

Nurses' Performance Regarding Caring for Patients with Esophageal Variceal Bleeding

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Abstract

Background : Variceal hemorrhage is a serious life-threatening complication of portal hypertension. The patient with esophageal variceal bleeding may present with hematemesis, melena, or general deterioration in mental or physical status and symptoms of shock. Nursing care is very important during initial period to achieve best possible outcome and have good prognosis for the patient. **Aim:** This study aimed to assess nurse's performance regarding care of patients with esophageal variceal bleeding. **Design** A descriptive exploratory design was utilized for the conduction of this study. **Setting** the study was carried out in intensive care unit of hematemesis at Elmeri hospital affiliated to Alexandria University. **Study sample:** A purposive subject of (40) registered nurses caring for patients with EVB. **Data Tools:** three tools were used for data collection; 1st tool was nurses' self-administered questionnaire and the 2nd tool was nurses' practice observational checklist and 3rd tool was nurses' attitude questionnaire. **Result:** the results of this study showed that, nearly three quarters of the studied nurses were having unsatisfactory total level of knowledge regarding pain management of patients with EVB, while more than half of them had got satisfactory level of practice and more than half of them had positive attitude. **Conclusion:** There were unsatisfactory level of knowledge, satisfactory level of practice among nurses under study. **Recommendations:** In-service training program must be developed based on need assessment for nurses in relation to care and management associated with EVB and evaluating the effect of its implementation on their performance and patients' outcome.

Keywords: Nurses' Knowledge, Nurses' Practice, Nurses' attitude, esophageal variceal bleeding, Intensive Care Unit.

Introduction:

Esophageal variceal bleeding (EVB) 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. They are prone to rupture and often are the source of massive hemorrhage from upper GI tract and the rectum. The portal pressure is the pressure in the portal vein and portal vein tributaries. Normal portal pressure

is 1-5 mmHg. When the portal pressure gradient (difference in pressure between the pressure in the portal vein and hepatic vein) exceeds 10-12mmHg, varices will form (Rajoriya & Gorard, 2013) and (Abd Elkader, El Sabaee & El Sayed, 2014).

EV are dilated, tortuous and engorged blood vessels usually found in the submucosa of the lower esophagus, but they may develop higher in the esophagus or extend into the stomach. Varices may develop in the esophagus, stomach, duodenum, colon, rectum and anus. The most clinically significant site of varices is the gastro-

esophageal junction because of the propensity of varices in this area to rupture, resulting in massive gastrointestinal (GI) hemorrhage. Factors that contribute to hemorrhage are muscular exertion from lifting heavy objects, straining at stool, sneezing, coughing, vomiting, esophagitis, irritation of vessels by poorly chewed foods or irritating fluids or reflux of stomach contents (especially alcohol). Salicylates and any medication that erodes the esophageal mucosa or interferes with cell replication also may contribute to bleeding (**Morton & Fontaine, 2013**) and (**Pellico, 2013**).

The patient with EVB may present with hematemesis, melena, or general deterioration in mental or physical status and symptoms of shock (cool clammy skin, hypotension and tachycardia may be present). EVB is a life-threatening and can result in hemorrhagic shock, producing decreased cerebral, hepatic, and renal perfusion. In turn, there is an increased nitrogen load from bleeding into the gastrointestinal tract and an increased serum ammonia level, increasing the risk for encephalopathy (**Pellico, 2013**).

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 and 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 (**Nettina, 2014**) and (**Urden, Stacy & Lough, 2014**).

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 (**Abo Elnoor, 2013**).

Significance of the study

The EVB is a life-threatening emergency that results in a high morbidity and mortality and therefore patients with EVB are considered critically ill patients and required urgent admission to the intensive care unit for close monitoring and management. So, the role of the nurse in managing a patient with EVB 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 entail knowledge and skills required by nurses in order to carry out care effectively (**Semltzer, Hinkle, Bare & Cheever, 2010**).

Aim of the Study:

This study aims to:

Assess nurses' performance regarding patient with esophageal variceal bleeding through the followings:

- 1- Assessing nurses' level of knowledge regarding care for patient with esophageal variceal bleeding.
- 2- Assessing nurses' level of practice regarding care for patient with esophageal variceal bleeding.
- 3- Assessing nurses' level of attitude regarding care for patient with esophageal variceal bleeding.

Subjects and Methods:

This study was portrayed under the four main designs as follows:

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

Technical design:

The technical design includes research design, setting, subjects and tools for data collection used in the study.

