

Nurses' Knowledge and Practices Regarding Care of Patients during Esophageal Varices Attack

Mostafa Reda Ibrahim¹, Sabah Ahmed Ammar², Ola Abd Elwahab Abd Allah Srouf³, Rasha Mohamed Elauty⁴

1. Demonstrator of Medical-Surgical Nursing, Faculty of Nursing, Badr University, Egypt,
2. Assistant Professor of Medical Surgical Nursing, Faculty of Nursing, Helwan University, Egypt
3. Assistant Professor of Medical Surgical Nursing, Faculty of Nursing, Helwan University, Egypt
4. Lecturer of Medical Surgical Nursing, Faculty of Nursing, Helwan University, Egypt.

ABSTRACT

Background: Esophageal varices are the most dangerous portosystemic shunts, and the esophageal varices bleeding is the most common complication for esophageal varices. Nursing intervention aimed to give the patient immediate intervention and preventing the complications. **Aim:** The study aimed to assess nurses' knowledge and practices regarding care of patients during esophageal varices attack. **Design:** A descriptive design was utilized in the study. **Setting:** The study was conducted at Kasr Alainy Internal Medicine Hospital; Emergency Department that affiliated to the Cairo University. **Sample:** A convenient sample of all available nurses (n=55) was enrolled in the study. **Tools:** Two tools were used in the study: Tool I: Self-administered interview questionnaire which included two parts: part I: personal characteristics, part II: nurses' knowledge assessment. Tool II: Nurses' practices observational checklist. **Results:** 58.2% of the studied nurses had unsatisfactory knowledge level regarding care of patients during esophageal varices attack. Also, 50.9% of the studied nurses had incompetent practices level and 49.1% of the studied nurses had competent practices level regarding total care of patients during esophageal varices attack. **Conclusion:** more than half of the studied nurses had unsatisfactory knowledge level and less than half had satisfactory knowledge level regarding care of patients during esophageal varices attack. Additionally, more than half of the studied nurses had incompetent practices level and less than half of them had competent practices level regarding total care of patients during esophageal varices attack. **Recommendations:** On-going and regular in-service educational and training programs to improve nurses' knowledge and practices regarding esophageal varices attack.

Keywords: Attack, Esophageal Varices, Knowledge, Practice

INTRODUCTION

In liver cirrhosis, esophageal varices are the most dangerous portosystemic shunts. Esophageal varices are enlarged, and abnormal veins located in the lower part of the esophagus. Varices result from portal hypertension, which develops when the blood pressure in the portal veins rises above ten mmHg. This rise is caused by scar tissue or a clot restricting the liver's normal blood supply.

Varices form when blood bypasses the larger vessels and flows through the small vessels in the esophagus (*Sohal et al., 2022*).

Factors that contribute to esophageal varices bleeding (EVB) are any conditions that increase the abdominal venous pressure such as muscular exertion from lifting heavy objects, straining at stool, sneezing, coughing and vomiting. Esophagitis, irritation of vessels by poorly chewed foods or irritating fluids, ingestion of foods high in roughage; and reflux of stomach content can also precipitate for EVB (*Ali et al., 2020*).

The initial management of EVB consists of treatment to restore hemodynamic stability through blood transfusion and IV fluids followed by variceal eradication. This can be done endoscopically by either injection sclerotherapy or band ligation. In an actively bleeding patients, vasoactive medications (Vasopressin & Somatostatin) are administered.

Patients who don't respond to endoscopic management will be treated with a surgical bypass procedure or devascularization and transection (*Saber et al., 2020*).

Nurses, as a caregiver, make a significant contribution to health care

through patient evaluation, planning and evaluation needs; distribution of treatments and medications; advocacy for patients, ensuring their comfort. Nursing intervention aimed to give the patient immediate intervention and assist the physician in controlling bleeding and preventing the complications (*Gulanick & Myers, 2021*).

