

Nurses' performance Regarding Abdominal Paracentesis Procedure for Critical ill Patients

¹ Zeinab Shaaban Abd Altawab Zaki,²Howyda Ahmed Mohamed,³Amira Hedaya Morad

¹ Clinical Instructor, El Matmedia Nursing Institution

² Assistant Professor of Medical Surgical Nursing, Faculty of Nursing, Ain Shams University.

³ Lecturer of Medical Surgical Nursing, Faculty of Nursing, Ain Shams University.

Abstract

Background: Abdominal paracentesis is one of the most important treatment methods of cirrhotic ascites. It is very safe, but serious complications may be present if it is performed in an improper technique such as abdominal wall hematoma, hemoperitoneum, bowel perforation and infection. **Aim:** to assess nurses' performance regarding abdominal paracentesis procedure for critical ill patients. **Design:** A descriptive exploratory research design. **Setting:** this study was conducted at medical intensive care unit at the Eldemerdash hospital Affiliated to Ain Shams University. **Subjects:** All available nurses (51 nurses) working at the previously mentioned setting. **Data collection:** Tool Self administrated questionnaire it included: Part I: was concerned with demographic characteristics. Part II: was concerned with assessment nurses' level of knowledge regarding abdominal paracentesis procedure. Tool (II): An observational checklist. Tool (III): Nurses' attitude Likert scale. **Results:** 86.3 % of the studied nurses had unsatisfactory level of total knowledge about the Abdominal Paracentesis Procedure, 74.5% of the studied nurses had unsatisfactory Practices. Additionally 76.5% of the studied nurses had negative attitude regarding paracentesis procedure for critical ill patients. **Conclusion** Most of the studied nurses had unsatisfactory level of total knowledge, three quarters of them had unsatisfactory level of total practice., less than one quarter of them has a positive attitude regarding paracentesis procedure for critical ill patients. **Recommendation:** Continuous nursing education and in service training programs should be well organized and equipped with the necessary educational facilities and materials necessary to upgrade the knowledge, practice and attitude of nurses.

Keywords: Nurses' performance Abdominal Paracentesis.

Introduction

Paracentesis is a procedure in which a needle or catheter is inserted into the peritoneal cavity under sterile conditions in order to; drainage fluid from abdominal cavity in ascites condition, relieve pressure on the abdominal and chest organs, and to study chemical, bacteriological and cellular composition of the peritoneal fluid for the diagnosis of disease (Saberifiroozi, 2017).

Performing of paracentesis procedure in cirrhotic patients admitted to the hospital is mainly to assess spontaneous bacterial peritonitis (SBP). SBP is thought to be a leading cause of death in patients with chronic liver disease who have developed ascites. It is advisable to obtain an ascitic fluid sample for fluid analysis and culture before administration of antibiotics. Additionally, patients with ascites and signs and symptoms of infection: the ascitic fluid must be assessed for cell counts and sent for culture and sensitivity testing, since appropriate antibiotic treatment is necessary for treating patients with peritonitis. A clinical

diagnosis of peritonitis or the absence of it should be confirmed with fluid analysis (Nallapeta et al., 2022).

Abdominal paracentesis it is very serious to be used in some cases as uncorrected bleeding surgery, intra-abdominal adhesions, bowel obstruction, On the other hand, paracentesis have many potential complications as hypovolemic shock, bleeding, infection and potential bowel injury. It also may lead to persistent leak from the puncture site, abdominal wall haematoma, post paracentesis hypotension, and hepatorenal syndrome (Elsayed et al., 2018).

Complications of paracentesis: can be divided into systemic, local and intra-peritoneal complications. Systemic complications as severe hypotension and infection, local as abdominal wall hematoma and localized infection at the puncture site, and intra peritoneal as perforation of vessels and viscera, peritonitis (Gaines, K. (2018) .

The successful Paracentesis procedure mainly depends on skillful practitioner, highly strict aseptic technique, good preparation and

carefully monitoring for the patients throughout the procedure, nurses have a major responsibilities toward patients undergoing Paracentesis because in order to minimize of intraperitoneal fluid without intravascular volume depletion, preventing injury, and inhibit infection of peritoneal cavity (Gaines, K. (2018).

