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Effect of Designed Guidelines on Nurses' Performance and Patients' outcome Regarding Upper Gastrointestinal Endoscopy

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Abstract: **Upper gastrointestinal endoscopy is a diagnostic and therapeutic procedure that provide good view of the mucosal surfaces of the upper GI tract and management of many gastrointestinal conditions. Improving the outcomes of upper GI endoscopic patients requires the best efforts of nurses in multiple settings and roles, working collaboratively with other health team. The aim of this study was to evaluate the effect of designed guidelines on nurses' performance and patients' outcome regarding upper gastrointestinal endoscopy. Design: A quasi-experimental design was utilized to achieve the aim of this study. Setting: The study was conducted at gastrointestinal endoscopy unit at Ain Shams University Hospital. Sample: A convenient sample of all staff nurses working in gastrointestinal endoscopic unit. In addition, a purposive sample of 60 adult patients undergoing upper gastrointestinal endoscopic procedure was selected according to certain inclusion criteria and was divided into control and study group of patients. Tools of data collection: Self-administered questionnaire sheet for nurses, observational checklist for nurses and Patients' outcome evaluation tool. Results: The results of this study showed that, total satisfactory level of nurses' performance (knowledge and practice) regarding caring of upper gastrointestinal endoscopic patient and Patients' outcomes (complications and satisfaction) improved post implementation of the designed guidelines for nurses caring for upper GI endoscopic patients. Conclusion: Total satisfactory level of nurses' performance (knowledge and practice) and Patients' outcomes (complications and satisfaction) improved post implementation of the designed guidelines for nurses caring for upper GI endoscopic patients. Recommendations: The study recommended the importance of implementing an educational training program to improve nurses' performance regarding caring of upper gastrointestinal endoscopic patients and improving patients' outcomes.**

Keywords: **Upper gastrointestinal endoscopy, Designed guidelines, Nurses' performance patients' outcomes.**

1. INTRODUCTION

Endoscopy services are the cornerstone of diagnosis and treatment in gastroenterology. 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 integral tool in the evaluation and management of many gastrointestinal conditions. Endoscopy nursing has been developed as a discipline with a highly qualified nurses working alongside the endoscopist. The role of endoscopic nurse is very relevant for the outcomes of endoscopy procedure **(Metwally, Donia, & Aziz, 2016).**

The nurse endoscopist should be 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. 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 **Mohamad, Mohamad, & sayed, 2014).**

Aim of the study

This study aims to:

Evaluate the effect of designed guidelines on nurses' performance and patients' outcome regarding upper gastrointestinal endoscopy through the following:

1. Assessing level of performance (knowledge and practice) for nurses caring for upper gastrointestinal endoscopic patients.

2. Designing and implementing guidelines for nurses caring for upper gastrointestinal endoscopic patients.

3. Evaluating the effect of implementing the designed guidelines on nurses' level of performance (knowledge and practice).

4. Evaluating the effect of implementing the designed guidelines on patients' outcome (complications and satisfaction).

Research Hypothesis:

The current study hypothesized that:

The designed guidelines will improve nurses' performance (knowledge and practice) and outcomes of patients undergoing upper gastrointestinal endoscopy procedure.

2. SUBJECTS AND METHODS

A-Research design:

A quasi-experimental design was utilized in this study.

B- Research Setting:

The study was conducted at gastrointestinal endoscopic unit at Ain Shams University Hospital.

C- Subjects:

The study was included convenient sample of all staff nurses working in gastrointestinal endoscopic unit. In addition, a purposive sample of 60 adult patients undergoing upper gastrointestinal endoscopic procedure was selected according to certain inclusion criteria and was divided into control and study group of patients.

Tools for data collection:

The study data were collected through the following three tools:

I-Self-administered questionnaire for nurses: The self-administered questionnaire was used to assess nurses' level of knowledge regarding caring for upper gastrointestinal endoscopic patients. It was developed by the researcher after reviewing the related literature: **(American Society for Gastrointestinal Endoscopy (ASGE), 2015; Society of Gastroenterology Nurses and Associates (SGNA), (2017); Brown, Edwards, Seaton, & Buckley, 2017; Decristoforo, et al., 2018; Treuting, Dintzis, Liggitt, & Frevert, 2018; Lichtenstein, & Alfa, 2019)**. **It was divided into six parts as the following:**

The 1st part: It included the demographic characteristics of nurses under study

The 2nd part: to assess nurses' knowledge regarding anatomy and physiology of digestive system**.**

The 3rd part: to assess nurses' knowledge regarding gastrointestinal endoscopy.

The 4th part: to assess nurses' knowledge regarding upper gastrointestinal endoscopy and nurses' knowledge regarding anesthesia.

The 5th part: to assess nurses' knowledge regarding caring for upper gastrointestinal endoscopic patients (before, during and after the endoscopy procedure.

The 6th part: to assess nurses' knowledge regarding reprocessing of Endoscope).

The total satisfactory level of knowledge was ≥ 85%, while unsatisfactory level of knowledge was < 85%.

