows: -

Part (A) Patient's socio- Demographic which include: -age, sex, marital status, level of education, income, occupation, and residence data.

Part (B) Patient's Clinical Data: which include: patient diagnosis, past medical and surgical history, history of smoking, history current medication.

Tool II: Patient's Knowledge Assessment Questionnaire regarding Upper Gastrointestinal Endoscopy: This tool was developed by the researcher based on literature reviews (**Mohamed, S. 2016): (Saad& Srour, 2019).**to assess patient's knowledge regarding upper gastrointestinal endoscopy. It consisted of 18 multiple choose questions that concerned with patients' knowledge regarding Anatomy of upper digestive system , definition of upper endoscopy procedure , indications , benefits, investigation needed before procedure , type of anesthesia used during test ,

physical preparation before procedure, , position of patient during procedure , recovery period and patient knowledge about discharge instructions.

Total Scoring system:-

The total numbers of questions were 18 questions. Regarding knowledge scores Correct and complete answer scored 2 ,correct and incomplete scored 1 and incorrect or no answer was scored Zero .

Tool III: "Patients' Clinical Outcomes Assessment Tool" This tool consisted of three parts as follow:

Part(A): State Trait Anxiety Inventory.it was developed by **Spielberger etal., (1983),**and it was adapted by **Oner L. etal. 1985.** This state scale was adopted by the researcher. It consists of 20 items, according to its subscales: state Anxiety sub scale has both positive and negative statements. The positive statements were from ,4,6,7,9,12,13,14,17& 18 the options were scored as 1,2,3, & 4. The negative statements were 1,2,5,8,10,11,15,16,19 & 20 therefore reverse scoring was used. Scores ranged 20 to 80.

Total Scoring system Normal scores or no anxiety scored 20.

Low scores from 21 to 40 suggest mild anxiety,Moderate scores from 41 to 60

suggest moderate anxiety,High scores from 61 to 80 suggest severe anxiety.

Part (B): Tolerance Assessment Sheet

It was adopted from **(Mohamed S.A. 2016)** **(Ou, et al.2022)** and modified by the researcher to evaluate patient tolerance during the procedure .It comprised(10) main items such as drawback during endoscopy, saying unintended things during the test

Total Scoring system:

The maximum score on tolerance level was 10. Each item was given score. (zero mark) for done and not done (one mark).

The Part C:"Post endoscopy Patients' Observation for risks of Complication Checklist":

It was developed after reviewing the related literature **(AboBakr, E. etal 2019)**. It was used to assess presence or absence of upper gastrointestinal endoscopy complications after upper endoscopy such as hoarseness, sore throat, hiccup.

Scoring system:

✧ (One mark) for presence of upper endoscopy complications.

✧ (Zero) for absence of post endoscopy complications.

Ethical consideration:

This study was approved from the ethical committee on faculty of nursing university

with code no 187.Informed consent was taken from every patient after clarifying the procedures and the purpose to participate in the study. They were informed about confidentiality of data collection, their right to refuse participation and to withdraw at any time without any consequences. A code number was used instead of name.

An official permission was obtained to conduct this study from the faculty authorities and from the Manager of Upper Gastrointestinal Unit at New Surgeries Hospital which is affiliated to Tanta Main University Hospital.

Content validity

All tools were tested for content validity by seven jury of experts in the field of Medical-Surgical Nursing at the Faculty of Nursing and medical professor at Faculty of Medicine.

A pilot study:

Pilot study was conducted before the actual study on 6 patients undergoing upper gastrointestinal endoscopy after taking their formal approval to test the clarity, feasibility, relevance of the tool used and applicability of the different items of the determinant Tools.Modifications were done by the

researcher and those patients were excluded from the study subjects.

Reliability of the tool

Alpha Cronbach's test was used to test tool reliability and the estimated reliability. Tool II = 0.787, Tool III Part A =0.793, Part B = 0.769 and Part C = 0.793.

Data collection

-Data were collected over a period of 6 months, started from March 2023 to August 2023.

-Nursing instructions was conducted on four phases as follows:

A- Assessment Phase:

➢ An initial assessment was carried out by the researcher for all the study subjects in both the control and study groups to assess the patients who met the inclusion criteria of this study using Tool I Part(A)Patients`SocioDemographic and part B Patient's Clinical Data .

