

The Effect of Nurse led Intervention on Knowledge and Anxiety of Hepatic Patients Undergoing Gastrointestinal Endoscopy



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1.ABSTRACT

Background: Today, gastrointestinal endoscopy is the most commonly used procedure in medicine. for the most accurate diagnosis and treatment of patients suffering from gastrointestinal disorders Thus, anxiety as a negative influence or side effect of endoscopy reduces patients' acceptance ability. **Aim:** To determine the effect of nurse led intervention on knowledge and anxiety among hepatic patients undergoing gastrointestinal endoscopy. **Design:** A quasi-experimental, pre and posttest design with a control group was used. **Setting:** The study was conducted at ElMahalla Hepatology Educational Hospital, Egypt. **Methods:** two tools were used, structured interview questionnaire to assess knowledge and demographic data of patients and Beck Anxiety Inventory scale to assess patients anxiety. **Results:** This study clarified that the effect of the nurse led intervention was positive and clear. It also shows that there was good improvement with high significant differences in knowledge and anxiety in study group compared to their control post intervention ($P < 0.001$). **Conclusion:** The findings of the study showed that the anxiety state was found to be more common among the patients subjected to endoscopy procedure. Providing educational program was an effective method to increase awareness and decrease the anxiety of the patients subjected to gastroscopy. **Recommendations:** Replication of the current study on a larger probability sample from different geographical areas, to achieve generalizable results.

Keywords: Anxiety, Gastrointestinal endoscopy, Hepatic patients, Knowledge, Nurse led intervention

2.Introduction:

Chronic liver disease (CLD) remains a major issue, with disease progression leading to liver cirrhosis (LC) or hepatocellular carcinoma (HCC) (HCC). Management of portal hypertension (PH) and loco-regional therapy for HCC have become cornerstones in advanced liver disease management. Endoscopic ultrasound may be useful in evaluating vascular changes in the digestive wall, performing dynamic assessments of hemodynamic changes, predicting variceal bleeding and rebleeding risk, and assessing the pharmacological effects in liver diseases (Baran Kale, Patil et al, 2021).

Endoscopy methods include both diagnostic and therapeutic procedures. Because endoscopic techniques have a small but definite incidence of complications, they should not be performed routinely but only when indicated. Endoscopy of the upper and lower gastrointestinal tract is a common endoscopic procedure used in the diagnosis and treatment of liver cirrhosis. Other methods are less common. Endoscopy procedures

become more important in cases of chronic progressive liver disease, regardless of aetiology, where changes in the gastrointestinal tract are observed in 87% of patients (Simon, Orowska, & Pazgan-Simon, 2017).

Endoscopy causes stress and anxiety in a large number of people, and some efforts to alleviate their fear and worry are critical. Endoscopy becomes less stressful for patients and physicians once these feelings are removed. This has compelled researchers to develop a number of preliminary interventions to assist patients who are compatible with stressful and invasive techniques before employing experimental techniques (Shekari, & Salehi, 2016).

various techniques are used to reduce anxiety in elderly patients prior to surgery, such as mental counseling sessions, learning videos, patients communicating with individuals who have previously undergone surgery, playing music prior to operations, and making elderly patients familiar with staff and

the operation room equipment (Elbashier & Ali, 2019).

Pain relief and anxiety reduction are among the most fundamental human rights, and they should be available to all patients. Because anxiety causes discomfort, it is critical to prevent it during the examination. Anxiety can lengthen the procedure and cause more side effects in patients. Providing information to the patient reduces anxiety, improves awareness, increases cooperation during the endoscopy procedure, and improves discharge compliance (Bhosale, Bhosale, Zagade, & Kakade, 2019; Tony, Julian, & Parveen, 2015).

2.1 Significance of the study

Every year, approximately 2 million people die from liver disease, 1 million from cirrhosis complications and 1 million from viral hepatitis and hepatocellular carcinoma. Cirrhosis is currently the 11th leading cause of death worldwide, with liver cancer ranking 16th (Sumeet, Harshad, John, Patrick & Kamath, 2019).

Egypt has one of the highest global burdens of hepatitis C virus (HCV) infection, with an estimated 10%, or over 6 million people, infected chronically. Tragically, an estimated 150,000 new people are infected each year, and thousands die. (Ministry of Health and Population, 2018).

Over the last decade, the role of advanced endoscopy in hepatology has evolved rapidly. Several novel diagnostic and therapeutic interventions can now be performed endoscopically in patients with liver disease in a simple and safe manner (Mahfouz, Amin & Carrion, 2021).

