

Original Article

Knowledge of the Nurses Regarding Care Provided in Cardiac Intensive Care Unit. Khartoum State – Sudan 2022

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Abstract

Background: The Cardiac Intensive Care Unit (ICU) specialized in the care of cardiac patients which have very specific care needs, requiring the highest standard of professional care and professional team with specific competences for performing continuous monitoring and treatment **the aim is** to study knowledge of the nurses regarding care provided in cardiac intensive care unit. **Method:** Descriptive cross-sectional, hospital based-study, conducted at three cardiac intensive care units in Khartoum state. All nurses were enrolled (131) whom providing direct care for cardiac patients of more than six months experience. Data was collected by a self-administered questionnaire. The data was analyzed by statistical packages of social sciences version 21. **Results** The majority of the nurses (93.1 %) were knew that emergency crash cart should be checked periodically for exchanging the medication based on expiry date, most of them بضرورة فحص عربة ادوية الطوارئ بشكل دوري بغرض إعادة تعبئته بالادوية بناءً على تاريخ انتهاء الصلاحية ، معظمهم (86.3%) يدركون أن جهازالصاعق الكهربائي (لإزالة رجفان القلب) يجب توصيله بالتيار الكهربائي (التيار المتردد) بشكل مستمر، بينما (87.8%) منهم لديهم مستوى ضعيف من المعرفة فيما يتعلق بالمبادئ التوجيهية لتنفيذ العناية بالفم ومعظمهم (80%) أظهر مستوى جيداً من المعرفة بمراقبة الدورة الدموية والعلامات الحيوية. لا توجد علاقة ذات دلالة إحصائية بين درجات المؤهلات العلمية والمعرفة بقيمة احتمالية 0.879 **الخلاصة:** لقد خلصت الدراسة إلى أن الممرضين والممرضات حصلوا على درجات معرفة إجمالية جيدة بوحدة العناية المركزة لأمراض القلب.

(86.3 %) were recognized that the defibrillator should be connected to the AC(Alternating current) power supply continuously, (87.8 %) of the nurses had poor knowledge scores on availability of guideline for performing mouth care for ventilated patient, and, most of nurses (80%) showed a good knowledge scores regarding hemodynamic monitoring. There was no statistical significant association between the nurses knowledge and qualification (p value = 0.879). **Conclusion:** The study concluded that the nurses have a good total knowledge score in Cardiac Intensive Care Unit. **Recommendations:** The study recommended to enhance the nurses 'knowledge in the intensive care units, a propose plan for frequent workshops, and in service education to be undertaken.

Key words: Cardiac ICU, knowledge, Nurses, Sudan

المستخلص

الخلفية: وحدة العناية المركزة للقلب (ICU) هي غرفة خاصة ومتخصصة في رعاية المرضى الذين يعانون من أمراض القلب المختلفة والتي تتطلب كادر تمريضي باعلى مستويات الرعاية المهنية وفريق محترف باعلى مستويات الكفاءة للقيام بدوره في المراقبة والعلاج المستمر. **الهدف** للدراسة لتقييم المعرفة بين الممرضين والممرضات في وحدة العناية المركزة للقلب **طرق البحث:** دراسة وصفية مقطعية ، أجريت هذه الدراسة في ثلاث وحدات للعناية المركزة للقلب بولاية الخرطوم، تم إدراج جميع الممرضات (131) اللاتي يقدمن الرعاية المباشرة لمرضى القلب بخبرة أكثر من ستة شهور. تم جمع هذه البيانات باستخدام الاستبيان. ثم تم تحليلها بواسطة الحزم الإحصائية للعلوم الاجتماعية الإصدار 21 **النتائج:** لقد اظهرت النتائج غالبية الممرضين و الممرضات (93.1%) لديهم مستوي معرفي جيد

كلمات مفتاحية: وحدة العناية المركزة للقلب ,المعرفة, الممرضين, السودان

التوصيات: أوصت الدراسة بتعزيز معرفة الممرضين و الممرضات بوحدات العناية المركزة وينبغي وضع خطة مقترحة لورش العمل المتكررة والتعليم أثناء الخدمة.

