Iraqi National Journal of Nursing Specialties

Journal homepage: https://injns.uobaghdad.edu.iq/index.php/INJNS

Evaluation of Nurses' Knowledge about Chest Physiotherapy Techniques for Patients with COVID-19

Ahmed Yassin Khadyer* MScN; Sabah Abbas Ahmed**, PhD

*Thi Qar Health Directorate, Ministry of Health, Iraq
**University of Baghdad, College of Nursing, Bab Al-Mua'adham Square, Baghdad, Iraq

ARTICLE INFO

ABSTRACT

Objective(s): The present study aims to evaluate nurses' knowledge about chest physiotherapy techniques for patients with coronavirus and to find out the relationship between nurses' knowledge and their demographic characteristics.

Methodology: A descriptive study was conducted at the isolation units in Al-Hussein teaching hospitals in Thi-Qar/Iraq, for the period from June 1st, 2022 to February 27th, 2023. Non- probability, purposive sample of 41 nurses were selected for the purpose of the study. An instruction program and a questionnaire were constructed for the purpose of the study. Content validity of the program and the questionnaire are determined through panel of experts in adult health nursing and respiratory specialist, and internal consistency reliability is obtained through pilot study. Data are collected through the use of the questionnaire and analyzed through the application of descriptive and inferential statistical approaches which are applied by using SPSS version 23 such as frequency, percentage, mean of score, standard deviation, ANOVA and T. test.

Results: The results of the present study showed that nurses who were providing care for patients with COVID-19 in the isolation unit had poor to fair knowledge about chest physiotherapy techniques, and their knowledge was not affected by their demographic characteristics.

Conclusions: The study concluded that nurses working at the isolation units need to be more knowledgeable on chest physiotherapy techniques provided for patients with COVID-19.

Recommendations: The current constructed instruction program is essential to raise nurses' knowledge and skills about chest physiotherapy techniques for patients with COVID-19.

© 2023 College of Nursing. Published by University of Baghdad.

---

* Corresponding author at: University of Baghdad, College of Nursing, Bab Al-Mua'adham Square, Baghdad, Iraq;

E-mail address: ahmedyassenkhadyer@gmail.com (AY Khadyer). ORCID: 0000-0003-4225-9339

تقويم معارف الممرضين حول تقنيات العلاج الفيزيائي للصدر لمرضى كوفيد-19

المستخلص

الأهداف: تهدف الدراسة الحالية لتقييم معارف الممرضين حول تقنيات العلاج الفيزيائي للصدر لمرضى مصابين بفيروس كورونا وكشف العلاقة بين معارف الممرضين وصفاتهم الديموغرافية.

منهجية البحث: دراسة وصفية اجريت في وحدات العزل الصحي بمستشفى الامام الحسين (ع) التعليمي في ذي قار, العراق للفترة من 1 حزيران 2022 إلى27 شباط 2023. وقد تضمنت العينة الغرضية الغير احتمالية 41 ممرض اختيروا لإجراء الدراسة. تم بناء برنامج ارشادي والاستبيان لغرض الدراسة. تم تحديد صدق محتوى البرنامج والاستبانة من خلال مجموعة الخبراء في تمريض صحة البالغين واخصائي الجهاز التنفسي والاتساق الداخلي من خلال البحث الدراسة المصغرة. البيانات جمعت من خلال الاستبيان وتم تحليل البيانات من خلال تطبيق الاساليب الاحصائية الوصفية والاستدلالية والتي تم تطبيقها باستخدام الحزمة الاحصائية للعلوم الاجتماعية، اصدار 23 من حزمة (SPSS) كالتكرار والنسبة المئوية ومتوسط الدرجة والانحراف المعياري والوسط الحسابي والانحراف المعياري والتكرار والنسبة المئوية واختبار التباين الأحادي واختبار تي.

النتائج: اظهرت نتائج الدراسة الحالية ان الممرضين الذين يقدمون الرعاية الصحية لمرضى فايروس كورونا في وحدات العزل الصحي لديهم مستوى معارف يتراوح بين ضعيف الى متوسط حول تقنيات العلاج الفيزيائي للصدر، ومعارفهم لم تتأثر بصفاتهم الديموغرافية.