➢ Both the control and study groups make collection baseline data pertinent by using tool II .

B-Planning Phase

This phase formulated based on the study subjects' assessment were formulated.Nursing Instructions were given through by the researcher face to face communication with study groups in shape of colored booklet that take about one month for development were designed by the researcher in Arabic language.

-Nursing instructions were planned according to two sessions: each session was taken duration30 -40 minutes to study groups within two days from total period of the study.

-The teaching methods were included a colored booklet which had distributed to printed to study groups and power point presentations with discussion and summarizing by patient.

Expected outcomes were including: Improve patients' knowledge about upper endoscopy procedure, Decrease the patient's level of anxiety, Increase the tolerance of patient during the procedure and decrease risks of complications after upper endoscopy procedure.

C-Implementation Phase:

Group I (control group):

Who received the routine hospital nursing care as prescribed by medical team and consisted of insertion of IV cannula and support the patient during the procedure .

Group II (Study Group)

Study groups who received nursing instructions implemented by the researcher through two sessions and each session started by pretest and post- test.

First Session of Nursing instructions It was provided to patient before the procedure nearly about 3 days when the patient came to endoscopy unit to take appointment for the procedure and take from 30- 45 minutes.Content of first session was included as follows: -The brief anatomy of the gastrointestinal system, information about upper endoscopy procedure includes(definition, purpose, indications, preparations for the procedure, position of patient during upper endoscopy procedure, technique of performing the procedure).

Second Session 2: was started in the day of performing the procedure and take about 30-45 minutes.Content of second session was included as follows:-the patient learned demonstration deep breathing exercise independently, enumerate the discharge instructions and know Warning signs requiring emergency care.

D-Evaluation Phase :

After implementation of nursing instructions the researcher carried out a comparison between both groups to determine patients' Knowledge regarding Upper Gastrointestinal Endoscopy by using tool II and using tool III Part A, B and C to evaluate the effect of nursing

instructions on clinical outcomes among patients undergoing upper endoscopy .

Results

Table (1): Distribution of Studied groups undergoing Upper Endoscopy according to Their Socio- Demographic Characteristics (n=60).

majority of both studied groups (36.7%)and(43.3%) had age between 50-60 years for control and study group respectively with mean age 43.60 ± 12.30 in control group and 47.60 ± 10.23 in study group .

Regarding Sex, more than half in control and study group were male (60%) and (57.7%) respectively.

Concerning marital status, nearly more than half of studied groups were married (63.3% and 76.7%) respectively.

Related to Educational level, less than half of the control groups were read and write 40.0% and about half of study group had Diploma 46.7%.

As for Occupation, less than half of control had manual work 43.3%and nearly more than one third of study group were housewife 40%.In relation to income level ,more than half of studied patient did not have enough income level 66.7%and 56.7%respectively.In relation to Residence area ,nearly half of the control group and

the study group 66.7%, 60.0% respectively were lived in Rural area.

Table (2): Distribution of Total level of knowledge for both groups regarding Upper Gastrointestinal Endoscopy (n=60).

It shows that majority of control group 93.3% and study group 90.0 % had low level of knowledge about upper endoscopy before giving the nursing instructions and there were no statistical significant differences between both studied groups.

 On The Other hand , there were improvement in total knowledge level only for study group after giving nursing instructions as it was noted that study group had high level of knowledge 76.7%.There were highly statistical significant differences between both studied group post giving nursing instructions P Value = <0.001[**]

Figure (1): Comparison between the two studied groups according to overall state Anxiety of upper gastrointestinal endoscopy patients.

This figure illustrates levels of anxiety for studied groups according to state anxiety score Pre and post giving nursing instructions. This result clarified that immediately post giving nursing instructions, about more than half (63.3%)

of control group had sever level of anxiety compared to the minority of study group (10.0%) and there were highly statistical significant differences between both groups (p value <0.001[**]) .

Table (3): Distribution of both studied groups according to Tolerance Assessment during Upper Endoscopy (N = 60).

This table shows that there were highly statistical significant Differences between control and study group related to Drawback, vomiting, attempting to grasp the endoscope device, attempting to remove the endoscopic tube during the procedure **(P< 0.001).**

Figure (2): Distribution of both studied groups according to Total Tolerance Level during Upper Endoscopy.

