

Nurses` Performance Regarding Care of Patients Undergoing Electroconvulsive Therapy

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Abstract

Background: Electroconvulsive Therapy (ECT) remains an important treatment in contemporary psychiatric medicine for many patients with severe mood and psychotic disorders. Despite the development of newer brain stimulation techniques and novel pharmacological agents, no treatment has approached the efficacy of ECT in these patients population. **Aim :** This study aimed to assess nurses` performance regarding care of patients undergoing electroconvulsive therapy. **Design:** A descriptive study design. **Setting:** The study was carried out in the ECT room at El -Khanka Psychiatric Hospital, affiliated to the General Secretariat of Mental Health. **Sample:** A convenient sample of all available nurses at the ECT room who are working with patients undergoing electroconvulsive therapy. They were 40 nurse (22 males and 18 females). **Tools:** I.Nurses self- administered questionnaire, include: Part 1: Nurses-demographic characteristics; Part 2: Nurses` knowledge regarding care of patients undergoing ECT. II. Nurses` observational checklist. **Results:** Knowledge about electroconvulsive therapy. more than one- third (40.0%) of the studied nurses had good total knowledge, Nearly three-quarter (72.0%) of studied nurses did the total nursing performance before, during and in the recovery room after Electroconvulsive therapy sessions. Majority (80.0%) of studied nurses have total training **Conclusion:** There was highly statistically significant relationship between the total knowledge scores with the levels of performance score and the total performance score, there was statistically significant relationship between nurses` knowledge level about electroconvulsive therapy and their age. **Recommendations:** It is important to conduct education program about ECT to psychiatric-mental health nurses, providing psychiatric-mental health nurses with many courses such as cardiopulmonary resuscitation and the nurses should conduct further researches about electroconvulsive therapy

Keywords: Electroconvulsive Therapy, Neuroleptic Malignant Syndrome, Obsessive Compulsive Disorder

Introduction:

Electroconvulsive Therapy (ECT) remains an important treatment in contemporary psychiatric medicine for many patients with severe mood and psychotic disorders. Despite the development of newer brain stimulation techniques and novel pharmacological agents, no treatment has approached the efficacy of ECT in these patients population (Aryutova et al., 2021).

Recent data on the safety and tolerability of ECT has strongly supports its wider use for appropriately selected patients. The mortality rate of ECT is exceptionally low

(2.1/100,000 treatments) making it one of the safest procedures performed under general anaesthesia and adverse cognitive effects are much less prominent with modern technique and now understood to be largely transient (Staudt et al., 2019).

ECT remains stigmatized because of lack of knowledge and understanding about modern ECT technique; persistent, unrealistic negative portrayals in the media and concerns about adverse effects, primarily cognitive effects. If scientific and clinical evidence were the only determining factors, ECT would be used much more commonly for severe

depression and as a first-line treatment for psychotic depression. Its role in treating schizophrenia would be more consistent worldwide as it stands, the use of ECT for schizophrenia varies widely across different countries (Alexander et al., 2020).

Professional Practice Guidelines (PPG) provide guidance on professional practice issues that psychiatric nurses should consider when administering ECT. The guidelines are not intended as a directive about clinical practice or instructions to what must be done for a given patient, but provide guidance to facilitate best practice to help optimise outcomes for patients (Rasmussen., 2019).

Nurses play an essential role in ECT because of their close involvement with patients before, during and after the procedure. Knowledge and attitude of the nursing staff working in ECT rooms can have direct impact on the quality of their nursing practice. Understanding nurses' views on ECT is also a vital issue for patients attending for this treatment, as patients may present with concerns regarding ECT treatment (Kavanagh & McLoughlin., 2019).

The nurse who is responsible for the running of the ECT clinic should be a registered nurse and should be a designated person who is primarily employed as an ECT nurse or seconded to this role, there should be a fully trained deputy who regularly attends ECT and is available to provide cover for the clinic during leave of the nurse in charge. The teaching and supportive roles of the psychiatric- mental health nurse with both the patient and family are important to emphasize and nursing care should begin as soon as the patient and family in ECT clinic (Thompson., 2018).