Nursing care is very important during initial period to achieve best possible outcome and have good prognosis for the patients. The overall nursing assessment includes monitoring the patient's physical condition, evaluating emotional responses and cognitive status. The nurse monitors and records vital signs and assesses the patient's nutritional and neurologic status. This assessment will assist in identifying hepatic encephalopathy resulting from the break-down of blood in the GI tract and arising serum ammonia level. The nurse provides support and explanations regarding medical and nursing interventions (*Hussien et al., 2020*).

Significance of the study:

Globally, the prevalence of esophageal varices varies according to the severity of liver disease in cirrhotic people, ranging from 24% to 69%. The incidence of EV formation is 5% per year in individuals with cirrhosis, and progression from small to large varices occurs in 10% to 20% of cases after one year (*Hagström et al., 2023*).

Esophageal variceal bleeding is a potentially fatal emergency with a high morbidity and mortality rate. The incidence of upper gastrointestinal bleeding in Egypt is approximately 100 patients per 100,000 populations per year. About 75% of all upper gastrointestinal bleeding in Egypt is caused by EV. Esophageal varices cause 20% of mortality

among Egyptian patients between the ages of 35 and 75 years. Dizziness, melena, hematemesis, hypotension, tachycardia, and shock indicate varices' hemorrhage (*Mosaad, et al., 2023*). So, the aim of this study was to assess nurses' knowledge and practices regarding care of patients during esophageal varices attack.

AIM OF THE STUDY

This study aimed to assess nurses' knowledge and practices regarding care of patients during esophageal varices attack through the following objectives:

- 1- Assess nurses' knowledge regarding care of patients during esophageal varices attack.
- 2- Assess nurses' practices regarding care of patients during esophageal varices attack.

Research question:

- 1- What is the level of nurses' knowledge regarding care of patients during esophageal varices attack?
- 2- What is the level of nurses' practices regarding care of patients during esophageal varices attack?

SUBJECT AND METHODS

The subject and methods for the current study were portrayed under the four main items as the following:

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- I. Technical item.
 - II. Operational item.
 - III. Administrative item.
 - IV. Statistical item.

I) Technical item:

The technical item included research item, setting, subjects and tools of data collection used in this study.

Research design:

A descriptive research design was utilized in this study.

Setting:

The current study was conducted at emergency departments at Kasr Alainy Internal Medicine Hospital at Emergency Department that affiliated to the Cairo University.

Subjects:

A convenient sample of all available nurses (N=55 nurses) who provided care for patients during esophageal varices attack at previously mentioned setting

Tools of data collection:

Two tools were used to collect necessary data to fulfill the study aim.

Tool I: Self-Administered Interview Questionnaire:

This questionnaire was developed by the researcher based on reviewing recent related literature (*Hussien et al., 2020*); (*Ibrahim et al., 2021*) and was written in simple Arabic language to assess nurses' knowledge regarding care of patients during esophageal varices attack, it was consisted of two parts:

Part I: Personal characteristics of studied nurses: It was consisted of six items including (age, gender, marital status, educational level, years of experience and training courses about esophageal varices), and it consisted of six items.

Part II: Nurses' Knowledge Assessment:

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It was used to assess nurses' knowledge regarding care of patients during esophageal varices attack which included the definition and nature of the varices, the most common cause of esophageal varices, symptoms of esophageal varices, risk factors, diagnosis and management.

Scoring system: Nurses' level of knowledge was evaluated by giving (one) grade for each correct answer and (zero) for incorrect answer. The Total score of nurses' level of knowledge was 17 grades.

- This score was summed and converted into a percent score. It was classified into two categories according to the following:

- Satisfactory knowledge if total score $\geq 80\%$ (≥ 13.6 grade).
- Unsatisfactory knowledge if total score from $< 80\%$ (< 13.6 grade).