This Figure clarifies level of total score of tolerance for studied groups during the upper endoscopy procedure after giving nursing instructions to study group. It was noted that control group had poor tolerance (56.7%) compared to study group who had good tolerance (76.7 %).

Table (4): Comparison between the two studied groups according to Post endoscopy Patients' Observation Checklist for risks of Complication.

.The study revealed that majority of control group Immediately after the procedure had Abdominal distension , Headache and sore throat (73.3%, 63.3% ,40.0 %) while the Study group had only (33.3% ,33.3% ,13.3%) . One week after the procedure near to half from control group had headache 46.7 % compared to study group only 20.0% had headache so there were high statistical significance difference between the both groups (p value<0.001**)

Table(5)correlation between total knowledge and Patients' state trait ,tolerance and Patients' Observation Checklist for risks of Complication.

This table shows correlation between knowledge of studied groups and their level of State Anxiety in both groups pre and post session of nursing instructions. Negative highly significance correlation was revealed between knowledge of studied groups and their level of State Anxiety (P= <0.001) ,A positive highly significance correlation was revealed between knowledge of studied groups and their tolerance (P= <0.001).and

A Negative highly significance correlation was revealed between knowledge of studied groups and their risks of complication.

Table (1): Distribution of Studied groups undergoing Upper Endoscopy according to Socio- demographic Characteristics (N= 60)

Patient's Socio--demographic Data	Control (n = 30)		Study (n = 30)		χ^2	P
	No.	%	No.	%		
Age						
(20 -<30) years	5	16.7	2	6.7		
(30 - < 40) years	6	20 .0	5	16.7	1.757	
(40 -< 50) year	8	26.6	10	33.3		0.666
(50 -60) years	11	36.7	13	43.3		
Mean ± SD.	43.60 ± 12.30		47.60 ± 10.23		1.369	0.176
Sex						
Male	18	60.0	17	56.7	0.069	0.793
Female	12	40.0	13	43.3		
Marital status						
Single	4	13.3	5	16.7		
Married	19	63.3	23	76.7	3.118	
Divorced	3	10.0	1	3.3		0.380
Widow	4	13.3	1	3.3		
Educational level						
Read and write	12	40.0	7	23.3		
Basic education	7	23.3	5	16.7	7.241	
Diploma	9	30.0	14	46.7		0.061*
University Education	2	6.7	4	13.3		
Occupation						
Manual work	13	43 .3	9	30 .0		
Employee	2	6.7	5	16.7		
Housewife	7	23.3	12	40.0	4.231	
Student	2	6.7	1	3.3		0.302
Not working	6	20.0	3	10.0		
Income						
Enough	10	33.3	13	43.3	1.086	0.297
Not enough	20	66.7	17	56.7		
Residence						
Rural	20	66.7	18	60.0		
Urban	10	33.3	12	40.0	1.111	0.292

Table (2):   Distribution of Total level of knowledge For both groups regarding Upper Gastrointestinal Endoscopy.