The educational intervention must include relevant information, skill training, and psychological support. Pre-operative education should include information about the type of endoscopic procedure and lifestyle changes that patients will face during the perioperative period. Preparing a patient for any surgical procedure includes pre-operative education, which is a critical and common feature that always results in positive

outcomes for the patient (Elbashier & Ali, 2019).

2.2 Aim of the Study:

Determine the effect of nurse led intervention on knowledge and anxiety among hepatic patients undergoing gastrointestinal endoscopy.

2.3 Research Hypothesis:

H1: Patients who actively participate in educational nursing intervention will improve knowledge level (study group) than those who do not (control group).

H2: Patients who actively participate in educational nursing intervention will exhibit less anxiety level (study group) than those who do not (control group).

3. Method

3.1 Research Design:

A quasi experimental research pre & posttest design with control group was used to achieve the aim of the study.

3.2 Setting

The current study was conducted in endoscopic unit at ElMahalla Hepatology Educational Hospital, Egypt.

3.3 Sample

Purposive sample of 108 adult male & female hepatic patients assigned randomly into control and study group, each group contain 54 patients.

Sample size calculation formula:

S = $X^2NP(1-P)/d^2(N-1) + X^2p(1-p)$ where:

S : required sample size

X²: the table value of chi-square for 1 degree freedom at desired confidence level =3.8416

N: population size

d: degree of accuracy expressed as a proportion .05

p: the population proportion (assumed to be .5 since this would provide maximum sample size)

Substituting with N =150 we get S=108patient divided into control and study group with 1:1 ratio 54patient for each group

3.4 Tools:

Tool 1: Structured Interviewing Questionnaire:

This tool was established by the researcher after extensive literature review and it consists of two parts:

part I : Demographic and health relevant data sheet: to document patients' demographic such as name, age, sex, level of education, job, marital status, residence and income .etc.

Part II: Knowledge Assessment Questionnaire: Designed by the researcher & after extensive literature review (Boonviriyaya, Ratanalert, Saengnil, Naowarat & Ovarlarnporn,

2016; Hossen & Mohammed, 2014) to assess patients knowledge about endoscopy.

Scoring system:

Each correct question take score one and zero indicates incorrect answer so that the higher the score the higher the knowledge level, where 14-23 indicates satisfactory knowledge ($\geq 60\%$) and 0-13 indicates Unsatisfactory knowledge ($< 60\%$).

Tool II: Beck Anxiety Inventory scale:

This scale was developed by Beck, Epstein, Brown and Steer (1988). The Arabic version of beck anxiety inventory scale was administered to the subjects to measure their anxiety level.

Scoring system: It consists of 21 items; each item is rated on a 4-point likert scale ranging from (0-3). Zero indicates (not at all), 1 indicates (mildly but it didn't bother me much), 2 indicates (moderately-it wasn't pleasant at times) and 3 indicates (severely-it bothered me a lot). The total score is calculated by finding the sum of the 21 items. Where Low level of anxiety (0 – 21), Moderate level of anxiety (22 – 35) and Severe level of anxiety (36 -63).

3.5 Content validity:

Validity of tools was established by 5 expertise of medical surgical nursing & 3 professors in endoscopy to ascertain relevance and completeness. Required modifications will be made according to the experts' suggestions.

3.6 Reliability:

Reliability of knowledge assessment questionnaire (tool I part II) was performed using test-retest and proved to be reliable at $r = 0.70$. Also reliability of Beck anxiety inventory scale (tool II) proved to be reliable at $r = 0.82$.

3.7 Pilot Study:

A pilot study was conducted on ten subjects diagnosed with liver disease who met the inclusion criteria in order to assess the clarity, feasibility and applicability of the tool. Minor modifications were made to the tool to assess with the subjects' comprehension. These ten subjects were excluded from the main study subjects.

3.8 Intervention:

Development of educational material:

The researcher designed booklet objectives and content according to patients learning needs. It was covered the major ideas of each learning session as well as illustrate colorful graphics.

Description of data collection:

Data collection started from January 2021 through March 2021. The researcher came to endoscopic unit every day from 8 am to 2 pm, 5 days / week.

The researcher determined that face-to-face interviews with the subjects would be the best approach for collecting accurate and complete data. The interview took place in the waiting rooms at the outpatient's units at 8 am. The researcher was careful to provide a private space in the waiting areas where the subjects could be comfortable and have privacy during the interview.

Both Subjects (control & study) were interviewed two times, the first assessment was performed to collect their demographic characteristics and medical history also evaluated their knowledge using structured interviewing questionnaire and measure their anxiety level using Beck anxiety inventory scale this was collected before undergoing endoscopy.