Tool II: Nurses' practices observational checklist:

It was adapted from (Shashi et al., 2024). It was used to assess nurses' practice regarding care of patients during esophageal varices attack and includes three parts:

Part A: Pre nursing care practices which consisted of 5 items, it included wash hands, prepare the needed equipment, explain the procedure to the patient, assess patient condition and keep patient privacy.

Part B: Nursing care during EV attack, consisted of 24 steps, it included; maintain an open airway, maintain position the patient to enhance breathing, maintain expulsion of hematemesis, maintain suction excess secretions and blood, assess the rate and volume of bleeding, assess blood pressure and pulse with the patient in the supine and sitting position, insert an iv access and administer fluids and blood products, rapid infusion of 5% dextrose, and a colloid solution until blood pressure is restored and urine output is adequate, commence a fluid balance chart, monitoring the intake and output of the patient.

Include episodes of vomiting, gastric suctioning, and other gastric losses in the

I/O charting, obtain a blood specimen for hemoglobin, hematocrit, PT, PTT, platelets, type and crossmatch, electrolytes, and renal and liver function tests, correct clotting factor deficiencies with fresh frozen plasma, fresh blood, and vitamin K1 and Insert a nasogastric tube to assess the severity of bleeding and to lavage gastric contents before endoscopy.

Part C: Post nursing care consisted of 3 steps, it included record the results report any abnormalities and wash hands.

Scoring system: Studied nurses' level of practices was evaluated by giving score (1) for each step that had been correcting and score zero for each step that hadn't done. The total scores of nurses' practices level were 32 grades.

- These scores were summed and converted into a percent score. It was classified into two categories according to the following:

- Competent practices if total score $\geq 80\%$ (≥ 25.6 grade).
- Incompetent practices if total score from $< 80\%$ (< 25.6 grade).

Validity and reliability

Content validity: Face and content validity was ascertained by a panel of five experts (2 Assistant professors and 3 lecturer of medical surgical nursing department) from Faculty of Nursing, Helwan University. The expertise reviewed the tools for clarity, relevance, comprehensiveness, simplicity, and applicability, minor modifications were done, and the final forms were developed.

Testing reliability: In the present study, reliability was tested using Chronbach's Alpha coefficients for nurses' knowledge regarding esophageal varices which was 0.789 and nurses' practices

regarding care of patients with esophageal varices which was 0.836.

Pilot study: -

A pilot study was carried out on 10% (6 nurses) of sample size to test the applicability, clarity and efficiency of the tools. Depending on the results of the pilot study minor modifications and refinements were done, the patients were included in the actual study sample.

Field work:

1. Nurses' informed consent to participate in the study obtained and every nurse was informed that confidentiality was assured.

2. Knowledge and practice regarding care of patients during esophageal varices attack were assessed using the developed tools.

3. First the researchers assessed the studied nurses' knowledge using tool I (self-administered interview questionnaire) this tool took about 15-20 minute to fill in it.

- The researcher observed the studied nurses' practices regarding care of patients during esophageal varices attack using tool II (nurses' practices observational checklist) this tool took about 25-30 minute to fill in it.

4. Data was collected by the researcher in morning and afternoon shifts "Two days per Week, for Three months" from beginning of July (2023) to the end of September (2023).

Ethical Considerations:

The research approval was obtained from Faculty scientific ethical committee at Faculty of Nursing, Helwan University

before starting the study. The researcher clarified the objectives and aim of the study to the studied nurses before starting. The researcher assured the anonymity and confidentiality of the nurses included in the study. The nurses in the study was informed that they are allowed to choose to participate or not in the study and they have the right to withdraw from the study at any time without any reasons.

III-Administrative item:

An official permission was obtained by submission of official letters issued from the dean of Faculty of Nursing, Helwan University to the general manager of Kasr Alainy Internal Medicine Hospital that affiliated to the Cairo University. The title and aim of the study was explained as well as the main data items and the expected outcomes.