| Knowledge level | Control group (n = 30) | | | | Study group (n = 30) | | | | $\chi^2(p_1)$ | $\chi^2(p2)$ |
| | Pre Routine nursing care | | poste Routine nursing care | | Pre Nursing Instructions | | Post Nursing Instructions | | | |
	No.	%	No.	%	No.	%	No.	%		
Low (<60%)	28	93.3	22	73.3	27	90.0	1	3.3	1.201 1.000	54.428 <0.001**
Moderate (60 –<75%)	1	3.3	3	10.0	3	10.0	6	20		
High (≥75)	1	3.3	5	16.7	0	0.0	23	76.7		
Total score (0–36)										
Range	(7.0 - 22.0)		(9.0- 22.0)		(8.0- 22.0)		(13.0 - 34.0)		t=0.699	t=13.888
Mean ± SD.	12.53 ± 3.70		14.03 ± 3.10		13.10 ± 2.80		27.60 ± 4.36		0.506	<0.001**
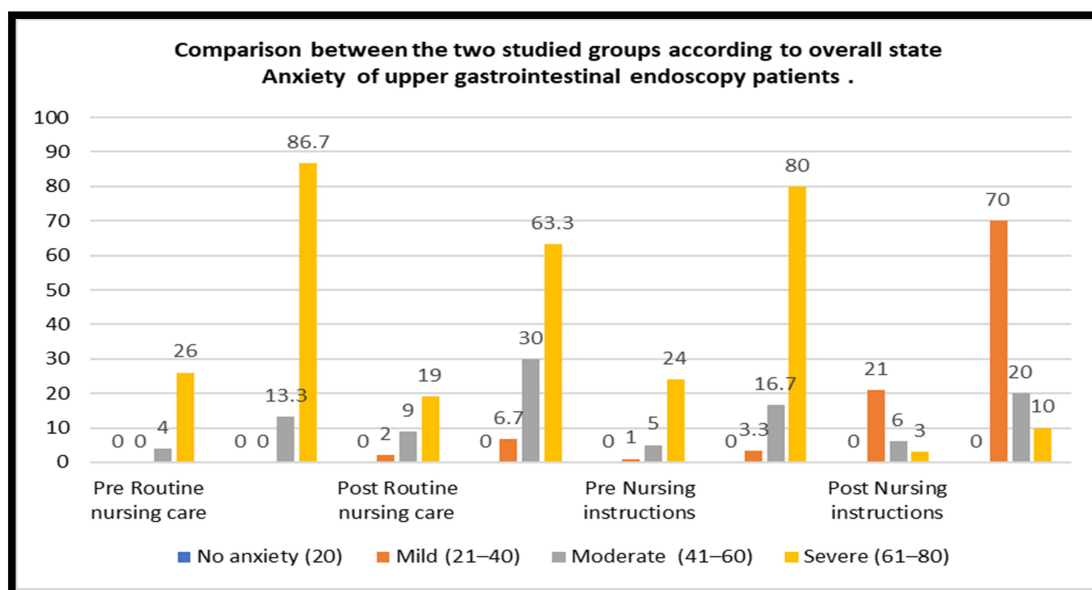
Figure (1): Comparison between the two studied groups according to overall state Anxiety of upper gastrointestinal endoscopy patients.

Table (3): Distribution of both studied groups according to Tolerance Assessment during Upper Endoscopy (N = 60)