II-Observational checklist for nurses: the observational checklist was used to assess nurses' level of practice regarding caring for upper gastrointestinal endoscopic patients. It was developed by the researcher after reviewing the related literature: **(American Society for Gastrointestinal Endoscopy (ASGE), 2015; Society of Gastroenterology Nurses and Associates (SGNA), 2017; Decristoforo, et al., 2018; Tan, Thompson, & Sharma, 2018). It was divided into four phases as the following:**

The 1st part: It was used to assess nurses' practice pre-procedure

The 2nd part: It was used to assess nurses' practice during the procedure.

The 3rd part: It was used to assess nurses' practice post procedure

The 4th part: It was used to assess nurses' practice regarding reprocessing of GI endoscope.

The total satisfactory level of practice was ≥ 85% while; the total unsatisfactory level of practice was < 85%.

III- Patients' outcome evaluation tool: The patients' outcome evaluation tool was used to assess patients' outcome. It was developed by the researcher after reviewing the related literature: **(Hucl, et al, 2016; Moorhead, Johnson, Maas, & Swanson, 2018; Yoon, et al, 2018; Bistritz, Ennis-Davis, Mulgrove, Greenaway, & van Zanten, 2018).**

This tool was divided into four parts as the following:

The 1st Part: socio-demographic characteristics of the patients under study such as patients' gender, age, residence, marital status, level of education, employment and income**.**

The 2nd Part: assessment of patients' clinical data such as medical diagnosis, complain on admission, type of endoscopy, past medical history for patient and his family.

The 3rd Part: assessment of complications that developed among all patients undergoing upper gastrointestinal endoscopy.

The 4th Part: assessment of upper gastrointestinal endoscopic patients' satisfaction

II. Operational design:

The Operational design included preparatory phase, validity and reliability, pilot study and fieldwork.

Preparatory phase:

It included reviewing of the current and more recent national and international related literature and theoretical knowledge of various aspects of the study using books, articles, periodicals, magazines and internet to develop tools for data collection and self- care guidelines.

Tools validity and reliability:

Validity of the developed tools was tested using face and content validity. Validity was tested through a jury of 7 experts from Medical Surgical Nursing department, Ain Shams University.The experts reviewed the tools for clarity, relevance, comprehensiveness and simplicity; minor modifications were done.

Testing reliability of the developed tools was done statistically by Alpha Cronbach test.

Pilot study:

A pilot study was carried out on 20% of total study subjects of nurses and 10% of total study subjects of patients to test the applicability of the study and to test clarity of the designed tools included Self-administered questionnaire, an observational checklist for the nurses, Patients' outcome evaluation tool as well as to estimate the time needed to conduct the study.

Field work:

Field work included two phases: implementation phase & evaluation phase.

A. Implementation phase:

This phase started by selecting nurses caring for upper gastrointestinal endoscopic patients and patients after upper gastrointestinal endoscopy who met the inclusion criteria and explaining simply the aim and nature of the study as well as taking their approval to participate in the study. Patients were randomly assigned into two matched equal groups (control and study).

Nurses were observed by the researcher using observational checklists to assess their level of practice regarding caring of upper gastrointestinal endoscopic patents. Self-administered questionnaire was used to assess nurses' level of knowledge regarding caring of upper gastrointestinal endoscopic patients.

Teaching sessions of the designed guidelines were conducted for the nurses. The booklet was handed out for every nurse; it includes six sessions, starting with orientation about the designed guidelines purpose, time and content was done.

At the end of these sessions the researcher informed them that they will be followed by the researcher after the designed guidelines at the gastrointestinal unit. Data collections teaching sessions for the sample of this study took about 10 months were conducted in morning and afternoon shifts started from June 2018 until April 2019.

B. Evaluation phase:

Evaluations the effect of designed guidelines on nurses' performance and patient outcome was done by comparing the results pre and post the implementation of designed guidelines.

III. Administrative Design:

An official letter was issued from the Faculty of Nursing, Ain Shams University to the director of gastrointestinal endoscopy unit explaining the purpose of the study to obtain their permission to conduct this study

IV. Statistical Design:

The data were collected, coded and entered into a suitable excel sheet. Data were transferred into (the statistical package for social science) SPSS version (17). Quantitative data were presented as mean, standard deviation; comparison was done using X^2 test. Qualitative data were presented as percentages.

3. RESULTS

Table (1) showed that 86.7% of the studied nurses were females, 66.7% of them were more than 40 years old with mean age 39.87 ± 7.9 years and 66.7% of them were nursing diploma. Also, 86.7% of them have experience more than 15 years with mean experience 20.07 ± 8.39 years and 73.3% of the study nurses haven't training courses.

Figure (1) reports that, total satisfactory nurses' level of knowledge regarding caring of upper gastrointestinal endoscopic patient significantly improved post implementation of the designed guidelines with statistically significant differences (P<0.001).