IV-Statistical item:

The collected data were organized, tabulated and statistically analyzed using SPSS software (Statistical Package for the Social Sciences, version 16, SPSS Inc. Chicago, IL, USA). For quantitative data, the range, mean and standard deviation were calculated. For qualitative data, which describe a categorical set of data by frequency, percentage or proportion of each category. Chi-square (X²) test of significance was used in order to compare proportions between qualitative parameters. Probability (P-value) is the degree of significance, less than 0.05 was considered significant (*), less than 0.001 was considered highly significant (**) and the correlation coefficient was done by using the Pearson correlation test (r).

RESULTS

Table (1): Frequency and percentage distribution of the studied nurses regarding personal characteristics (n=55).

Items	N	%
Age		
20 - < 30yrs	22	40.0
30 - < 40yrs	26	47.3
≥ 40yrs	7	12.7
Mean±SD	32.27±5.10	
Gender		
Male	25	45.5
Female	30	54.5
Educational level		
Technical institute for Nursing	37	67.3
Bachelor of Nursing	15	27.2
Postgraduate Studies	3	5.5
Marital status		
Single	22	40.0
Married	33	60.0
Years of experiences		
< 1 year	4	7.3
1 – <5 years	37	67.3
5 – <10 years	12	21.8
>10 years	2	3.6
Training courses regarding care of esophageal varices attack care		
No	30	54.5
Yes	25	45.5
If yes mention (n=25)		
One course on esophageal varices care	25	100.0

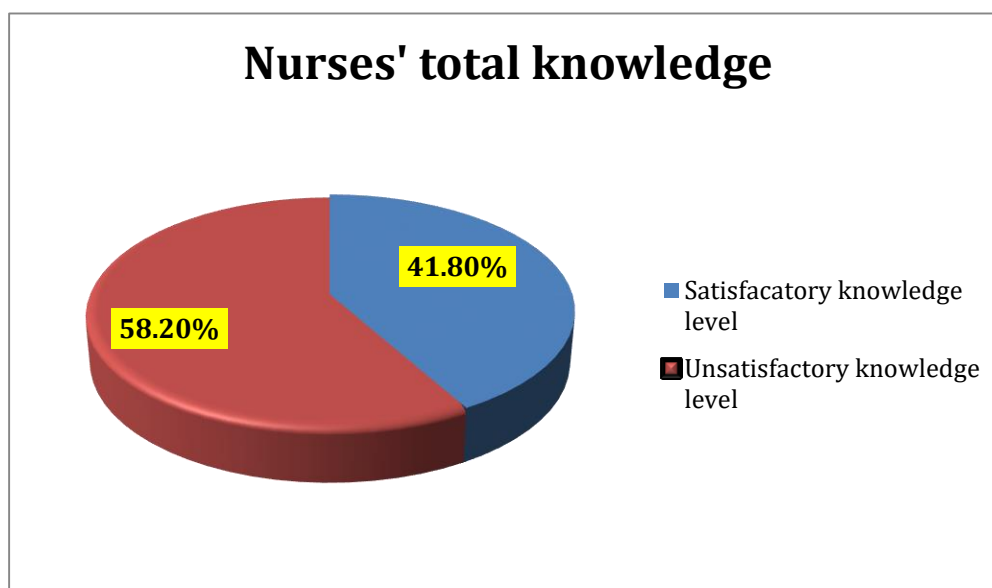


Figure (1): Percentage distribution of the studied nurses' total knowledge regarding care of patients during esophageal varices attack (n=55).

Table (2): Frequency and percentage distribution of the studied nurses' practices regarding sub-items of care of patients during esophageal varices attack (n=55).