The patient should be instructed to monitor the bleeding of the area and return if any abnormal bleeding is noted. The patient should also be educated to call with questions or concerns regarding pain, numbness, or discomfort in the area. prescribe or recommend pain medicines as doctor instruct the patient If stopped taking other medicines before the procedure start them again, take it easy for 24 hours after the procedure, Don't do any physical activity until recommended. A small bandage over the puncture site, stitches, surgical staples, adhesive tapes, adhesive strips, or surgical glue may be used to close the incision. They also help stop bleeding and speed healing. Take the bandage off in 24 hours. Check the puncture site for the signs of infection infection (Cynthia, 2021).

Significance of the study:

The flow rate of ascetic patients was nearly about 250 patients in Qena university hospital (Statistical unit of Qena university hospital, 2017). Investigator viewed from working experience that there was a gap between the actual practice and expected paracentesis care according to the adopted guideline of care for ascetic patients undergoing Paracentesis. Several conducted studies revealed that a high percent of ascetic patients undergoing paracentesis suffering from either local or systemic complication as a result of malpractice (Saberifiroozi, 2017). in our geographical area at Qena hospitals nurses considered that the physician is the only responsible one for performing paracentesis procedure, and there is a lack of awareness that they have a major role in assessing, preparing and monitoring patient from the beginning until finishing, as well as after the procedure. There for this study was conducted to investigate nursing performance regarding abdominal paracentesis in critical ill patients.

Subjects and Methods

Aim of the Study:

This study aimed to assess nurses' performance regarding abdominal paracentesis

procedure for critical ill patients. This aims was achieved through the following:

1- Assessing the nurses' level of knowledge regarding abdominal paracentesis procedure for critical ill patients.

2- Assessing the nurses' level of practice regarding abdominal paracentesis procedure for critical ill patients.

3- Assessing the nurses' attitude regarding abdominal paracentesis procedure for critical ill patients.

Research Questions:

1.What is the nurses' level of knowledge toward abdominal paracentesis procedure for critical ill patients?

2.What is the nurses' level of practice toward abdominal paracentesis procedure for critical ill patients?

3.What is the nurses' attitude toward abdominal paracentesis procedure for critical ill patient?

Subject and Methods

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

I- Technical design.

II- Operational design.

III- Administrative design.

IV- Statistical design.

1- Technical design:

The technical design includes setting, subjects and tools for data collection.

Research design:

Descriptive exploratory design was utilized in this study to fulfill the aim of the study and answer the research questions.

Setting:

This study was conducted at medical intensive care unit at the Eldemerdash hospital Affiliated to Ain Shams University. Which is consists of 2 basic rooms, each room include 17 beds, each bed is equipped with cardiac monitor and ventilator. Every intensive care content of 2 beds separated for isolation

Subjects:

Convenience sample of all available nurses (51 nurse) working at the previously mentioned setting from different age group, gender, qualifications and different years of experience and agreed to participate in this study.

Tools for data collection:

Three tools were used to collect data of the current study and fulfill the study aim as following:

Questionnaire:

It was developed by researcher in simple Arabic language after reviewing the relevant and most recent literatures (**Kahya, 2018**). It was divided into two parts:

➤ **Part I:** was concerned with demographic characteristics of nurses under study such as age, gender, educational level, marital status, years of experiences and Attended previous training courses

➤ **Part II:** was concerned with assessment nurses' level of knowledge: regarding abdominal paracentesis procedure include (definition, indications, contra-indications, complications, role of nurse pre, during, and post abdominal paracentesis procedure

Scoring system:

Each correct answer was taken (1) marks, incorrect answers was taken (zero) mark. The score of each item summed up and then converted into a percent score. The total score of knowledge consisted of (20) points (derived 20 questions). It was categorized as follows:

> 90% **Satisfactory level** of total knowledge score

<90% **Unsatisfactory level** of total knowledge score.

Tool (II): An observational checklist:

It was adapted from recent and relevant literatures (**Kahya, 2018**) and was used to evaluate nurses' level of practices toward abdominal paracentesis procedure for critical ill patients. It included (34 steps) as the following pre procedure (11 steps), during procedure (12 steps) and post procedure (11 steps)

Scoring system:

This part is consist of (34) steps. each step was given (0) for not done and (1) for done correctly It was categorized as follows:

≥ 90% was considered competent

<90% was considered incompetent

Tool (III): Nurses' attitude Likert scale:

This tool was adapted from **Liddell & Kruschke (2018)**. modified by the researcher into simple Arabic language for assessment of nursing attitude regarding abdominal paracentesis

This part consisted of (15) statements to assess nurses' attitude toward abdominal paracentesis procedure for critical ill patients. Score of attitudes ranged from agree (3 mark), uncertain (2 mark) to disagree (1mark). The total score 45 mark, it was categorized as follows:

≥ 90% **Positive attitudes** of total attitudes score;

<90% **Negative attitudes** of total attitudes score

II- Operational design:

The operational design includes preparatory phase, content validity and reliability, Pilot study and field work.