| Q	Patient's tolerance	Control group (n = 30)				Study group (n = 30)				χ^2	p
		Done (0)		Not Done (1)		Done (0)		Not Done (1)			
		No.	%	No.	%	No.	%	No.	%		
1	Drawback during endoscopy	22	73.3	8	26.7	10	33.3	20	66.7	9.643	0.002**
2	Gagging during the test	18	60.0	12	40.0	8	16.7	22	83.3	4.022	0.045*
3	Vomiting during the test	20	66.7	10	33.3	5	16.7	25	83.3	15.429	<0.001**
4	Attempting to grasp the endoscope	17	56.7	13	43.3	7	23.3	23	76.7	6.944	0.008**
5	Long time spent during the procedure	11	36.7	19	63.3	5	16.7	25	83.3	3.068	0.080*
6	Retching	17	56.7	13	43.3	8	26.7	22	73.3	5.554	0.018*
7	Moaning (saying unintended things during the test)	20	66.7	10	33.3	6	20.0	24	80.0	7.177	0.007*
8	Shout during the procedure	3	10.0	27	90.0	0	0.0	30	100.0	3.158	0.237
9	Attempting remove the tube	13	43.3	17	56.7	2	6.7	28	93.3	10.756	0.001**
10	Lacrimation of eye	11	36.7	19	63.3	2	6.7	28	93.3	4.356	0.037*
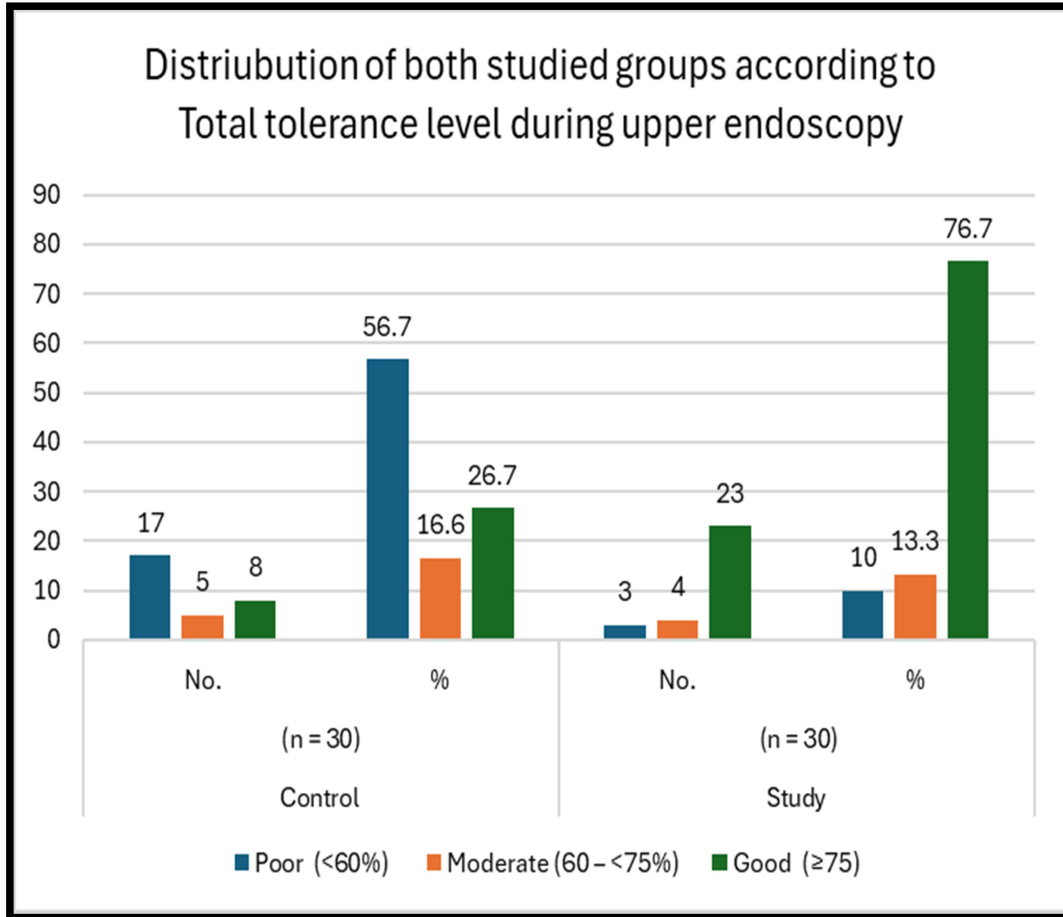
Figure (2): Distribution of both studied groups according to Total Tolerance Level during Upper Endoscopy.

Table (4): Comparison between the two studied groups according to Post endoscopy Patients' Observation Checklist for risks of Complication

Q	Symptoms of risk for Complications	Control group (n = 30)								Study group (n = 30)								$\chi^2(p_1)$	$\chi^2(p_2)$
		Immediately after the procedure				One week after the procedure				Immediately after the procedure				One week after the procedure					
		Absent		Present		Absent		Present		Absent		Present		Absent		Present			
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
1	Hoarseness	27	90.0	3	10.0	25	83.3	5	16.7	30	100.0	0	0.0	29	96.7	1	3.3	3.158 (0.237)	2.963 0.195
2	Sore throat	18	60.0	12	40.0	20	66.7	10	33.3	26	86.7	4	13.3	28	93.3	2	6.7	5.455 (0.020*)	6.667 (0.010*)
3	Hiccup	22	73.3	8	26.7	23	76.7	7	23.3	27	90.0	3	10.0	28	93.3	2	6.7	2.783 (0.095)	3.268 0.071*
4	Anorexia	18	60.0	12	40.0	20	66.7	10	33.3	24	80.0	6	20.0	27	90.0	3	10.0	2.857 (0.091)	4.812 (0.028*)
5	Headache	11	36.7	19	63.3	16	53.3	14	46.7	20	66.7	10	33.3	24	80.0	6	20.0	5.406 (0.020*)	4.800 (0.028*)
6	Difficult of swallowing	18	60.0	12	40.0	20	66.7	10	33.3	26	86.7	4	13.3	28	93.3	2	6.7	5.455 (0.020*)	6.667 (0.021*)
7	Abdominal distension	8	26.7	22	73.3	22	73.3	8	26.7	20	66.7	10	33.3	28	93.3	2	6.7	9.643 (0.002*)	4.320 (0.038*)
8	Bleeding	30	100.0	0	0.0	28	93.3	2	6.7	30	100.0	0	0.0	30	100.0	0	0.0	–	2.069 (0.150)
9	Fever	27	90.0	3	10.0	26	86.7	4	13.3	30	100.0	0	0.0	29	96.7	1	3.3	3.158 (0.237)	1.964 (0.353)
10	Abdominal pain	14	46.7	16	53.3	18	60.0	12	40.0	22	73.3	8	26.7	26	86.7	4	13.3	4.444 (0.035*)	5.455 (0.020*)