Significance of the Study:

ECT have a safer profile than antidepressants or antipsychotics in many psychiatric disorder as; debilitated, elderly, pregnant , breastfeeding patients and suicidal ideation. Which 81% of patients receive ECT is rapidly and complete resolution and this high

percentage depend mainly on nursing performance . (Walther et al., 2019).

Psychiatric nurses also may be active in development, implementation, and supervision aspects of ECT research. As a result, patient satisfaction contributes to improving health. Assessment of electro-convulsive therapy nurses' performance data can lead to continuous improvements to the quality of care. Meena & Samuel, 2021). so, this study will be carried out to investigate nurses' performance regarding care of patients undergoing electroconvulsive therapy for more improvements to the quality of nursing care so, further researches can be carried out to these patients.

Aim of the study:

This study aimed to assess nurses' performance regarding care of patients undergoing electroconvulsive therapy through:

- Assessing nurses' knowledge about electroconvulsive therapy.
- Assessing nurses' performance in ECT room.

Research Questions:

- 1- What are nurses' level of knowledge regarding care of patients undergoing ECT?
- 2- What are the actual nurses' performance regarding care of patients undergoing ECT?

Subjects and Methods

The subjects and methods used for achieving the study were portrayed under four main designs as the following: technical design, operational design, administrative design and statistical design.

I- Technical Design:

The technical design involves; research design, the setting, subjects, and tools of data collection.

A. Research design:

A descriptive study design was used to assess nurses' performance regarding care of patients undergoing electroconvulsive therapy.

B. Setting:

The study was carried out in the ECT room at El -Khanka Psychiatric Hospital, affiliated to the General Secretariat of Mental Health which is located in the Khanka city, Qalyubia governorate. It consist of 1667 beds with 1176 patients. It contains 810 nurses of different category.

C. Subjects of the study:

A convenient sample of all available nurses at the ECT room who are working with patients undergoing electroconvulsive therapy. They were 40 nurse (22 males and 18 females). The data was collected along 3 months, from the beginning of February 2021 to the end of April 2021.

D. Tools of Data Collection:

The data for this study was collected by using the following tools:

I. Nurses self-administered questionnaire: Appendix I:

It was used to assess nurses' demographics characteristics and knowledge care of patient undergoing ECT based on a literature review.

Part 1: Nurses-demographic characteristics; it was used by the researcher and written in a simple Arabic language to gather the following data: age, sex, educational level, profession and years of experience.

Part 2: Nurses' knowledge regarding care of patients undergoing ECT, which includes 10 MCQ questions (Q1:Q10) regarding; definition of ECT, use of electrical stimulation, average number of patient's ECT session, requirements for patient's preparation, duration of the seizure episode during ECT session, number of ECT sessions patient gets per week, reason for giving Atropine during ECT, precautions for successful ECT session, duration of electric current to be passed during electrical session and safety precautions during pregnancy. Four questions (Q11:Q14) were regarding indications of ECT, types, side effects and medications used while preparing the patient for the treatment.

❖ Scoring system for nurses' knowledge:

It has been scored as the following: the correct answer =1 and incorrect answers = 0. According to the parents' responses, their levels of knowledge was categorized as the following:

low (>50%), moderate (50->75%) and high (<75%).

The training obtained by the nursing staff was includes 5 questions (Q1:Q5) regarding; gives to nurse time to attend annual training sessions, getting recent training in Cardiopulmonary Resuscitation (CPR), the nurse accompanying the patients receives an introduction and training on the drugs used in ECT and their side effects, the nurse in charge of the recovery period gets up-to-date training and relevant experience in the recovery procedure and performing a periodic simulation of ECT session for the nursing staff under the auspices of the nursing supervisor.

II. Nurses' observational checklist: (Appendix II):

Standard observational checklist about ECT therapy which has been established by **Scottish ECT Accreditation Network standard (2013)** to observe nurses practice regarding care of patients undergoing ECT and items modified by the researcher. The observational checklist includes the following parts:

Part 1: Preparing the patient for electroconvulsive therapy sessions: It consists of 18 questions.

Part 2: Nursing care during ECT session: It consists of 15 questions.

Part 3: Nursing care in the recovery room after the ECT session: It consists of 12 questions.

❖ Scoring system for Nurses' observational checklist:

1-Quartiles for nursing performance score while preparing the patient for electroconvulsive therapy sessions: Low (<25th quartile i.e., <70.7), Moderate (25th – 75th quartile i.e., 70.7) and High (More than 75th quartile i.e., >78.04).

