

## Effect of Designed Implemented Nurses' Educational Program on Minimizing Incidence of Complications for Patients with Upper Gastrointestinal Bleeding

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### ABSTRACT

The study aimed at assesses the effect of designed implemented nurses' educational program on minimizing incidence of complications for patients with upper gastrointestinal bleeding. To achieve this **aim** four research hypothesis were formulated; the nurses' post program mean knowledge scores will be higher than pre-program mean scores, the nurses' post program mean practice scores will be higher than pre-program mean scores, the frequency of patients' complications incidence post-program will be lesser than that of the pre- program and there will be a positive correlation between the nurses' knowledge and practice scores. A sample of (60) adult patients with upper gastrointestinal bleeding and (30) nurses were involved in this study. The study carried out at Benha University Hospitals at the Internal Medicine Department. Data related to this study were collected by three tools; astructuredinterviewing schedule to assess the nurses' knowledge, an observation check list to assess the nurses' practice and patients' complications assessment sheet. **The results** implied that: there was plainly improvement in nurses' knowledge and practice score especially immediately post program implementation, as well as, there were significant differences between nurses' knowledge and practice in all study phases,also there was precisely decline in all complications' prevalence among each and every one in post program implementation group, as well there was a positive non-significant correlation between knowledge and practice score. **The conclusion** revealed that the program had a positive effect on the nurses' knowledge and practice as regards to the management for patients with upper gastrointestinal bleeding, as well as, there was precisely decline in all complications' prevalence among the entire post program implementation group . **The study recommended** that a continuous in-service education program for all nurses working in Gastroenterology Unit based on the standards nursing performance is needed for caring with patients suffering from upper gastrointestinal bleeding.

### INTRODUCTION

Upper gastrointestinal bleeding (UGIB) refers to bleeding in the gastrointestinal tract above the ligament of treitz (the duodenojejunal junctions).It is one of the most importance critical problems, which has wide prevalence worldwide, especially in our society (*El wakil et al., 2011*). The common causes for UGIB were classified into variceal and non

variceal causes. Manifestations of the disease depend on Where is the bleeding? What is causing it? How much blood loses? If there is only losing a little bit of blood the patient may have no symptoms. The patient also may have haematemesis, melaena, hematochezia, occult blood, chronic blood loss & anemia. The diagnosis depends on the clinical presentations, patient complains, diagnostic studies, which include; lab results,

radiological and endoscopic finding (*American College of Gastroenterology, 2012*). Related to the management it will depend on the cause which may include; drug therapy, endoscopic procedures, or surgical intervention (*Leontiadis et al., 2007*). The complications of UGIB are self-evident, but other complications can arise from treatments administered and diagnostic studies, the worst of them are; hypovolemic shock "it is life threatening complication that may lead to loss of patient's life". Rebleeding "that increases risk for mortality. Prognosis is bad with the following conditions; increasing age, co-morbidity, liver disease, shock at presentation, inpatient and continued bleeding" (*British Society of Gastroenterology, 2008*).

Nursing staff play a major role in diagnosis, management and stabilizing of the patient's condition. The nursing role varies from assessment, assist with diagnostic & therapeutic procedures, administer fluids & other treatments, evaluation of the patient's condition and the conservative management (*Lhynelli, 2011*). Prevention of the disease is focused on treatment of the underlying cause. Discharge depends on patient general condition, diagnosis, risk for rebleeding, the need for transfusion, need for surgery and risk of death (*Klebl et al., 2005*). So this study was conducted to assess the effect of designed implemented nurses' educational program on minimizing incidence of complications for patients with upper gastrointestinal bleeding.

### **Significance of the study**

Upper gastrointestinal bleeding is a common gastrointestinal emergency and carries a mortality rate of 5%-14% (*Van Leerdam, 2008*). Variceal bleeding was found to be the commonest cause of upper

gastrointestinal haemorrhage in Egypt (70.1%). Hematemesis due to ruptured esophageal varices is a common cause of death in patients with portal hypertension (*Reda et al., 2011; El-Gaidie, 2003*). It was estimated that esophageal varices develop in about 50-63% of patients with liver cirrhosis and portal hypertension who represent about 14.7% from the Egyptian population (*El-Kady et al., 2004*). With more substantial morbidity and mortality than other causes of gastrointestinal bleeding (*Gameel et al., 2004; Swifee et al., 2003*). Peptic ulcer remains the commonest cause of non variceal upper gastrointestinal bleeding particularly duodenal ulcer, which accounts for two thirds of all peptic ulcers and affects nearly 10% of population (*Church and Palmer, 2003*). Bleeding stops spontaneously in more than 50% of patients, but mortality approached 70% in those with continued bleeding. Each bleed is associated with 30% mortality and the risk of rebleeding is high until the varices are obliterated (*Osman et al., 2001*).

### **Aim of the study**

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The aim of this study is to assess the effect of designed implemented nurses' educational program on minimizing incidence of complications for patients with upper gastrointestinal bleeding.

### **Research hypothesis:**

-The post mean knowledge and practices score of the nurses who will be exposed to the designed educational program will be higher than the pre-program mean score. The frequency of complications' incidence post-program implementation will be lesser than that of the pre-program implementation. There will be a positive correlation between the nurses' knowledge and practice score.

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### **Subjects and Method:**

#### **Design:**

Quasi-Experimental design was utilized to fulfill the aim of this study.

#### **Setting:**

This study was carried out at Benha University Hospital at The Internal Medicine Department.

#### **Subjects:**

##### **1-Patients:-**

Convenience sample of 60 adult patients with upper gastrointestinal bleeding at The Internal Medicine Department at Benha University Hospital, within the period of the study were divided randomly into two groups; control and experimental group each group was include 30 patients, the patients had been selected according to the following criteria:-

##### **Inclusion criteria:-**

- Patients with confirmed diagnosis of upper gastrointestinal bleeding.
- Adult patients (male and female).
- Age 18- 50 years old.