Research design:

A descriptive exploratory research design was used to achieve the aim of this study.

Setting:

This study was conducted in intensive care unit of hematensis at Elmery hospital affiliated to Alexandria University.

Subjects:

A purposive sample of 40 nurses working in the intensive care unit of hematensis at Elmery hospital affiliated to Alexandria University. They were recruited to assess the nurses' performance regarding care of patient with esophageal variceal bleeding.

-Tools for data collection:

Three tools were developed by the researcher to collect data pertinent to this study, these tools are:

1- Nurses' self-administrated questionnaire (Appendix 1):

The self administered questionnaire was used to assess nurses' level of knowledge regarding care of patients with esophageal variceal bleeding. It was developed by the researcher in simple Arabic language after reviewing the related and recent literatures (Ahrens, Prentice & Pell, 2010; Clavien & Trotter, 2012; Keogh, 2013; Wallace, 2013; Mattvera, 2014; Rossian & Crusher, 2017).

The questionnaire consisted of 50 questions in the form of multiplechoice questions (MCQ), true/false questions and matching questions.

It included four parts as follows:

Part one: it was concerned with demographic characteristics of nurses under study such as age, gender, educational level, years of experience, previous attendance of training courses regarding care of patients with esophageal variceal bleeding.

Part two: it was concerned with assessment of the following: nurses' knowledge regarding anatomy of the esophagus (3 MCQ questions and 3 true/false questions) including; structure, function of the esophagus. Nurses' knowledge regarding esophageal variceal bleeding (25 questions) including; definition (4 questions), etiology (3 questions), risk factors (2 questions), signs and symptoms (2 questions), diagnostic studies (6 questions), complications (3 questions) and medical management (5 questions) of EVB. Nurses' knowledge regarding nursing care for patients with esophageal variceal bleeding (18 MCQ questions, 1 true/false questions).

Scoring system:

Regarding scoring system of the nurses' knowledge assessment questionnaire: it included 50 questions. The response for each question was either by choosing the correct answer, true or false and matching questions. Each correct answer was given one grade and the incorrect answer was given zero. The total score of knowledge questionnaire was 50 grades.

- $\geq 75\%$ = satisfactory level of knowledge which equal ≥ 38 grades.
- $< 75\%$ = unsatisfactory level of knowledge which equal < 38 grades.

2- Nurses' practices observational checklists (Appendix II):

It was developed by the researcher based on review of related literatures (**Kockrow, 2011; Lynn & LeBon, and Eckman, 2013**). It was used to assess nurses' practice regarding care of patients with esophageal variceal bleeding. It comprised 7 parts covering the following procedures:

1- Observational checklist for insertion and care of indwelling urinary catheter (83 steps), removing indwelling urinary catheter (28 steps), administering blood transfusion (57 steps), insertion of nasogastric tube lavage (30 steps), insertion and care of IV catheter (45 steps), endoscopic procedure (45 steps) and intake and output monitoring (16 steps).

Scoring system:

Regarding scoring system of the nurses' practice observational checklists: It included 302 steps. The total score of practice was 302 grades. Each item that was done correctly was given one grade and each item that was done incorrectly was given zero. The total score of practice was classified as the follows:

- $\geq 80\%$ (≥ 242 grades) was considered satisfactory.

- $< 80\%$ (< 242 grades) was considered unsatisfactory.

2-Nurses' attitude questionnaire tool (Appendix III):

It was used to assess nurses' attitude toward caring of patients with esophageal variceal bleeding. It was developed by the researcher after reviewing the related literatures (**Amer, 2015; Hossein, 2015; Ahmed, 2016 & Mohamed, 2016**).

Scoring system

Regarding scoring system of the nurses' attitude questionnaire tool: it included 31 questions. The agree response was given two grades, to some extent agree response was given one grade, while disagree response was

given zero. The total score was 62 grades; classified as follows:

- $> 50\%$ (> 31 grades) was considered positive attitude.

- $= 50\%$ ($= 31$ grades) was considered neutral attitude.

- $< 50\%$ (< 31 grades) was considered negative attitude.

Operational design:

The operational design included preparatory phase, validity and reliability, pilot study, field work and limitation of the 2 study.

Preparatory phase:

It included reviewing of related literatures, and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines to develop tools for data collection.