2-Quartiles for nursing performance score during electroconvulsive therapy sessions: Low (<25th quartile i.e., <72.2), Moderate (25th – 75th quartile i.e., 72.2-83.3) and High (More than 75th quartile i.e., >83.3).

3-Quartiles for nursing performance score after electroconvulsive therapy sessions: Low (<25th quartile i.e., <58.3), Moderate (25th – 75th quartile i.e., 58.3-66.6) and High (More than 75th quartile i.e., >66.6).

4-Quartiles for nursing total performance score While preparing, during and after electroconvulsive therapy sessions i.e., <69.7), Moderate (25th – 75th quartile i.e., 69.7-75.0) and High (More than 75th quartile i.e., >75.0000).

II. Operational Design:

The operational design includes; the preparatory phase, content validity, reliability, pilot study, and fieldwork.

a- Preparatory phase:

The preparatory phase includes reviewing of related literature and theoretical knowledge of various aspects of the study using books, articles, periodical and the internet to attain the require knowledge for the study.

b- Tool's validity & Reliability:

1-Tool's validity:

Revision of the tools was done by a panel of experts composed of 5 professors of Psychiatric -Health Nursing to measure the content validity of the tools and the necessary modifications were done accordingly as the following:

Some statements was modified only linguistically, and four added question in nurses knowledge (from 11 to 14), which were

- a- Indications of ECT.
- b- Types of ECT.
- c- Side effects of ECT.

d- Medications used while preparing the patient for ECT treatment.

2- Content reliability:

A test –re-test reliability was done to assess the consistency of the tool to measure items reliability. The questionnaire was given to a group of 4 subjects and the answers were analyzed. The same questionnaire was given to the same group after 2 weeks and the answers were analyzed and computed to the results of the first test. Reliability was measured using Cronbach's' alpha coefficient which was found to be 0.897.

Reliability Statistics	
Cronbach's Alpha	N of Items
.897	107

c- Pilot study:

The pilot study was conducted in the middle of January 2021. It was conducted on 10% of total study subjects (4 nurses). It study was conducted to confirm clarity, feasibility, and applicability of the tool and to estimate the time required for filling the sheet. The tool was applicable and clear for the subject in the pilot study and there was no modification done. The time needed for filling the sheet was ranged between 30 and 40 min. Those pilot subjects were included in the main study sample.

e) Fieldwork:

1- The Assessment phase:

The assessment phase was done by obtaining official permission from the director of El -Khanka Psychiatric Hospital to conduct the study, as well as, the researcher can get access to obtain a list of nurses numbers from the ECT room and be allowed to give each nurses a code of number.

2- The Working phase:

The working phase was executed in one stage from the beginning of February 2021 to

the end of April 2021, the researcher had a meeting with nurses from the 1st of February to the 7th of February and they met in the ECT room for one hour before the beginning of the ECT session from 8:30 to 9:30 am to help them fill- in the questionnaire.

The researcher explained the aim of this study and got oral approval from the studied nurses to participate in this study, then the researcher clarified the tool and answered any question to avoid any misunderstanding such as defining the meaning of any item of the scales. Each nurse was given the opportunity to fill-in the tools under the guidance and supervision of the researcher.

The researcher observed the preparation of equipment and supplies in ECT and recovery rooms. The researcher observed and fill out the observational checklist regarding nurses' performance while preparing the patients before, during and in recovery room after ECT.

III. Administrative Design:

To carry out the study, the necessary approval was obtained from the director of El - Khanka Psychiatric Hospital. An official letter was issued from the Dean of the Faculty of Nursing Ain Shams University explaining the aim of the study to obtain the permission and cooperation to conduct the study.

IV. Statistical Design:

Data management & Statistical Analysis:

The collected data were revised, coded, tabulated and introduced to a PC using statistical package for social sciences (IBM SPSS 20.0). Data were presented and suitable analysis was done according to the type of data obtained for each parameter.

I. Descriptive Statistics:

Mean, Standard deviation (+ SD) and range for parametric numerical data, while median and interquartile range (IQR) for non-parametric data.

II. Analytical Statistics:

1- Independent sample t-test was used to assess the statistical significance of the difference in a parametric variable between two independent means of two study groups.

