



Factors Affecting Nurses Performance Regarding Care of Patients with Liver Transplantation

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Abstract

Background: Liver transplantation is a complex and life-saving procedure for patients with end-stage liver diseases. Nurses play a critical role in the care and management of these patients throughout the transplantation process and postoperative recovery. **The aim** of this study was to evaluate factors affecting nurses' performance regarding care of patients with liver transplantation. **Research design:** Descriptive design. **Setting:** The study was conducted in liver transplant unit in new surgical at Zagazig University Hospital. **Subjects:** Convenient sample of all available nurses that are 50 bedside nurses. **The tool of data collection** : Two tools were used for data collection. Tool (I): Interviewing questionnaire for demographic characteristics, nurses' knowledge, attitude of the studied nurses and factors related to nurses. Tool (II): observational checklist. **Results:** Factors affecting nursing care of liver transplant patients (56%) positive level, (44%) negative level. Also, 62% of the studied nurses' social factors affect their care of patients with liver transplantation with mean± SD 18.42±6.07 and range from 7 to 27, presence of experienced people in the field affect performance at a higher rate (58%), family and people point of view of nurses during night shift affect their performance at the lowest rate (34%). **Conclusion:** Total factors (physiological, psychological, social, professional, patient, work environment and relationships inside the workplace) affecting nurses' performance regarding care of liver transplant patients was more than half positive level. **Recommendations:** Conducting continuous in-service training advanced through programs for nurses working with patient in critical care units for improving their performance provided to the patients post-LT.

Keywords: Factors, Nurses' Performance, Liver Transplantation

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Introduction:

The liver is an accessory organ of the digestive system aiding in the digestion process. It is a peritoneal organ positioned in the right upper quadrant of the abdominal cavity, it is the largest visceral structure, it is

exocrine organ by making bile and endocrine organ by making plasma proteins, clotting factors, binding proteins, hormone production and metabolism, there are four anatomical lobes which are divided into even smaller segments

in accordance with the blood supply of the liver (Wu et al., 2022).

Liver cirrhosis is condition in which the whole liver is replaced by multiple nodules that are separated from each other by anastomosing sheets of fibrous tissue, it is the final stage of various chronic liver diseases, cirrhosis is a diffuse alteration of hepatic architecture due to pathological processes of persistent inflammatory reaction and regeneration of the liver lobules in an irregular manner ,presence of necrosis and fibrosis, changes in tissues and vessels of liver lead to reduction of hepatic mass and function with development of portal hypertension and liver failure (Gines et al., 2021).

In the global burden of disease Study that estimated number of people with compensated cirrhosis was 112 million worldwide, the global prevalence of compensated cirrhosis of 1,395 cases per 100,000 population, Globally 42% had HBV infection and 21% had HCV infection, The proportion of patients with cirrhosis and heavy alcohol use was high in Europe (16–78%) and the Americas (17–52), the prevalence of non- alcoholic fatty liver disease among patients with cirrhosis in this study were more limited, but estimates ranged from 2% in South Korea and Brazil to 18% in Canada (Huang et al., 2023).

Liver transplantation is a complex medical procedure that provides a lifeline to patients with end-stage liver diseases. It demands meticulous care and attention from healthcare professionals, particularly nurses, who play a vital role in ensuring optimal patient outcomes and post-transplantation care. However, the performance of nurses in providing care for patients undergoing liver transplantation can be influenced by various factors, both internal and external to the healthcare setting (Karaly & Elfetoh, 2019).

Understanding the factors that affect nurses' performance in this specialized area is crucial to enhance patient care and overall healthcare quality. Factors such as nursing education, experience, workload, and the availability of resources can significantly impact the delivery of care and contribute to patient satisfaction and recovery rates. Additionally, factors related to organizational support, teamwork, and communication among healthcare professionals can also influence the quality of care provided (Karaly & Elfetoh, 2019).

Intraoperative care is pivotal for successful LT, Patient preparation for surgery and transfer to the operating room are two priority processes defined within the procedures and conditions for providing health care, peripheral venous catheters placed in patient's arm and other tubes as central venous catheter that is placed in neck, placement of arterial line, taking blood samples, assessing volume status and fluid responsiveness by measuring CVP, indwelling catheter inserted in bladder to drain urine, after sedation a tube will be inserted in lungs for breathing by ventilators with continuous monitoring of vital signs and blood oxygen levels (Espindola et al., 2020).