Pilot study:

A pilot study was carried out on 10% of nurses (4 nurses) from the study subjects to test the applicability, clarity, feasibility of the tools used and to determine the time needed for the application of the study tools. Nurses who were included in the pilot study were included into the sample because no modifications was done after conducting pilot study.

C-Tools validity and reliability:

• Content validity:

The tools were revised for content validity by a panel of five experts from medical surgical nursing department at faculty of nursing, Ain Shams University. The experts reviewed the tools for clarity, relevance, comprehensiveness, simplicity and applicability. No modification was done.

• **Testing reliability** of proposed tools was done statistically by Cronbach Alpha test for knowledge was 0.7, practice was 0.89 and attitude was 0.7.

D-Field work

Data were collected in 6 months from the beginning of March 2017 to the end of August 2017. The aim and nature of the study was explained by the researcher to all nurses who were included in the study and take their approval to participate in the study prior to data collection. The researcher assessed nurses' knowledge regarding care of patients with esophageal variceal bleeding at Alexandria University Hospitals by using self-administered questionnaire which was developed by the researcher in simple Arabic language and it took 45 minutes to be filled by the nurses. The researcher filled the observational checklists by observing each nurse while caring for patients with esophageal variceal bleeding which took about one hour for each nurse and the Nurses' attitude questionnaire took 30 minutes to be filled by the nurses. The researcher was attended to the setting 3 days per week in the morning and afternoon shifts.

Administrative design:

An official permission was issued from the faculty of nursing Ain Shams University to the director of Alexandria University Hospital and director of intensive care unit of hematemesis at which the study was conducted, explaining the purpose of the study and requesting the permission for data

collection from the study group. Meeting and discussions were held by the researcher to explain to nurses the aim, the nature and the objectives of the study.

Ethical considerations:

-The research approval was obtained from the scientific ethical committee in faculty of nursing, Ain Shams University before starting the study. The researcher clarified the objective and aim of the study to the nurses included in the study. The researcher assured maintaining anonymity and confidentiality of the subject data. Nurses were informed about their rights to participate or withdraw from the study at any time without any reason. Oral consent was obtained from nurses to participate in the study.

Statistical Design:

All data collected were organized, entered and analyzed using appropriate statistical significance tests. The data were collected, coded and entered to personnel computer. The data were analyzed by using Statistical Package for Social Sciences (SPSS) version 17. Number and percentage, mean and standard deviation (SD) were used. Test of significance was used and regarding significance of the result, the observed differences and association were considered as follows:

Non-significant $P > 0.05$

Significant $P < 0.05$

Highly significant $P < 0.001$.

Results:

Table (1):Frequency & percentage distributions of demographic characteristics among nurses under study (n=40).

Variable	No	%
Gender		
Male	11	27.5
Female	29	72.5
Age		
20-24	15	37.5
25-29	17	42.5
30-39	5	12.5
40-45	3	7.5
Educational level		
Nursing diploma	4	10.0
Technical institute of nursing	19	47.5
Bachelor in nursing	17	42.5
Years of experience		
1-5	30	75.0
6-10	4	10.0
11-15	6	15.0
Previous training courses		
Yes	18	45.0
No	22	55.0

Table (1):Regarding demographic characteristics of the study subjects, **table 1** reveals that, 72.5% of the nurses under study were females, and 42.5% of the studied nurses were from 25-29 years old. Regarding to educational level, it was revealed that 47.5% of the nurses had technical institute of nursing. In relation to years of experiences, it was revealed that 75% of the nurses were having 1-5 years of experience and 55% of them have no previous training courses regarding caring of patients with esophageal variceal bleeding.

Figure (1): Percentage distribution of the nurses' total level of knowledge regarding caring of patients with esophageal variceal bleeding (n=40).

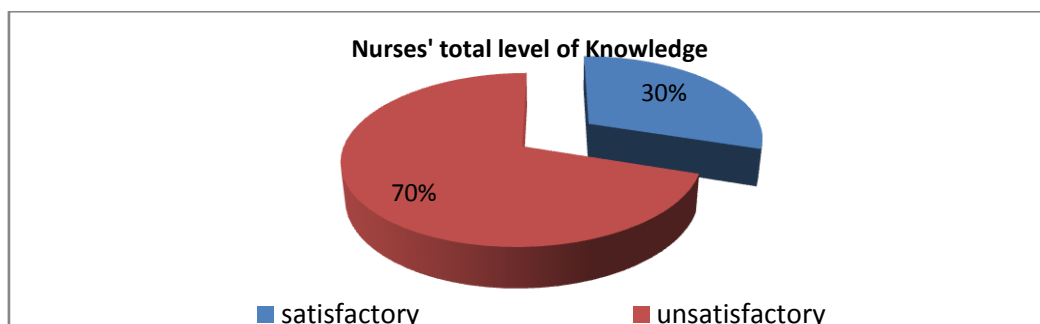


Figure (1): shows that, 70% of the nurses under study had unsatisfactory level of overall knowledge regarding caring of patients with esophageal variceal bleeding.