الاستنتاجات: استنتجت الدراسة أن الممرضين في وحدات العزل الصحي بحاجة إلى يكونون متطلع اكثر على تقنيات العلاج الفيزيائي للصدر لتوفير رعاية للمرضى المصابين بـ كوفيد-١٩.

التوصيات: البرنامج الارشادي الحالي هو اساسي لزيادة معارف ومهارات الممرضين حول تقنيات العلاج الطبيعي للصدر للمرضى المصابين ب كوفيد-١٩.

الكلمات المفتاحية: تقنيات العلاج الفيزيائي للصدر، معارف الممرضين ، كوفيد-19

Introduction

Corona viruses (CoVs) are a group of vastly diverse, enclosed, positive-sense, and single-stranded Ribonucleic acid (RNA) viruses [1].

The World Health Organization (WHO) has declared the coronavirus known as COVID-19 a pandemic disease, and it can be spread through close contact with infected people who may or may not be showing any symptoms [2].

The vast majority of viruses spread through droplets of respiratory secretions. Large droplets from a sick person's coughing, sneezing, or rhinorrhea land on surfaces within two meters. Preliminary data suggests that chest X-ray may have investigative constraints in COVID-19 [3].

Previous study proved that the existing broad outbreak has been partially accompanying to inadequate infection control methods and a delay in diagnosis [3]. Being knowledgeable about COVID-19 avoidance and protection methods, nurses can contribute in breaking the spread chain [4].

The Iraqi ministry of health confirmed large numbers of people infected with Covid-19, approximately 394,566 with 9,683 deaths in May 2020. Most of them have chronic diseases [5].

There are several methods to inhibit spread of COVID-19, therefore the nurses should be using personnel protective kit for elongated period whereas providing care to COVID-19 patients [6].

Patients admitted to hospitals with established or suspected COVID-19 are likely to be accomplished by physiotherapists who effort in primary healthcare facilities [3].

Individuals with COVID-19 have

recently been recognized as needing early physical therapy and community rehabilitation, which has become as a critical evidence-based element in the managing of these patients. Clinical research suggests a number of early physiotherapy methods and modalities for intensive care units [7].

Many reports and documents showed that despite the claims of conducting a large number of training courses for doctors and other healthcare professionals and workers, the vast majority of these courses were not accredited and were mostly conducted by unqualified personnel [8].

To find out the awareness about role of physiotherapy in recovery of covid-19 patients among young adult population through evaluation patient with COVID-19 should be accompanied with physical therapy by nurses, for example deep, slow breathing, chest expansion, diaphragmatic inhalation, utilization of respiratory muscles, airway clearance procedures (as required), and positive respiratory pressure approaches can be additional based on requirements, therefore the study aims to evaluates nurses' knowledge about chest physiotherapy techniques for patients with COVID-19 [9].

The aim of present study was to assess nurses' knowledge about chest physiotherapy techniques for patients with Corona virus disease and determine the relationship between nurses' knowledge and their socio-demographic features.

Methodology

A descriptive study was carried out to designate a problem in numerical data that can be converted into usable statics. The study was conducted in the isolation units of Al- Hussein teaching hospital located in Thi-Qar/Iraq, for the period from June 1st, 2022 to February 27th, 2023.

Non- probability (purposive) sample of (41) nurses of the morning staff working in the isolation unit only.

Ethical consent has been granted from the Scientific Research Ethical Committee at the college of nursing, University of Baghdad. Consent has been obtained from nurses to participate in the study and assigned a consent form. They have been informed about their right to withdraw from the study.

A questionnaire was constructed based on review of relevant literature and studies. The questionnaire consists of two parts; the first part includes socio-demographic attributes which include: Age, gender, level of education, work time, number of years of experience, nursing trainings session about COVID-19, and marital status; the second part include (20) multiple-choice items concerning nurses' knowledge about self- directed questionnaire sheet about chest physiotherapy techniques for patient with COVID-19. The total knowledge scores were categorized into 3 levels based on Bloom's cutoff [17]: good level, fair level, and poor level (Table 1).

