Non-pharmacologic Pain management Knowledge and Barriers among Nurses in Erbil Hospitals

Ronak Nematala Hussain; *Department of Nursing, College of Nursing, Hawler Medical University, Erbil, Kurdistan Region, Iraq* (Correspondence: ronak.hussain@hmu.edu.krd).

ABSTRACT

Aim of the study: Pain management is a multidisciplinary approach for easing suffering and improving the patients' quality of life and nurses play a significant role in providing pain assessment and treatment. Non-pharmacological pain management is any intervention intended to improve health or well-being that does not involve the use of any drugs or medicine. This study aimed to assess the nurses' knowledge and their barriers regarding non-pharmacologic pain management.

Methods: A descriptive cross-sectional study was carried out at Hawler, Rizgary and Nanakaly teaching hospitals in medical and oncology wards on a non-probability purposive sample of 100 nurses who worked in the above wards. The data was collected from the end of December to the end of February 2020 through self-reports by nurses using a constructive single choice questionnaire. Each correctly answered item was recorded as 1 and the incorrect one as 0.

Results: The higher percentages of nurses, including males aged between (30-39) years, institute graduates, and experienced in jobs between (1-10) years. 69% of nurses have a moderate level of non-pharmacologic pain management, and, 47% of nurses have not applied non-pharmacological pain management in hospitals. Only 16% of them applied, and 37% sometimes applied, psychological and physical methods of non-pharmacologic pain management were more applied by 29% and 23% respectively by nurses than other methods. Nurses had many barriers to using non-pharmacological pain management, like nursing workload and lake of protocol for pain management.

Conclusion: This study concluded that the majority of nurses have a fair (moderate) level of knowledge about non-pharmacological pain management and applied by only 16 % of nurses. Nurses have many barriers to using non-pharmacological pain management.

Keywords: Pain management; Non-pharmacologic pain management; Knowledge; Barriers.

INTRODUCTION

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage the International Association for the Study of Pain (IASP) [1, 2]. Pain is a responsive mechanism to protect from damage. Many studies describe pain as the fifth vital sign that health professionals monitor and manage when caring for patients [3, 4]. Pain is feeling, and only a person without pain is a happy person. In physiotherapy, more physical modalities are used for the treatment of subacute and chronic pain [5].Non-pharmacological therapy as any intervention intended to improve health or well-being that does not involve the use of any drugs or medicine [6]. These therapies help the standard pharmacologic treatment in pain management. While medications are being used for treating the somatic (physiological and emotional) dimension of the pain, non-pharmacologic therapies aim to treat the affective, cognitive, behavioral and socio-cultural dimensions of the pain [7]. Non-pharmacologic management is a number of effective interventions for pain. These may be used alone for mild to moderate pain, or in combination with drug therapy for more severe pain [8]. The use of non-pharmacological pain relief techniques has been found to be effective with fewer side effects and complications associated with them also diminishes pain perception by reducing intensity and increasing pain tolerance, reduces pain-related distress, strengthens coping abilities, and gives the patient and family a sense of control over pain [9].Non-pharmacologic interventions include cognitive behavioral therapy, relaxation therapy, biofeedback, patient education, self-management, and social support interventions. These types of interventions aim to change behavior, cognitions, and emotions by targeting the psychosocial processes that are implicated in the perceptions and responses to pain. Here, good nursing care plays a pivotal or central role. Nurses are not the only healthcare workers who are responsible for relieving patients' pain; they also play a key role in managing patients' pain [10, 11].Because of the extensive prevalence of chronic pain, the major impact it has on quality of life and the many benefits of non-pharmacologic methods of pain management in relieving pain, therefore this method needs to be explored further. The barriers keeping nurses from using them need to be explored. Nurses' knowledge of non-pharmacological pain management needs to be assessed, and any deficits identified need to be corrected, so patients have access to other options to manage their pain more effectively. The study aimed to assess non-pharmacologic pain management knowledge among nurses and potential barriers related to management.