Table (2): Frequency & percentage distribution of the overall nurses' level of practice regarding caring of patients with esophageal variceal bleeding (n=40).

Item	Total practice	
	No	%
Satisfactory	22	55
Unsatisfactory	18	45

Table (2): illustrates that, 55% of the nurses under study had satisfactory level of total practice regarding caring of patients with esophageal variceal bleeding, and 45% of the nurses had unsatisfactory level of total practice regarding caring of patients with esophageal variceal bleeding.

Table (3): Relation between overall nurses' level of knowledge regarding caring of patients with esophageal variceal bleeding and their practice (n=40).

Knowledge	Practice				X ²	p-value
	Satisfactory (55%)		Unsatisfactory (45%)			
	No.	%	No.	%		
Satisfactory (30%)	7	17.5	5	12.5	4.5	0.186
Unsatisfactory (70%)	15	37.5	13	32.5		

P > 0.05 insignificant * p ≤ 0.05 significant ** p ≤ 0.001 highly significant

Table(3): shows that, there is no statistical significant relation between the nurses' level of knowledge and their level of practice regarding care of patients with esophageal variceal bleeding, where X² equal 4.5 and P value was at 0.186.

Table (4):Relation between overall nurses' level of knowledge regarding caring of patients with esophageal variceal bleeding and their attitude (n=40).

Knowledge	Attitude						X ²	p-value
	Positive (62.5%)		Neutral (5%)		Negative (32.5%)			
	No.	%	No.	%	No.	%		
Satisfactory (30%)	5	12.5	0	0	7	17.5	2.22	0.229
Unsatisfactory (70%)	20	50	2	5	6	15		

p > 0.05 insignificant * p ≤ 0.05 significant ** p ≤ 0.001 highly significant

Table(4): reveals that, there is no statistical significant relation between the nurses' level of knowledge and their attitude regarding caring of patients with esophageal variceal bleeding, where X² = 2.22 at P = 0.229.

Table (5): Relation between overall nurses' level of attitude regarding caring of patients with esophageal variceal bleeding and their age, years of experience and level of education (n=40).

Demographic	Knowledge				X ²	p-value
	Satisfactory (n=12)		Unsatisfactory (n=28)			
	No.	%	No.	%		
Age						
20-24 (n=15)	4	10	11	27.5	1.47	0.384
25-29 (n=17)	6	15	11	27.5		
30-39 (n=5)	2	5	3	7.5		
40 and more (n=3)	0	0	3	7.5		
Years of experience						
1-5 (n=30)	9	22.5	21	52.5	1.35	0.654
6-9 (n=4)	1	2.5	3	7.5		
10 and more (n=6)	2	5	4	10		
Educational level						
Nursing diploma (n=4)	0	0	4	10	18.3	0.864
Institute of nursing (n=19)	7	17.5	12	30		
Bachelor in nursing(n=17)	5	12.5	12	30		

P > 0.05 insignificant * p ≤ 0.05 significant ** p ≤ 0.001 highly significant

Table(5):reveals that, there is no statistical significant relation between the nurses' level of knowledge and their age, years of experience and level of education regarding caring of patients with esophageal variceal bleeding, where X² equal 1.47 and P value was at 0.384, X² equal 1.35 and P value was at 0.654 and X² equal 18.3 and P value was at 0.864, respectively.

Table (6): Relation between overall nurses' level of practice regarding caring of patients with esophageal variceal bleeding and their age, years of experience and level of education (n=40).