Preparatory phase:

It included reviewing of related literature, and theoretical knowledge of various aspects using books, articles, internet, periodicals and magazines this served to develop the study tools for data collection. During this phase, the researcher also visited the selected places to get acquainted with the personnel and the study settings. Development of the tools was under supervisors' guidance and experts' opinions were considered

Content Validity:

Testing Validity of the proposed tools by using face and content validity.

Face validity aimed at inspect the items to determine whether the tools measure what is supposed to measure. While content Validity was conducted to determine whether the tools covered the aim of the study through a jury of seven experts from Medical Surgical Nursing Department at the Faculty of Nursing, Ain Shams University. The experts review tools for clarity, relevance, comprehensiveness, simplicity and applicability, minor modifications were done.

- Testing Reliability:

It was done by Cronbach,s alpha test to examine whether the tools had internal consistency. The reliability was found (0.68) for Evaluation of nursing knowledge, (0.71) for the Nursing practice observational checklist and (0.71) for attitude tool.

Pilot study:

A pilot study was conducted on 10% of the nurses under study to test the feasibility, applicability of the developed tools, and the clarity of the included questions, to identify obstacles during data collection and to estimate the time needed for filling the forms. There were no needed modification for the final developed tools, so the study nurses who shared in pilot study were included in the study subjects.

Field work:

1. Field work included self administered questionnaire with all available nurses to explain aim of the study and take their oral approval

(their right to withdraw from the study at any time without any consequences that the data obtained were treated confidentially and used for the research purpose only).

2.Data collection took about 4 months started from September (2022), the data were collected through individualized interview with each nurses by the researcher through 3 days/ week during the morning and afternoon shifts.

3.Observational check list tool was filled by the researcher to assess nurses skills. It takes about 30- 40 minutes for every nurse to fulfill at morning and afternoon shift.

III-Administrative design:

An approval of ethical committee of faculty of nursing of Ain Shams University was obtained.

An official permission to conduct the study obtained from the nursing director of Ain Shams hospital. The researcher met the hospital nursing director and explained the purpose and the methods of the data collection.

Ethical considerations:

- Approval of the study protocol was obtained from the ethical committee in the faculty of nursing at Ain Shams University before starting the study.

- The researcher clarified the objective and aim of the study to nurses, included in the study.

- The researcher assured maintaining anonymity and confidentiality of subjects' data.

- Nurses' were informed that they are allowed choosing to participate or withdraw from the study at any time.

IV-Statistical design:

Data entry and data analysis were done using statistical package for the social science (SPSS) version 26. Data were presented as number, percentage means and standard deviation. Chi-square test was used to show relation between variables.

Results:

Table (1) shows that (76.5%) of the studied nurses had age group 20-30 years, (60.8 %) of the studied nurses were males, (56.9 %) of studied nurses were not married, (54.9%) of the studied nurses had technical institute. Regarding years of experience, (51.0%) of the studied nurses had work experience from < 5 years. (82.4%) of the studied nurses attended training course regarding abdominal paracentesis procedure.

Figure (1): Shows that (86.3%) of the studied nurses had unsatisfactory level of knowledge, while (13.7) of the studied nurses had satisfactory level of knowledge