Introduction

Critical care nurses provide expert, specialist care to extremely ill or injured patients in ICUs. Critical care nursing requires a nurse to possess technical ICU nursing skills, passion for the profession, and high quality of knowledge.(1) Emergency crash carts should be readily reachable utilizes to resuscitate patients in emergencies within health care agency.(2) Crash carts should be maintained in an exceedingly location that's easily accessible to the clinical area, all staff must know where and the way the cart and emergency equipment is stored.(3)The nurses accountable for restock the crash cart after every shift, verifying the presence and expiry date of each item.(4) Defibrillator may be not used for an extended time, but, when there's a requirement for it, then it has to be promptly fully functional, for this reason the nurses should follow the manufacturer's rules for daily checks and 6 or 12-months preventive maintenance testing.(5)The defibrillator unit should be ready with charged batteries, and the AC cord must be connected to conserve the integrity of the battery.(6). Hemodynamic monitoring is of numerous importance due to its coverage all vital organs functioning, any mistake in the interpretation of the checked parameters can lead to a severe worsening of the patient's condition and even lead to death (7). All patients admitted to the ICU require standard basic hemodynamic monitoring (ECG, heart rate, blood pressure, central, temperature, oxygen saturation, and arterial blood gas ABG)(8). Standard precaution (SP) is a set of infection control protocols that help prevent the spread of infection. S.P is essential to protect both patients and medical professionals from occupational exposure and to ensure patient safety. Hospital-acquired infections (HAIs) or nosocomial infection, are infections that patients have not previously be

inflicted with during hospitalization. Therefore, standard precautions should be taken to minimize this risk.(9). Oral care for inpatients is an essential preventative measure aimed at sustain and foster the health of the oral and dental tissues.(10). Hospitals need to publish clear guidelines, strategies, and protocols for assessing and managing the oral health for hospitalized patients.(11)

Methodology

A descriptive- cross sectional hospital base was conducted in Cardiac Intensive Care Units of three hospitals in Khartoum State (Al Shaab Teaching Hospital, Ahmed Gasim Hospital, and Sudan Heart Center) .A sample of 131 nurses was selected using a probability sampling method, total coverage nurses providing direct care for cardiac patients of different working experience. Data was collected by a self-administered questionnaire, which included two sections, the demographic data& academic professional profile which is an information of the nurses such as qualification and experience, the second section was focusing on the ICU nurses' knowledge. Data were collected, coded, tabulated and subjected to statistical analysis. Statistical analysis was performed by statistical Package for social sciences (IBM SPSS) version 21. Data expressed as number and percentage. F-test is used to determine significant for numeric variable. Inferential statistics employed one sample T test to assess the level of ICU Nurses' knowledge, Chi-square was used to assess the association between Qualification& Knowledge, a probability level of $p\text{-value} \leq .05$ was adopted as a level of significance for testing the research objectives. The approval to conduct the current study, ethical permission was obtained from the hospital directors by an official letter from Faculty of Nursing Sciences – Alneelain University, the

Deanship of Scientific Research – Alneelain University, and Research Ethical Committee -The

Ministry of Health. The permission from the participants was taken by a written consent

Results

Table (1):data for nurses under study (n = 131)

Demographic data	No	%
<u>Hospital</u>		
Sudan Heart Center	42	32.1
Elshaab Teaching Hospital	39	29.8
Ahmad Gasim Hospital	50	38.1
Total	131	100
<u>Gender</u>		
Male	33	25.2
Female	98	74.8
Total	131	100
<u>Age group</u>		
20 -30 y	82	62.5
31 -40 y	34	26.0
Above 40 y	15	11.5
Total	131	100
Mean <i>SD</i>	1.49 .695	
<u>The type of the unit</u>		
ICU (Surgery)	58	44.3
CCU (Medicine)	73	55.7
Total	131	100
<u>Qualifications</u>		
Diploma	7	5.3
Bachelor	110	84.0
MSc	14	10.7

Total	131	100
<u>Experience</u>		
More than 3 years	10	7.6
1 - 3 years	27	20.6
6 months - 1 year	94	71.8
Total	131	100
Mean <i>SD</i>	1.36 .621	

Table (2):The Knowledge of the Nurses in Cardiac Intensive Care Unit about standard precautions measures

	Yes %	No %	Total %
Frequently performing a hand hygiene			
Between contact with different patients	72.5	27.5	100
Immediately after removing gloves	77.5	22.5	100
When there is a risk of splashes of blood, wear			
Mask	73.3	26.7	100
Goggles	23.7	76.3	100
Gown	35.4	64.6	100