METHODS

A quantitative descriptive cross-sectional study design was used to assess nurses' knowledge about non-pharmacologic pain management in Hawler, Rizgary and Nanakaly Teaching Hospitals in Erbil city. The sample study included a non-probability purposive sample, including all nurses who worked in medical wards during the period of data collection from 21 December 2020 to the end of February 2020. Data were collected through the nurses' self-report method by using a constructed questionnaire that was based on an extensive review of relevant literature. The questionnaire consisted of three parts, which included part I: socio-demographic characteristics of the nurses, which include setting, gender, age, level of education, and experience in the job. Part II consisted of the nurse's knowledge of non-pharmacologic pain management.

Part III included the barriers to the application of non-pharmacologic pain management. Prior to data collection, formal permission was obtained from the ethical approval of the ethical committee at the College of Nursing and official permission was obtained from the Erbil Directorate of Health. Nurses' using a constructive single choice questionnaire, each correctly answered item was recoded as 1 and the incorrect one as 0. Data were analyzed through the SPSS (Statistical Package for Science Service) for Windows V.21 for statistical data analysis, which includes descriptive statistical analysis (frequency, percentage, mean of percentage, which is calculated by the sum of percentages divided by a number of items and chi-square to find out the association between nurses' non-pharmacologic pain management and some of the sociodemographic variables like setting, age, level of education. The P value of each test ≤ 0.05 is considered statistically significant.

RESULTS

Table 1 represents socio-demographic characteristics of nurses' distribution: 41% of nurses were within the age group (30-39) years, 33% of them within (20-29) years, 51% of nurses were males and 49% of them females. Concerning level of education, 57% of nurses were institute graduates, and bachelor was 23%. About setting, 38% of nurses were from Rizgary teaching hospital, 36% were from Hawler teaching hospital and 26% were from Nanakaly teaching hospital. Regarding experience in the job, 51% of nurses were between (1-9) years of experience, and 30% were between (11-19) years.

Table-1. Socio-demographic characteristics of the nurses (n.100)

Socio-demographic characteristics of nurses		F.	(%)
1. Age of nurses	29-20	33	(33)
	39-30	41	(41)
	49-40	17	(17)
	59-50	9	(9)
2. Gender of nurses	Male	51	(51)
	Female	49	(49)
3. Level of education	Preparatory-nurse	20	(20)
	Institute	57	(57)
	Bachelor	23	(23)
4. Setting of nurses	Hawler Teaching Hospital	36	(36)
	Rizgary Teaching Hospital	38	(38)
5.	Nanakaly Teaching Hospital	26	(26)
6. Experience in job years	1 – 9	51	(51)
	10-19	30	(30)
	20 – 29	15	(15)
	30-40	4	(4)

Table 2 shows from Q1 to Q6, regarding nurses' knowledge about pain assessment. The results show that 44.83 of nurses define pain and assess it correctly and % 72 of nurses answer correctly to the question about the knowledge of the signs and symptoms of pain. Regarding nurses' knowledge of non-pharmacologic pain management from Q7-Q18, it shows the overall mean of percentages, and % 57.3 of nurses answered correctly and % 42.7 answered incorrectly. For most of the nurses, 83% correctly answered on massaging as a pain reliever, with 17% incorrect. The lowest percentages of knowledge about on non-pharmacologic pain management (TENS) were 0.30 and 0.15, respectively.

Table 2 : Nurse's knowledge about non-pharmacologic pain management (No.100)

Nurse knowledge about pain and non-pharmacologic pain management	Incorrect answer F.	Correct answer F.
Definition of pain	44	56
Nurses have the right to assess the pain of the patients.	47	53
Ideal time for pain assessment	76	**24**
The frequency of use of the pain assessment in the 24-hour tool is.	89	**11**
Sign and symptom of pain	28	72
According to nursing process pain assessment is provided in which steps?	47	53
Overall mean of percentages	**55.17**	**44.83**
Pain can be managed without drug	25	75
Chronic pain can be managed without drug	56	44
By pharmacologic and non-pharmacologic can manage or relief pain	33	67
Having idea about non-pharmacologic pain management	37	63
Social method is non-pharmacologic pain management	53	47
Transcutaneous electrical nerve stimulation (TENS) a method of non-pharmacologic pain management	70	**30**
Definition of TENS	85	**15**
Deep breath exercise is relaxation technique for pain management	29	71
According to situation (cold or heat application-massage) is more effective non-pharmacologic pain management	29	71
massage is the most effective method to getting the attention away from the pain	49	51
Massaging use method of stroking, kneading, and rubbing can relieve pain	17	83
The benefits of using non-pharmacological pain management is	29	71
Over all mean of percentages	**0.42.7**	**0.57.3**

Table 3 reveals to overall levels of nurses' knowledge. Most nurses, 69% have moderate. knowledge, 22% have poor knowledge and 9% of nurses have good knowledge.