Figure (2) represents that, total satisfactory of level of nurses' practice regarding caring of upper gastrointestinal endoscopic patients significantly improved post implementation of the designed guidelines with statistically significant differences (P<0.001)

Table (2) shows that 48.0% of the control group was ≥ 40 years with mean age 37.96±9.54, 56.0% of study group was≥ 40 years with mean age 38.92±10.36.It was found that, 52.0% of the control group was males, while 60.0% of the study group was males, 56.0% of the control and study group from rural, 56.0% and 72.0% of the control and study groups respectively were married. In addition 48.0% of the control group was diploma education and 44.0% of study group was diploma education, 72.0% of patients in the control group had occupation and 48.0% of them had enough income, as well as 76.0% of patients of the study group had occupation and 44.0%of them had enough income.

Table (3) represents that 100.0% of both groups suffered from difficulty of swallowing and sore throat, 76.0% of control group and 60.0% of study group had abdominal pain, 56.0% of control group had hoarseness and exhaustion. As well as, (40.0%, 28.0% respectively) of control group had hoarseness and exhaustion. In addition, 8.0% of control group and 4.0% of study group had bleeding from mouth. Also, 36.0% of control group and 28.0% of study group suffered from headache,

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28.0% of control group and 20.0% of study group had nausea, 16.0% of control group and 12.0% of study group had hypotension and bradycardia. As well as, 12.0% of control group had chest pain, difficulty of breathing and vomiting

Figure (3) represents that, total patients' satisfactory level associated with upper GI endoscopy for study group of patients improved post implementation of the designed guidelines for nurses caring for upper GI endoscopic patients.

Table (4) reports that there was statistically significant relation between total nurses' knowledge and level of education pre implementation of the designed guidelines and their age, level of education, years of experience and training courses post implementation of the designed guidelines P<0.05

Table (5) represents that there was statistically significant relation between total nurses' practice and their years of experience pre implementation of the designed guidelines and their level of education, years of experience and training courses post implementation of the designed guidelines (P<0.05).

Table (6) represents that, there was positive correlation between total nurses' level of knowledge and total nurses' level of practice pre and post implementation of the designed guidelines (P < 0.01).

Table (7) represents that; there was positive correlation between total nurses' level of knowledge and patients' level of satisfaction pre and post implementation of the designed guidelines (P < 0.001).

Table (8) represents that there was positive correlation between total nurses' level of practice regarding caring of upper GI endoscopic patient and patients' level of satisfaction pre and post implementation of the designed guidelines (P < 0.001).

Table (1) Frequency distribution of the studied nurses according to their demographic characteristics (n= 30).

Demographic characteristics	Studied nurses	
	N	%
Gender		
Male	4	13.3%
Female	26	86.7%
Age		
18<30	4	13.3%
--30<40	6	20.0%
≥40	20	66.7%
Mean ± SD	39.87 ± 7.9	
Level of education		
Nursing diploma	20	66.7%
Nursing institute	4	13.3%
Nursing Bachelor	6	20.0%
Experience years		
<5 years	0	0.0%
--5<15	4	13.3%
≥15 years	**26**	86.7%
Mean ± SD	20.07 ± 8.39	
Training courses about nursing care for upper GI endoscopic patient		
Yes	8	26.7%
No	22	73.3%

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Figure (1) Frequency distribution of studied nurses' total satisfactory level of knowledge regarding caring for upper gastrointestinal endoscopic patient pre and post the designed guidelines (n= 30).

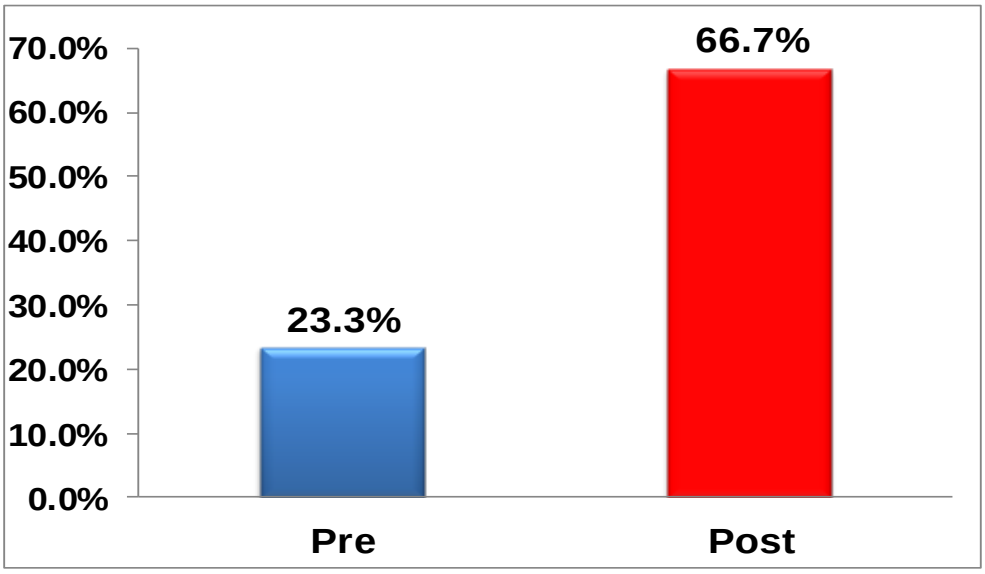

Figure (2) frequency distribution of studied nurses' total satisfactory level practice regarding caring for upper gastrointestinal endoscopic patient pre and post implementation the designed guidelines (n= 30).