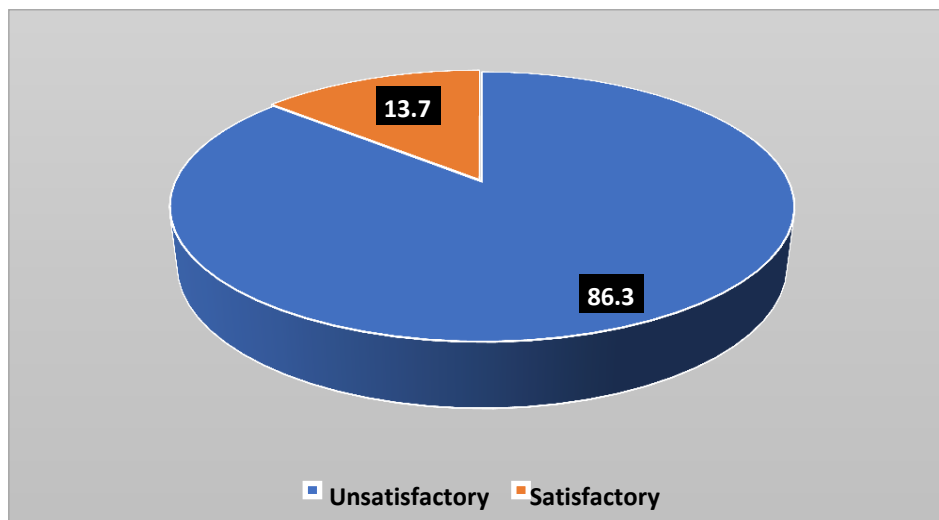
Figure (2): illustrates that (74.5%) of the studied nurses had unsatisfactory level of Practices and only (25.5%) of the studied nurses had satisfactory level of Practices

Figure (3): demonstrate that (76.5%) of the studied nurses had a negative attitude regarding abdominal paracentesis and (23.5%) of the studied nurses had a positive attitude regarding abdominal paracentesis.

Table (2): showed that there was are highly correlation between studied nurses knowledge and total practice and total attitude regarding paracentesis p-value <0.01

Table (1): Frequency and Percentage Distribution of The Studied Nurses regarding to assess Demographic Characteristics (n=51).

Demographic characteristics	No	%
Age		
20<30	39	76.5
30-<40	11	21.5
≥40	1	2.0
Age Mean &SD	26.25±4.61	
Gender		
Male	31	60.8
Female	20	39.2
Marital Status		
Married	22	43.1
Not married	29	56.9
Education		
Diploma	10	19.6
Technical institute	28	54.9
Bachelor	13	25.5
Years of Experience		
< 5	26	51.0
5-<10	10	19.6
≥10	15	29.4
Attended previous training courses on abdominal paracentesis		
Yes	42	82.4
No	9	17.6

**Figure (1):** Total knowledge of studied nurses regarding abdominal paracentesis procedure (n= 51).

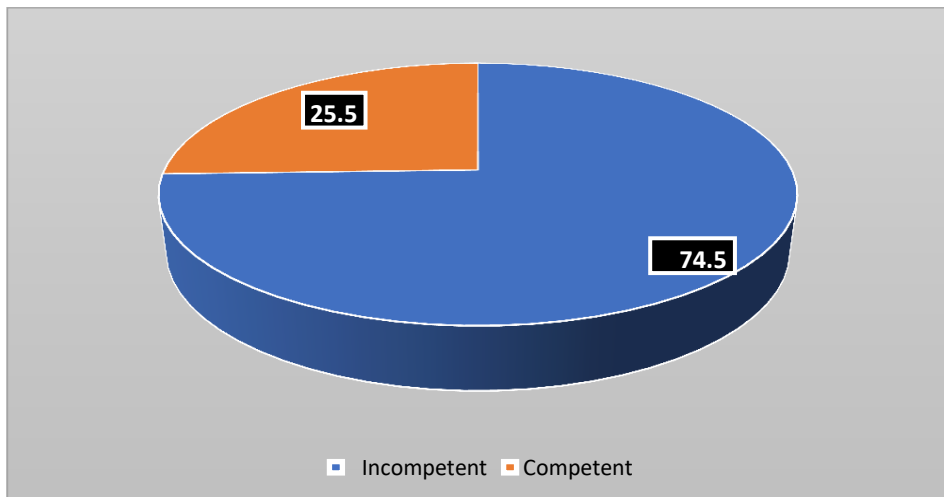


Figure (2): Total Practices score of the studied nurses regarding abdominal Paracentesis procedure (n = 51)