##### **Exclusion criteria:-**

- Patients aged less than 18 or more than 50.
- Patients who have serious comorbiditis {cancer, liver failure, renal failure, ischemic heart disease....ect}.

##### **2- Nurses:-**

A sample of 30 nurses who were working actually as a bed side nurse at The Internal Medicine Department at Benha University Hospital within the period of the study. The nurses had been selected according to the following criteria:-

##### **Inclusion criteria:-**

- Nurses who are working actually as a bed side nurse.
- Nurses who are assessing in caring of the patients with upper gastrointestinal bleeding, with different qualifications (diploma or diploma with specialty).
- Age 21- 50 years old.

##### **Exclusion criteria:-**

- Nurses who are not helping in caring of the patients with upper gastrointestinal bleeding.
- Nurses aged more than 50 (according to hospital policy they don't share in patients' care).

##### **Tools of the study:-**

The tools of this study were included:-

##### **1- Gastroenterology nurses' knowledge regarding to the uppergastrointestinal bleeding management structured interviewing schedule:- (Appendix IA)**

A structured interviewing schedule was designed by the researcher and adapted from previous research references after reviewing related literature. The structured interviewing schedule was aiming to assess the gastroenterology nurses' level of knowledge regarding to the upper gastrointestinal bleeding management. Also it helped the researcher in developing the booklet. It was conducted in a simple Arabic form in order to prevent misunderstanding.

The researcher interviewed the studied nurses and gave them chance for asking any questions and answer the

assessment sheet and it included the following parts:-

- i. Socio-demographic characteristics of the nurses included in the study such as age, qualifications, marital status and years of experience ... etc.
- ii. Group of questions to assess the gastroenterology nurses' level of knowledge regarding to the upper gastrointestinal bleeding management.

#### **Knowledge scoring system: (Appendix IA)**

All knowledge variables were weighted according to the items included in the answer of each question. The data collected from the knowledge test was computed and the test received a grade out of 70 points, the scores were allocated as the following: (1) for right answer (0) for wrong answer and the answer that didn't be known by the nurse.

The score of knowledge test expressed as percent from a maximum of 70 points as the following:-

- ✓ **Good:** 70- 45 points, which represent (100:65 percent).
  - ✓ **Moderate:** from 44- 35 points, which represent (from less than 65:50 percent).
  - ✓ **Poor:** 34- 0 points, which represent (less than 50 percent).
- **The scoring technique adopted from (Gomah, 2013).**
- 2- **Gastroenterology nurses' care practice observational checklist regarding to the management of patient with gastrointestinal bleeding:- ( Appendix IB)**

Standardized observational checklist was developed by the researcher based on review of literature, adopted from (*Nasr El Dain, 2007 & Taha, 2004*) and it included the following main parts:-

- i. Assessment phase for patients with gastrointestinal bleeding was include: history taking, check hemodynamic status and assess gastrointestinal bleeding (location, characters, duration and severity) , identify result of diagnostic studies, assessment of patients' needs, diagnosis of patients' response, then planning for patients' care , followed by implementation of care and lastly evaluation of the success of the implemented care.
- ii. Ongoing care it included: maintain effective ventilation , monitor cardiovascular status, maintain fluid and electrolyte balance, relieve patient's pain, stability of neurological status, oxygen therapy, cardio pulmonary resuscitation, post-resuscitation care, administration of I.V. infusion and medications, blood transfusion, relief discomfort problems and care of the devices.....ect.
- iii. Care for patient undergoing endoscopy it included: standardized steps including preparation of the equipment.
- iv. Discharge: patient and family teaching about the disease, the important of the follow up and community resources that may be needed.

#### **Nurses' care practice observational checklist scoring system:-**

Scoring of observational checklists was assigned to score according to the

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number of its sub-items. For each sub-item the nurse assigned (2) if she had done it completely, if she had done it incompletely (1) was given, but if she had not done (zero) was given. The scoring system of the check list was computed and the sheet received a grade out of total 386 points.

**NB:-**according to the management regimen at Benha University Gastroenterology Unit, the insertion of balloon tamponade technique didn't used during the period of study ,so the score of this procedure had been modified from (18) to (6)& the final score had been modified from (386) to (374) .

The score of nurses' practice expressed as percent from a maximum of 374 points as the following:-

- ✓ **Good:** 374- 243 points, which represent (100:65 percent).
- ✓ **Moderate:** 242- 187 points,which represent (from less than 65:50 percent).
- ✓ **Poor:** 186- 0 points, which represent (less than 50 percent).
- **The scoring technique adopted from (Gomah, 2013).**

### 3- Upper gastrointestinal bleeding patients' complications assessment sheet:- (appendix IC)

It was designed by the researcher and adopted from previous research references after reviewing related literature and it was include the following parts:-

#### ➤ **Patients' sociodemographic characteristics (Part I):-**

Patient's name,age, gender and occupation.

#### ➤ **Medical history & physical examination (Part II):-**

Diagnosis, medical history, history of a previous bleeding,current diseases,history of drugs,generalcomplaints,eye examination,skin examination,chest examination,abdominal examination,limbs examination,disorders of consciousness,vital signs,urinary output, laboratory findings and radiology findings.

#### ➤ **Complications (Part III):-**

Assessment sheet for patients' complications, that arise actually from upper gastrointestinal bleeding or result from diagnostic procedure and, or caused by treatment administration.

#### **Patients' complications scoring system:-**

The frequency of complications' incidence among patients with upper gastrointestinal bleeding was calculated for the preprogram implementation group of 30 studied patients pre- program implementation and it was recalculated for the experimental group of 30 studied patients post- program implementation by the researcher. The patient received grade (1) if the complication was present and grade (0) if it wasn't present.