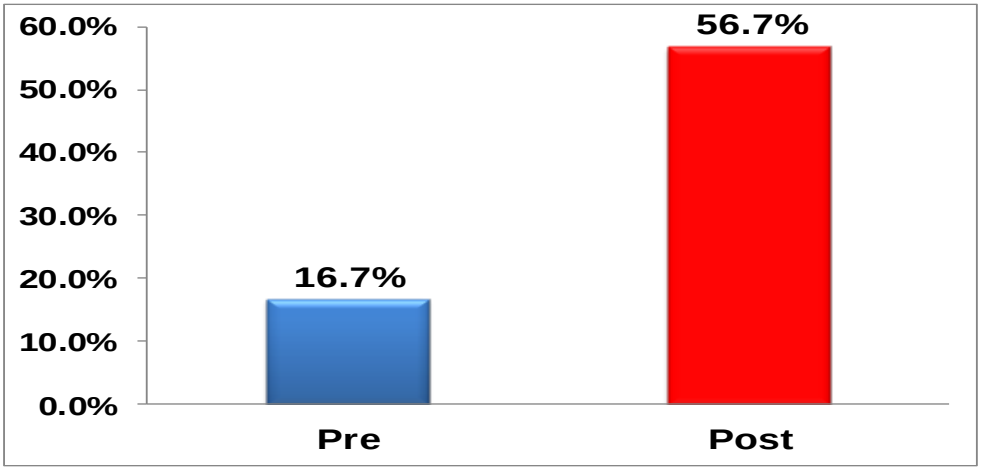

Table (2): Frequency distribution of study and control groups according to their socio-demographic characteristics

Demographic characteristics	Studied patients				Chi-square	
	Control (n=25)		Study (n=25)			
	N	%	N	%	X^2	P-value
Gender						
Male	13	52.0%	15	60.0%	0.325	0.568
Female	12	48.0%	10	40.0%		
Age						
18<30	6	24.0%	5	20.0%	0.322	0.851
30<40	7	28.0%	6	24.0%		
≥40	12	48.0%	14	56.0%		
Mean± SD	37.96±9.54		38.92±10.36			

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Residence						
Rural	14	56.0%	14	56.0%	0.000	1.000
Urban	11	44.0%	11	44.0%		
Marital status						
Single	8	32.0%	6	24.0%	2.793	0.425
Married	14	56.0%	18	72.0%		
Divorced	2	8.0%	0	0.0%		
Widow	1	4.0%	1	4.0%		
Level of education						
Illiterate	3	12.0%	3	12.0%	0.112	0.990
Read/ Write	3	12.0%	3	12.0%		
Diploma education	12	48.0%	11	44.0%		
University education	7	28.0%	8	32.0%		
Occupation						
Work	18	72.0%	19	76.0%	0.104	0.747
Not working	7	28.0%	6	24.0%		
Income according to patient's opinion						
Enough	12	48.0%	11	44.0%	0.306	0.582
Not enough	6	24.0%	8	32.0%		

Table (3): Frequency distribution of studied patient's discomforts and complications associated with upper GI endoscopy

Discomforts/ complications	Studied patients: Control group (n=25) N	%	Study group (n=25) N	%	Chi-square X^2	P-value
Upper GI endoscopy related discomforts and complications						
1- Upper GIT bleeding						
• Bleeding from mouth	2	8.0%	1	4.0%	0.601	0.551
2- Infection						
• Fever	3	12.0%	1	4.0%	1.043	0.297
• Chilling	3	12.0%	1	4.0%	1.043	0.297
• Abdominal pain	19	76.0%	15	60.0%	1.210	0.225
3- Upper GIT perforation						
• Fever	3	12.0%	1	4.0%	1.043	0.297
• Difficulty of breathing	3	12.0%	2	8.0%	0.471	0.637
• Difficulty of swallowing	25	100.0%	25	100.0%	----------	
• Crepitus	0	0.0%	0	0.0%	----------	
4- Others						
• Hoarseness	14	56.0%	10	40.0%	1.132	0.257
• Sore throat	25	100.0%	25	100.0%	----------	
• Hiccup	3	12.0%	2	8.0%	0.471	0.637
• Exhaustion	14	56.0%	7	28.0%	2.012	0.044*
• Severe dizziness	9	36.0%	7	28.0%	0.612	0.544
• Anorexia	7	28.0%	5	20.0%	0.663	0.507
Anesthesia related complications						
1- Respiratory complications						
• Chest pain	3	12.0%	2	8.0%	0.474	0.637
• Difficulty of breathing	3	12.0%	2	8.0%	0.474	0.637
2- Cardiovascular complications						
• Hypotension	4	16.0%	3	12.0%	0.412	0.683
• Bradycardia	4	16.0%	3	12.0%	0.412	0.683