Care of patients intraoperative for prevention of infection is fundamental by cleaning skin over the surgical site with sterile antiseptic solution, preparing surgical set up, maintaining surgical asepsis while draping and handling instruments, checking equipments and materials before closing incision site, the drain will be placed in incision site to reduce swelling and sterile bandage or dressing will be placed, monitor aseptic technique while coordinating the movement of related personnel (Aktas et al., 2019).

Aim of the Study

The aim of this study was to evaluate factors affecting nurses' performance regarding care of patients with liver transplantation.

Research Question:

What are the factors affecting nurses' knowledge, practice, and attitude regarding care of patients with liver transplantation?

Research design: a descriptive design was utilized to conduct the present study. **setting:** The study was conducted in liver transplant unit in new surgical at zagazig university hospital that include liver transplanted intensive care unit, intermediate care unit ,operating and recovery rooms for receiving liver transplant patients, ICU is located on the third floor that is consisted of six rooms.

Subject: Convenient sample of all available nurses that are 50 bedside nurses who are giving direct care for patients in liver transplanted unit, (30) working in previous settings and (10) nurses working in ICU that participate in care of patients, (10) nurses working in liver transplanted operating room

Inclusion criteria: bedside nurses that are giving direct care for patients and have more than one year of experience.

Tools for data collection:

Two tools will be used to collect the required data they are: tool 1:interviewing questionnaire and it consists of four parts

PartI: Demographic characteristics data of the studied nurses, it includes seven close ended questions related to nurses as age, gender, marital status, level of education, years of experience in work, experience in transplanted intensive care unit and previous training programs that are answered in short, fixed response and multiple choice options (7 close ended questions) (Metin & Demirer, 2021).

Part II: Factors affecting nurses performance

1-Factors related to nurse:

A: Physiological factors include six points: exhaustion, acute and chronic diseases,

overweight, hearing and vision impairment and effect of exhaustion on work

B: Psychological factors include six points: working for the first time, concern about risk of infection, fear feeling, painful feeling toward patients, work stress , need to cry and moral appreciation when doing a good job.

C: Socioeconomic factors include fourteen points: Far distance, difficult transportation, lack of income, family and people point of view, work relationships, presence of experienced people, opportunities of training, continuous supervisor guide, estimation of abilities, nursing distribution table is fair, balance between nursing staff and supervising staff, sufficiency of nurses for tasks at work, feeling at ease at work and instructions at work

D: Professional factors include five points: Nursing work performance includes: job satisfaction, clarity of job description, job appreciation from people, feeling of inefficiency and forcing overtime working period.

2- Factors related to patient:

Includes 11 points: Covered age, sex, body mass index, educational level, physical condition, mental health, ability to communicate, keeping privacy, adherence to advice and instructions, appreciation for nursing performance and patient view about nursing field.

3- Factors related to work:

Includes two points: Relationships inside the workplace includes eleven points (cooperation between employees and ability to work as a team ,feelings of inequality during distribution of work, doctor use difficult and comprehensible language, doctor appreciation of the role of nursing ,documentation in patient records, clarity of information, giving instructions via phone or social media, access to doctors, ability of work team to deal with problems, feeling satisfied inside the work team

and take responsibility and factors related to the work environment includes thirteen points(availability of the necessary tools ,presence of infection control instructions, work place temperature, safe work environment, adequate lighting, appropriate size of workplace, cleanliness of place, Proportionality the number of nurses and patients, the availability of the necessary personal protective equipments, workloads, equipment's work well and rewards for working efficiently

This part consisted of four items were factors related to nurse included 31 points, factors related to patient included 11 points and factors related to work environment included 13 points, factors related to relationships inside the workplace 11 points. The responds to these statements were on two scales as follows: affected =1 and not affected = 0.

Scoring system for factor items: Total score for whole factors assessment tool was calculated for every nurse and the mean of total score was calculated. These scores were converted into percent scores.

Pilot study:

A pilot study was carried on 10% of studied nurses (5 nurses) and within the selected criteria to test the applicability of tools, arrangement of items, and to estimate the time needed for each tool, the goal was to check the clarity, applicability, relevance and feasibility of the tools and to identify the difficulties may be faced during the application as misunderstanding of some questions, some nurses are busy and there are nurses in child care leave and distance of their place and more time to answer questions ,It also helped to estimate the time needed to fill in the sheets. Then the researcher excludes nurses with less than one year in experience. After modification of the tools, items were then corrected as needed.