The score of complications' incidence expressed as a numeral from a maximum of 13 points as the following:-

- ✓ **Good:** 0 points.
- ✓ **Poor:** 1- 13 points.

#### **Guidelines construction:-**

- This was based on the results obtained from preprogram assessment using the interviewing questionnaire , observation check list as well as ,

literature review ,aiming to satisfy the studied nurses' deficit knowledge and practice about caring for patients with upper gastrointestinal bleeding .

- The guidelines was include different sessions developed by the researcher for the purpose of improving nurses' knowledge and practice related to care for patients with upper gastrointestinal bleeding. The guidelines contain three session :-
  - ✓ The first one contain (purpose of educational program, revise the basic anatomical parts of gastrointestinal tract, physiology of the gastrointestinal tract, definition, incidence, types, pathophysiology,causes & risk factors, manifestations, complications, prognosis and diagnostic methods of upper gastrointestinal bleeding).
  - ✓ The second enclose (initial management techniques, common used drug therapy and the needed consultation and triage, different endoscopic therapy techniques "mechanical therapy, thermal therapy, chemical therapy", surgical treatments for variceal and non variceal bleeding, preventive strategies for upper gastrointestinal bleeding and different nursing roles; Assessment phase includes; obtain history, examinations and investigations. Intervention phase includes; respiratory, hemodynamic, neurological, pain, blood transfusion, oral nourishment, care of the devices, verbal communication, activity status & ambulatory and home care. Evaluation phase includes; air way & respiratory stability, hemodynamic stability,

gastrointestinal stability, effective communication, improve activity status& effective ambulation and home care".

- ✓ The last one cover (indication of every procedure, nursing roles in each procedure, aseptic technique, preparation of patient, preparation of the needed equipment, technique or steps of procedures, the rational in each steps of procedure, caution and complications of procedures, nursing roles in complications' management and written information related to every procedure).

#### ***Method***

- The research approval was obtained from the ethical committee.
- The objectives and the aim of the research were clarified by the researcher to all subjects.
- Assure maintaining anonymity and confidentiality of the subject's data.
- Allow the nurses and the patients to choose to participate or not in the study, they have to withdrawal at any time from the study.
- The research tool was not embarrass of modesty and was not cause any harm or pain for the participants.
- The researcher got written consent from all nurses and patients to participate in the study & confidentiality were assured.
- A convenient sample according to the previous criteria was selected.
- The managements of gastrointestinal bleeding were done according to hospital routine.

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### Validity

- Validity of content was done by a jury of five experts professors from The Internal Medicine and Medical Surgical Nursing department, that is to check the relevancy, coverage and clarity of the questions. Accordingly modifications were done and the final form was developed.

### Reliability

- Reliability of the tool was test- retest and was modified and developed.

### Pilot study

- A pilot study was carried out on five patients and five nurses in order to evaluate the developed tools for the visibility, clarity and applicability of the designed form in providing the required data and the necessary modification was done. The pilot study was excluded from the results of the study.

### Limitation of the study

- Lack of nurses' cooperation in different phases of the study.
- It was difficult to collect all the nurses together at the same time to attend the guideline sessions. This problem was overcome by repetition the guideline.

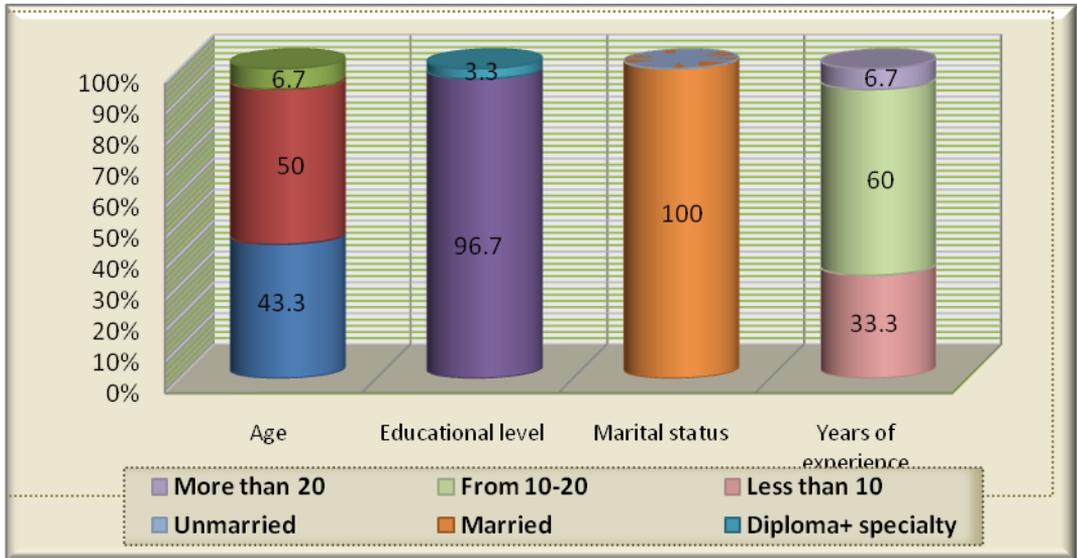
### Statistical design

- Statistical presentation and analysis of the present study was conducted as; Categorical variables were presented as absolute values and percentages were compared by use of the Chi-square  $\chi^2$  test. Continuous variables were expressed as mean  $\pm$  SD. The correlation coefficient among variables was assessed by Pearson's and Spearman's coefficient. Analysis was performed with SPSS statistical software version 20 (SPSS). P value more than 0.05 indicates non-significant result, when P value less than 0.05 indicates a significant result