Demographic	Practice				X ²	p-value
	Satisfactory (n=22)		Unsatisfactory (n=18)			
	No.	%	No.	%		
Age						
20-24 (n=15)	11	27.5	4	10	4.05	0.063
25-29 (n=17)	8	20	9	22.5		
30-39 (n=5)	3	7.5	2	5		
40 and more (n=3)	0	0	3	7.5		
Years of experience						
1-5 (n=30)	17	42.5	13	32.5	3.81	0.24
6-9 (n=40)	2	5	2	5		
10 and more (n=6)	3	7.5	3	7.5		
Educational level						
Nursing diploma (n=4)	3	7.5	1	2.5	59.1	0.711
Institute of nursing (n=19)	12	30	7	17.5		
Bachelor in nursing (n=17)						
	7	17.5	10	25		

P > 0.05 insignificant * p ≤ 0.05 significant ** p ≤ 0.001 highly significant

Table (6): reveals that, there is no statistical significant relation between the nurses' level of practice and their age, years of experience and level of education regarding caring of patients with esophageal variceal bleeding, where X² equal 4.05 and P value was at 0.063, X² equal 3.81 and P value was at 0.24 and X² equal 59.1 and P value was at 0.711, respectively.

Table (7): Relation between overall nurses' level of attitude regarding caring of patients with esophageal variceal bleeding and their age, years of experience and level of education (n=40).

Demographic	Attitude						X ²	p-value
	Positive (n=25)		Neutral (n=2)		Negative (n=13)			
	No.	%	No.	%	No.	%		
Age								
20-24 (n=15)	12	30	2	5	1	2.5	1.83	0.341
25-29 (n=17)	9	22.5	0	0	8	20		
30-39 (n=5)	1	2.5	0	0	4	10		
40 and more (n=3)	3	7.5	0	0	0	0		
Years of experience								
1-5 (n=30)	21	52.5	2	5	7	17.5	1.75	0.505
6-9 (n=4)	2	5	0	0	2	5		
10 and more (n=6)	2	5	0	0	4	10		
Educational level								
Nursing diploma (n=4)	3	7.5	0	0	1	2.5	30.2	0.55
Institute of nursing (n=19)	12	30	0	0	7	17.5		
Bachelor in nursing (n=17)	10	25	2	5	5	12.5		

P > 0.05 insignificant * p ≤ 0.05 significant ** p ≤ 0.001 highly significant

Table(7):reveals that, there is no statistical significant relation between the nurses' overall level of attitude and their age, years of experience and level of education regarding caring of patients with esophageal variceal bleeding, where X^2 equal 1.83 and P value was at 0.341, X^2 equal 1.75 and P value was at 0.505 and X^2 equal 30.2 and P value was at 0.55, respectively.

Discussion:

When addressing the management of variceal bleeding in patients with cirrhosis, we must always bear in mind that there are two essential steps for success: the management of acute bleeding and the prevention of rebleeding. After stopping the acute bleeding, if left untreated, 60% of these patients will rebleed, with a mortality of 33% (Cremers& Ribeiro, 2013).

The current study was carried out aiming to assess nurses' performance regarding caring of patients with esophageal variceal bleeding. Discussion of the findings of this study will cover the main parts of the result. The researcher used studies of different scope due to lack of researches that concerned with esophageal variceal bleeding and the researcher compare the data that related to concept of nursing performance (knowledge, practice and attitude).

The first part concerned with demographic characteristics of nurses included in the study.**The second part** displays the findings that related to studied nurses' level of knowledge regarding care of patients with esophageal variceal bleeding.**The third part** discusses nurses' practice regarding care of patients with esophageal variceal bleeding. **The fourth part** reveals nurses' attitude regarding care of patients with esophageal variceal bleeding. **The fifth part** displays data related to relation between demographic characteristics of study subjects, and level of knowledge, practice and attitude regarding caring of patients with esophageal variceal bleeding.

Part I: Demographic characteristics of the studied nurses.

Regarding the demographic characteristics of the nurses under the present study, the results revealed that near half of the studied nurses' age were between 20 to 29 years. This explains that most of those nurses were newly graduated, young and tolerate the nature of the work in the critical care units. This finding is consistent with **Amer, Taha & Zaton (2015)**, in a study about "Nurses Knowledge and Practice regarding Gastrointestinal Endoscopy and Suggested Nursing Guidelines " and reported that more than three quarters of the study subjects' age was between 20-30 years.

Related to gender, the present study results showed that, slightly less than three quarters of the studied nurses were females. This may be due to the greater fraction of the nurses in Egypt was female and may also related to the studying of nursing in Egyptian universities were exclusive for females only till few years ago. This finding is in consistent with **Mohammed, Sleem, Shehab & Mohammed (2017)**, in a study titled "Assessment of the Nurses Performance in providing Care to Patients undergoing Nasogastric tube" and reported that most of their study group were female that may be due to elevated number of nurses among female.