2- The paired sample t-test was used to assess the statistical significance of the difference in a parametric variable between two means of one study group before and after intervention.

3- One-way ANOVA was used to assess the statistical significance of the difference in a parametric variable between more than two independent means of more than two study groups.

4- Pearson Correlation Coefficient (r): Correlation was used as a measure of the strength of a linear association between two quantitative variables. The Pearson correlation coefficient, r , can take a range of values from +1 to -1. A value of 0 indicates that there is no association between the two variables. A value greater than 0 indicates a positive association; that is, as the value of one variable increases, so does the value of the other variable. A value less than 0 indicates a negative association; that is, as the value of one variable increases, the value of the other variable decreases.

5- McNemar test was used to determine whether there are differences in a dichotomous dependent variable between two related groups. It can be considered like the paired-samples t-test, but for a dichotomous rather than a continuous dependent variable. The McNemar test is used to test for agreement between two screening tests.

6- Cochran-Mantel-Haenszel test (CMH) is a test used in the analysis of stratified or matched categorical data. Unlike the McNemar test, which can only handle pairs, the CMH test handles arbitrary strata size.

P-value: Level of significance:

- $P > 0.05$: Non-significant (NS)
- $P < 0.05$: Significant (S)
- $P < 0.01$: Highly significant (HS)

Ethical considerations:

The research's approval was obtained from the scientific ethical committee in the Faculty of Nursing, Ain Shams University before starting the study. An oral consent was obtained from each subject after explaining the aim of the study. They were informed about the confidentiality of data collected and that it will be used for the research purpose only. They were also informed that they have the right to withdraw at any time without giving a reason. Permission has been obtained from each nurse before conducting the interview and after giving a brief orientation to the purpose of the study. They were also reassured that all information gathered would be confidential and used only for the study. No name was required on the forms to ensure anonymity and confidentiality.

Results:

Figure (1): Concerning this figure, more than one-third (40.0%) of the studied nurses had good total knowledge and nearly half (45.0%) of them had average total knowledge while, less than one-quarter (15.0%) of them had poor total knowledge.

Figure (2): Regarding this figure, majority (80.0%) of studied nurses not have

total training while, only (20.0%) of them have total training

Figure (3): As shown this figure, nearly three-quarter (72.0%) of studied nurses did the total nursing performance before, during and in the recovery room after Electroconvulsive therapy sessions while, more than one-quarter (27.5%) of them not did total nursing performance before, during and in the recovery room after Electroconvulsive therapy sessions.

Table (1): As shown this table, there was highly statistically significant relationship between the total knowledge scores with the levels of performance score and the total performance score when p-value was $<0.001^*$ regarding the above 4 observational items.

Table (2): As shown in this table, highly statistically significant relationship between total performance with age and years of experience with p-value $<0.001^*$, while, there was non statistically significant relationship between total performance and educational level with p-value $>0.05^*$

Table (3): As shown in this table, highly statistically significant relationship between total performance level during electroconvulsive therapy sessions with age and years of experience with p-value $<0.001^*$

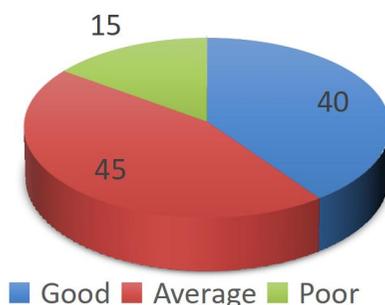


Figure (1): Total Nurses' Knowledge about Electroconvulsive Therapy.

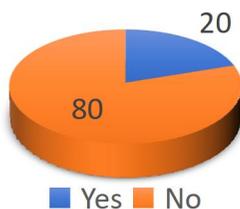


Figure (2): Total Training Obtained by The Nursing Staff.

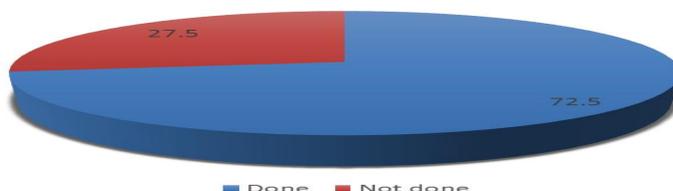


Figure (3): Total Nurses' performance before, during and in The Recovery Room after Electroconvulsive Therapy Sessions.