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3- Others						
•Nausea	7	28.0%	5	20.0%	0.664	0.507
•Vomiting	3	12.0%	2	8.0%	0.472	0.637
•Headache	9	36.0%	7	28.0%	0.612	0.544

Figure (3) Percentage distribution of total nurses' practice regarding their role in GI endoscopy unit (no=30)

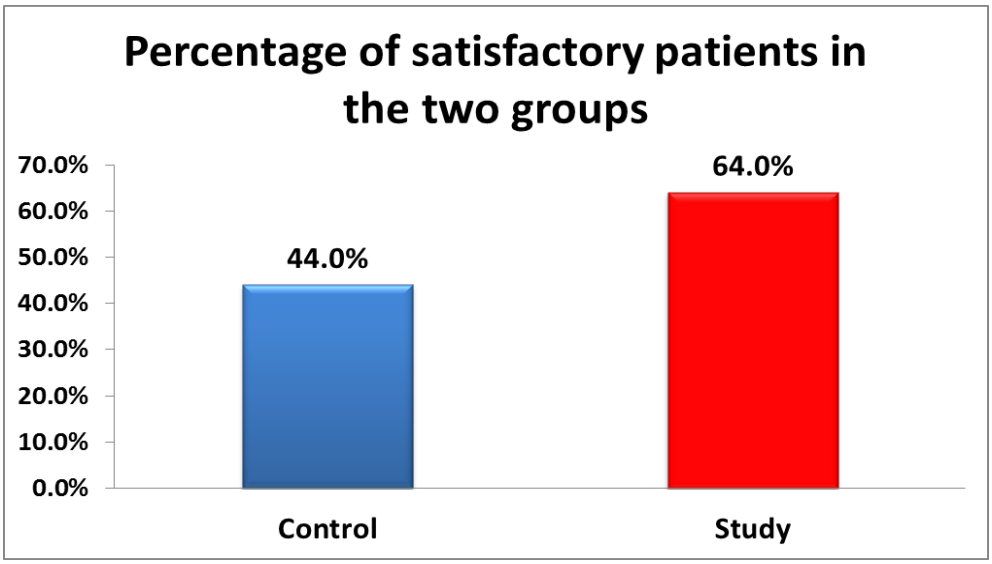

Table (4): Relation between total nurses' level of knowledge regarding caring of upper GI endoscopic patient and their demographic characteristics pre and post the designed guidelines

Demographic characteristics of nurses	Total nurses' level of knowledge									
	Pre					Post				
	N	Mean	SD	f/t	P-value	N	Mean	SD	f/t	P-value
Age										
18<30	4	35.25	3.91	1.694	0.203	4	44.00	4.76	4.964	0.015*
30<40	6	36.33	4.98			6	47.67	4.08		
≥40	20	38.75	3.87			20	50.65	3.25		
Level of education										
Nursing diploma	20	34.55	3.06	4.704	0.018*	20	45.45	3.33	3.441	0.047*
Nursing institute	4	37.25	3.29			4	45.75	2.72		
Nursing bachelor	6	39.33	4.85			6	49.50	3.73		
Years of experience										
<5 years	0	…..	…	1.333	0.193	0	…..	…	3.493	0.002*
5<15	4	35.25	5.91			4	45.00	4.76		
≥15	26	38.35	4.10			26	51.65	3.37		
Training courses about nurses role in gastrointestinal unit										
Yes	8	38.13	4.42	1.880	0.071	8	47.00	3.63	2.646	0.013*
No	22	34.14	5.36			22	43.23	3.39		

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Table (5): Relation between total nurses' level of practice regarding caring of upper GI endoscopic patient and their demographic characteristics pre and post the designed guidelines

Nurses Demographic characteristics	Total nurses' level of practice									
	Pre					Post				
	N	Mean	SD	f/t	P-value	N	Mean	SD	f/t	P- value
Age										
18<30	4	14.2	3.79	1.483	0.245	4	34.75	3.52	2.825	0.077
30<40	6	14.7	4.83			6	38.83	5.61		
≥40	20	17.4	4.33			20	39.7	3.21		
Level of education										
Nursing diploma	20	15.8	4.3	1.823	0.181	20	35.55	4.84	3.317	0.049*
Nursing institute	4	16.25	5.7			4	37.5	6.35		
Nursing bachelor	6	19.67	3.69			6	41.5	4.57		
Years of experience										
<5 years	0	…..	…..	2.103	0.045*	0	…..	……	2.767	0.010*
5<15	4	13.5	3.79			4	33.75	5.52		
≥15	26	18.42	4.42			26	39.5	3.62		
Training courses about nurses role in gastrointestinal unit										
Yes	8	17.5	4.54	0.441	0.662	8	38.75	4.22	3.056	0.005*
No	22	16.77	3.82			22	34.09	3.5		