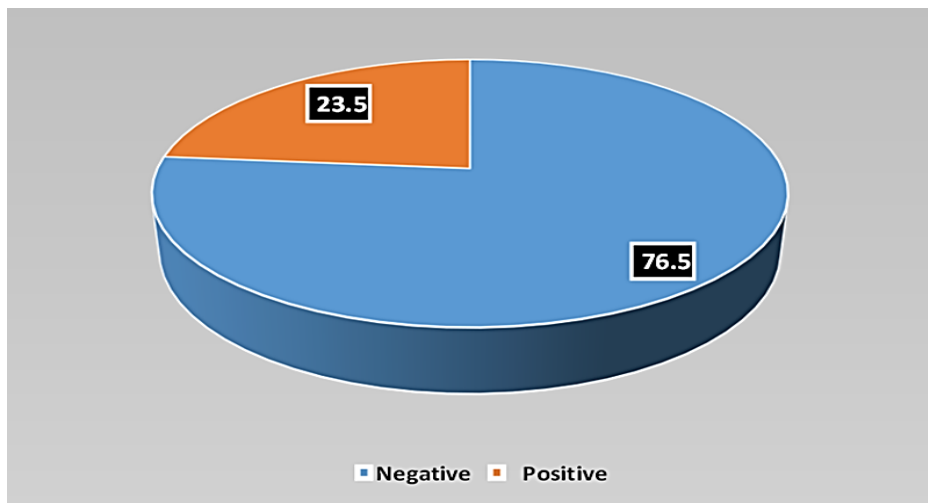


Figure (3): Total attitude of the studied nurses regarding abdominal paracentesis (n= 51).

Table (2): Total Correlation between knowledge, practice and attitude among the studied nurses

	Nurse Knowledge	Nurse Practice	Nurse Attitude
Total knowledge Pearson Correlation Sig. (2-tailed)		.396**	.480**
Total practice Pearson Correlation Sig. (2-tailed)	.396**	.000	.302*
Total attitude Pearson Correlation Sig. (2-tailed)	.480**	.302*	.049

Correlation is significant at the 0.01 level (2-tailed).

Correlation is significant at the 0.05 level (2-tailed).

Discussion

Abdominal paracentesis is one of the most important treatment methods of cirrhotic ascites. It is very safe, but serious complications may be present if it is performed in an improper technique such as abdominal wall hematoma, hemoperitoneum, bowel perforation and infection. Nurses have very important role in managing paracentesis procedure before, during and after it so, they should have adequate knowledge regarding paracentesis preparation, observing fluid drainage and be alert for any possible complications unfortunately, and nursing management of patients undergoing paracentesis has received little attention (**Nallapeta, et al.,2022**). So this study was conducted to assessing the nurses' performance regarding abdominal Paracentesis procedure for Critical Ill Patients

As regard to age of the studied nurses, the current study show that more than three quarters of the nurses under study their age ranged between 20 to < 30 with mean and standard deviation of value age were 26.25 ± 4.61 . This finding agreed with **Yboa et al.,(2016)** who conducted study entitled " Knowledge about standard precautions among university hospital nurses about paracentesis care in the United Arab Emirates" and revealed that studied nurses' age ranged between 24 and 45 years.

Regarding their gender, the current study show that less than two thirds of the nurses under study were males. From the researcher point of view this result may reflect a social background, keeping women away from this job and due to the fact that most of female nurses are appointed to care for maternal and child health care. Also, this may be due to the fact that males cover night duties while a female does not.

This study was agreement with **Ali, (2016)** who conducted study entitled "Effectiveness of planned health education program on nurses' knowledge and practice for preventing infection in gastrointestinal endoscopy units at major hospitals in Yemen" and stated that all the nurses of his study were females..

Regarding their marital status, the current study mentioned that more than half of studied nurses were not married. This result was contrasted with **Elmagraby and Mohammed (2019)** who applied study entitled "Knowledge and practice of nurses about care of ascetic patients undergoing paracentesis procedure in Sues Canal University Hospital" and showed that

highly parentage of the studied nurses were married.

Regarding their educational level, the current study mentioned that more than half of the studied nurses were graduated from technical institute of nursing. From the researcher point of view this result might be due to that the technical institute of nursing provided the community with large number of nurses; due to the great turnout of students to study in nursing technical institutes; to speed up their employment and to improve their income.

This study was supported with **Elmagraby and Mohammed (2019)** who found that highly percentage of the studied nurses had technical institute of nursing.

Regarding their years of experience, the current study mentioned that slightly more than half of them had general years of experience were < 5 years with mean and standard deviation value of age were 4.38 ± 2.52 . This result goes in the same line with **Thomsen et al.,(2016)** who applied study entitled " effect of applying standardized guideline of paracentesis procedure on patients' outcomes" and showed that highly percentage of the studied nurses had the experience less than 5 years of experience

Concerning attendance of training course regarding abdominal paracentesis procedure, the current study result mentioned that of most of the studied nurses under study attended training course regarding abdominal paracentesis procedure. This result was contrasted with **Elmagraby and Mohammed,(2019)** who found that the majority of the studied nurses didn't attend any training courses.