Table 3: Overall Nurses' levels of Knowledge about non-pharmacologic pain management

Overall Nurses' levels of Knowledge	F.	(%)
Poor Knowledge	22	(22)
Moderate Knowledge	69	(69)
Good Knowledge	9	(9)
Total	**100**	**(100)**

Table 4 shows the implementation of non-pharmacologic pain management by nurses in the hospitals. A high percentage of 47% of nurses did not apply, 37% of them with some times applied, and 16% always applied.

Table 4 Non pharmacologic pain management method applied in the hospitals

Applied of non-pharmacologic pain management by nurses	F.	(%)
No	47	(47)
Some time	37	(37)
Yes	16	(16)

Table 5 shows that a higher percentage% 29 of the nurses used the psychological method, 23% used the physical method, 20% of them used all of the methods of none pharmacologic pain management, while the other 20% used none pharmacologic methods of pain management, while cognitive behavior method is used by 8% of nurses.

Table 5: Methods of none pharmacologic pain management applied by the nurses

Methods of none pharmacologic pain management that apply by the nurses	F.	(%)
Physical method	23	(23)
Psychological method	29	(29)
Cognitive behavior method	8	(8)
All above	20	(20)
None of above	20	(20)

Table 6 shows that the higher percentages, 47% of nurses' barriers, are within all the above barriers, followed by 17% having a nursing workload and 14% of having a lack of protocol of pain management barriers.

Table 6: Barriers to using non-pharmacological pain management.

	Barriers to using non-pharmacological pain management	F.	(%)
1.	Lack of the protocol of pain management	14	(14)
2.	Nurses' unwillingness and patient instability	8	(8)
3.	Inadequate motivation	8	(8)
5.	Nursing workload	17	(17)
6.	Nurses' lack of knowledge	6	(6)
7.	All the above barriers	47	(47)

Table 6.1 shows the nurses' opinion about providing actions that minimize the barriers of applying non-pharmacologic pain management in hospitals. 49% of nurses minimize those barriers through item of applying all of the above actions, followed by 16% of them within caregiver training to minimize barriers and 15% by enhancing patient by staff and family.

Table 6.1: Actions that provide to minimize the barriers.

The following actions to minimize the barriers	F.	(%)
Enhance patient by staff and family	15	(15)
Enhance patient by himself	4	(4)
Provide good environment	9	(9)
Caregiver training	16	(16)
Caring according to hospital policy	7	(7)
All of the above way	**49**	**(49)**

Table 7 Shows that there were significant associations between the setting and age of nurses with applying non-pharmacologic pain management in the hospital at p.value 0.046, 0.048 respectively. Managing pain without drug were applied more by nurses from Hawler teaching hospital than Nanakaly and Rizgary teaching hospi- elder. Also, there is a significant association between nurses' knowledge of non-pharmacologic pain management with their educational level; the higher their level of education (bachelor), the more knowledgeable they are about non-pharmacologic pain management at P-value 0.003, respectively.

Table 7 : Association between some of the nurses' sociodemographic characteristics with their non-pharmacologic pain management

Setting of nurses		Hawler Teaching Hospital	Rizgary Teaching Hospital	Nanakaly Teaching Hospital	Total
1. Appling non-pharmacologic pain management in the hospitals	No	12	21	14	47
	Some time	19	13	5	37
	Yes	5	4	7	16
	Total	**36**	**38**	**26**	**P. 0.046**
Nurses' age (years)	**20-29**	**30-39**	**40-49**	**50-90**	
2. Appling non-pharmacologic pain management	No	8	23	11	5	47
	Some time	1	11	4	4	37
	Yes	7	7	2	0	16
	Total	**3**	**41**	**17**	**9**	**P.0.048**
3. Nurses' level of education		**Prep-nurse**	**Institute**	**Bachelor**	**Total**
Knowledge about non-pharmacologic pain management					
Un known		8	16	2	26
Poor		4	6	1	11
Good		16	13	11	40
Very good		8	3	12	23
Total		**36**	**38**	**26**	**P. 0.003**