Table (3)Association between The nurses' Qualifications &Knowledge score

Chi-square .879		Qualifications			Total
		Diploma	Bachelor	MSc	
Knowledge score	Good	7	107	14	128
	Moderate	0	3	0	3
	Poor	0	0	0	00
	Total	7	110	14	131

Figure I: The Knowledge of the Nurses in Cardiac Intensive Care Unit regarding the emergency crash cart

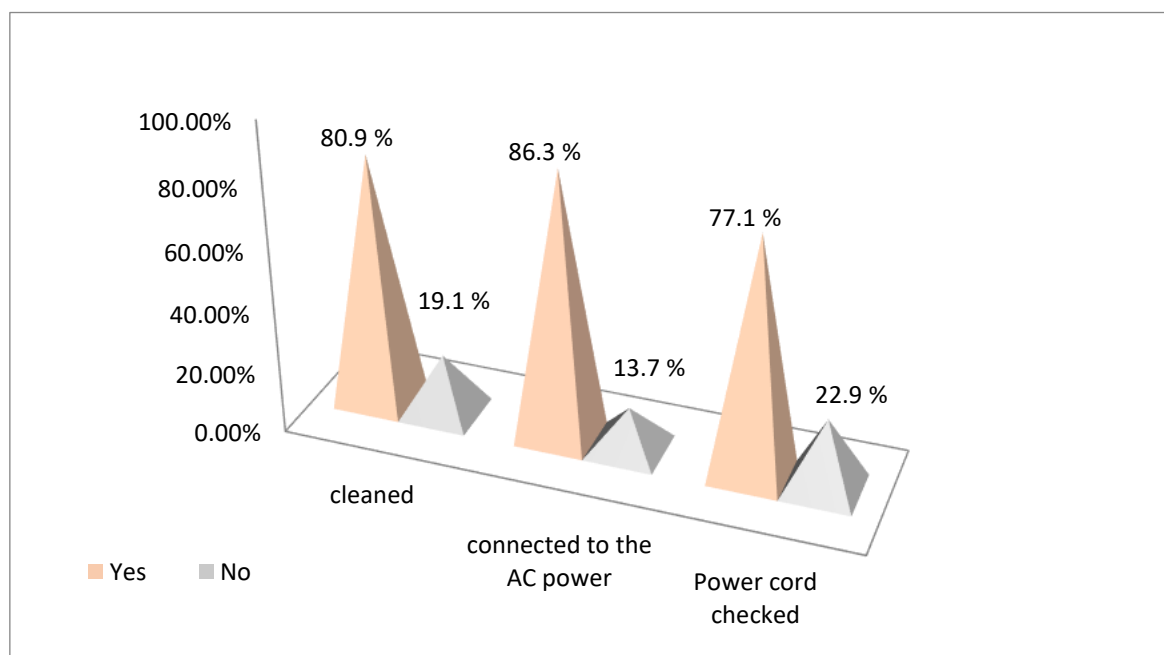
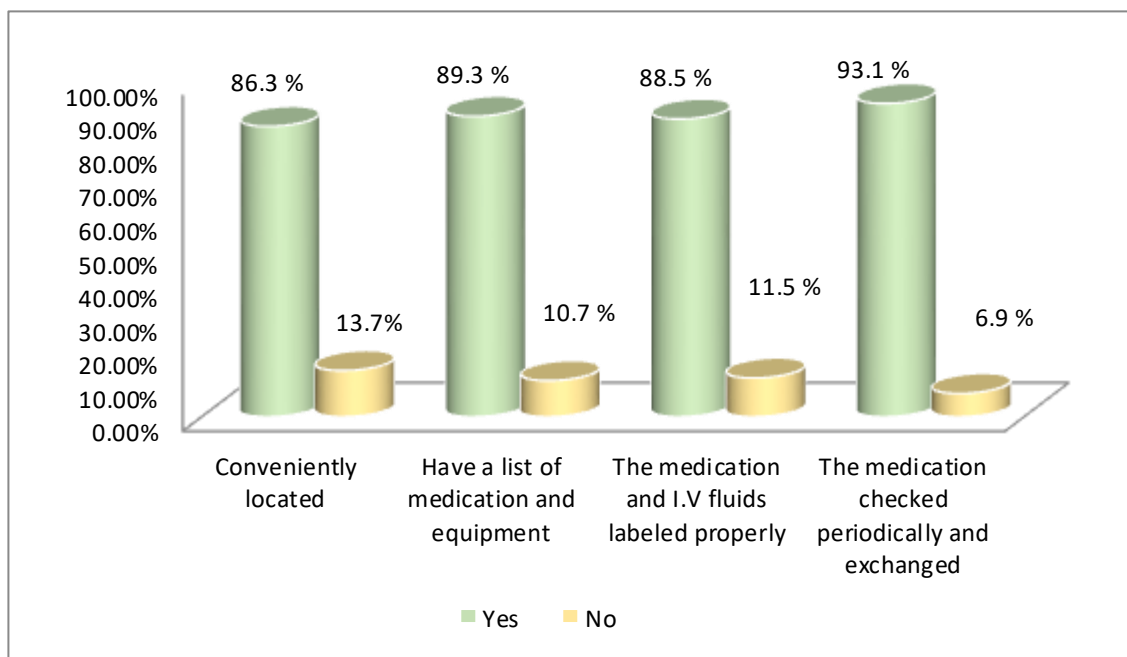