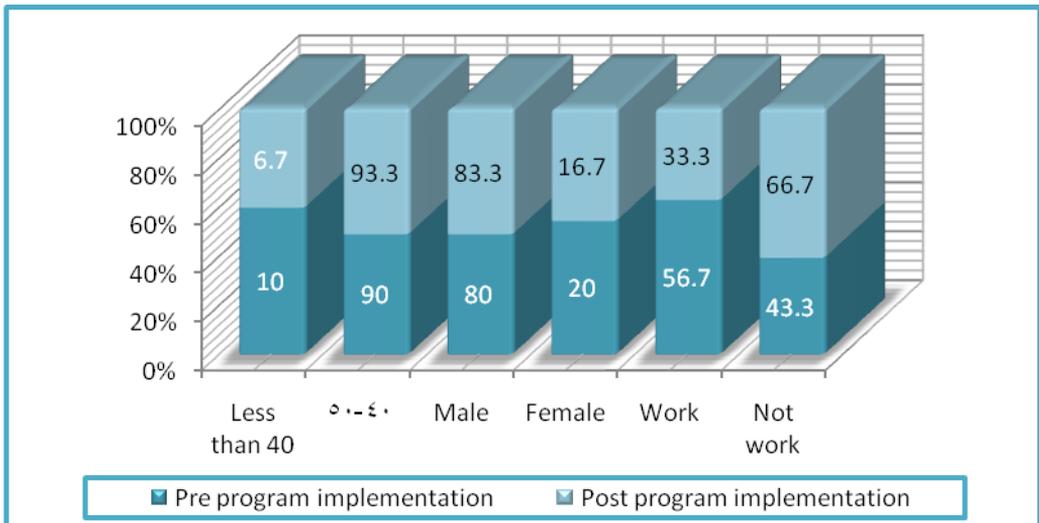
### Results

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The results present that the majority of the nurses were in between [30-39] years old, had diploma degree, married and had from [10-20]years of experience .The majority of the patients in both groups were in between [40-50] years old ,males , had work in the preprogram implementation group, whilst they hadn't work in the post program implementation group .As to the patients' medical history there were significant differences between all patients in both groups. The greater part of patients in both groups had liver cirrhosis& esophageal varices. Each and every one of patients experienced hematemesis. Moreover some patients in both groups suffered from melena, hemochezia, previous leeding attacks, DM, HTN and drugs misuse or abuse.



**Figure (1) distribution of the studied subjects (nurses) according to their demographic variables (N = 30)**



**Figure (2) distribution of the studied subjects (patients) according to their demographic variables (N = 60)**

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**Table (1) mean and stander deviation of the studied subjects (nurses) according to their total knowledge and total practice score (N = 30)**

Knowledge score / Practice score		Preprogram	Immediately post program	One month post program	Two month post program
Total knowledge score	Mean ±Std. Deviation	36.3667 ± 14.51630	63.6667 ± 9.20769	60.3667 ± 10.13864	56.0333 ± 8.76310
Total practice score	Mean ±Std. Deviation	136.0667 ± 43.9607	307.9000 ± 41.83411	292.1000 ± 42.09132	270.4667 ± 40.276

**Table (1):** presents that in relation to **total knowledge score Mean ± SD**, it was (36.3667 ± 14.51630) preprogram, improved to (63.6667 ± 9.20769) immediately post program, then shrunken to (60.3667 ± 10.13864) one month post program and dropped down to (56.0333 ± 8.76310) two months post program. As to **total practice score Mean ± SD**, it was (136.0667 ± 43.96075) preprogram, promoted to (307.9000 ± 41.83411) immediately post program, afterward contracted to (292.1000 ± 42.09132) one month post program and limited to (270.4667 ± 40.27640) two months post program.

**Table (2) distribution of the studied subjects (patients) according to their present complications related to upper gastrointestinal bleeding (N = 60)**

Complications related to upper gastrointestinal bleeding		Preprogram implementation group		Post program implementation group		Chi-square	
		N	%	N	%	X <sup>2</sup>	P-value
<b>Homodynamic instability</b>	<b>No</b>	9	30.0	26	86.7	1.667	.197
	<b>Yes</b>	21	70.0	4	13.3		
<b>Recurrent GI hemorrhage</b>	<b>No</b>	16	53.3	23	76.7	5.400	.020*
	<b>Yes</b>	14	46.7	7	23.3		
<b>Fluid disturbance</b>	<b>No</b>	6	20.0	13	43.3	8.067	.005*
	<b>Yes</b>	24	80.0	17	56.7		
<b>Electrolytes disturbance</b>	<b>No</b>	10	33.3	17	56.7	.600	.439
	<b>Yes</b>	20	66.7	13	43.3		
<b>Anemia</b>	<b>No</b>	6	20.0	13	43.3	8.067	.005*
	<b>Yes</b>	24	80.0	17	56.7		
<b>Coagulopathy</b>	<b>No</b>	3	10.0	9	30.0	21.600	.000*
	<b>Yes</b>	27	90.0	21	70.0		
<b>Blood transfusion reaction</b>	<b>No</b>	23	76.7	27	90.0	26.667	.000*
	<b>Yes</b>	7	23.3	3	10.0		
<b>Shock</b>	<b>No</b>	26	86.7	28	93.3	38.400	.000*
	<b>Yes</b>	4	13.3	2	6.7		
<b>Infection</b>	<b>No</b>	10	33.3	23	76.7	.600	.439
	<b>Yes</b>	20	66.7	7	23.3		
<b>Pneumonia</b>	<b>No</b>	23	76.7	27	90.0	26.667	.000*
	<b>Yes</b>	7	23.3	3	10.0		
<b>Disturbed conscious level</b>	<b>No</b>	25	83.3	28	93.3	35.567	.000*
	<b>Yes</b>	5	16.7	2	6.7		
<b>Renal failure</b>	<b>No</b>	28	93.3	29	96.7	48.600	.000*
	<b>Yes</b>	2	6.7	1	3.3		
<b>Cardiac arrest</b>	<b>No</b>	29	96.7	30	100	56.067	.000*
	<b>Yes</b>	1	3.3	0	0		