Table (6) Correlations between total nurses' level of knowledge and total nurses' level of practice regarding caring of upper GI endoscopic patient pre and post the designed guidelines

	Total nurses level of knowledge			
	Pre		Post	
Total level of practice	Pearson Correlation Coefficient	P-value	Pearson Correlation Coefficient	P-value
	0.564	<0.001**	0.502	<0.001**

Table (7) Correlations between total nurses' level of knowledge regarding caring of upper GI endoscopic patient and patients' level of satisfaction pre and post the designed guidelines

	Total nurses' level of knowledge			
	Pre		Post	
Patients level of satisfaction	Pearson Correlation Coefficient	P-value	Pearson Correlation Coefficient	P-value
	0.282	0.024*	0.607	<0.001**

Table (8) Correlations between total nurses' level of knowledge regarding caring of upper GI endoscopic patient patients' level of satisfaction pre and post the designed guidelines.

	Total nurses' level of practice			
	Pre		Post	
Patients level of satisfaction	Pearson Correlation Coefficient	P-value	Pearson Correlation Coefficient	P-value
	0.335	<0.001**	0.428	<0.001**

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IV. DISCUSSION

The results of the present study revealed that, more than three quarter of the studied nurses were females and about two third of them were more than 40 years old with mean age 39.87 ± 7.9 years. This finding is consistent with what was reported by **Ali& Taha (2014)** who reported that, about two thirds of the studied nurses were females and in middle age.

Also, more than three quarter of the studied nurses had experience more than 15 years with mean experience 20.07 ± 8.39 years. This finding goes in the same line with what was reported by **Abd-Elhamid, El-khashab, Taha& Saleh (2016)** who found that, the majority the of the sample had more than 10 years of experience with mean 23.8 ± 8.6 years.

In relation to educational level, about two third of them were nursing diploma. This finding is consistent with **Metwally, Donia, & Aziz, (2016)** who found that, near three quarter of the studied nurses were holding diploma of the nursing secondary school and near three quarter of them hadn't training courses about caring of upper GI endoscopic patients. This finding is in agreement with **Amer, Zaton, Taha & El-Khashab (2018)** who reported that, the minority of the studied sample had received previous training courses about their role in GI endoscopy.

The results in the present study revealed that, a great improvement in level of knowledge after implementing of the designed guidelines. These results are in agreement with those of **Amer, Taha & Zaton (2015)** who noted low level of knowledge regarding GI endoscopy in the initial baseline data knowledge assessment for the nurses and nurses' knowledge improved immediately after attending to the training programs.

In the present study, the results revealed that the nurses' staff had poor level of practice before implementing of the designed guidelines. These results are in similar with **Information Resources Management Association (IRMA), (2018)** mentioned that, nursing education programs are one of the alternatives to increase the quality of nurses and assist to make future health practioners useful in their field.

Results of the present study revealed that near half of the control group was ≥ 40 years with mean age 37.96±9.54, more than half of study group was ≥ 40 years with mean age 38.92±10.36, more than half of both groups were males. This could be attributed to gastrointestinal tract disturbances especially gastric disorder are occurs with the greatest frequency in people between the age of 30 and 55years **Qayed, Srinivasan, & Shahnavaz (2016).**

These results are in agreement with **Lotfy, Elgazzar, Awad, Yusuf, & Fathy (2017)** who reported that, mean age of the studied population was 41 ± 9.54 and male patients represented two third of the studied population while female patients were one third.

As regards residence and marital status, the present study results clarified that more than half of study and control group from rural. It was found that more than half of the control group and near three quarter of the study groups were married. This result was congruent with **Bayumi (2016)** who mentioned that, the highest percentage of the studied sample was from rural and most of the studied sample was married.

This study revealed that, near half of the control and study groups were diploma education. This result is congruent with **Hiremath, Mohite, Naregal, Pawar, Bhosale (2016**) who found that, the highest percentage of the study group and most of the control groups were able to read and write.

As well as, near three quarter of patients of the control group had occupation and less than half of them had enough income, as well as about three quarter of the study group of patients had occupation and less than half of them had enough income according to their opinion. This result went in the same line with **Shebl, Salwa, & Othman (2013)** who mentioned that, about two third of studied patients had manual work and less than half of them had enough income.

Concerning Upper GI endoscopy related discomforts and complications, all studied sample of patients had difficulty of swallowing, and sore throat. This finding was consistent with what was reported by **Mohamad, Mohamad, & sayed, (2014)** who revealed that, all studied patients had difficulty of swallowing, and sore throat after upper GI endoscopy procedure.

About three quarter of the study group and more than half of the control group had abdominal pain, more than half of the control group had hoarseness and exhaustion and near one third had of the study group had hoarseness and exhaustion.