The second assessment was performed to measure their knowledge and anxiety after implementing educational intervention.

After the first assessment the researcher proceed with intervention supported by data show presentation and simulated booklet contains diagrams and pictures which was designed by researcher in simple Arabic Language and given to the patients as a guideline This session lasted 20 minutes and had a maximum of 6 patients and 6 accompanying people if they were present.

These educational sessions include education about liver functions; diseases effect the liver, symptoms, complications and possible diagnosis, treatment and its prevention. In addition to types of GIT endoscopy, indication, nursing care given before during and after endoscopy, and complications also nutritional education and follow up after endoscopy in addition to teaching them deep breathing and positive mental reinforcement for the patient in the respect of supporting them for controlling their anxiety post endoscopy.

After endoscopy patients were interviewed for the second assessment to evaluate their knowledge and assess their anxiety using the same tool as before. The time of second evaluation differ according to type of endoscopy, reason for performing it and its result, the control group exposed only to routine hospital preparation. At the end of data collection the researcher was provided the control group with educational materials.

3.9 Ethical consideration& Human rights:

An ethical approval was obtained from Research Ethics Committee of the Faculty of Nursing , Mansoura University to carry out the study. Participants were informed that participation in the study is voluntary and they have the right to withdraw from the study at any time without any rational. As well, the results of this study will not have any effect on their job, informed oral consent was obtained from participants after explaining the aim and benefits of the study. Anonymity and

confidentiality of data was assured and was used only for research process.

3.10 Statistical design:

The collected data were organized, tabulated and statistically analyzed using SPSS software (Statistical Package for the Social Sciences, version 26, SPSS Inc. Chicago, IL, USA).

4. Results:

Table (1): this table showed that (70.4%) of study group and(81.5%)of control group aged between 40 - 60 years. According to sex (57.4%)of both groups were males. Regarding to marital status(87.0%) of both groups were married. In relation to residence (66.7%)of study group and (64.8%) of control group lived in rural area.

Concerning the level of patients' education, it was found that (33.3%) of study group and (25.9%) in control group were primary educated. Regarding to occupation (48.1%)of the study group &(53.7%) of control group were worked additionally, their income showed that (92.6%)of study group have income> 2000 EP and (81.5%) of control group have income> 2000 EP.

Table (2): This table illustrated that there was a statistically significance improvement in knowledge level in study group compared to their control $p=0.000^{**}$. Where both of them have unsatisfactory level of knowledge pre education100.0%. This level was improved within study group where 94.4% have satisfactory level while in control group only 7.4% have satisfactory level post program implementationas seen in(figure1).

Figure (3) this table shows that most of both study groups have moderate level of anxiety (55.3%, 88.9%) respectively pre educational intervention. This proportion was improved with a highly statistically significance change in study group where 98.1% of patients have low anxiety level however only 16.7% of control group have low anxiety .

Table (4) this table shows that there was a highly statistically significance= 0.000^{**} negative correlation between knowledge and anxiety.

Table (1) Demographic characteristics of the studied patients (N=108)

Characteristics	Study group (N=54)		Control group (N=54)		$\chi^2 /$ p-value
	N	%	N	%	
Age					1.82/0.18
▪ 20-<40 years	16	29.6	10	18.5	
▪ 40-60 years	38	70.4	44	81.5	
Sex					0.000/1.00**
▪ Male	31	57.4	31	57.4	
▪ Female	23	42.6	23	42.6	
Marital status					0.31/0.85
▪ Single	3	5.6	2	3.7	
▪ Married	47	87.0	47	87.0	
▪ Widowed	4	7.4	5	9.3	
Residence					0.04/0.84*
▪ Rural	36	66.7	35	64.8	
▪ Urban	18	33.3	19	35.2	
Education					3.19/0.36
▪ Illiterate	16	29.6	25	46.3	
▪ Primary	18	33.3	14	25.9	
▪ Secondary	16	29.6	12	22.2	
▪ University	4	7.4	3	5.6	
Occupation					0.33/0.56
▪ Worked	26	48.1	29	53.7	
▪ Not worked	28	51.9	25	46.3	
Income					2.95/0.08
▪ > 2000 EP	50	92.6	44	81.5	
▪ <2000 EP	4	7.4	10	18.5	

Data are stated as frequency (percentage). P value by Chi-Square Test/ * statistically significant (p≤0.05)/ ** highly statistically significant (p≤0.01)

Table (2) Knowledge levels pre/post educational program among studied patients(N=108)

Knowledge levels related to endoscopy		Study group (N=54)				Control group (N=54)				$\chi^2 /$ p
		Pre		Post		Pre		Post		
		N	%	N	%	N	%	N	%	
Unsatisfactory (<60%)	0-13	54	100.0	3	5.6	54	100.0	50	92.6	81.84/0.000**
Satisfactory (≥ 60%)	14-23	0	0.0	51	94.4	0	0.0	4	7.4	

Chi-square Test / ** statistically significant (p≤ 0.01), Unsatisfactory knowledge level score (0-13) <60% , Satisfactory knowledge level score (14-23) ≥ 60 %.