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**Table (2):** illustrates that with reference to the incidence of **homodynamic instability** near three quarter (70%) in the preprogram implementation group & only (13.3%) in the post program implementation group had this complain. On the subject of the presence **recurrent GI hemorrhage** near one half of the patients (46.7%) in the preprogram implementation group & in close proximity to one quarter of the patients (23.3%) in the post program implementation group had this complain. As regards the incidence of **fluid disturbance** massiveness (80%) of the patients in the preprogram implementation group & extra one half (56.7%) in the post program implementation group had this complain. In relation to the event of **electrolytes disturbance** over two thirds of the patients (66.7%) in the preprogram implementation group & about half (43.3%) in the post program implementation group had this complain. As regards the incidence of **anemia** bulk of the patients (80%) in the preprogram implementation group & more than half (56.7%) in the post program implementation group had this complain. Concerning with the incidence of **coagulopathy** the majority of the patients (90%) in the preprogram implementation group & about three quarters (70%) in the post program implementation group had this complain.

In relation to the event of **blood transfusion reaction** not far away to one quarter (23.3%) of the patients in the preprogram implementation group & only (10%) in the post program implementation group had this complain. Pertaining to the incidence of **shock** only (13.3%) in the preprogram implementation group & merely (6.7%) in the post program implementation group had this complain. As regards the incidence of **infection** over two thirds of the patients (66.7%) of the patients in the preprogram implementation group & in close proximity to one quarter of the patients (23.3%) in the post program implementation group had this complain. About the episode of **pneumonia** nearby one quarter (23.3%) of the patients in the preprogram implementation group & no more than (10%) in the post program implementation group had this complain. In relation to the incident of **disturbed conscious level** only (16.7%) of the patients in the preprogram implementation group & barely (6.7%) in the post program implementation group had this complain. About the event of **renal failure** just (6.7%) of the patients in the preprogram implementation group & no more than (3.3%) in the post program implementation group had this complain. In relation to the experience of **cardiac arrest** just (3.3%) of the patients in the preprogram implementation group & no one (0%) in the post program implementation group had this complain. All the results were very highly statistical significant where p-value < 0.05, except (homodynamic instability, electrolytes disturbance & infection) where p-value > 0.05.

**Table (3) correlation between the nurses' knowledge score and their practice score**

Correlation	Knowledge score	
	r	P-value
Practice score	.237	.104

**Table (3):** points up that there was positive correlation between knowledge score and practice score. The correlation wasn't statistically significant where p-value > 0.05.

**Table (4)** correlation between the nurses' knowledge & practice score and the incidence of patients' complications

Correlation		knowledge score		practice score	
		r	P-value	r	P-value
Patients' Complications	Homodynamic instability	-.076	.345	-.585	.000*
	Recurrent GI hemorrhage	-.190	.158	-.073	.350
	Fluid disturbance	-.318	.043*	-.039	.420
	Electrolytes disturbance	-.053	.390	-.123	.259
	Anemia	-.318	.043*	-.039	.420
	Coagulopathy	-.206	.138	-.084	.330
	Blood transfusion reaction	-.059	.378	-.497	.003*
	Shock	-.091	.317	-.199	.146
	Infection	-.246	.095	-.479	.004*
	Pneumonia	-.214	.128	-.082	.333
	Disturbed conscious level	-.109	.284	-.207	.136
	Renal failure	-.116	.271	-.263	.080
	Cardiac arrest	-.107	.286	-.312	.047*

**Table (4):** shows that; there was a negative correlation between knowledge score & practice score and all complications. The correlation wasn't statistically significant where p-value > 0.05, except; knowledge score & (fluid disturbance and anemia) and practice score & (homodynamic instability, blood transfusion reaction, infection and cardiac arrest) where p-value < 0.05.

### **Discussion**

The aim of this study is to evaluate the effect of designed implemented nurses' educational program on minimizing incidence of complications for patients with upper gastrointestinal bleeding. In

connection with the previous an evaluating tools were developed to assess the nurses' knowledge and practices level related to caring of patients with upper gastrointestinal bleeding. Additionally, another tool was developed in the purpose of assessing the patients' condition and the

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complications' incidence rate. As to the findings an educational program had been prepared for up to date nurses' knowledge and actual practices required for the care of patients suffering from upper gastrointestinal bleeding to follow up the rapid progress in this field.

### 1. Demographic characteristics of the studied nurses:-

The study revealed that; the majority of the nurses were in between [30-39] years old, had diploma degree, married and had from [10-20]years of experience

These findings in similarity with (*Ghoniaiem, 2007; Said, 2006*) who affirmed that the majority of nurse's age was between [25-35] years, had secondary diploma, married and had from [5 - 15] years of experience. These findings in contrast with (*Hamed, 2009;Mahrous, 2003*)who affirmed that less than half of the nurses within age [20 – 29] years, had a diploma degree and more than half of the nurses were single with years of experience more than 4 years.

### 2. Nurses' knowledge regarding to the upper gastrointestinal bleeding management pre/post program implementation:-

The study disclosed that the **knowledge score** was markedly improved especially immediately post program implementation, also there were significant differences between nurses' knowledge score preprogram, immediately post program, one month and two months post program implementation.

These findings in likeness with (*Gomah, 2013*) revealed that the nurse's knowledge showed statistically significant differences between pre, immediate and post program implementation. Too (*Ghoniaiem, 2011*) affixed that there was

markedly improvement in nurse's knowledge score especially immediately post program implementation. Also, this finding quite the reverse with (*sheta, 2006*) who revealed that the nurse's knowledge between pre and post program showed no significant difference.

### 3. Nurses' care practice regarding to the management of patients with upper gastrointestinal bleeding pre/post program implementation:-

The study revealed that as to **practice score (assessment phase)** there was clearly enhancement in nurses' practice score in assessment phase especially immediately post program implementation. As well as, there were significant differences between nurses' practice score (assessment phase) preprogram, immediately post program, one month and two months post program. The assessment phase included; collect demographic data, history taking, respiratory assessment, hemodynamic assessment, gastrointestinal assessment, diagnostic studies, communication assessment and activity status assessment.