Validity

The tools were revised by a panel of five experts from different specialties including nursing faculty staff, which included one professor of faculty of nursing, 4 assistant professors in medical surgical nursing from faculty of nursing, Zagazig University reviewed the tool's content for clarity, relevance, comprehensiveness, applicability, understanding, and ease for implementation. All recommended modifications were done.

Reliability:

Content reliability was used to examine reliability by using Cronbach alpha test and retest. It was used to examine whether the questionnaire had internal consistency or not. Cronbach's Alpha that used to measure the internal consistency (reliability of used tool) was 0.850.

Field work:

Data were collected within a period of six months from the beginning of 12 February 2023 to 28 march 2023. Data were collected three days per week Sunday, Monday and Wednesday from liver transplanted intensive care and operating room at Zagazig University Hospital in the morning and afternoon shifts starting from 9:00 am to 1:00 pm in the morning and 9:00 pm to 12 am ,the time used for finishing the self- administered questionnaire 30 minutes for each nurse according to nurses' physical and mental readiness and for nurses practice, The time needed to complete the checklist was 1 hour ,It was necessary for the researcher to introduce herself and explain the aim of the study for subjects included in the study and obtaining their oral consent.

Data were collected by the researcher a simplified Arabic language to be suitable for the nurses, they were assured that the information collected would be treated

confidentially and that it would be used only for the purpose of the study

The first phase of the work is the preparatory phase that done by meeting with head nurses in liver transplant unit after obtaining the official permissions to clarify the objective of the study and applied methodology.

The second phase that done by meeting the study subjects, each nurse was met individually, got a full explanation about the aim of the study, and was invited to participate. The nurse who gave his/her verbal informed consent to participate was handed the self-administered questionnaire and was instructed during the filling.

Ethical consideration:

All ethical issues were taken into consideration during all phases of the study. The ethical research consideration in this study included the following: The researcher maintained an anonymity and confidentiality of the subject, The inclusion of the subjects in the study was totally voluntary and they were notified that they can withdraw at any stage of research. The aim of the study was explained to every subject before participation and an oral consent was taken from subjects for permission to participate in research process.

Statistical Design:

All data were collected, tabulated, and statistically analyzed using the IBM SPSS (Statistical Package for the social sciences) statistics for windows, version 23.0 IBM Corp., Armonk, NY: USA. Quantitative data were expressed as the mean \pm SD & (range), and qualitative data were expressed as absolute frequencies (number) & relative frequencies (percentage).

Percent of categorical variables were compared using Chi-square test, Pearson correlation coefficient was calculated to assess relationship between various study variables,

(+) sign indicate direct correlation & (-) sign indicate inverse correlation, also values near to 1 indicate strong correlation & values near 0 indicate weak correlation. All tests were two sided. p- value $<$ 0.05 was considered statistically significant, p and p-value \geq 0.05 was considered statistically insignificant (NS). β (regression coefficients) & R square test for Multiple linear regression

Result

Table1, showed that 34% of studied nurses aged less than 27 years old, Mean age of studied nurses was 29.2 ± 5.7 with range (21-46) years. Gender was distributed as 66% females and 34% males. The most (72 %) of studied nurses were married. Regarding qualification of studied nurses having technical institute, bachelor's degree, nursing diploma only one nurse had postgraduate qualification were (62%, 22%, 14%, 2%) respectively. About general years of experience more than half (60.0%) of them having more than five years' experience. About studied nurses had equal or more than three years of experience in liver transplant department were 54%. Only five nurses attained training course in liver transplantation.

Table 2, clarified that half (50.0%) of the studied nurses physiological factors affect their care of patients with liver transplantation and 50% of studied nurses physiological factors didn't affect their care of patients with liver transplantation with mean \pm SD (6.92 ± 2.69) and range from 1 to 11, 62% of nurses have exhaustion that affect performance followed by 44% of nurses were affected exhaustion during working in liver transplant unit and 44% of nurses answered than chronic diseases will affect their performance, 44% of nurses said that wight gain affect performance with lowest effect

Table 3, illustrated that 36% of the studied nurses Psychological factors affect their care of

patients with liver transplantation and 64% of studied nurses psychological factors didn't affect their care of patients with liver transplantation with mean± SD (6.8±2.65) and range from 2 to 12, moral appreciation when doing a good job affect performance at a higher level(56%)followed by(56%) working for the first time and feeling of failure when doing work at a lowest level (54%)

Table 4 illustrated that 62% of the studied nurses' social factors affect their care of patients with liver transplantation with mean± SD 18.42±6.07 and range from 7 to 27, presence of experienced people in the field affect performance at a higher rate (58%), family and people point of view of nurses during night shift affect their performance at the lowest rate (38%).