The content validity of the study tool is investigated through the panel of (13) experts to determine its clarity, suitability, and adequacy to attain the objectives of the study.

Reliability was checked by a pilot study of (5) nurses to measure the concordance between the questionnaire items using the reliability coefficient of Cronbach's alpha, the result indicated that the scale had an appropriate level of internal consistency (α = 0.855).

The study data were analyzed through the Statistical Package of Social Sciences (SPSS), version (23). A descriptive and inferential data statistical approaches were used including frequency, percentage, mean, mean of score, standard deviation, scores, t. test and ANOVA.

Results

Table 1 shows that the majority of nurses are between 20-30 years old (68.3%). Females are constituted the higher percentage (68.3%), (48.8%) of the sample have bachelor degree in nursing and (70.7%) of them were working for 6-12 hour, (65.9%) of the nurses have 1–5 years of hospital experience. The table shows that (51.2%) of nurses were married.

Table 2 revealed that most of the nurses had poor knowledge about chest physiotherapy techniques 24.4% they earned a total knowledge score below 12 (<60%). Then 43.9% of the nurses earned a total knowledge score of between 12-15 (60%-79%) which indicated a fair level of CPT-related knowledge, and 31.7% of the respondents earned a total knowledge score of between 16-20 (80%-100%) which indicated a good level of CPT-related knowledge. The mean total knowledge score among the 41 respondents was 0.7 (SD ± 0.171).

Table (3) reveals that there is no statistically significant relationship between nurses' knowledge and their demographic characteristics at P-value of more than 0.05.

Table (1): Nurses' Socio-Demographic Characteristics (n=41)

Variables	Groups	Frequency	%
Age groups	20- 30	28	68.3
	31- 40	10	24.4
	41 and older	3	7.3
	Total	41	100
	Min= 21 max= 44 mean= 28.63 SD= 6.032		
Gender	Male	13	31.7
	Female	28	68.3
	Total	41	100.0
Level of education	Bachelor in Nursing	20	48.8
	Diploma	10	24.4
	Nursing school	11	26.8
	Total	41	100.0
Social status	Married	21	51.2
	Single	20	48.8
	Total	41	100.0
Work hours	less than 6 hours	2	4.9
	6-12 hours	29	70.7
	12 hours and more	10	24.4
	Total	41	100.0
Years of experience	1-5	27	65.9
	6-10	7	17.1
	More than 10 years	7	17.1
	Total	41	100.0

N= Sample size, Min= minimum, Max= maximum, SD=Standard deviation, %= Percentage

Table (2): Overall Evaluation of Nurses' Knowledge about Chest Physiotherapy Techniques for Patients with COVID-19

	Category	Scores (%)	Frequency	%
Nurses' knowledge	**Good**	<12 (<60%)	10	24.4
	Fair	12-15 (60%-79%)	18	43.9
	Poor	16-20 (80%-100%)	13	31.7
	Total		41	100.0
	Min = 0.4	**Max.=1**	**mean= 0.7**	**SD=0.171**

N= Sample size, Min= minimum, Max= maximum, SD=Standard deviation, %: Percentage

Table (3): Relationship between Nurses' Knowledge about Chest Physiotherapy Techniques and their Demographic Characteristics

Demographic characteristics "ANOVA"		Sum of squares	d.f	Mean square	F	P value
Age	Between Groups	0.014	2	0.007	0.440	0.647 NS
	Within Groups	0.586	38	0.015		
	Total	0.6	40			
Educational level	Between Groups	0.014	3	0.005	0.292	0.831 NS
	Within Groups	0.586	37	0.016		
	Total	0.6	40			
Years of experiences	Between Groups	0.021	2	0.011	0.703	0.501 NS
	Within Groups	0.578	38	0.015		
	Total	0.6	40			
Number of training session	Between Groups	0.074	2	0.037	2.667	0.082 NS
	Within Groups	0.526	38	0.014		
	Total	0.6	40			
Work time	Between Groups	0.018	2	0.009	0.575	0.568 NS
	Within Groups	0.582	38	0.015		
	Total	0.6	40			
Demographic data "T.Test"		Mean	S.d	df	T value	P value
Gender	Male	0.2654	0.10875	39	0.928	0.359 NS
	Female	0.3036	0.12833			
Social status	Married	0.3024	0.09808	39	0.58	0.565 NS
	Single	0.2800	0.14546			