Items	Competent		Incompetent		Mean±SD	Range	Minimum	Maximum
	N	%	N	%				
Pre nursing care.	10	18.2	45	81.8	3.80±0.779	3	2	5
During nursing care of patients.	20	36.4	35	63.6	18.40±1.977	7	14	21
Post nursing care.	46	83.6	9	16.4	2.80±0.486	2	1	3
Total practices	27	49.1	28	50.9	25.00±2.349	10	19	29

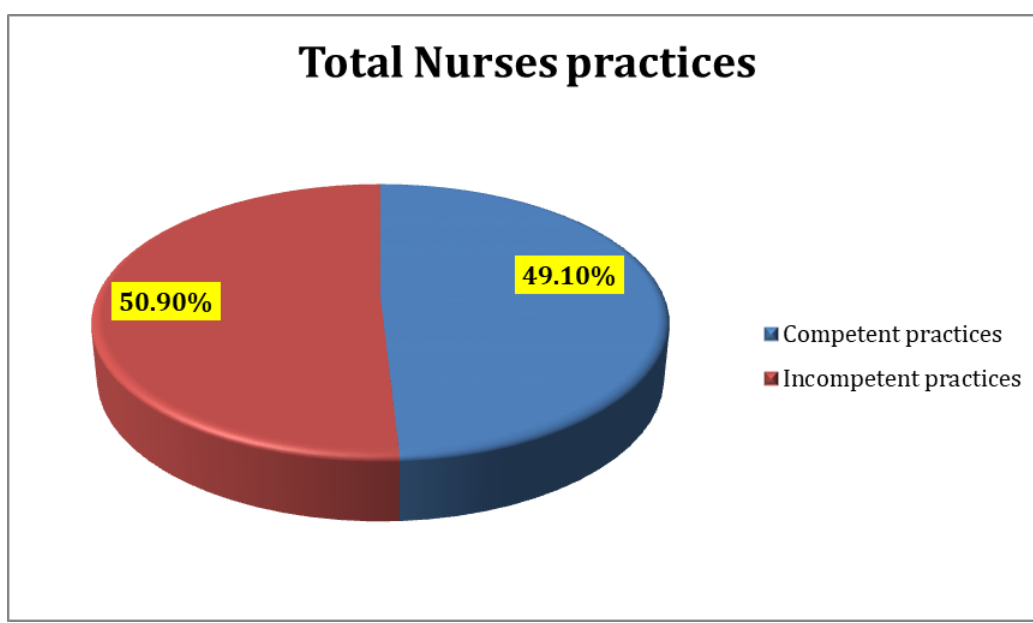


Figure (2): Percentage distribution of total studied nurses' practices regarding care of patients during esophageal varices attack (n=55).

Table (3): Relation between personal characteristics of studied nurses and total knowledge (n=55).

Items	N	Satisfactory (n= 23)		Unsatisfactory (n= 32)		X ²	P-value
		N	%	N	%		
Age							
20 - < 30yrs	22	5	9.1	17	30.9	5.517	0.063
30 - < 40yrs	26	14	25.5	12	21.8		
≥ 40yrs	7	4	7.3	3	5.4		
Gender							
Male	25	14	25.5	11	20.0	3.789	0.52
Female	30	9	16.4	21	38.1		
Educational level							
Technical institute for Nursing	37	13	23.6	24	43.6	6.642	0.036*
Bachelor of Nursing	15	10	18.3	5	9.1		
Postgraduate Studies	3	0	0.0	3	5.4		
Marital status							
Single	22	8	14.5	14	25.5	.448	0.503
Married	33	15	27.3	18	32.7		

Years of experiences							
< 1 year	4	1	1.8	3	5.5		
1 – <5 years	37	15	27.3	22	40.0	.875	0.831
5 – <10 years	12	6	10.9	6	10.9		
>10 years	2	1	1.8	1	1.8		
Training courses regarding care of esophageal varices attack care							
No	30	14	25.6	16	29.0	.638	0.425
Yes	25	9	16.4	16	29.0		

* Statistically significant at $p \leq 0.05$

** Highly statistical significant at $p \leq 0.01$

Table (4): Relation between personal characteristics of studied nurses and total practices (n=55).