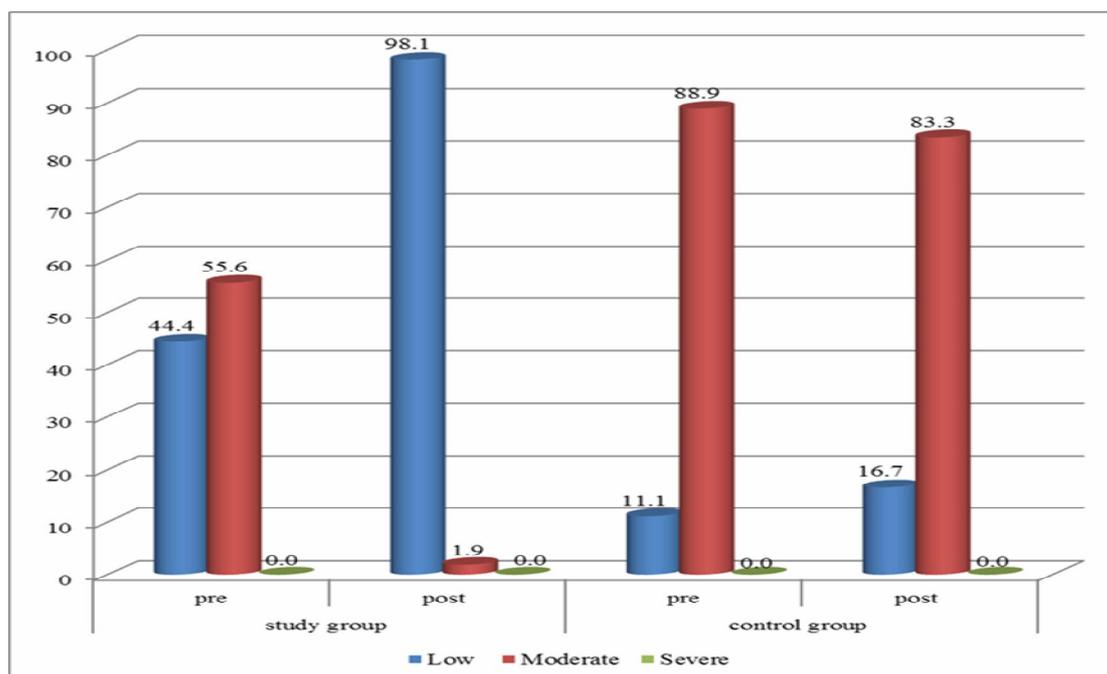


Figure (1) Anxiety levels before and after educational nursing intervention among study groups.

Table (4) Relationship between knowledge, anxiety and pain related endoscopy among the studied patients post educational nursing intervention(N=108)

	Knowledge		Anxiety	
	R	P	R	P
Anxiety	-0.71	0.000**	1	

** Highly statistically significant ($p \leq 0.01$)

5. Discussion:

As regard to age, in the present study, mostly of the studied sample were aged from 40 -60 years. This finding can be explained the progressive effect of liver disease if not diagnosed and treated in early stages .

This finding is consistent with Alam and Elashri's (2020) discovery that nearly half of the subjects studied are classified as middle-aged. Anwar, Basal, Selim, and Al-Metyazidy (2018) also discovered that more than half of the sample was between the ages of 51 and 60. the explanation that certain age groups are more vulnerable to influencing factors such as excessive tea, cola, and coffee consumption and medication abuse such as excessive use of analgesics.

As for sex, approximately more than half of them were males, this was in line with Alam and Elashri (2020) discovered that two-thirds of the subjects studied were males. This

finding can be accepted that males are exposed to gastric disorder risk factors such as smoking, eating fast spicy foods, and leading a stressful lifestyle, which exacerbates their problem in general. This finding is consistent with other studies that show that patients undergoing upper gastrointestinal endoscopy are mostly men (Anwar et al, 2018; Elhy & Elalem 2017). While Ghonaem and Ibrahim (2019) disagree with the current study's findings, the majority of their sample is female.