These results were comparable to **Bini, Firoozi, Choung, Ali, Osman, & Weinshel, (2013**) who stated that, the minority of the studied samples had negative outcomes abdominal pain, nausea, vomiting, headache fatigue, hoarseness and fever and the majority of them had sore throat and mentioned that perforation is the rare complications of upper GI endoscopy.

Regarding anesthesia related complications, minority of study group had nausea, the minority of control group and study groups had vomiting. In the same context, this finding is supported by **Simon, Orłowska, & Pazgan-Simon, (2017)** who reported that, the various post-gastrointestinal (GI) endoscopy complications are desaturation, hypotension,arrhythmias, bradycardia, tachycardia, hypertension, bradypnea and respiratory distress.

Total patients' satisfactory level associated with upper GI endoscopy for study group of patients improved post implementation of the designed guidelines for nurses caring for upper GI endoscopic patients. This finding come in agreement with **Bayumi, (2016)** who stated that, the total mean score regarding level of satisfaction of the study group after application of nursing intervention was improved.

By studying the relation between total nurses' knowledge and their demographic characteristics the result of the current study revealed that there was statistically significant relation between total nurses' knowledge and level of education pre implementation of the designed guidelines. Also, there was statistically significant relation between total nurses' knowledge and their demographic post implementation of the designed guidelines.

These results are consistent with **Metwally, Donia, & Aziz (2016)** who found that, there was statistically significant relation between nurses' performance and years of experience, training courses and level of education.

By studying the relation between total nurses' practice and their demographic characteristics, it found that, there was statistically significant relation between total nurses' practice and their years of experience pre implementation of the designed guidelines and their demographic characteristics post implementation of the designed. This is in agreement with **Mohamed, Mohamed, Abo El-ata, & Abd El-latef (2018)** who found that, there was statistically significant relation between nurses' performance and their demographic characteristics regards age, experience and level of education.

Regarding total nurses' knowledge and practice correlation a noticeable finding in the current study was that represents that, there was positive correlation between total nurses' level of knowledge and total nurses' level of practice pre and post implementation of the designed guidelines. These findings supported by **El-Maghawry H.A. & El-Hawy L.L., (2019)** who clarified that, there was positive correlation between nurses' knowledge and practice regarding patients care and infection control measures in endoscopy unit.

The results of this study represented that, there was positive correlation between total nurses' level of performance and patients' level of satisfaction pre and post implementation of the designed guidelines. This result is congruent with **Abyaneh, S. K. & Rezaei, (2017)** who showed that most of the patients were satisfied regarding nursing skills and emotional communication and training services and they will recommend this hospital to their families and friends.

REFERENCES

[1] **Abd-Elhamid, A., El-khashab, M., Taha, N., & Saleh, M. (2016).** Impact of training education program on improving of nurses' performance regarding infection control in endoscopy unit. Afro-Egyptian Journal of Infectious and Endemic Diseases, 6(1), 16-28.

[2] **Abyaneh, S. K. & Rezaei, P. (2017).** Assess patient's satisfaction of nurse's performance. SM Journal of Nursing, 3(1), 1006.

[3] **Ali, Z. H., & Taha, N. M. (2014).** Effect of Infection Control Training Program on Nurse's Performance and Microbial Results on GIT Endoscopes. Adv Life Sci Technol, 7, 6-16.

[4] **Amer, W. M., Taha, N. M., & Zaton, H. K. (2015).** Nurses Knowledge and Practice Regarding Gastrointestinal Endoscopy and Suggested Nursing Guidelines. Afro-Egypt J Infect Endem Dis, 5(2), 115-130.

[5] **American Society for Gastrointestinal Endoscopy (ASGE), (2015):** Appropriate use of GIE.75, (6): P.p.1127 - 1131.

[6] **Bayumi,H.A.(2016):** Effect of Nursing Intervention on Clinical Outcomes and Patient Satisfaction among Upper Gastrointestinal Bleeding. IOSR Journal of Nursing and Health Science (IOSR-JNHS), 5, (6), PP 130-139.

[7] **Bini, E. J., Firoozi, B., Choung, R. J., Ali, E. M., Osman, M., & Weinshel, E. H. (2013).** Systematic evaluation of complications related to endoscopy in a training setting: a prospective 30-day outcomes study. Gastrointestinal endoscopy, 57(1), 8-16.

[8] **Bistritz, L., Ennis-Davis, R., Mulgrove, A., Greenaway, M., & van Zanten, S. V. (2018).** A58 Patient Satisfaction with Endoscopy Units: The Edmonton Experience. Journal of the Canadian Associationof Gastroenterology, 1(suppl_1), 99100.

[9] **Brown, D., Edwards, H., Seaton, L., & Buckley, T. (2017).** Lewis's Medical-Surgical Nursing: Assessment and Management of Clinical Problems. Elsevier Health Sciences.

[10] **Decristoforo, P., Kaltseis, J., Fritz, A., Edlinger, M., Posch, W., Wilflingseder, D., & Orth-Höller, D. (2018).** High-quality endoscope reprocessing decreases endoscope contamination. Clinical Microbiology and Infection.