Table (1): Relationship between The Total Knowledge scores with The Levels of Performance Scores and Total performance scores.

Items	Total knowledge score r	P-value
Total nurses' performance score while preparing the patient for ECT.	0.813	<0.001*
Total nursing care score during electroconvulsive therapy sessions.	0.844	<0.001*
Total nursing care score in the recovery room after electroconvulsive therapy sessions.	0.879	<0.001*
Total performance score	0.928	<0.001*

P > 0.05: Non-significant (NS) P < 0.05: Significant (S) (*) P < 0.01: Highly significant (HS)

Table (2): Relationship between Nursing Total performance Score While Preparing, During and After Electroconvulsive Therapy Sessions and their Demographic Characteristics.

Variable	Total performance				Total	Chi-square X ²	P-value
	Done		Not done				
	N	%	N	%			
Sex							
Male	14	63.6	8	36.4	22	1.926	0.165
Female	15	83.3	3	16.7	18		
Age							
Less than 25 years	0	0.0	6	100.0	6		
25-<35 years	18	78.3	5	21.7	23	20.373	<0.001*
35-<45 years	6	100.0	0	0.0	6		
45 years or more	5	100.0	0	0.0	5		
Educational Level							
Diploma in Nursing	11	55.0	9	45.0	20		
Technical diploma above average	12	92.3	1	7.7	13	6.243	0.044*
Bachelor of nursing	6	85.7	1	14.3	7		
Profession							
Staff nurse	22	66.7	11	33.3	33	3.218	0.073
Nursing supervisor	7	100.0	0	0.0	7		
Years of Experience							
1 -<3 years	0	0.0	4	100.0	4		
3-<5 years	2	28.6	5	71.4	7	23.495	<0.001*
5 years or more	27	93.1	2	6.9	29		

P > 0.05: Non-significant (NS) P < 0.05: Significant (S) (*) P < 0.01: Highly significant (HS)

Table (3): Relationship between Nursing Performance Level during Electroconvulsive Therapy Sessions and Their Demographic Characteristics.

Variable	Total performance level during electroconvulsive therapy sessions				Total	Chi-square	
	Done		Not done			X ²	P-value
	N	%	N	%			
Sex							
Male	16	72.7	6	27.3	22	0.639	0.424
Female	15	83.3	3	16.7	18		
Age							
Less than 25 years	1	16.7	5	83.3	6	16.271	<0.001*
25-<35 years	19	82.6	4	17.4	23		
35-<45 years	6	100.0	0	0.0	6		
45 years or more	5	100.0	0	0.0	5		
Educational Level							
Diploma in Nursing	13	65.0	7	35.0	20	3.698	0.157
Technical diploma above average	12	92.3	1	7.7	13		
Bachelor of nursing	6	85.7	1	14.3	7		
Profession							
Staff nurse	24	72.7	9	27.3	33	2.463	0.117
Nursing supervisor	7	100.0	0	0.0	7		
Years of Experience							
1 -<3 years	0	0.0	4	100.0	4	31.807	<0.001*
3-<5 years	2	28.6	5	71.4	7		
5 years or more	29	100.0	0	0.0	29		

P > 0.05: Non-significant (NS) P < 0.05: Significant (S) (*) P < 0.01: Highly significant (HS)

Discussion:

Nurses are well-positioned to establish a caring association that may impact patient perspectives on ECT treatment use. Patient's teaching and monitoring by psychiatric nurses throughout the course of treatment, provide many opportunities to prevent complications, patients' understanding improve and provide an avenue for acceptance or non-acceptance of ECT use. Nurses should be empowered with adequate knowledge related to ECT through education and training to improve their attitudes (Ezeobele et al., 2021).

The study aimed to assess nurses' performance regarding care of patients undergoing electroconvulsive therapy

Part I: Nurses' knowledge about electroconvulsive therapy.