Items	N	Competent (n= 27)		Incompetent (n= 28)		X ²	P-value
		N	%	N	%		
Age							
20 - < 30yrs	22	12	21.8	10	18.2	7.782	0.020*
30 - < 40yrs	26	15	27.3	11	20.0		
≥ 40yrs	7	0	0.0	7	12.7		
Gender							
Male	25	14	25.5	11	20.0	.875	0.349
Female	30	13	23.6	17	30.9		
Educational level							
Technical institute for Nursing	37	20	36.4	17	30.9	1.159	0.560
Bachelor of Nursing	15	6	10.9	9	16.4		
Postgraduate Studies	3	1	1.8	2	3.6		
Marital status							
Single	22	15	27.3	7	12.7	5.347	0.21*
Married	33	12	21.8	21	38.2		
Years of experiences							
< 1 year	4	3	5.4	1	1.8	3.343	0.342
1 – <5 years	37	19	34.6	18	32.7		
5 – <10 years	12	5	9.1	7	12.7		
>10 years	2	0	0.0	2	3.7		
Training courses regarding care of esophageal varices attack care							
No	30	14	25.5	16	29.1	.155	0.694
Yes	25	13	23.6	12	21.8		

* Statistically significant at $p \leq 0.05$

** Highly statistical significant at $p \leq 0.01$

Table (5): Correlation between total nurses' knowledge and total nurses' practice.

		Total practices
Total knowledge	r	.925
	p	0.013*

* Positive correlation at $p \leq 0.05$

**Strong positive correlation at $p \leq 0.01$

RESULTS

Table (1) shows that, 47.3% of the studied nurses' age was 30- < 40 years with mean age 32.27 ± 5.10 , 54.5% were females, 67.25% of the studied nurses were graduated from technical nursing institute of nursing. In addition, about 60% were married. Moreover, 67.3% of the studied nurses had 1 – <5 years of experiences and 54.5% weren't having any training courses related to esophageal varices attack.

Figure (1) illustrates that, 58.2% of the studied nurses had unsatisfactory knowledge level. While 41.8% of the studied nurses had satisfactory knowledge level regarding care of patients during esophageal varices attack.

Table (2) 83.6% of the studied nurses had competent practices level regarding post nursing procedure care. While 81.8% of the studied nurses had incompetent practices level regarding pre nursing care of patients during esophageal varices attack.

Figure (2): shows that, 50.9% of the studied nurses had incompetent practices level while, 49.1% of the studied nurses had competent practices level regarding total care of patients during esophageal varices attack.

Table (3) illustrates that, there was a statistically significant relation between the studied nurses' total knowledge level and the educational level. While, there was no statistically significant relation between the studied nurses' total knowledge and age, gender, marital status, years of experiences and attending training courses regarding esophageal varices attack care.

Table (4) reveals that, there was a statistically significant relation between the studied nurses' practices level and age and marital status. While there was no

statistically significant relation between the studied nurses' practices and the gender, educational level, years of experiences and attending training courses regarding esophageal varices attack care.

Table (5) shows that, there was positive correlation between total nurses' knowledge and total nurses' practices of the studied nurses regarding caring patient with esophageal varices attack.

DISCUSSION

Esophageal variceal (EV) remains a major complication of portal hypertension in patients with liver cirrhosis. Varices are varicosities that develop from elevated pressure in the veins that drain into the portal system.

The risk of variceal bleeding increases with disease severity and variceal size. So, the role of the nurse in managing a patient with EV requires specific attention to decrease patient's problem, decrease hospitalization period and complications.

Patients with EVB need special nursing care, and to assure applying this care, it is important to apply specific nursing intervention that can entails knowledge and skills required by nurses in order to carry out care effectively (*Hussien et al., 2020*).