These findings in likeness with (*Gomah, 2013*)who presented that nurses performance were un-satisfactory in preprogram implementation ,but after the program implementation the nurses performance was improved with statistical significant difference among studied nurses practices at preprogram, immediately post-program and 3 months post-program. Also the findings in correspondence with (*sheta, 2006*)who showed that there was a slight improvement in nurses practice between pre and post program implementation regarding nurse's role during assessment phase for patients in cardiac unit. Additionally, (*Refai, 2006*) discovered that the nurses had insufficient practice level preprogram, but there was progress in

nurses practice level post program implementation and there was a highly statistical significant difference between pre and post program implementation. Also, gradual decrement in nurses' practice score by time had been found. These findings in similarity with (*said, 2006*) who stated that the majority of nurse's skills were unsatisfied in both hospitals in most aspects of care; take history for patient and asses laboratory values.

With regard to **practice score (intervention phase)** there was plainly enrichment in nurses' practice score in intervention phase particularly immediately post program implementation. Additionally there were significant differences between nurses' practice score (intervention phase) preprogram, immediately post program, one month and two months post program. The intervention phase consisted of; respiratory status, hemodynamic status, blood transfusion, inserting nasogastric tube, gastric lavage, endoscopic therapy & insertion of balloon tamponade, relieve patient's pain, oral nourishment, neurological status, cardio pulmonary resuscitation and post- resuscitation care, care of the devices, impaired verbal communication, activity status and ambulatory & home care.

These findings in resemblance with (*Ghoniaem, 2011*) who affirmed that nurses' performance were unacceptable in preprogram implementation, but after the program implementation the nurses' performance was enhanced with statistical significant difference among studied nurses practices at preprogram, immediately post-program and 3 months post-program. Furthermore (*said, 2006*) who stated that the majority of nurses' skills were unsatisfied in both hospitals in most aspects of care; administration of intravenous infusion and medications,

blood transfusion, pain assessment, care for patient with nausea, vomiting, abdominal distention, fever, adequate hygiene, care of the tubes, health education and discharge instructions. Additionally the findings in similarity with (*sheta, 2006*) who showed that there was a slight improvement in nurses practice between pre and post program implementation regarding nurses' role during ongoing care (maintain effective ventilation, management with oxygen therapy, cardio-pulmonary resuscitation, monitor cardiovascular status, maintain fluid and electrolyte balance, relieve patient's pain, stability of neurologic status and reading central venous pressure). Too (*Shalby, 2005*) revealed that the nurses had substandard practice level related to (maintain air way, check vital signs, fluid balance, urinary tract infection, intake and output, adequate nutrition, bowel elimination, oral hygiene, neurological system assessment, communication, family support and documentation). (*Saleh, 2004; Mahrous, 2003*) revealed that the nurses had unsatisfactory practice level preprogram, there was a highly statistical significant difference between pre and post program implementation regarding (cardio-pulmonary resuscitation) and patient teaching before discharge but after the program nurse's practice was improved.

Pertaining to **practice score (evaluation phase)** there was apparently improvement in nurses' practice score in evaluation phase mainly immediately post program implementation, furthermore there were significant differences between nurses' practice score (evaluation phase) preprogram, immediately post program, one month and two months post program.

These findings in similarity with (*Nasr El Dain, 2007*) who stated the standard of nursing care for patients with

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upper gastrointestinal bleeding, which consisted of "assessment, intervention evaluation phases and their sub items". Besides, (*Taha, 2004*) determined that the nurses had insufficient practice level preprogram, there was progress in nurses practice level post program implementation and there was a highly statistical significant difference between pre and post program implementation. Gradual decrement in nurses' practice score by time had been found.

With reference to **practice score (standardized endoscopic care)** there was actually upgrading in nurses' practice score in standardized endoscopic care chiefly immediately post program implementation. Moreover there were significant differences between nurses' practice score (standardized endoscopic care) preprogram, immediately post program, one month and two months post program. The standardized endoscopic care composed of; universal precaution measures, precautions related to biopsy samples handling, precaution related to cleaning spills of blood & other body fluids, universal precaution related to linens, gowns, gloves and masks disposal, pre cleaning of endoscope, leak testing, cleaning of the endoscope, rinsing using fresh clear water, disinfect/ sterilize the endoscope, rinsing, drying and alcohol flush, endoscope accessories (reusable accessories including water bottle) and storage.

The result also in union with (*Egyptian ministry of health, 2008*) who affirmed that all the previous steps are a necessary nurse's practice in standardized endoscopic care. This result is supported by (*Mohamed, 2007; Mostafa, 2005*) who stated that nurses had a low level of practice. They need guidelines to apply disinfection and sterilization practice. They

found that only thirty eight percent routinely used barrier techniques (gloves, masks and aprons). In addition these results in match with (*Taha, 2004*) who located the infection control measures for patients undergoing upper gastrointestinal endoscopy, which composed of the beforehand pointed out activities and their sub items.

The nurses' knowledge & practice level reached to the highest mean immediately post program implementation. The acceptable level could be attributable to recent gain of information; this improvement could also convey the effectiveness of the educational program in relation to its objectivity and content. The score decline may be due to time factor, but still even at the end of study period greater than preprogram implementation and significantly different with baseline measures. This inadequacy of knowledge could be attributed to limited qualification and lack of post basic clinical education and insufficient readings after graduation and it was also noticed that there wasn't any in-services educational program performed in the hospital, lack of preparation regarding the theoretical knowledge enabling them to answer any question, inability to relate knowledge to practice during care for patient and lack of self-confidence.