(df) = degree of freedom, (P)= significant, (NS): Non= significant, (S)= significant, SD= Standard deviation, F = ANOVA Coefficient

Discussion

Data analysis of the results revealed that the majority of nurses are between the age of second and third decades. This findings is cconsistent with study carried out in South Africa and founded that the uppermost response rate of the age are 45.1% (73/162) from 21-30 years [10].

Most of the nurses are females; this result is agreed in the study is carried out among (311) participants in Lebanon, the study reported that about three quarters of them were female (79.4%) (247/311) [11].

The majority of nurses had bachelor

degree in nursing and working for about a quarter or half of the day in the isolation unit, these results are consistent with the results of a study conducted in Baghdad where founded that majority of the health care providers (39.9%) (99/248) were with bachelor in nursing [12].

Another study conducted in Australia founded that (53%) of nurses were working full time, while (42%) working part time [13].

Regarding the years of experiences, most of the nurses had few years of experience. Also, this result agrees with a study done in Egypt founded that most of the nurses (60%, 18/30) had experience between 1- 5 years [14].

The findings of the study reveal that that the majority of nurses were married, this results agreed with results of a study conducted in Samawah, Iraq where it was founded that (55%) were married [15].

Regarding overall knowledge score, table 2 reveals that more than half of nurse in the study group have poor and fair knowledge about chest physiotherapy techniques for patient with COVID-19, (68.3%). While the remaining earned good knowledge (31.7%). These results is supported by a study conducted in Iraq, the majority of nurses had poor knowledge about evaluation nurses' knowledge and attitudes about the prevention of the Coronavirus disease- 2019 at emergency units in government hospitals in Baghdad city/Iraq [16]. Finally, present findings reveals that there is no significant relationship between nurses' knowledge about chest physiotherapy techniques and their demographic features. The findings consistent with study accomplished at emergency units in government hospitals in Baghdad city / Iraq were demonstrated that a no significant association between nurses' knowledge about chest physiotherapy techniques and socio-demographic features such as gender, sites of hospitals, level of education and social status except age group and experience in work where there is significant relationship at p-value < 0.05 [16].

Conclusions

The study concluded that nurses of isolated units need to be more knowledgeable about chest physiotherapy techniques for patients with COVID-19. We also conclude that demographic characteristics such as age, gender, and educational level had no effect on the nurses' knowledge.

Recommendations

Health intervention programs about chest physiotherapy techniques need to be considered and presented for nurses to raise nurses' knowledge about chest physiotherapy techniques for patient with corona virus diseases.

Conflict of Interest

None.

References

1. He F, Deng Y, Li W., 2020. Coronavirus disease 2019: What we know?. Journal of medical virology. 2020 Jul;92. (7):719-25. https://doi.org/10.1002/jmv.25766

2. Lalwani, L., Mishra, G., Gaidhane, A., Quazi, N., & Taksande, A. (2021). Chest Physiotherapy in Patients Admitted to the Intensive Care Unit With COVID-19: A Review. The Open Public Health Journal, 14(1). DOI: 10.2174/1874944502114010145

3. Thomas, P., Baldwin, C., Beach, L., Bissett, B., Boden, I., Cruz, S. M., ... & Patman, S. (2022). Physiotherapy management for COVID-19 in the acute hospital setting and beyond: an update to clinical practice recommendations. Journal of physiotherapy, 68(1), 8-25. https://doi.org/10.1016/j.jphys.2021.12.012