[11] **ELKima, S., ELSawi, K., Youssef, N. A., & Anani, M. E (2017).** Assessment of Selected Determinants of Nurses Compliance to Infection Control Guidelines in Gastrointestinal Endoscopy Units. IOSR Journal of Nursing and Health Science (IOSR-JNHS), 6(6), 15-23.

[12] **El-Maghawry H.A., & El-Hawy L.L., (2019):** Effect of Training Educational Program On Nurses' Performance As Regarding Infection Control Procedures And Endoscopies Reprocessing Techniques In GIT Endoscopy Unit. Egyptian Journal of Occupational Medicine, 43 (1): 57-73.

[13] **Hiremath, p., Mohite, V.R., Naregal, P., Pawar, S., Bhosale, T. (2016).** A Study to Assess the Knowledge, Attitude and Pre-Procedure Anxiety Level of Patient Undergoing Upper GI Endoscopy in Krishna Hospital, Karad, India. International Journal of Innovative Research & Development, 5(6), 245.

[14] **Hucl, T., Dinis-Ribeiro, M., Gralnek, I. M., & Reddy, N. (2016).** Complications in gastrointestinal endoscopy. Best Practice & Research Clinical Gastroenterology, 5(30), 665-666.

[15] **Information Resources Management Association (IRMA), (2018):** Nursing Education, Administration, and Informatics: Breakthroughs in Research and Practice. IGI Global. Pp. 111-115.

[16] **Lichtenstein, D., & Alfa, M. J. (2019).** Cleaning and Disinfecting Gastrointestinal Endoscopy Equipment. In Clinical Gastrointestinal Endoscopy (Third Edition) (pp. 32-50).

[17] **Lotfy, A., Elgazzar, A. E., Awad, M., Yusuf, A., & Fathy, T. (2017).** Thoracic complications of upper gastrointestinal endoscopy in Zagazig University Hospitals. A cross-sectional single center study. Egyptian Journal of Chest Diseases and Tuberculosis, 66(4), 729-734.

[18] **Metwally, H., Donia, S. A., & Aziz, T. A. (2016).** Safety Measures for Patients Undergoing Upper GIT Endoscopy. Alexandria Scientific Nursing Journal, 18(1), 17-42.

[19] **Mohamad, H. A. A., Mohamad, Z. A., & sayed, Z.A. (2014).** Esophago-gastro-duodenoscopy: Impact of a designed nursing teaching protocol on nurse's performance and patient's outcome. Journal of American Science, 10(10), 56-65.

[20] **Mohamed, L. Z.G., Mohamed, L.E., Abo El-ata, A. B., Abd El-latef, E., A., (2018):** Assessment of Nurses knowledge and Practice Regarding the Care of Patients Undergoing Gastrointestinal Endoscopy. Port Said Scientific Journal of Nursing. 5 (1), 141.

[21] **Moorhead, S., Johnson, M., Maas, M. L., & Swanson, E. (2018).** Nursing Outcomes Classification (NOC)-E-Book: Measurement of Health Outcomes. Elsevier Health Sciences.

[22] **Qayed, E., Srinivasan, S., & Shahnavaz, N. (2016).** Sleisenger and Fordtran's Gastrointestinal and Liver Disease Review and Assessment E-Book. Elsevier Health Sciences.

[23] **Shebl, A. M., Salwa, A. M., & Othman, W. N. (2013).** Effect of Nursing Intervention on Clinical Outcomes and Patient Satisfaction among Upper Gastrointestinal Bleeding. Journal of Natural Sciences Research, 3(8), 49-59.

[24] **Simon, K., Orłowska, I., & Pazgan-Simon, M. (2017).** The risk of complications of endoscopic procedures in patients with liver cirrhosis. Clinical and experimental hepatology, 3(3), 135.

[25] **Society of Gastroenterology Nurses and Associate (SGNA), (2017).** Statement on the Use of Sedation and Analgesiain the Gastrointestinal Endoscopy Setting.P.P. 249.

[26] **Tan, G., Thompson, T., & Sharma, A. (2018).** The Roles and Responsibilities of Nurses in the Endoscopy Unit. In Diagnostic and Therapeutic Procedures in Gastroenterology (pp. 575-585). Humana Press, Cham.

[27] **Tonolini, M. (Ed.). (2016).** Imaging Complications of Gastrointestinal and Biliopancreatic Endoscopy Procedures. Springer. pp. 7-10.

[28] **Treuting, P. M., Dintzis, S. M., Liggitt, D., & Frevert, C. W. (Eds.). (2018).** Comparative anatomy and histology: a mouse and human atlas (expert consult). Academic Press. Elsevier. 2nd ed. Pp 191-192.

[29] **Yoon, J. Y., Cha, J. M., Kwak, M. S., Jeon, J. W., Shin, H. P., Joo, K. R., & Lee, J. I. (2018).** Gastrointestinal endoscopy satisfaction questionnaire is a valid tool to measure patient satisfaction in Asian country. Medicine, 97(29).