Figure II: The Knowledge of the Nurses in Cardiac Intensive Care Unit about the defibrillator

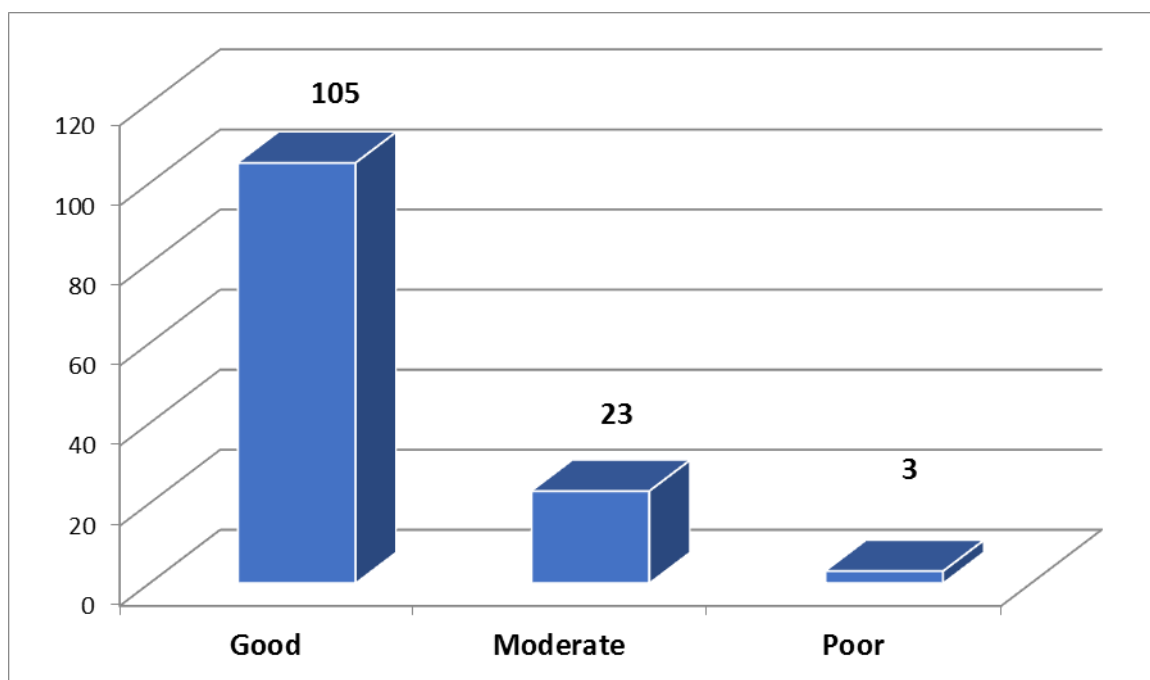


Figure III Distribution of sample according to their knowledge regarding hemodynamic monitoring



Figure (IV):Distribution of sample according to their knowledge about standard precautions measures