DISCUSSION

It is the first study done in Erbil, even in Iraq, on the nurses' knowledge regarding non-pharmacological pain management; therefore, the goal of this study is to assess nurses' knowledge of non-pharmacological pain management and their barriers among chronic disease patients in Erbil. In this study, the results show that the higher percentage of nurses were from Rizgary teaching hospitals, males, aged from 30-39 years, married, medical institute graduates, having less than ten years of experience; this result disagrees with the result of the previous study [12] done on Jordanian nurses which revealed that the majority of the nurses were females, more than half of the respondents belonged to the age group of 26-30 years old, majority of the respondents had professional experiences between 6 - 10 years and (86.8%) of respondents had a bachelor degree. The current study findings regarding non-pharmacological pain assessment and management sub-items revealed that nearly half (%44.83) of the nurses answered the questions correctly. It may be related to a need for more protocols for pain management and nurses' workload in the hospitals. This finding is consistent with the Egypt study [13], which revealed that nurses' pain assessment and management among critically ill patients needed a better level of practice. Regarding nurses' knowledge of non-pharmacological pain management, results of this study show that 57.3 % of the overall mean percentages of nurses had correctly answered; this may relate to the fact that the majority of nurses institute graduate within middle level of education. This result is consistent with the results of Ethiopian studies [14, 2] which revealed that 53.3% and 51.2% of nurses, respectively, had good knowledge of non-pharmacological pain

management methods. However, the current study finding is lower compared with the result of the study [15] in Zimbabwe Bindura Hospital, which had a mean knowledge score of 64.5%.In current study, 69% of nurses had a fair level of overall nurse's knowledge about non-pharmacologic pain management; this is due to the fact that more than half of nurses have within medium level of education. This result, along with results of Bindura Hospital and United States studies [15, 16] and Nigerian study [17], revealed that nurses have adequate knowledge about non-pharmacological methods for pain control. However, lower, compared with another study of the western part of Ethiopia, 78.1% correctly answered the item [18].The present result disagree with the result of a previous study [19] conducted in Bangladesh they indicated that nurses with poor level of knowledge and whereas the level of practice was moderate In the current study near than half of nurses not apply non-pharmacological method of pain management this may be related to the hospitals system and inadequate facilities to use non-pharmacological methods and excess workload this result in consistent with the results of the Turkey article study [20] that reviewed about 35 Turkish and English studies which included 13 of these studies were master's thesis and 11 of these were doctoral thesis and research articles the most research was done in 2016 and 2017. They stated that nurses have never used or limited used non-pharmacological methods in pain management. In addition the current result disagree with the results of Turkey study [4] and study [21] in Egypt they mentioned that majority of nurses were restricted or didn't apply non-pharmacological pain management practices for their patients. Furthermore the result of the study [12] in Jordan supported current study result they