Table (5): Correlation between total Patients' knowledge and"Patients' state anxiety scale.

"Patients' Clinical Outcomes Assessment		Patients' knowledge			
		Control (n = 30)		Study (n = 30)	
		Pre	Post	Pre	Post
State trait Anxiety.	r	0.037	-0.296	-0.440	-0.688
	p	0.848	0.112	0.015[*]	<0.001[**]

"Tolerance Assessment		Patients' knowledge	
		Control (n = 30)	Study (n = 30)
		During the procedure	During the procedure
	r	0.324	0.639
	p	0.081	<0.001[**]

Patients' Observation for risks of Complication		Patients' knowledge			
		Control (n = 30)		Study (n = 30)	
		Immediate after the procedure	One week after the procedure	Immediate after the procedure	One week after the procedure
	r	0.023	-0.009	-0.420	-0.552
	p	0.902	0.961	0.021[*]	0.002[**]

Discussion:

Upper gastrointestinal endoscopy was often associated with fear of pain during endoscopy and occurrence of any complications that may decrease patient cooperation and tolerance toward the procedure. Therefore, controlling anxiety before endoscopy was considered a top priority for patients to increase level of tolerance. The best measure to reduce anxiety, increase tolerance and controlling risks of occurrence of any complications are providing patients with sufficient nursing instructions about the procedure **(Maślanka etal., 2020)** .As regard patients' Socio-demographic data, Regarding age of studied patients, study clarified that one third of the control group and near of half patient in the study group aged between (50-60) years old.This may be due to that Elderly patients are more vulnerable than younger patients due to several age-related chronic diseases, unhealthy life style such as smoking , eating fatty or spicy food , increase consumption of caffeine drinks and overuse of analgesics **(Ergenç & Uprak.2020).**

This finding was supported by **(Ahmed etal., 2021)** who found that most studied patients were in the age group between (50 to 60) years, Also **Mohamed etal., 2020** found that most of the studied patients were older.In contrast, this finding was contradicted by **(Kamran etal., 2020)** who illustrate that majority of the studied patients belonged to younger age group 20-39 years of age.

In relation to sex, the present study revealed that more than half in control and study group were males with no significant difference between two groups. This may be due to males have long hours of working outside the home that contribute to intake of fast, spicy foods and drinking much caffeine. This is in line with **(Vivek et al., 2020)** who reported that more than half of studied groups were males. Also, this study is supported by **(El Badry et al., 2020)** who mentioned that nearly two third of studied group were males. On the other hand, these results were disagreed with **(Naqvi et al., 2019)** who reported that more than half of the studied groups were females.

Concerning to marital status in this study nearly more than half of control and study group were married with no statistically significant difference observed between the two groups. From the researcher's point of view, this might because most of the studied patients older age ranged between 40-60years old .This result was supported by **(Shuja etal., 2019)** who revealed that nearly more than two third of patient in control and study groups were married without any significant difference between two groups .**On the other hand**, these results were disagreed with **(Behrouzian et al., 2017)** who reported that majority of studied groups were single.

Concerning educational level, the current study revealed that less than half of control group were read and write and about half of study groups had diploma with statistically significant difference observed between the two groups. These findings in the same line with **(Immaculate Mary et al., 2019)** who revealed that nearly one third of patient in control groups were primary education and study group less than half had secondary

educations. However**,** those findings were contradicted with **(Dubois etal.,2020)** who reported that the majority of studied patient had high educational level.

In concerns of occupation of studied patients, the finding of the present study clarified that less than half of control group had manual work and nearly more than one third of study group were housewife .This may be due to living in rural area. These results was supported by **(Sabry et al., 2021)** who revealed that less than two third of studied patients had manual work while **(Obayo et al., 2018)** disagreed who reported that less than half of the studied groups were civil servant.