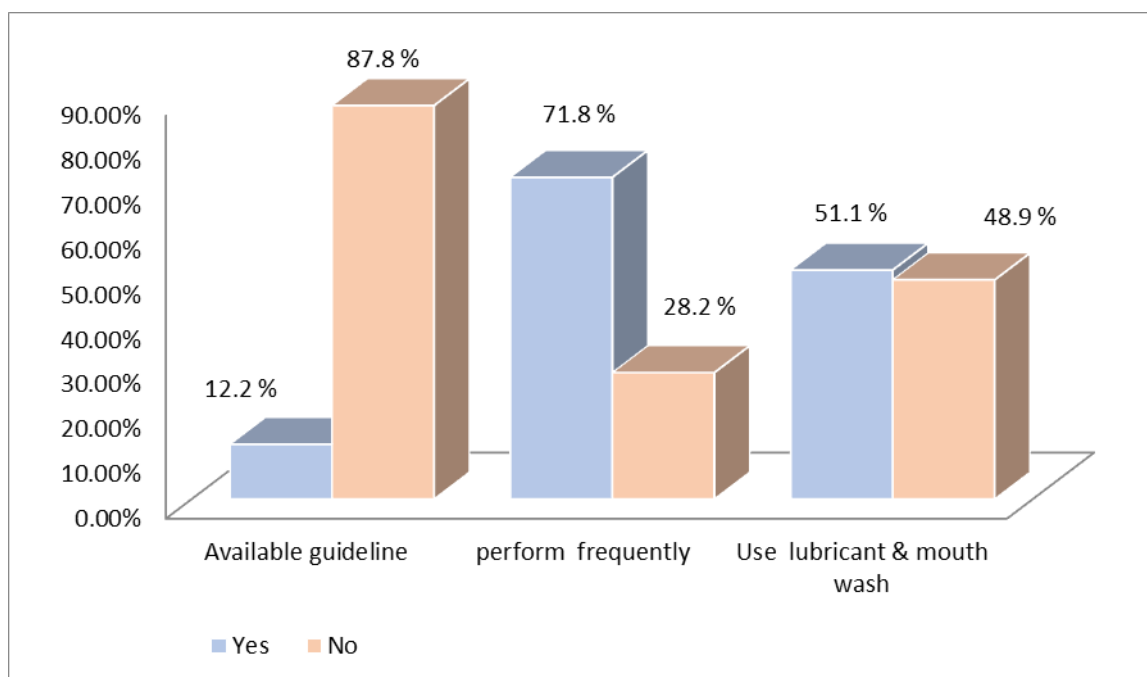


Figure V: The Knowledge of the Nurses in Cardiac Intensive Care Unit regarding the mouth care for ventilated patient

Discussion

Critical care nurses provide expert, specialist care to extremely ill or injured patients in ICUs. They're highly trained and skilled safety-critical professionals working based on good knowledge, as a part of a multidisciplinary team.

The results revealed that there was a more than half of nurses (62.6%) were in the age group (20 - 30) years old with mean age 1.49 (S D .695) this means that most of the nurses under study were newly graduated, and the results confirmed the predominance of women in the profession as about three quarter of them (74.8%) were female, this result considered logical, as the nursing profession historically began with females a global wise, and particularly in Sudan, the College of Nursing Sciences has recently accommodated male students. Regarding their qualifications, about 110 of nurses (84%) were Baccalaureate degree, 14 (10.7%) Master degree and 7 (5.3%) Diploma. The unit specialty was divided into two different specialties, coronary care unit (CCU) medical unit, and intensive care unit (ICU) surgical unit, the majority of them 94 nurses (71.8%) had experience 6m - 1 year with

mean 1.36 (SD.621), about (93.1%) of them had a good knowledge apropos emergency crash cart in that periodically checking for exchanging the medication based on expiry date, as the work in cardiac ICUs is so hot and busy with tasks, emergency crash cart should be ready all the times, this result was compared to a comparative study conducted in a New Dalhi to assess the knowledge and practice of staff nurses and student nurses regarding crash Cart, revealed that a 60% of staff nurses regarding crash cart(4). Also a high percentages of them (86.3%) had a good knowledge scores as regard to the defibrillator, it should connected to AC power This supported by consensus guidelines were published in India regarding unit design, and equipment organization(2). Most of nurses (87.8%) reported that there was no available guideline, this finding supported by study conducted in 2018 Orotta National hospital -Asmara which stated that all nurses (100%) responded negatively(10), about 105 of the nurses (80%) showed a good knowledge scores regarding hemodynamic monitoring, this was a good result because the hemodynamic monitoring is a most essential part