stated nurses tended to have a moderate practices of pain management (Mean = 4.968; standard deviation = 1.310). Concerning the methods of non-pharmacological pain management that were applied by nurses in this study, the results show that nurses mostly applied the psychological and physical methods. This result is supported by the result of the Nigerian study [17], which found that nurses were more aware (85.7%) of the physical methods of non-pharmacological pain control when compared to psychological (49.8%) methods. Furthermore regarding using methods of non-pharmacological pain management in current study the results congruent with the results of Brazil review article study [22] in 2017 they revealed that from the non-pharmacological measures that can be employed by nurses are patient orientations with regard to emotional support, and massage, relaxing massage, heat or cold application, measures that can be implemented by nurses. In relating to barriers of non-pharmacological pain management in this study the present result show that nurses have many barriers such as lack of protocol of pain management, nursing workload, nurses unwilling and patient instability, lack of motivation to use non-pharmacology pain management methods and poor nurses knowledge, this results supported by the result of Ethiopian study [14] which stated that based on nurses response barriers were around 121 (71.6%) of nurses were had fatigue, 121 (71.6%) nurses in adequate motivation, about three fourth 125(74.0%) within heavy nurses' workload, 122(72.2%) conflict and unwillingness to use non-pharmacological pain management,125 (74.0%) multiple responsibility of nurses. In addition the current result agree with the results of Nigerian study [17] which indicated their barriers of non-pharmacological pain management were lack of time (54.2%), excessive workload (51.2%), and lack of knowledge of some of the various alternative measures (38.9%). Furthermore the most common barriers that prevents nurses using non-pharmacological pain management for patients in the three Saudian hospitals (1, 2& 3) supported the current result by stated their barriers were the lack of time (55%, 62.5%, 15% respectively), then followed by unwillingness of patients (5%, 25%, 7.5% respectively) [23]. Regarding association between applying of non-pharmacologic pain management with setting and age of nurses there was significant association at P.value 0.046, 0.048 respectively. Nanakaly Teaching Hospital more applying of non-pharmacologic pain management than Hawler and Rizgary Teaching Hospitals, and the younger nurses more applied non-pharmacologic pain management than orders; this may relate to younger nurses more familiar and beneficiary about using internet and mass media than older. There were a positively relationship between nurses' knowledge on non-pharmacologic pain management with their educational level at P.value 0.003, this result supported by Nigerian and Saudian studies [17, 23] which finds that there is significant relationship between the nurses' knowledge with their educational level and years of practice regarding use of alternative pain relief measures. While the results disagree with the Egypt study which stated that there is no significant relationship between nurses' knowledge as well as practices with their age, years of experience [13]. Also current results disagree with the result from Tehran, Iran [24].They stated that nurse's educational level, and their work experiences were not significantly associated with the non-pharmacological pain management.

CONCLUSION

Controlling pain is very important and necessary to comfort and relieve patient complaints, increase the quality of life, reduce complications and allow individuals to perform everyday activities. In this study, nurses have moderate knowledge and practices regarding non-pharmacologic pain management. There was a positively strong relation between nurses' knowledge of non-pharmacologic pain management with their level of education.

CONFLICT OF INTEREST

There is no conflict of interest reported by the authors

REFERENCES

[1] Cohen M, Quintner J, van Rysewyk S. Reconsidering the IASP definition of pain. PAIN Reports 2018. DOI: 10.1097/PR9.0000000000000634.

[2] Jira L, Weyessa N, Mulatu S, Alemayehu A. Knowledge and Attitude Towards Non-Pharmacological Pain Management and Associated Factors Among Nurses Working in Benishangul Gumuz Regional State Hospitals in Western Ethiopia. *Journal of Pain Research.* 2020; 13: https://doi.org/10.2147/JPR.S265544.

[3] Theodosopoulou E. Vazourakis F. Filintras I. Gkika D. Dimitrakaki P. Galanis P.Chadzopulu A. Patients and Nurses Attitude towards Pain Management with Alternative Methods. *Progress Health Sciences.*2011 (Cited in 14th Feb 2020). Vol 1. (2). Pp; 5-10.

[4] Karabulut N, Gürçayır D, Aktaş YY. Non-pharmacological interventions for pain management used by nursing students in Turkey. *Kontakt, Elsevier* 2016; 18(1); Pp;23-31

[5] Ramova E, Ramov L. Non Pharmacological Treatment of Pain with Physical Therapy Modalities and Alternative Medicine Methods. 2/4 *Res Arthritis Bone Study*. 2018.1 (4). Pp; 1-4

[6] Sintler NE. The Benefits of Non-Pharmacological Interventions for Individuals with Dementia: A Systematic Review. *Master of Social Work Clinical Research. MSW Clinical Research* Paper. Catherine University Sophia. 2017. Pp.1-30 Available from: https://sophia.stkate.edu/msw_papers/802.

[7] Demir Y. Non-Pharmacological Therapies in Pain Management, *Pain Management - Current Issues and Opinions,* 2012. Available from: http://www.intechopen.com/books/pain-management-current-issues-and-opinions/non-pharmacological therapies-in-pain-management.

[8] Donna D. Ignatavicius, M. Linda Workman, Cherie Rebar.*Medical-Surgical Nursing - E-Book: Concepts for Interprofessional collaborative care* nine edition. 2018 United State. Elsevier. P.69.