Un-satisfactory practice level could be due to overflow of patients. Shortage of nurses that deal with patient, which probably related to their performing non-nursing tasks such as transporting patients, ordering, coordinating or performing ancillary services. In addition to decrease the nurses number especially in afternoon and night shifts (three nurses in each shift). Also imbalance nurse patient's ratio, which possibly connected to lack of correct work distribution. Moreover history taking is

responsibility of the physicians. Lack of systemic assessment of patient, also the assessment sheet written in English and most of them does not perfect in English language.

Increase patients' acuity which possibly affects nurses' psychological status, also may reflect on their performance. Shortage in preparation related to theoretical knowledge & practical competence. Inadequate facilities required for in-services education training. Lack of financial resources needed for incentive reward. Poor communication among patients and nurses. Excessively insufficient physical & human resources in the hospital affect the care that introduced to the patients. Equipment & supplies were one of the contributing factors related to malpractice, for example lack of antiseptic solutions, cotton, inadequate disposable and sterile gloves lead to bad aseptic technique, poor care and increase transferring of infections. As well as the participation of some un experienced and un trained persons as a care givers, such as; the workers and the patients' relatives whom represent a contributing factors in miss practicing.

Additionally lack of supervision in afternoon and night shift may affect the quality of nursing care which arise from deficit in guide and furthermore possibly can lead to negligence from nurses. Moreover the care provider unaware of the diagnosis advances in disease pathogens and the new trends of disease. On the other hand the improvement in the nursing actual practice post program implementation could be attributed to the fact that the change in performance usually needs enough time , follow up , preparation for in-services training program to improve the practice and motivation for nurses to participate in the training program. Besides

that the clinical teaching has the responsibility of using feedback and enhancement of both the nurse and the teacher role by repetition of behavior to improve the quality of care given.

### **1) Correlation between the nurses' knowledge score and their practice score:-**

The study signified that there was a positive non-significant correlation between knowledge score and practice score among nurses who are working with patients suffering from upper gastrointestinal bleeding, which mean that the improvement in knowledge score was accompanied with upgrading in practice score.

As well (*Gomah, 2013; Refai, 2006; Youniss, 2002*) they stated that there was a positive significant correlation between studied nurses' knowledge and practice pre, immediate and 3 months post program implementation. This finding is supported by (*Peter et al., 2013*) who stated that acute care hospitals face daily challenges to their efforts to achieve nurse workforce stability, safety and quality of care. A body of knowledge shows a favorably rated nurse practice environment as an important condition for better nurse and patient outcome variables. What's more (*Spenceley et al., 2008*) stated that scope and context of nursing practice have influenced knowledge development in the area of information-seeking to support practice.

### **2) Demographic characteristics of the studied patients:-**

The study exposed that; the majority of the patients in both groups were in between [40-50] years old, males, had work in the preprogram implementation group, whilst they hadn't work in the post program implementation group. Chronic

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liver disease affects people in their most productive years. Since cirrhosis is asymptomatic condition in which the liver slowly deteriorates and malfunctions, several decades passed before the complications become visible, so this facts can explained the age distribution among the studied subjects. The disease affects men slightly more often than women. It may be due to prevalence of known risk factors "HCV along with Schistosomal parasite infection is the major risk factor for chronic liver disease in most Egyptian patients" in rural life "areas with the highest prevalence" men more often exposed than women to this factor as to the natural of their work. Fine number of the studied subjects hadn't work; this may be due to the burden of the disease.

This finding is supported by (*Hosny, 2010; Farag, 2006*) who stated that the most frequency of the patients' age were [50-60] years, males, married, illiterate and not work. Plus (*Bajaj et al., 2010; Ibrahim, 2005; Habib et al., 2000*) their studies revealed that males are more affected than females. Nevertheless this finding in contrast with (*Mehdi et al., 2007*) who found that females are more affected than males.

### 3) Patients' illness related data and clinical data:-

The study represented that concerning **the medical history** there were significant differences between all patients in both groups. The greater part of patients in both groups had liver cirrhosis & esophageal varices. Each and every one of patients experienced hematemesis. Moreover some patients in both groups suffered from melena, hematochezia, previous bleeding attacks, DM, HTN and drugs misuse or abuse.

This finding is supported by (*El Wakil et al., 2011*) who studied causes and outcome of upper gastrointestinal bleeding in Emergency Endoscopy Unit of Ain Shams University Hospital, who stated that variceal causes of bleeding were the most common representing 70.1% ,followed by non-variceal causes (26.1%) and obscure causes (3.8%). More to the point (*Mumtaz et al., 2011*) stated that esophageal varices is the commonest cause of upper gastrointestinal hemorrhage when non-esophageal variceal bleed is the second leading cause of upper gastrointestinal hemorrhage .What's more (*Hosny, 2010*) who stated that the majority of the studied subjects were suffered from liver cirrhosis, esophageal varices, the majority of the patients hadn't {DM or HTN} and drugs misuse or abuse.

Other than this finding is in contrast with (*Endonurse, 2006*) who stated that the American Society for Gastrointestinal Endoscopy (ASGE) affirmed that UGIB result from: peptic ulcer disease (35 percent to 50 percent) and varices (5 percent to 10 percent). This finding is supported by (*John, 2013*) who stated that patients with acute upper gastrointestinal bleeding commonly present with hematemesis, melena and/or hematochezia which usually occur with massive UGIB. Besides (*Farag, 2006*) stated that the majority of the patients hadn't the previous diseases "DM, HTN".

### 4) Patients' complications related to upper gastrointestinal bleeding:-

In relation to **complications related to the upper gastrointestinal bleeding** there was precisely decline in all complications' prevalence among each and every one in post program implementation group especially homodynamic instability,

followed by incidence of infection. This may be explained as a reflection to the previously mentioned results, as noticed hemodynamic status in the assessment and intervention phase had the best score rather than the other practices. Moreover the incidence of infection which may be a result of following the aseptic techniques in different stages of care, beginning with the assessment phase as "physical examination and diagnostic studies" ending with "applying aseptic techniques in all invasive procedures, care of the devices and endoscopic procedures". Which confirm the improvement in nurses' knowledge and practice score. Furthermore there were significant differences between all patients in both groups related to the presence of the majority complications.