Table 5, showed that 50%of the studied nurses professional factors affect their care of patients with liver transplantation with mean± SD (6.1±2.28) and range from 2 to 10, job satisfaction impact performance at a higher rate (58%) and feeling of inefficiency affect performance at a lower rate(34%).

Table 6, illustrated that 60%of the studied nurses said that patient factors affect their care of patients with liver transplantation with mean± SD (14.88 ±4.35) and range from 7 to 22,respecting the patient privacy affect performance at a higher rate(74%) followed by difficulty in communicating with patient (62%)and patient mental health(58%) and gender of patient affect performance at lower rare (36%).

Table 7, illustrated that 96%of the studied nurses said that work environment factors affect their care of patients with liver transplantation with mean± SD (21.7±3.8) and range from 12 to 26, availability of hand antiseptic affect performance at a higher rate (92%) followed by the availability of necessary personal protective equipment's and

sterilization of place (88%) , promotions and rewards for working affect performance at a lower rate(28%)

Table 8, illustrated that 68% of the studied nurses relationships factors affect their care of patients with liver transplantation with mean± SD (15.74±4.66) and range from 0.00 to 22, take responsibility within the work team affect performance of nurses at a higher rate (82%) followed by cooperation between the employees and ability to work as a team (64%), feeling satisfied inside the work team affect performance at a lower rate (22%).

Figure (1): Percent of factors affecting nursing care of liver transplant patients (56%) positive level, 44% negative level.

Discussion

In regard to factors affecting nurses' performance regarding Care of patients with LT, the present study investigated nurses' opinions about physiological factors and demonstrated that half of the nurses believed that those factors affect their care of LT patients. Our findings agreed with **Youssef and Ali (2022)**, who clarified that it is necessary to assess nursing performance for critical ill patients post LT. Therefore, all nursing care is directed toward promoting, maintaining, restoring health, preventing complications, and helping patients adapt to the residual effect of illness.

In addition, **Forsberg et al., (2000)** noticed that together with recovery of physical conditions after LT, nurses reportedly experience physical fatigue in liver transplant unit, effect of diseases as pain in work and effect of chronic diseases at work as well as impairments in memory and thinking processes. Besides, **Lui and Thomas, (2007)** reported that hypertension, diabetes, and obesity associated with negative effect on performance.

Furthermore, the results discovered by **Abd Rabo et al., (2021)** supported that nurses

working in the emergency unit and exposed to the educational program about performance regarding nursing care of patients post LT showed high score of knowledge and practice in the result of the posttest more than the pretest.

Regarding nurses' opinions about psychological factors affecting care of LT patients, more than three-fifth of the studied nurses thought that psychological factors didn't affect their care of patients with LT. These outcomes were in disagreement with numerous studies that emphasized that nurses undergo problems with their psychological and social well-being (**Forsberg et al., 2000; Nilsson et al., 2008; Ordin et al., 2011**).

Also, although LT nurses feel satisfied that they work with team of liver transplantation (**Bean, 2005**), they also experience fear of failure when doing the work, depression and anxiety related to care of patients (**Ordin et al., 2013**). Multiple studies have reported that nurses that deal with liver transplanted patients experience greater negative effects (**Fukunishi et al., 2002; McGregor et al., 2009; Watanabe & Inoue, 2010**).

Concerning nurses' opinions about nurses' social factors affecting their care of patients with LT, more than three-fifth of the surveyed nurses asserted that social factors had an impact on their care of LT patients. Our results were in the same line with **Watanabe & Inoue, (2010)** and **Bean, (2005)**, who mentioned that nurses might improve work relations and their familial relations improve. Add to this, **Bean, (2005)** and **Forsberg et al., (2000)** observed that many nurses experience reduced competence in their work, problems in work and social isolation.

Furthermore, **Sargent & Wainwright, (2007)** and **Robertson, (1999)** pointed out that interaction with other patients and participation in support groups can positively affect patients' adaptation after transplantation. Consequently,

Jones, (2005) and **Forsberg et al., (2000)** described that LT cases need social support from their families and health professionals.

