

Nurses levels of Attitude towards Pain Management Barriers at Saudian Emergency Department Setting

^{1*} Turki Hamid Al-Harthy, ²Mohamad Abbas Khojah , ³Mubarak Abdullah Alkhammash, ⁴Abdulaziz Khalaf Althobaiti , ⁵Naif Abdulrazaq Alkhammash , ⁶ Maryam Abdu Hummadi, ⁷Nawal Abdullah Alrajhi .

^{1*}RN, BHA, MHSA Director of the Office, CNO of Health Affairs in Taif, Member of the Saudi Association for Health Specialties, Kingdom Of Saudia Arabia (KSA).Email: turky.hs@gmail.com

²BHA, Administrative informatics at CNO office of the Director of Taif Health Affairs, Kingdom of Saudi Arabia (KSA). Email: Mokhojah@moh.gov.sa

³RN, Nurse Specialist, Mental Medical Complex at Taif . Kingdom of Saudi Arabia (KSA). Email: MuaAlkhammash@moh.gov.sa

⁴RN, BBA, MPA, Deputy of Director Bed Management at Taif Health Affairs. Kindom Of Saudi Arabia (KSA).Email: abkalthobaiti@moh.gov.sa

⁵RN, Nurse Technician, Al Muway Hospital at Taif. Kingdom of Saudia Arabia (KSA). Email: naalkhammash@moh.gov.sa

⁶A therapeutic inspector , Health Compliance department of Taif Health Affairs, Kingdom of Saudi Arabia (KSA). E-mail: Mahamdi@moh.gov.sa

⁷Administrative informatics at CNO office of the Director of Taif Health Affairs, Kingdom of Saudi Arabia (KSA). Email: Naalrajhi@moh.gov.sa

Abstract

Pain assessment and management is the most fundamental aspect of a nurse's responsibility when attending to a patient complaining of pain.

Objectives: The present study aimed to explore and identify Saudi Arabia Emergency Department nurse attitude relating to pain management and barriers.

Materials and methods: This study was conducted in Altaif area Kingdom Saudi Arabia. This study was conducted in Altaif area Kingdom Saudi Arabia. The inclusion criteria for those eligible for the study was include male and female registered nurses and nursing unit managers who have worked in the Emergency Department for a minimum of three months.

Results: The Overall attitude of nurses towards pain management was found poor with mean total score of (1.64466). Years of experiences and education were significantly associated with nurse level of attitude regarding pain management and barriers.

Conclusion: In conclusion the study showed that attitude of nurses regarding pain management was found poor and there was negative attitude in terms of pain management and barriers. This study suggested increased education regarding pain management, as well as an annual assessment of skills for all clinical nurses. However, the expertise gained in training programs could be enhanced through workshops and courses that are conducted on a regular basis in order to keep nurses' knowledge up to date which directly may improve attitude regarding pain management and barriers.

Keywords: *Attitude, pain management, Emergency department*

1.1.Introduction:

In order to evaluate the background and prior research on this topic, the CINAHL and PubMed databases were searched using a combination of keywords. The keywords included “nurs*”, “pain management”, “barrier”, “knowledge”, “emergency department” and “accident and emergency”; these were combined in different variations with Boolean operators to expand and narrow the search results. Studies were only included if they were published after 1st January 2018, were available in full text, involved human studies and were published in English. The relevant resulting articles were evaluated with the Critical Appraisal Skills Program (2019) checklist and ten articles were chosen for inclusion.

It is well-recognised within the literature that poor pain management practices are a significant public health issue that contributes to poor rates of morbidity and mortality as well as poor patient experience (Al-Mahrezi 2017; Brant *et al.* 2017). It has been recommended that pain management education is a part of the core curriculum offered to nurses; such core curriculum should include information about the barriers to proper pain assessment and management. It is important that this new addition to the curricula occurred as the research indicates a large amount of barriers present that relate to the health care professionals, the patient and the environment; these various different barriers affect the likelihood that the patient will receive proper pain relief and management (Al-Mahrezi 2017). For instance, a common barrier is a fear of side effects and drug dependency and this can reduce the amount of opioids administered within the Emergency Department, thus pain may not be reduced for patients (Duignan and Dunn 2008; Pretorius *et al.* 2015). Some other barriers can relate to patient and health care professional communication barriers (Pretorius *et al.* 2015).