This analysis is in agreement with (John *et al.*, 2013) confirmed that all of the previous complications arise from upper gastrointestinal bleeding. In addition (Hosny, 2010) referred to the presence of the following complication {ascites, hepatomegaly, splenomegaly, anemia and chest infection} among the studied subjects. What's more (Smith *et al.*, 2004) mentioned that the nurse plays a critical role in the blood transfusion. She is responsible for administration in a manner that will ensure safety and efficacy. The nurse must understand the correct technique for administration and be aware of complications before administering any blood product. (Arora *et al.*, 2002) stated that rebleeding is more likely to occur if the patient has hematemesis, liver disease, coagulopathy, hypotension and, oranemia. (Martínez *et al.*, 2001) stated that iron-deficiency anemia is common in the elderly and chronic upper gastrointestinal bleeding is its most frequent cause.

This finding is supported by (Gomah, 2013) referred to the presence of

significant differences between all patients in both groups. Besides (Aiken *et al.*, 2012) stated that better hospital nurse staffing, more educated nurses and improved nurse work environments have been shown to be associated with lower hospital mortality. Too (Linda *et al.*, 2012) stated that in all countries nurse staffing and the quality of the hospital work environment were significantly associated with patient satisfaction, quality and safety of care and nurse workforce outcomes. More specifically hospitals with good work environments and nurse staffing had improved outcomes for patients and nurses alike. Deficits in hospital care quality were common in all countries. Improvement of hospital work environments might be a relatively low cost strategy to improve safety and quality in hospital care and to increase patient satisfaction.

#### **5) Correlation between the nurses' knowledge, practice score and the incidence of patients' complications:-**

The study represented that there was a negative correlation between knowledge score & practice score and all complications. This implies that the enhancement in the knowledge & practice score was associated with decline in the entire complications' prevalence. The correlation wasn't statistically significant in all parameters except; knowledge score & [fluid disturbance and anemia] and practice score & [hemodynamic instability, blood transfusion reaction, infection and cardiac arrest].

This finding is sustained by (Gomah, 2013) who stated that there was a negative high significant correlation coefficient between studied nurses practice regarding the incidence of urinary tract infections on three times of catheterization first day after catheter insertion, fourth day and before

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catheter removal. As well(*Mc Gahan et al., 2012*) stated that nurse staffing levels among many other factors in the hospital setting contribute to adverse patient outcomes. Concerns about patient safety and quality of care have resulted in numerous studies being conducted to examine the relationship between nurse staffing levels and the incidence of adverse patient events in both general wards and intensive care units. Most studies demonstrated a trend between increased nurse staffing levels and decreased adverse patient outcomes in the intensive care unit. Additionally (*Penoyer, 2010*) stated that studies over the past several decades have shown an association between nurse staffing and patient outcomes. Most of those studies were generated from general acute care units. Critically ill patients demand increased nurse staffing resources and nurses who have specialized knowledge and skills. Appropriate nurse staffing in critical care units may improve the quality of care of critically ill patients. Likewise (*Vanet al., 2009*) stated that nurse staffing is one of several variables influencing patient safety. Correspondingly (*Coster and Norman, 2009*) stated that the burden of chronic disease on healthcare services worldwide is growing and the increased development of educational interventions, which have definite benefits for patients.

The incidence of complications is a common process due to prevalence and severity of the disease. Increase the burden of chronic disease, markedly deficient in physical & human resources in the hospital, reflect on health care team performance and affect the care that introduced to the patients. Raise nurses' suffering from stress and health problems owing to the characteristics of their work and their contact with patients and death,

since emotions also can affect on work outcomes. Together with the beforehand mentioned reasons, insufficient facilities required for in-services training programs. Alongside the precisely turn down in all complications' prevalence can be inferred to effectiveness of the educational program and its positive effect on the patients. Additionally the findings of this study showed the importance of nurse staffing and its relationship to the patient outcome of hospital mortality. The significant correlation between the variables perhaps due to the possibility that the nurse staffing had a main role in their incidence, nevertheless non-significant correlation between the variables may be caused by other contributing factors because the nurse staffing is one of several variables influencing patient outcome. Moreover the researcher can assume that during any interacting process there are many factors and it is too difficult to put all the factors under control, or neglect the effect of some of them. As a final point, the present study showed that there were significant improvements in the studied nurses' knowledge and practice after program implementation. This study pin pointed that the nursing care process in anywhere depends on human, facilities and information, if there is a lack in any steps in nursing care process the nursing care that introduce to the patients will not complete. Additionally there was accurately turn down in all complications' prevalence among each and every one in post program implementation group. Furthermore, there were significant differences between all patients in both groups related to the presence of most complications. Subsequently the findings of this study revealed that application of designed nurses' educational program was effective on minimizing incidence of

complications for patients with upper gastrointestinal bleeding.

### **Conclusion**

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The study concluded that the program had a positive effect on the nurses' knowledge & practice, what's more the patients .Which observed as the nurses' post program mean knowledge & practice scores was higher than pre-program mean scores especially immediately post program implementation, additionally there was precisely decline in all complications' prevalence among each and every one in post program implementation group .

### **Recommendations**

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- Prevention and early detection of liver cirrhosis and their sequels should be considered to help lessen the burden of the disease, prevent complications and improve quality of life.
- A continuous in-service education program for all nurses working in Gastroenterology Unit based on the standards nursing performance needed for caring with patients suffering from upper gastrointestinal bleeding.
- Initiation of studies to identify and develop different nursing strategies suitable for available resources in the Egyptian hospitals, which improve the provided care and circumstances for patients with chronic illness like upper gastrointestinal bleeding.

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