As regard to total knowledge of the studied nurses about the abdominal paracentesis procedure, the current study illustrated that most of the studied nurses had got unsatisfactory level of total knowledge regarding their total knowledge about the abdominal paracentesis procedure. This result goes in the same line with **Fahmy et al., (2020)** who applied study entitled "Effect of educational nursing guideline about paracentesis procedure care on nurses' performance" and presented that highly percentage of the studied nurses had got unsatisfactory level of total knowledge about Abdominal Paracentesis.

While this study was contrasted with **Elsayed et al., (2018)** who conducted a study entitled "Applying nursing safety measure to prevent complications for liver cirrhotic patient

undergoing paracentesis" and mentioned that more than three quarters of the studied nurses had moderate level of total knowledge about Abdominal Paracentesis

As regard to total Practice of the studied nurses about paracentesis procedure for critical ill patients, the current study result illustrated that about three quarters of the studied nurses had got incompetent in total practice regarding paracentesis procedure for critical ill patients.

This study was in agreement with **Yboa et al., (2016)** and **Elsayed, et al., (2018)** who found that the studied nurses had low level of nurses' practice regarding care of patients undergoing paracentesis. Also **Jan et al., (2015)** who conducted study entitled " The Effect of Workshop and Multimedia Training Methods on Nurses' Knowledge and Performance on paracentesis procedure" and found that the improvement in knowledge and practices was partially declined after two months of implementation of teaching protocol.

Concerning nurses' attitude regarding paracentesis procedure for critical ill patients, the current study illustrated that more than three quarters of the studied nurses had negative attitude regarding paracentesis procedure for critical ill patients. This result was in the same line with **Jayaraman et al., (2018)** who applied study entitled "Awareness, Attitude and Self-care Activities Related to Management of Ascites" and revealed that less than one quarter of the studied nurses had favourable attitude.

As regard to nurses' performance about paracentesis procedure for critical ill patients, the current study illustrated that the majority of the studied nurses had incompetent performance regarding paracentesis procedure for critical ill patients. From the researcher point of view this study may be due to that nurses were believing that they had not any role in paracentesis procedure considering it a medical procedure not as a nursing.

This study goes in the same line with **Fahmy et al., (2020)** who showed that highly percentage of the studied nurses had a low performance level before guidelines education,

Regarding to correlation between knowledge and total practice about Paracentesis Procedure for Critical Ill Patients, the current study clarified that there are highly correlation between knowledge and total practice and total attitude regarding paracentesis procedure for critical ill patients p-value <0.01 for both. This result was

accordance with **Fahmy et al., (2020)** who found that there was there were highly statistically significant improvements in nurses' practice in relation to improvement in nurses' knowledge after implementation of educational nursing guideline ($P \leq 0.01$) as compared with before.

Concerning correlation between practice and total Attitude about Paracentesis Procedure for Critical Ill Patients, the current study clarified that there are correlation between total practice and total attitude regarding paracentesis procedure for critical ill patients p-value <0.05. This result was similar with **Jayaraman, et al.,(2018)** who highlight that there was a statistically significant relationship between attitude and activities related to management of ascites.

Conclusion

In the light of the current study findings, it can be concluded that:

Most of the studied nurses had unsatisfactory level of total knowledge regarding abdominal paracentesis procedure, about three quarters of the studied nurses had unsatisfactory level of total practice, Additionally less than one quarter of them has a positive attitude, regarding paracentesis procedure for critical ill patients.

Recommendations

Based on the current study finding the following recommendations were proposed:

Recommendations for Nurses:

- Providing continuous education based on evidence base for improve nurses' knowledge regarding abdominal paracentesis procedures.
- Planning and establish training programs to improve nurses' practice regarding abdominal paracentesis procedures.
- Replication of the study on larger probability sample at different geographical locations for data generalizability.
- Future studies should target diverse populations in order to test whether similar factors are similarly important for nurses' performance regarding abdominal paracentesis procedures.
- Developing a simplified illustrated and comprehensive booklet for improving nurses' performance regarding abdominal paracentesis procedures.

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