In relation to personal characteristics of the studied nurses, the current study revealed that, less than half of the studied nurses' age group was 30-< 40 years with mean age 32.27 ± 5.10 . This study was in agreement with *Hassan et al., (2020)* who conducted a study entitled "Auditing of nursing care for patient with upper gastrointestinal tract bleeding at El - Rajhi hospital, Egypt" and reported that less than one quarter of the studied nurses their age group was 30- < 40 years.

The present study found that, more than half of the studied nurses were females, in the researcher point of view; this might be related to most of those joining the nursing field in Egypt are female.

This result was on the same line with *Ahmed et al., (2021)* who carried out a study entitled “Effect of implementing training program regarding care of patients with upper gastrointestinal bleeding on nurses' knowledge” and mentioned that more than two thirds of the studied nurses were females. In contrast, this study was disagreed with *Romeeh et al., (2023)* in a study entitled “Effect of educational nursing intervention on selected patient's outcomes among patients with upper gastrointestinal endoscopy” and revealed that less than half of the studied nurses were females.

The current study reported that, more than two thirds of the studied nurses were graduated from technical nursing institute of nursing in the researcher point of view; this might be related to Kasr Alainy Hospital has own technical nursing institute and all graduates of this institute join work at Kasr Alainy Hospitals. This finding was in accordance with *Shashi et al., (2024)* in the study entitled “Factors related to nurse's response time in management of upper GI bleeding among chronic liver disease patients” and found that less than two thirds of the studied nurses had diploma in general nursing and midwifery.

Contrariwise, this study was in congruence with *Ibrahim et al., (2021)* who carried out a study entitled “Nurses' performance regarding care of upper gastrointestinal bleeding patients undergoing upper endoscopy” and mentioned that

more than one quarter of the studied nurses had technical nursing institute.

The present study revealed that, three fifths of the studied nurses were married, in the researcher point of view, this could be related to that, less than half of the studied nurses their age group was 30-< 40 years; the people in this age in Egypt usually married. This result was supported by *Shashi et al., (2024)* in a study entitled “The effect of a teaching program on knowledge, practice, and response time of nurses regarding the management of upper gastrointestinal bleeding” and reported that most of the studied nurses were married.

The current study reported that, more than two thirds of the studied nurses had one to less than five years of experiences. This study was in agreement with *Osman et al., (2019)* who conducted a study entitled “Establishing nursing guideline for nurses caring with hematemesis patients undergoing upper gastrointestinal endoscopy” and revealed that more than two thirds of the studied nurses had experience from 1 to 5 years.

The present study found that, more than half of the studied nurses weren't had any training courses of esophageal varices attack. This finding was on the same line with *Hussien et al., (2020)* who carried out a study entitled “Nurses' Performance Regarding caring for patients with Esophageal Variceal bleeding” and found that more than half of the studied nurses have no previous training courses regarding caring of patients with esophageal varices.

In relation to the studied nurses' total knowledge regarding care of patients during esophageal varices attack, the current study found that, more than half of the studied nurses had unsatisfactory

knowledge level regarding care of patients during esophageal varices attack, in the researcher point of view, this could be related to that, more than half of the studied nurses weren't had any nursing courses of esophageal varices attack.

This study was in agreement with *Ahmed et al., (2021)* who mentioned that more than three quarters of the studied nurses had poor knowledge.

In relation to sub-items of care of patients during esophageal varices attack, the present study reported that, majority of the studied nurses had competent practices level regarding post nursing procedure care

While, majority of the studied nurses had incompetent practices level regarding pre nursing care of patients during esophageal varices attack. This finding was in the same line with *Osman et al., (2019)* who found that more than half of the studied nurses had poor practices pre nursing procedure. In contrast, this study was disagreed with *Ibrahim et al., (2021)* who reported that half of the studied nurses had good practices post nursing care.