Regarding nurses' knowledge about electroconvulsive therapy, the present study illustrated that, less than one-quarter of the studied nurses had poor knowledge related the requirements for patient's preparation for ECT

while, more than half of the studied nurses had average knowledge regarding the duration of the seizure episode during ECT session. Nearly, two-thirds of the studied nurses had average knowledge regarding safety of ECT during pregnancy and more than half had good knowledge regarding types of ECT. This finding consistent with the study by **Bhat et al., (2020)** who conducted study about " Knowledge and attitude of nursing students toward electroconvulsive therapy; a study from a tertiary care hospital in North India". Who showed that, the majority studied nursing students define the ECT correctly, more than half of them have knowledge about number of ECT session given per week, and about one-third of them had knew that ECT is safe during pregnancy.

On other hand, the result is disagreed with **Tsai et al., (2022)** who conducted a study about "online vide psycho-education for electroconvulsive therapy in India: A randomized controlled trial". They were showed that, most of the studied sample had poor knowledge about types of ECT, duration of the

seizure episode during ECT session, number of ECT session given per week and reason for giving atropine during ECT

Concerning the total knowledge about electroconvulsive therapy, the present study revealed that, more than one-third of the studied nurses had good total knowledge and nearly half of them had average of total knowledge. This result may be due to the majority of nurses attend annual training on ECT. This result is in same line with a study of **Ezeobele et al., (2021)** about "current knowledge and attitudes of psychiatric nurses toward electroconvulsive therapy". They illustrated that, the majority of the studied nurses had satisfactory knowledge about Electroconvulsive therapy.

Conversely, this result contraindicated with study by **Gędek et al., (2022)** entitled "knowledge, attitudes and beliefs about electroconvulsive therapy among polish students". Who found that, most of the studied sample had poor knowledge about electroconvulsive therapy. moreover, this result disagreement with study by **Meena and Samuel., (2021)** who conducted study about "A Study to assess the Knowledge and Attitude Regarding Electroconvulsive Therapy among caregivers of Mentally Ill Patients in Selected Government Medical College Attached Hospital and Hospital for Mental Health of Madhya Pradesh State with a View to Develop Pamphlet on it". Who showed that, one quarter of the studied respondents had poor knowledge, nearly two thirds had an average knowledge while only less than one-eight had good knowledge regarding ECT.

Part II: Training obtained by the nursing staff:

As regarding to total training obtained by the nursing staff, total training obtained by the nursing staff, the current study demonstrated that, majority of studied nurses not have total training. This result may due to it is not mandatory for nursing staff at AL-Khanka hospital attend ECT courses and conference. This result disagreement with study by **Kitay et**

al., (2020) who conducted study about "electroconvulsive therapy: a video-based educational resource using standardized patients". Who found that, more than three-quarters of the studied sample received training about Electroconvulsive the **Part III: The nursing performance while Preparing the patient for electroconvulsive therapy sessions:**

Concerning the nurses' performance while preparing the patient for electroconvulsive therapy sessions, the present study showed that, more than three-quarters of the studied nurses presented the electrocardiogram and analysis to the anesthesiologist and follow up on the writing of the anesthesia form by the psychiatric, all of studied nurses prepared anesthesia model and psychiatrist model. This result may be due to this activities part of role of psychiatric nurse. This finding in same line with **Boschma., (2019)** about "electroconvulsive therapy (ECT) and nursing practice in the Netherlands". Who showed that, the majority of the studied nurses performed the electrocardiogram and analysis to the anesthesiologist and follow up on the writing of the anesthesia form by the psychiatric.

Regarding to performing the steps for preparing of the patient for electroconvulsive therapy sessions the present study displayed that, the majority of the studied nurses did this steps. This result in same line with study by **Ali et al., (2019)** who conducted study about "electroconvulsive therapy and schizophrenia: a systematic review". They were concluded that, the majority of the studied nurses performed the steps for preparing of the patient for electroconvulsive therapy sessions as; note vital signs, emptying the bladder before starting a treatment session and ensuring the patient's fasting 6-8 hours before the session.

Considering the total preparation for the patient before ECT session, the current study displayed that, three-quarters of nurses did the total preparation for the patient before ECT session while only one-quarter of them not did

the total preparation for the patient before ECT session. This findings may be due to about three quarters of the studied nurses had experience more than 5 years. This outcome matched with **Sharma et al., (2017)**. They were conducted study about "Knowledge and attitude of nursing students toward electroconvulsive therapy" and showed that the majority of the studied nurses had good total preparation for the patient before ECT session.