The current investigation studied the nurses' opinions about professional factors affecting their care of LT patients, and showed that half of the participants agreed that professional factors affect their care of patients with LT. This outcome was congruence with **Liddle (2013)**, who concluded that all health professionals must continually update their theoretical knowledge and clinical skills; those working in postoperative care can do this by developing their ability to combine the use of the assessment tools with good observational skills and closely observing their patients. Also, **Ordin et al., (2013)** announced that LT patients reported that they needed more support from their professionals (doctors and nurses) in the early period of transplantation.

Moreover, **Nogueira et al. (2017)** and **Quaglio et al. (2017)** explained that health education is one of nurses' skills that needs to be trained and updated to teach after transplant about the signs and symptoms of rejection and infections, possible complications and pharmacological interactions and verified the importance of the performance of this professional to manage the care of transplant patients, favoring quality of life through safe and effective information.

In regard to the nurses' opinions about work environment and relationships inside the workplace factors affecting care of LT patients, we observed that almost all of the surveyed nurses believed that these factors had an impact on their care of LT cases. These outcomes were consistent with **Wachholz et al. (2021)**, who suggested that the multidisciplinary staff, having the care recommendations in hand, can promote discussions in the work environment to implement the recommendations.

Conclusion

Based on the results of the present study it could be concluded that, total factors (physiological, psychological, social, professional, patient, work environment and relationships inside the workplace) affecting nurses' performance regarding care of liver transplant patients was more than half positive level.

Recommendations

Conducting continuous in-service training advanced through programs for nurses working with patient in critical care units for improving their performance provided to the patients post-LT.

Continuous evaluation the effect of health educational programs regarding managing of patients post liver transplantation and their impact on patient outcome for achieving satisfaction of the patient needs.

Evaluation the factors affecting the performance of nurses by nursing management to detect the problems that impact the quality of care provided to patients.

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Table 1: Frequency and Percentage Distribution of the Studied Nurses According to demographic Characteristics (n=50)

Demographic Characteristics	No	%
- Age		
<27	17	34.0
≥27	33	66.0
Mean SD	29.2±5.7	
median(range)	27(21-46)	
- Gender		
Males	17	34.0
Females	33	66.0
- Education		
Nursing diploma	7	14.0
Technical institute	31	62.0
Bachelors'	11	22.0
Postgraduate	1	2.0
- Social status		
Single	13	26.0
Married	36	72.0
Widow	1	2.0
- General Experience per years		
≤5	20	40.0
>5	30	60.0
Mean±SD	8.1±6.4	
median(range)	6(1-27)	
- Experience in liver transplantation		
<3	23	46.0
≥3	27	54.0
Mean±SD	2.8±1.3	
median(range)	3(1-6)	
- Training course in LT		
Yes	5	10.0
No	45	90.0

Table 2: Frequency and Percentage Distribution of Studied Nursing Opinion about Physiological Factors Affecting Care of Patients with Liver Transplantation

Items of physiological factors	Impact on Performance					
	High		Middle		Low	
	No	%	No	%	No	%
- Exhaustion	31	62.0	13	26.0	6	12.0
- Acute diseases as colds, pain and diarrhea	21	42.0	19	38.0	10	20.0
- Chronic diseases	22	44.0	10	20.0	18	36.0
- Hearing and vision impairment	19	38.0	16	32.0	15	30.0
- Weight gain	12	24.0	16	32.0	22	44.0
- Working in a liver transplant unit causes physical exhaustion	22	44.0	18	36.0	10	20.0
- Physiological factors score	6.92±2.69					
Mean± SD	7.5(1-11)					
median(range)	50.0%					
Affect	50.0%					
Not affect	50.0%					

Factors Affecting Nurses Performance Regarding Care of Patients with Liver Transplantation

Section A -Research paper

()* maximum score

Table 3: Frequency and Percentage Distribution of Studied Nurses Opinion about Psychological Factors Affecting Care of Patients with Liver Transplantation