Concerning educational level, the present study results indicated that, about half of the studied nurses had technical institute of nursing and nursing bachelor. This might elaborate the current condition of nursing qualification, as bachelor nursing work as practitioner more than administrator. This result is contradicted with **Abdullah, Mohamed & Ismail (2014)** in a study about "Nurses Knowledge and Practice about Administration of Medications via Nasogastric Tube among Critically Ill

Patients" and reported that the majority of the study subjects were having bachelor degree.

Regarding years of experience in critical care unit, the current study showed that three quarters of the studied nurses had experience up to five years. This finding may be due to that most of the nurses under study were recently graduated, work stress, severity of patient condition and occupational hazards that facing them in ICU, all of this prevent nurses from continuing work in the critical care unit. This finding was in agreement with **Mohammed (2016)** in a study titled "Assessment of Nurse's Performance in Gastrointestinal Endoscopy Unit" and reported that more than two thirds of the study subjects' years of experience in ICU ranged between 1-5years.

As regard to having previous training courses, the present results showed that, more than half of nurses under study had no previous training courses. This may be due to shortage of staff, work load, lack of training courses about the diseases and lack of time in intensive care unit (ICU). This result is similar to **Shahin (2012)** in a study about "Nurses' Knowledge and Practices regarding Enteral Nutrition at the Critical Care Department" and reported that the majority of the study subjects had no previous training courses.

Concerning nurses' total level of knowledge, the present result showed that about less than three quarters of the nurses under study had unsatisfactory level of knowledge regarding care of patients with esophageal variceal bleeding. This result may be due to that more than half of nurses under study had no previous training courses about care of patients with esophageal variceal bleeding. This is inconsistent with **Bari & Garcia-Tsao (2012)** in a study about "Treatment of Portal Hypertension" and reported that three quarters of the study subjects had adequate knowledge regarding care of patients with esophageal variceal bleeding.

Part III: Nurses' practice care of patients with esophageal variceal bleeding.

As regards to the total nurses' practice, the present study showed that more than half of the studied nurses had satisfactory level of practice regarding care of patients with esophageal variceal bleeding. This could be attributed to that most of the studied nurses were technical institute of nursing and bachelor in nursing having a special degree in ICU nursing and they were newly graduated. This result is relatively similar to results reported by **Kenny & Goodman (2010)** in a study about "Care of the Patient with Enteral Tube Feeding" and concluded that the nursing practice regarding care of patients with esophageal variceal bleeding is enough and highly reflected on the improvement of the patients' health condition.

Part IV: Nurses' attitude regarding care of patients with esophageal variceal bleeding.

Regarding nurses' attitude, the present study revealed that approximately two thirds of the nurses under study had positive attitude regarding care of patients with esophageal variceal bleeding. As it is obvious from the study result, that the most of nurses under study had satisfactory level of practice regarding care of patients with esophageal variceal bleeding which might help to develop positive attitude toward care of patients with esophageal variceal bleeding among nurses under study. This result is in difference with **Dorrian and Crothers (2011)** in a study about "Determinants of Nurses Attitudes toward the Care of Patients with Alcohol Problems" and reported that more than half of the study subjects had negative attitude about problems of esophageal variceal bleeding as they had inadequate knowledge and practice about esophageal bleeding.

Part V: Relation between level of knowledge, practice and attitude of the

nurses under study regarding caring of patients with esophageal variceal bleeding.

As regard to the relation between participants' knowledge and practice, the current study revealed that there is no statistical significant relation between the nurses' knowledge and practice. About one third of the nurses who have unsatisfactory knowledge had satisfactory level of practice. This may be attributed to working in critical care units equipped the nurses with experience in practice regardless the knowledge. This result is contradicted with **Majeski, Lynch &Drust (2009)** in a study titled "Esophageal Perforation during Esophagogastroduodenoscopy" and showed that there was a statistical significant relation between nurses' knowledge and their practice.

By studying the relation between participants' knowledge and attitude, the current study revealed that there is no statistical significant relation between the nurses' knowledge and attitude. Half of nurses who had unsatisfactory level of knowledge, had positive attitude. This may be attributed to working in critical care units equip nurses attitude regardless the knowledge. This finding is contradicted with **Ahmed (2016)** in a study about "Nurse's Performance regarding Nasogastric Tube Feeding among Critically Ill Patients" and showed that there was significant positive relation between respondent nurses' knowledge and their attitude.