4. Nemati M, Ebrahimi B, Nemati F. (2020). Assessment of Iranian nurses' knowledge and anxiety toward COVID-19 during the current outbreak in Iran. Archives of Clinical Infectious Diseases. Apr 1;15(COVID-19). **DOI**: 10.5812/archcid.102848

5. Mohammed, D., & Bakey, S. (2021). Detection of Depression among Nurses Providing Care for Patients with COVID-19 at Baqubah Teaching Hospital. Iraqi National Journal of Nursing Specialties, 34(1), 86-94. https://injns.uobaghdad.edu.iq/index.php/INJNS/article/view/464

6. Ahmed, S. A., Mahmood, M. S., Yousef, A. J., & Mahmood, B. S. (2022). Evaluation of nurses' practices related to personal protective equipment Regarding Preventive Measures of Transmission of COVID-19 in Baghdad Teaching Hospital. Texas Journal of Multidisciplinary Studies, 11, 63-67. https://zienjournals.com/index.php/tjm/article/view/2243

7. Kalirathinam, D., Guruchandran, R., & Subramani, P. (2020). Comprehensive physiotherapy management in covid-19–a narrative review. Scientia Medica, 30(1), e38030-e38030. DOI: https://doi.org/10.15448/1980-6108.2020.1.38030

8. Al-Mosawi, A. (2021). Iraq healthcare system before covid-19 pandemic. Scholars' Press. https://www.amazon.com/healthcare-system-before-covid-19-pandemic/dp/6138947495

9. Tailor DS, Patel AM., 2020. Awareness about Role of Physiotherapy in Recovery of COVID-19 Patients among Adult Population. DOI: https://doi.org/10.52403/ijhsr.20220326

10. Joseph, P. M. (2011). Knowledge, attitudes and practices of physiotherapists regarding their role in health promotion in Gauteng Province, South Africa (Doctoral dissertation, University of Limpopo (Medunsa Campus)). doi: 10.4102/sajp.v74i1.443

11. Saadeh, D., Sacre, H., Hallit, S., Farah, R., & Salameh, P. (2021). Knowledge, attitudes, and practices toward the coronavirus disease 2019 (COVID-19) among nurses in Lebanon. Perspectives in psychiatric care, 57(3), 1212-1221. DOI: 10.1111/ppc.12676

12. Jasem SS, & Al-Jubouri MB., (2021). Obsession with COVID-19 among health care providers. Turkish Journal of Physiotherapy and Rehabilitation. 2021;32:3.https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/resource/pt/covidwho-1323645

13. Newstead CJ, Seaton JA, Johnston CL. (2017). Australian critical care nursing professionals' attitudes towards the use of traditional "chest physiotherapy" techniques. Hong Kong Physiotherapy Journal, 36:33-48. https://doi.org/10.1016/j.hkpj.2016.08.001

14. Abd ElAziz MA, Abd Elhafez NG, Sayed SY. (2021). Effect of Nursing Educational Program on Nurses′ Knowledge and Practices regarding Pandemic Covid-19 in Isolation Unit. Egyptian Journal of Health Care, 12(4):248-63. 10.21608/EJHC.2021.198442

15. Mohammed QD, Atiyah HH. (2022). Effectiveness of an Educational Program on Nurses' Knowledge towards Physical Therapy for Patients with COVID-19. Pakistan Journal of Medical & Health Sciences, 16(03):928-. DOI: https://doi.org/10.53350/pjmhs22163928

16. Resham A, Qassem W, Mohammad W. (2021). Evaluation Nurses' Knowledge and Attitudes about the Prevention of the Coronavirus Disease 2019 at Emergency Units in Government Hospitals in Baghdad city/Iraq. Kufa Journal for Nursing Sciences, 11(2):17-29. https://journal.uokufa.edu.iq/index.php/kjns/article/view/2007

17. Bloom, B. S. (1968). Learning for Mastery. Instruction and Curriculum. Regional Education Laboratory for the Carolinas and Virginia, Topical Papers and Reprints, Number 1. *Evaluation comment*, *1*(2), n2.