of patient assessment on which all the nurses actions based , this result was disagree to study conducted on 80 nurses at Christian Medical College & hospital (CMC) Ludhiana-Punjab-India depicts that majority of staff nurses (76.25%) exhibited moderate score and there was no nurses at good level related to knowledge criteria regarding hemodynamic monitoring(8), around 107 nurses (81.6 %) had good knowledge scores regarding standard precautions, as the nurses play a major role in preventing and controlling the infection, this result is compatible to study was conducted in northern Jordanian hospitals, as 95.1% of participants knew what standard precautions(12) 72.5% Of them performing a hand hygiene Frequently between contact with different patients, 77.5% washing hands Immediately after removing gloves which is low compared to study conducted

in 3 teaching hospitals in Khartoum state, showed 83.3% of the nurses washing their hands Frequently between contact with different patients & 81.5% washing hands Immediately after removing gloves.(13).about (87.8 %) of the nurses reported that there was no available guideline, this finding supported by study conducted in 2018 Orotta National hospital - Asmara which stated that all nurses (100%) responded negatively, 71.8 % of them answered yes for performing the frequently, whereas the percentages of the nurses who using the lubricant & mouth wash post the procedure were almost equal (yes 51.1 %, no 48.9 %), this finding in disagree with the same study about 62.3% used moisturizer (Vaseline) after doing oral care & all nurses (100%) participants had never used chlorohexidine (CHX) or other type of mouth wash for oral care.(10)

Conclusion: The study concluded that the nurses have a good total knowledge score in Cardiac Intensive Care Unit. **Recommendation:** The study recommended to enhance the nurses 'knowledge in the intensive care units, a propose

plan for frequent workshops, and in service education to be undertaken,

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Conflict of Interest

No conflict of interest.

References

1. Credland N. Essential critical care skills 1: what is critical care nursing. Nursing Times. 2021;18-21.
2. Khilnani P, Ramachandran B, Shaikh F, Sharma R, Sachdev A, Deopujari S, et al. Consensus Guidelines for Pediatric Intensive Care Units in India, 2020. Indian Pediatrics. 2020;57(11):1049-54.
3. Singh R, Madhav CD. Evaluation of Availability and Effectiveness of Crash Cart in Public and Private Hospital PARIPEX - INDIAN JOURNAL OF RESEARCH. 2019;8(2).
4. Kaushik A, Mancheri N. A Comparative Study to Assess the Knowledge and Expressed Practice of Staff Nurses and Student Nurses regarding Crash Cart in a Selected Hospital of New Delhi. International Journal of Nursing & Midwifery Research (E-ISSN: 2455-9318). 2019;6(1):3-6.
5. Ljubotina M. Inspection and Testing of Defibrillators. Inspection of Medical Devices: Springer; 2018. p. 161-79.

6. Singh R, Madhav CD. Capt (Dr) Aakash Raj. Paripex - Indian Journal of Research. 2019;8(2).
7. Brezić J, Kurtović B, Friganović A. Levels of Knowledge in Nursing Students on Hemodynamic Monitoring—A Cross-Sectional Study. Croatian Nursing Journal. 2021;5(1):29-39.
8. Paul MP. An Evaluative Study to Assess Nurses' Competencies Related to Cardiovascular Assessment with a View to Plan Inservice Education in Critical Care Areas of a Selected Hospital , Luidhiana. Punjab. International Journal of Multidisciplinary Educational Research 2021;5(1).
9. Anuar TNAT, Samsudin N, Rasudin NS, Zain NM. Knowledge and Compliance Regarding Standard Precautions among Nursing Students at Universiti Sains Malaysia. INTERNATIONAL JOURNAL OF CARE SCHOLARS. 2021;4(1):10-7.
10. Dagnew ZA, Abraham IA, Beraki GG, Tesfamariam EH, Mittler S, Tesfamichael YZ. Nurses' attitude towards oral care and their practicing level for hospitalized patients in Orotta National Referral Hospital, Asmara-Eritrea: a cross-sectional study. BMC nursing. 2020;19(1):1-9.
11. DeLaune PKLSC, editor. Fundamentals of Nursing Standards & Practice. 4th ed2010.
12. 12. Al-Faouri I, Okour SH, Alakour NA, Alrabadi N. Knowledge and compliance with standard precautions among registered nurses: A cross-sectional study. Annals of Medicine and Surgery. 2021;62:419-24.
13. 13. Saeed AA. Infection Control: Standard Precaution Measures Knowledge, Attitude And Practice Of Medical Doctors And Nurses In Sudan. Universal Journal of Pharmaceutical Research. 2021;6(5):7-13.