The findings of the current study illustrated that, there is no statistical significant relation between the nurses' level of knowledge and their level of education. Two thirds of the nurses who had bachelor degree and technical institute in nursing had satisfactory level of knowledge. This result is consistent with **Amer, Taha &Zaton (2015)** who revealed that there is no relation between the nurses' level of knowledge and their level of education.

This study showed that, there is no statistical significant relation between the nurses' level of practice and their level of education. Although, two thirds of the nurses under study who had bachelor degree and technical institute of nursing had satisfactory level of practice. This result is in disagreement with **Mohammed (2016)** who conducted a study showed that there is a significant relation between nurses' level of practice and their level of education.

This study showed that, there is no statistical significant relation between the nurses' attitude and their level of education. Although, two thirds of nurses under study who had bachelor degree and technical institute of nursing had positive attitude. This result is consistent with **Ghanaei, Joukar, Souti and Roushan(2013)** who conducted a study showed that there is no significant relation between nurses' attitude and their level of education.

Conclusion:

Based on findings of the current study, it can be concluded that: More than two thirds of the study nurses had unsatisfactory level of knowledge, more than half of nurses had satisfactory level of practice regarding care of patients with EVB. Meanwhile, more than half of the studied nurses have a positive attitude regarding care of patients with EVB. Also no statistical significance different relation between nurses' knowledge, practice, attitude and demographic characteristics of the studied nurses.

Recommendations:

Based on the results of the present study, the following recommendations are suggested:

- Continuous evaluation of nurses' knowledge and practice is essential to

identify their needs in ICU about assessment and prevention of EVB.

- On-going and regular in-service educational and training programs to improve their knowledge and practices regarding EVB.

- The study should be replicated on large sample and in different hospitals setting in order to generalize the results.

- Future research should be conducted to examine ICU nurses' knowledge, attitude and practices before and after implementation of an educational program regarding care of EVB patients.

- Procedure book should be available in ICU as a reference for all nurses.

References:

Abd Elkader, A.I., El Sabae, H.A. and El Sayed, Z.M., (2014). Patients' Knowledge Assessment Regarding Factors Aggravating Esophageal Variceal Bleeding at a University Hospital in Egypt, *Advances in Life Science and Technology*, vol. 23: pp. 32-34.

Abdulla, M., Mohammed, W. and Ismail, M., (2014). Nurses Knowledge and Practices about Administration of Medications via Nasogastric Tube among Critically Ill Patients, *Journal of Education and Practice*, vol. 5 (1): pp. 147-159.

Abo Elnoor, N., (2013). Management of Patients with Hepatic Disorders, *Medical Surgical Nursing*, part III, pp. 21-28, available at <http://site.iugaza.edu.ps>. Accessed on 12/10/2016 at 7.50pm.

Ali, R. & Shehata, H., (2013). Gastroenterology Department, Assuit University.

Ahmed, H.L., (2016). Nurse's Performance regarding Nasogastric Tube Feeding among Critically Ill Patients, Faculty of Nursing, Ain Shams University, pp. 1-10.

Ahrens, T., Prentice, O., and Kleinpell, R.K., (2010). *Critical Care Nursing Certification*,

6th ed., McGraw-Hill Companies, Inc, Singapore, pp. 502-549.

Amer, W.M., Taha, N.M. and Zaton, H.K., (2015). Nurses' Knowledge and Practice Regarding Gastrointestinal Endoscopy and Suggested Nursing Guidelines, master thesis, vol. 5 (2): pp. 116-119.

Bari, k. and Garcia-Tsao, G., (2012). Treatment of Portal Hypertension, *World Journal of Gastroenterology*, vol. 8 (11): pp. 1116-1175.

Clavien, P.A. and Trotter, J., (2012). Medical Care of the Liver Transplant Patient, 4th ed., Blackwell Publishing Ltd, Switzerland, pp. 26-36.

Cremers, I. and Ribeiro, S., (2014). Management of variceal and nonvariceal upper gastrointestinal bleeding in patients with cirrhosis, *Therapeutic Advances in Gastroenterology*, vol. 7 (5): pp. 206-216., available at <http://www.sagepub.co.uk/>, accessed on 28/2/2018 at 2:40pm.

Dorrian, J. and Crothers, C.E., (2011). Determinants of Nurses' Attitudes toward the Care of Patients with Alcohol Problems, *International Scholarly Research Network, ISRN Nursing*, pp. 1-11.