In relation to marital status, approximately most of subjects were married. This result was in line with Anwar et al, (2018) who found that more than three quarters of studied patients were married, while less than tenth were divorced. This may be due to the disease may be transmitted to the other couple during sexual intercourse because the viruses found in body fluid like hepatitis B viruses and lack of knowledge about immunization and use protective barrier increase the spread of

disease.

As for residence, approximately two third of sample came from rural region, this result was in line with Anwar et al, (2018) who found that approximately two third of studied patients lived in rural areas, while one third lived in urban areas. This may be due to increased awareness in the people who lived in urban than those who lived in rural one.

Regarding level of education, nearly one third of participant were primary educated as living in rural area don't cares about education like those in urban one. This was supported by Alam and Elashri (2020) discovered that illiteracy was common among one-third of the subjects studied. This finding can be explained by a lower educational level having a negative impact on health, as illiterate elderly patients do not seek medical care except in emergencies, and they ignore any symptoms such as pain. This study agreed with (Anwar et al, 2018; Elhy & Elalem 2017, Ghonaem & Ibrahim 2019) who found that the majority of their subjects undergoing upper gastrointestinal endoscopy were uneducated.

Regarding to occupation, approximately half of the studied sample were worked and nearly all of them have income more than two thousand pound, this may be due to there was urgent need to work for meeting their living requirements because of high cost living. On the opposite side Alam and Elashri (2020) found that around two third of their studied sample had insufficient monthly income and had no current work.

Improvement in patients knowledge :

This study illustrated that there was a statistically significance improvement in knowledge level in both studied sample where both of them have unsatisfactory level of knowledge pre intervention. This level was improved within study group where nearly almost of them have satisfactory level while in control group nearly tenth of them have satisfactory level. This result indicate the importance of education in increasing awareness of patients.

This study was in line with study done by Elhy and Elalem (2017) presented that most

of studied sample had poor knowledge related endoscopy pre knowledge preparation, while more than half of study group had a good knowledge compared to control group post intervention.

Another finding a study done by Anwar et al, (2018) discovered that less than half of the studied patients had unsatisfied knowledge scores about GI endoscopy, while less than one-third had good knowledge scores. These findings suggested that providing oral information to patients is effective and important in increasing knowledge about GI endoscopy and helping them to feel secure.

Level of anxiety pre& post nursing intervention:

The present study found that, half of the study and two third of control group have moderate level of anxiety pre educational intervention. This finding can be attributed to many patients said that the disease is a test from God and everyone must accept the decree of Allah and thanks for god this wasn't happen to their children. This proportion was improved post intervention with a highly statistically significance change in study group where mostly of patients have low anxiety level however only quarter of control group have low anxiety.

This study was in line with Alam and Elashri (2020) they showed that all studied subject have severe anxiety before nursing intervention which changed to normal after the intervention this changes might be due to they were used Depression, Anxiety and Stress scales (DASS-21) for measuring anxiety level.

This finding could be related to procedure fear, lack of knowledge about procedure steps, potential complications, and negative reports about the procedure. Furthermore, the intervention's effect on anxiety level reduction after intervention was valuable.

Another finding was stated by Mohammed (2016) discovered that anxiety is more common among patients undergoing endoscopy. Ghonaem and Ibrahim (2019) reported that the majority of their subjects had severe anxiety and distress prior to

intervention and changed to mild anxiety and distress after intervention.

In addition, Elhy and Elalem (2017) discovered that the majority of the studied sample had severe levels of anxiety prior to endoscopy, while the majority of participants in the study group had mild levels of anxiety following early preparation for endoscopy.

The researcher thinks that the level of anxiety changed from one study to another because of various reasons like sample size, scale used and the time for measuring anxiety.

Correlation between knowledge and anxiety post educational nursing intervention:

The present study illustrated that there was a highly statistically significance negative correlation between knowledge and anxiety. This study agreed with Elhy and Elalem (2017), who discovered a highly statistically significant negative relationship between total knowledge and total anxiety after preparation.

This may be recognized that adequate information and increase alertness among patients pre procedure associated with reduce the anxiety level with procedure.

6. Conclusion:

The findings of the study concluded that the anxiety state is found to be more common among the patients exposed to endoscopy procedure. Providing educational program was an effective method to decrease the anxiety and increase awareness of the patients exposed to gastroscopy.

7. Recommendations:

To achieve generalizable results, the current study should be replicated on a larger probability sample drawn from which geographical areas. Endoscopy patients should also be given an Arabic guide prior to the procedure.

8. Conflict of interest

The authors have no conflict of interest to state.

9. Financial support and sponsorship

Nil

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