Part III: Nursing care during electroconvulsive therapy sessions:

Regarding the nursing care during electroconvulsive therapy sessions, the current study revealed that, all of the studied nurses performed the steps of nursing care during electroconvulsive therapy as; "the nurse maintains the patient's privacy". This outcome matched with **Rosedale et al., (2015)** entitled "The role of the psychiatric mental health: advanced practice registered nurse in the scope of psychiatric practice". They were stated that, most of the studied nurses performed the steps of nursing care during electroconvulsive therapy as; recording the duration of the convulsion, measuring vital signs before the patient leaves the recovery room and observing the airway, skin color and pulse.

Concerning the total nursing care during electroconvulsive therapy sessions the present study illustrated that, more than three-quarters of the studied nurses were performed total level of care during electroconvulsive therapy sessions. This outcome supported with **Bastick and Shrimpton., (2021)**. They were conducted a study about " reflections on advanced practice of nurse administered ECT as a treatment resource during the COVID-19 pandemic". They illustrated that, most of the studied nurses were competent during ECT administration.

Part V: The Nursing care in the recovery room after electro-convulsive therapy sessions:

Related the total nurses` performance before, during and in the recovery room after electroconvulsive therapy sessions, the present study illustrated that, nearly three-quarters of

studied nurses did the total nursing performance before, during and in the recovery room after electroconvulsive therapy sessions while, more than one-quarter of them not did total nursing performance before, during and in the recovery room after Electroconvulsive therapy sessions. This result might be due to most of the studied nurses had knowledge about Electroconvulsive therapy which associate with positive effect on performance. This outcome supported with **Vulea and Băcilă., (2019)** about "Particularities of nursing in electroconvulsive therapy". They were concluded that, the majority of the studied nurses did the total nursing performance before, during and in the recovery room after Electroconvulsive therapy sessions. **Part VI: Part VI: Relationship between the study variables:**

Regarding the relationship between the total knowledge scores with the levels of performance scores and total performance scores, the present study revealed that, there is highly statistically significant relationship between the total knowledge scores with the levels of performance score and the total performance score. This result may be due to indicating that better knowledge was associated with more positive total performance scores, this findings agreement with **Sharma et al., (2017)** about "knowledge and attitude of nursing students toward electroconvulsive therapy". They were reported that, there is highly statistically significant relationship between the total knowledge scores with the levels of performance score.

Concerning the relationship between nurses` knowledge level about electroconvulsive therapy and their demographic characteristics, the present study revealed that, there is highly statistically significant relationship between nurses` knowledge level about electroconvulsive therapy and their years of experience while, there was statistically significant relationship between nurses` knowledge level about electroconvulsive therapy and their age, educational level & profession. This findings agreement with **Rafoul et al.,(2020)** about "Knowledge about, attitudes toward, and

willingness to undergo electroconvulsive therapy among mental health patients, staff, and family members". They were reported that, there is highly statistically significant relationship between nurses' knowledge level about electroconvulsive therapy and age and educational level.

Regarding to relationship between nursing total performance score while preparing, during and after electroconvulsive therapy sessions and their demographic characteristics, the present study showed that, there is highly statistically significant relationship between total performance with age and years of experience and there was statistically significant relationship between total performance and educational level. This finding consistent with AlHad et al., (2017) about " knowledge of and attitudes towards electro-convulsive therapy (ECT) among psychiatrists and family physicians in Saudi Arabia". They were represented that there is statistically significant relationship between to total performance and educational level.

Conclusion:

There was highly statistically significant relationship between the total knowledge scores with the levels of performance score and the total performance score, there was statistically significant relationship between nurses' knowledge level about electroconvulsive therapy and their age.

Recommendations:

In the light of results of this study, the following recommendations were suggested:

- Education program about ECT to psychiatric-mental health nurses should be provided by academic specialists in electroconvulsive therapy.
- In-service training and continuing education should be established as integral parts of Al-Khanka hospital system to complement and compensate for psychiatric nurses' deficient skills. developed to guide nurses to the required pre, during, and post ECT patient care.

- A procedure book can be developed to guide nurses to the required pre, during and post ECT patient's care.
- Providing psychiatric-mental health nurses with many courses such as cardiopulmonary resuscitation.
- Nurses should conduct further researches about electroconvulsive therapy.

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