As regard to total level of knowledge for both studied groups regarding upper gastrointestinal endoscopy, it was obvious that before giving the nursing instructions majority of control group and study group had low level of knowledge about upper endoscopy and there were no statistically significant differences between both studied groups. These results supported by **(Anwar etal.,2019)**who reported that more than half of studied patients had unsatisfied knowledge score regarding upper GI endoscopy. And this study revealed that there were improvement in total level of knowledge only for study group after giving nursing instructions as it was noted that study group had high level of knowledge. There were highly statistically significant differences between both studied group post giving nursing instructions. These results in agreement with **(Dar et al. 2022)** who reported that after providing Video assisted teaching program related to upper gastrointestinal endoscopy, the level of

knowledge in the experimental group improved. Also, **(Abd Elnaby etal.,2023)** who stated that the knowledge level about upper endoscopy was improved within study group where nearly almost had satisfactory level while in control group minority only had satisfactory level. On the contrary, **(Chauhan et al., 2018)** who reported that majority of studied group had good knowledge.

Immediately post giving nursing instructions , The current study revealed that more than half of control group had sever anxiety compared to study group more than half had mild anxiety state .These results can be interpreted due to increase the knowledge about the procedure and application of deep breathing technique .These results were supported by**(Ghonaem etal.,2019)** who concluded that the majority of control group have a severe level of anxiety as compared with the study group had a mild level of anxiety (post behavioral intervention).

According to tolerance assessment during upper endoscopy, the results showed that there were highly statistically significant differences between control and study group related to tolerance items as drawback, vomiting, attempting to grasp or remove endoscope device during the procedure. From the researcher point of view it may be due to lack of knowledge about the procedure and anxiety related to fear from pain or discomfort. These results were supported by **(Mohamed et al., 2016)** who mentioned that there was statistically significant difference in both studied groups related to tolerance assessment p<0.05.

According to total tolerance level during upper endoscopy, these results clarified that

control group had poor tolerance compared to good tolerance for study group with mean ± SD (6.10 ± 1.06) and (8.47 ± 0.78) for control and study group. These results were in the same line **(Curtin etal.,2019)** who reported that majority of study group had good tolerance 90% compared to control group 40% only good tolerance.

These findings of current study matched with **(Sabry etal.,2021)** who noticed that there was statistical difference before and after implementation guidelines regarded to patients' complications as abdominal distension, and sore throat. Additionally, the same finding reported by **(Abd Elgaphar etal.,2019)** who mentioned that majority of control groups had headache compared to minority of study group p value <0.001. In contrast, those findings were disagreed with **(Abo Bakretal., 2019)** who found that 100.0% of both groups suffered from sore throat.

Regarding correlation between patient`s total level of knowledge and patient`s state anxiety scale**,** this finding stated that there were a negative highly significance correlation between knowledge of studied groups and their patient`s state anxiety scale p <0.001. These results matched by **(Anwar et al., 2018)** who reported that there was negative highly significance correlation between them.

Also the correlation between patient`s total knowledge and patient`s tolerance assessment showed that there were a positive highly significance correlation between knowledge of studied groups and their tolerance These results supported by **(Maślanka-Seiffert etal.,2020)** who

reported that there was positive correlation between them.

Moreover, correlation between patient`s total knowledge and patient`s risks of complications, the results clarified that there were a negative highly significance correlation. And these results were in agreement with **(Kim etal, 2021)** who reported that there was negative correlation between patient knowledge and occurrence of complications after endoscopy.

Conclusion

Based on the findings of the current study, it can be concluded that:The nursing instructions lead to improvement of knowledge and clinical outcomes for patient undergoing upper endoscopy procedure.

Recommendations

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

A-Recommendation for patients:

1- In the endoscopic unit, an educational program should be implemented for both patients and their families/relatives about upper endoscopic procedure plan.

2-Distribution of researcher booklet to all patients prior the procedure at endoscopic unit at Tanta Hospitals.

B-Recommendations for further research studies:

1-Replication of the current study with a larger sample of patients in different settings is required for generalizing the results.

2- Assessment of patient nutritional needs post endoscopic procedure.

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