Eckman, M., (2013). *Lippincott Nursing Procedures*, 7th ed., Lippincott Williams & Wilkins, China, p. 256-258, 446-450, 316-318.

Ghanaei, R.M., Joukar, F., Souti, F. and Roushan, Z.A., (2013). Knowledge and Attitude of Medical Science Students toward Hepatitis B and C Infections, *Int J Clin Exp Med*, vol. 6 (3): pp. 198-202.

Hossein, Y.E., (2015). Knowledge, Attitude and Practice in Nursing Student toward Patients with Hepatitis C, *International Educational Scientific Research Journal*, vol.1 (1): pp. 19-23.

Kenny, D. and Goodman, P., (2010). Care of the Patient with Enteral Tube Feeding: An

- Evidence Based Practice Protocol, Nursing Research, vol. 59 (1): pp. 22-31.
- Keogh, J., (2013).** Critical Care Nursing, 1st ed., McGraw–Hill Education LLC, United States of America, pp. 172-207.
- Kockrow, C., (2011).** Foundations of Nursing, 6th ed., Mosby, Inc., an affiliate of Elsevier Inc, United States of America, pp. 662-663.
- Lynn, P., and LeBon, M., (2011).** Taylor's Clinical Nursing Skills, 3rd ed., Wolters Kluwer Health/ Lippincott Williams & Wilkins, United States of America, pp. 253-259, 330-332.
- Majeski, J., Lynch, W. and Drust, G., (2009).** Esophageal Perforation during Esophagogastroduodenoscopy, vol. 19 (5): pp. 7-56.
- Mattvera, (2014).** Digestive System Disorders NCLEX Practice, available at <https://nurseslabs.com>, accessed on 20/2/2017 at 11:39am.
- Mohamed, E.M., (2016).** Assessment of Nurse's Performance in Gastrointestinal Endoscopy Unit, Faculty of Nursing, master thesis, Ain Shams University, p. 152-163, 167-177.
- Mohammed, M.A., Sleem, H., Shehab, M.S. and Mohammed, M.E., (2017).** Assessment of the Nurses Performance in Providing Care to Patients undergoing Nasogastric Tube, Suez Canal University Hospital, international journal of caring sciences, vol: 17 (2): pp. 6-11.
- Morton, P.G. & Fontaine, D., (2013).** Critical Care Nursing A Holistic Approach, 10th ed., Wolters Kluwer Health & Lippincott Williams, China, pp. 916-923.
- Nelson, D.B., (2011).** Recent Advances in Epidemiology and Prevention of Gastrointestinal related Infections, Current Opinions Infectious Diseases, vol. 5 (2): pp. 115-130.
- Nettina, S., (2014).** Lippincott Manual of Nursing Practice, 10th ed., Wolters Kluwer Health & Lippincott Williams, London, pp. 723-727.
- Pellico, L.N., (2013).** Adult Health Medical Surgical Nursing, 1st ed., Wolters Kluwer Health and Lippincott Williams, China, pp. 689-693.
- Rajoriya, N.&Gorard, D., (2013).** Endoscopic Management of Oesophageal and Gastric Varices, Creative Commons Attribution License, pp 100-105., available at www.intechopen.com, accessed on 12/10/2016 at 6.25pm.
- Rossian & Crusher, W., (2017).** Gastrointestinal Bleeding, Disease of Specific Systems Trivia, available at <http://www.flashcardmachine.com/quiz-5-questions.html>, accessed on 25/2/2017 at 4:22pm.
- Shahin, M., (2012).** Nurses' Knowledge and Practices regarding Enteral Nutrition at the Critical Care Department of Al-Manial University Hospital, faculty of nursing, Cairo University, pp. 397-405.
- Smeltzer, S., Hinkle, J., Bare, B. & Cheever, K., (2010).** Brunner and Suddarth's Textbook of Medical-Surgical Nursing, 12th ed., Wolters Kluwer Health and Lippincott Williams, China, pp. 1128-1133.
- Urden, L., Stacy, K. & Lough, M., (2014).** Critical Care Nursing Diagnosis and Management, 7th ed., Mosby, Elsevier Inc, Canada, pp. 763-767.
- Wallace, M., (2013).** The Digestive System and How it works, National Institute of Diabetes and Digestive and Kidney Diseases, available at <https://www.niddk.nih.gov>, accessed on 14/11/1017 at 1.38pm.