[9] Mwanza E, Gwisai RD, Munemo C. Knowledge of Non-Pharmacological Method of Pain Management among Nurses at Bindura Hospital Zimbabwe. *Pain Research and Treatment.* Volume 2019, | https://doi.org/10.1155/2019/2703579.

[10] Gokhale SG and Gokhale S. Non-Pharmacological Methods for Pain Management. Research Gate. *JP Guniper .Nurse Health Care. Opinion,* 2017. 4 (4). P.P 1-2. DOI:10.19080/JOJNHC.2017.04.555642.

[11] Bashar I. Alzghoul1 & Abdullah NA. Pain Management Practices by Nurses: An Application of the Knowledge, Attitude and Practices (KAP) Model. Canadian Center of Science and Education. *Global Journal of Health Science.*2016. Vol. 8, No. 6. Pp.; 154-60. doi: 10.5539/gjhs.v8n6p154.

[12] Ali, N. S., W. Y. Morsy, and M. N. Badr, "Critical care Nurses' Knowledge and Practices regarding Pain assessment and management at Cairo University Hospitals", *Egyptian nursing journal*, 2015. vol. 10, issue 7, pp. 28-38 | https://doi.org/10.1155/2020/4893707.

[13] S Zeleke, A Kassaw, Y Eshetie. RESEARCH ARTICLE Non-pharmacological pain management practice and barriers among nurses working in Debre Tabor Comprehensive Specialized Hospital, Ethiopia. *Plos one journals.* 2021.16 (6). Pp; 1-11

[14] Manwere A, Chipfuwa T, Mukwamba MM, Chironda G. Knowledge and attitudes of registered nurses towards pain management of adult medical patients: a case of Bindura

[15] Moceri JT, Drevdahl DJ. Nurses' knowledge and attitudes toward pain in the emergency department. *Journal of Emergency Nursing*. 2014; 40(1):6–12.

[16] Nwaneri, A., Ndubuisi, I., Anarodo, A., Okoronkwo, I. and Offor, E., 2018. Nurses' knowledge and level of utilisation of non–pharmacological pain control for othorpaedic patients in Enugu Nigeria. *International Journal of Nursing Science,* 8(4), pp.61-66.

[17] WoldehaimanotTE, Saketa Y, Zeleke A, Gesesew H, Woldeyohanes T. Knowledge and attitude: a survey among nurses in 23 health institutions in Western Nigeria.

[18] *International Journal of Nursing Science* 2018, 8(4): 61-66   2014; 20(3):254–60.25. DOI: 10.5455/GMJ-30-157196.

[19] Basak S , Petpichetchian W, Kitrungrote L. Knowledge and Attitudes of Nurses and Their Practices Regarding Post-operative Pain Management in Bangladesh. The 2nd International Conference on Humanities and Social Sciences April 10th, 2010 Faculty of Liberal Arts, Prince of Songkla University Palliative Care_007.Pp;1-12.

[20] Yaban ZS. Review Article Usage of Non-Pharmacologic Methods on Postoperative Pain Management by Nurses: Sample of Turkey. *International Journal of Caring Sciences.*2019. 12 (1) Pp: 529- 541.

[21] Khalil NS. Critical care nurses' use of non-pharmacological pain management methods in Egypt. *Applied Nursing Research.* 2018;   44:33–8.   doi: 10.1016/ j.apnr.2018.09.001.

[22] Oliveira Junior NJ, Oliveira SB, Migowski ER amd Riegel. Nurses' role in the non-pharmacological pain treatment in cancer patients. *REVIEW ARTICLE. Rev Dor. São Paulo,* 2017; 18(3):261-5. DOI 10.5935/1806 -0013.20170112

[23] Ali HS, Ibrahim Y, Mohamed E. Non-pharmacological pain management: nurses' knowledge, attitudes and practices in selected hospitals at Makkah El-Mukarramah. *Life Science Journal.* 2013; 2(10); Pp; 1327-35. . http://www.lifesciencesite.com

[24] Kia Z, Allahbakhshian M , Ilkhani M , Nasiri M, Allahbakhshian A. Nurses' use of non-pharmacological pain management methods in intensive care units: A descriptive cross-sectional study. Elsevier Ltd. *Complementary Therapies in Medicine.* 2021. 58 Pp; 1-5https://doi.org/10.1016/ j.ctim.2021.102705.