Items of Psychological factors	Impact on performance					
	High		Middle		Low	
	No	%	No	%	No	%
- Working for the first time	28	56.0	20	40.0	2	4.0
- Concern about risk of infection from the cases or hospital infection	15	30.0	25	50.0	10	20.0
- Feeling of pain for patient	19	38.0	18	36.0	13	26.0
- Feeling of failure when doing the work	18	36.0	5	10.0	27	54.0
- Work stress and desire to cry	13	26.0	20	40.0	17	34.0
- Moral appreciation when doing a good job	29	58.0	8	16.0	13	26.0
- Psychological factors score Mean± SD median(range) Affect Not affect	6.8±2.65 6(2-12) 36.0 % 64.0 %					

()* maximum score

Table 4: Frequency and Percentage Distribution of Studied Nurses Opinion about Nursing Social Factors Affecting Care of Patients with Liver Transplantation

Items of Social factor	Impact on performance					
	High		Middle		Low	
	No	%	No	%	No	%
- The residence is far from the hospital	20	40.0	22	44.0	8	16.0
- Difficulty in transportation	24	48.0	22	44.0	4	8.0
- Lack of income	28	56.0	11	22.0	11	22.0
- Work relationships	24	48.0	13	26.0	13	26.0
- Family and people point of view of working during night shift	17	34.0	14	28.0	19	38.0
- Presence of experienced people in the field	29	58.0	19	38.0	2	4.0
- Opportunities for training and development the performance continuously	30	60.0	13	26.0	7	14.0
- Continuous supervisor guide is available	32	64.0	13	26.0	5	10.0
- Estimating your abilities and skills at work	28	56.0	15	30.0	7	14.0
- Nursing distribution table is fair and equitable	25	50.0	15	30.0	10	20.0
- The balance between the number of nursing and supervising staff	22	44.0	19	38.0	9	18.0
- The number of nurses is sufficient or overburdening of your physical and mental capabilities	23	46.0	15	30.0	12	24.0
- Feeling at ease at work	27	54.0	14	28.0	9	18.0
- Availability of Instructions and guidelines for working in unit	20	40.0	18	36.0	12	24.0
- Social factor Mean± SD	18.42±6.07					

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Section A -Research paper

median(range)	19(7-27)
Affect	31(62.0 %)
Not affect	19(38.0 %)

()* maximum score

Table 5: Frequency and Percentage Distribution of Studied Nurses Opinion about Professional Factors Affecting Care of Patients with Liver Transplantation

Items of Professional Factors	Impact on performance					
	High		Middle		Low	
	No	%	No	%	No	%
- Job satisfaction	29	58.0	12	24.0	9	18.0
- Clarity of job description	16	32.0	26	52.0	8	16.0
- Job appreciation from people	24	48.0	22	44.0	4	8.0
- Feeling of inefficiency	12	24.0	21	42.0	17	34.0
- Forcing overtime	23	46.0	16	32.0	11	22.0
- Professional factors score Mean± SD median(range) Affect Not affect	6.1±2.28 5.5(2-10) 25(50.0 %) 25(50.0 %)					

()* maximum score

Table 6: Frequency and Percentage Distribution of Studied Nurses about Patient Factors Affecting Nurses Performance Regarding Care of Patients with Liver Transplantation.

Items of Patient Factors	Impact on performance					
	High		Middle		Low	
	No	%	No	%	No	%
- Patient Education Level	17	34.0	23	46.0	10	20.0
- Gender	15	30.0	17	34.0	18	36.0
- Age	15	30.0	30	60.0	5	10.0
- Body Mass Index	23	46.0	24	48.0	3	6.0
- Patient Physical condition	28	56.0	21	42.0	1	2.0
- Patient mental health	29	58.0	16	32.0	5	10.0
- Difficulty in communicating with the patient	31	62.0	13	26.0	6	12.0
- Respecting the Patient Privacy	37	74.0	7	14.0	6	12.0
- Follow instructions by Patients	26	52.0	15	30.0	9	18.0
- Patient appreciation for nursing performance	24	48.0	23	46.0	3	6.0
- Patient view about nursing staff	20	40.0	25	50.0	5	10.0
- Factors related to patients score Mean± SD median(range) Affect Not affect	14.88±4.35 14(7-22) 30(60.0 %) 20(40.0 %)					

()* maximum score

Table 7: Frequency and Percentage Distribution of Studied Nurses Opinion about Work Environment Factors Affecting Care of Patients with Liver Transplantation

	Factors Impact on performance
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Factors Affecting Nurses Performance Regarding Care of Patients with Liver Transplantation