Concerning total studied nurses' practices regarding care of patients during esophageal varices attack, the current study found that, more than half of the studied nurses had incompetent practices level and less than half had competent practices level regarding total nursing care for patients during esophageal varices attack, in the researcher point of view this might be related to that, more than two thirds of the studied nurses had 1 –<5 years of experiences. This result was in agreement with *Abdelazim et al., (2019)* who carried out a study entitled "Nurses' performance regarding care of patients with bleeding Esophageal varices" and reported that more than half of the studied nurses had

unsatisfactory practices level regarding care of patients with bleeding Esophageal varices. This finding was in disagreement with *Hussien et al., (2020)* who found that more than half of the studied nurses had satisfactory practices level.

As regarding relation between personal characteristics of studied nurses and total knowledge, the present study revealed that, there was a statistically significant relation between the studied nurses' total knowledge level and educational level. While, there was no statistically significant relation between the studied nurses' total knowledge and age, gender, marital status, years of experiences and attending training courses regarding esophageal varices attack care, in the researcher point of view, the educational level effect of studied nurses' level of knowledge regarding esophageal varices.

This study was in accordance with *Ahmed et al., (2021)* who reported that there was a statistically significant relation between the studied nurses' knowledge level and their educational level while; there was no statistically significant relation between the studied nurses' knowledge level and other sociodemographic characteristics. Contrariwise, this finding was in congruence with *Prakash et al., (2023)* in a study entitled "Effect of implementing teaching program on nurses' knowledge, practice score and response time related to management of upper GI bleeding among chronic liver disease patients" and found that knowledge score was significantly associated with working experience and not significantly associated with educational level.

Regarding relation between personal characteristics of studied nurses and the total practices level, the current

study found that, there was a statistically significant relation between the studied nurses' practices level and age and marital status.

While, there was no statistically significant relation between the studied nurses' practices level and the gender, educational level, years of experiences and attending training courses of esophageal varices attack care.

This result was similar to *Osman et al., (2019)* who mentioned that there was a statistically significant relation between the studied nurses' total practices level and age.

Also, this study was agreed with *Amer et al., (2019)* who reported that there was no statistically significant relation between the studied nurses' total practices level and the gender, educational level, years of experiences and training program.

Concerning correlation between total nurses' knowledge and total nurses' practices level, the present study reported that, there was positive correlation between total nurses' knowledge and total nurses' practices level of the studied nurses during caring of patient with esophageal varices attack, in the researcher point of view, this could be related to, the unsatisfactory knowledge level of nurses reflect on practices to be poor and vice versa.

This finding was in accordance with *Hassan et al., (2020)* who found that there was positive correlation between total knowledge and total practices. Also this result was supported by *Prakash et al., (2023)* who mentioned that there was positive correlation between total knowledge and total practices.

CONCLUSION

The present study concluded that, more than half of the studied nurses had unsatisfactory knowledge level and less than half of studied

nurses had satisfactory knowledge level regarding care of patients during esophageal varices attack. Additionally, more than half of the studied nurses had incompetent practices level and less than half had competent practices level regarding total care of patients during esophageal varices attack. Also, there was a statistically significant relation between the studied nurses' total knowledge level and their educational level and there was a statistically significant relation between the studied nurses' practices level and their age and marital status. Finally, there was a positive correlation between total nurses' knowledge and total nurses' practices of the studied nurses during caring patient with esophageal varices attack.

RECOMMENDATION

The present study recommended the following:

- Continuous evaluation of nurses' knowledge and practices regarding assessment, prevention and management of esophageal varices attack.
- Developing a comprehensive and simplified booklet including basic information regarding care of patients with esophageal varices.
- Updating nurses' knowledge and practice about caring of patients with esophageal varices.

Further results study:

- On-going and regular in-service educational and training programs to improve nurses' knowledge and practices regarding esophageal varices attack.
- Replication of the study on a larger sample in different hospitals and multiple geographical areas, to confirm the result of the study.
- Developing educational program concerning emergency nursing care for patients with esophageal varices attack

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