Section A -Research paper

Items of work environment	High		Middle		Low	
	No	%	No	%	No	%
- The availability of the necessary tools and equipments for the work	34	68.0	16	32.0	0	0.0
- Availability of Infection control instructions	40	80.0	10	20.0	0	0.0
- Availability of hand antiseptic	46	92.0	4	8.0	0	0.0
- Work place temperature	39	78.0	11	22.0	0	0.0
- Safe work environment	40	80.0	10	20.0	0	0.0
- Adequate lighting	40	80.0	10	20.0	0	0.0
- Appropriate size and breadth of workplace	26	52.0	19	38.0	5	10.0
- Cleanliness and sterilization of place	44	88.0	5	10.0	1	2.0
- Proportionality the number of nurses and patients	29	58.0	15	30.0	6	12.0
- Availability of the necessary personal protective equipments	44	88.0	5	10.0	1	2.0
- workloads	20	40.0	30	60.0	0	0.0
- Tools and equipment work well	35	70.0	15	30.0	0	0.0
- Promotions and rewards for working efficiently	25	50.0	11	22.0	14	28.0
- Factors of work environment score Mean± SD median(range) Affect Not affect			21.7±3.8 22(12-26) 48(96.0%) 2(4.0%)			

Table 8: Frequency and Percentage Distribution about Relationships Inside the workplace Factors Affecting Care of Patients with Liver Transplantation.

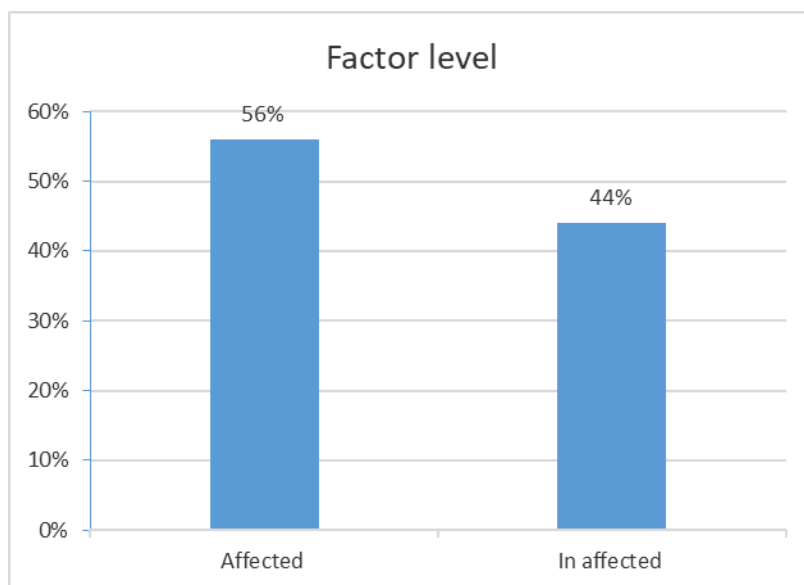
Items of Relationships Inside the Workplace	Impact on performance					
	High		Middle		Low	
	No	%	No	%	No	%
- Cooperation between the employees and the ability to work as a team	32	64.0	15	30.0	3	6.0
- Feelings of inequality during distribution of work	24	48.0	19	38.0	7	14.0
- using difficult and incomprehensible language	21	42.0	19	38.0	10	20.0
- Doctor appreciation of the role of nursing at work	23	46.0	20	40.0	7	14.0
- Documentation in patients records	30	60.0	15	30.0	5	10.0
- Clarity of information when communicating with nursing staff	31	62.0	18	36.0	1	2.0
- Giving instructions via phone or social media	25	50.0	18	36.0	7	14.0
- Access to doctors	25	50.0	21	42.0	4	8.0
- Ability of work team to deal with problems	25	50.0	17	34.0	8	16.0
- Feeling satisfied inside the work team	29	58.0	10	20.0	11	22.0
- Take responsibility within the work team	41	82.0	3	6.0	6	12.0
- Factors related the relationships inside the workplace Mean± SD median(range)			15.74±4.66			

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Factors Affecting Nurses Performance Regarding Care of Patients with Liver Transplantation

Section A -Research paper

Affect	16(0.00-22)
Not affect	34(68.0 %)
	16(32.0 %)



Total Factors that affect Nurses' Performance regarding Care Liver Transplant Patients

Figure (1): Percent of factors affecting nursing care of liver transplant patients (56%) positive level, 44% negative level.