The literature demonstrates that when nurses have a sound understanding of the various different barriers to effective pain management, they have the ability to adapt nursing practice effectively, and are thus able to deliver better pain management and pain relief (Wang and Tsai 2010). Brant *et al.* (2017) found that knowledge of pain management practices and barriers to pain management was significantly lacking amongst nurses. This was confirmed in a study by Samarkandi (2018), who also

found that nurses in the Emergency Department did not have a high level of knowledge regarding pain management and barriers. Nuseir, Kassab and Almomani (2016) found that amongst 662 health professionals, only 24% of nurses responded correctly to answers relating to pain management and barriers to this. In addition to this, Bennetts *et al* (2012) found that many health professionals are only aware of pain management barriers that relate to organizational and environmental barriers; the majority of health professionals interviewed did not identify any barriers related to themselves as practitioners including a fear of opioid addiction and side effects. These studies clearly demonstrate that knowledge pertaining to pain management and barriers, particularly barriers relevant to the health professional, are significantly lacking, and thus this means patients are not receiving adequate pain management. Based on the evaluated studies, it is clear that in the past, nursing knowledge of pain management and barriers to effective pain management are significantly lacking. However, the results of the research indicated that many studies are outdated and there are few recent studies that sought to explore the level of knowledge relating to pain management and barriers, particularly amongst Saudi nurses in the Emergency Department setting. As such, the proposed study may be the first study to explore and identify Saudi Arabia Emergency Department nurse knowledge relating to pain management and barriers.

MATERIALS AND METHODS:

1.2.1. RESEARCH DESIGN

The study design was included a quantitative survey study design, as the study seeks to determine levels of knowledge regarding pain management as an objective, consistent form of knowledge that exists across the nursing workforce with the Emergency Department setting. This study design is most appropriate as it involves a positivist paradigm, thereby denoting the use of quantitative research techniques (Ryan, 2018). This study includes a survey design in order to remain cost-effective; a survey is a valid means of capturing large amounts of data across a sample at low-cost, although the researchers will need to consider the potential for response bias (Polit and Beck 2013).

1.2.2. STUDY AREA

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This study was conducted in Altaif area Kingdom Saudi Arrabia.

1.2.3. STUDY POPULATION

The population chosen for this study includes registered nurses as well as nursing unit managers working in Saudi Arabia Emergency Department settings. The population must have worked within a Saudi Arabia Emergency Department for a minimum of three months and must also have successfully completed the pain management core curriculum program.

1.2.4. SELECTION CRITERIA

1.2.4.1. Inclusion criteria:

The inclusion criteria for those eligible for the study was include male and female registered nurses and nursing unit managers who have worked in the Emergency Department for a minimum of three months. Nurses who work for an agency and have not received the pain management core curriculum training will not be eligible for the study. It is important that these criteria are included, as otherwise sampling bias may occur, which would be detrimental to the study outcome and would not reflect a true result (Palinkas *et al.* 2013).

1.2.4.2. Exclusion criteria:

Those who refuse to participate in the study and those who are not found at the time of data collection.

1.2.5. SAMPLE SIZE AND SAMPLING TECHNIQUES

The study was aimed to sample all eligible nurses working within the Emergency Department setting in the selected location, thereby representing a purposeful sampling technique (Polit and Beck, 2013). The sampling approach was including probability sampling, which was use a random selection of study participants from the population of interest. This method has been chosen as it is the most appropriate and effective way to analyze nursing knowledge because it directly selects nurses in the setting and thus will directly answer the proposed research question. For instance, where a nurse has not been working within the ED for more than three months, they may not have completed the department's core curricula related to pain management and as such would not accurately reflect or answer the study question.

Three main hospitals in the selected city were approached with a letter and proposal of the research, asking for the hospital to advertise the study and participate in the research. Subjects that meet the selection criteria were required to complete information sheets with their personal details and experience in nursing and the Emergency Department. Selected participants were notified by telephone as to their inclusion in the study. A sample size of at least 150 nurses was chosen, as this is a number sufficient to accurately demonstrate the knowledge and to meet the research question (Polit and Beck, 2013). This sample size was allowing for a clear clinically important result to be demonstrated as it will allow for sufficient participants to have their knowledge assessed and thus the findings can be generalized to the greater population.

1.2.5.6. DATA COLLECTION

The data was collected directly from the participant through written material. The data collection approach was including utilizing the Nurses' Knowledge and Attitudes Survey. This was a pre-validated tool that has been demonstrated to be useful for capturing quantitative data regarding the amount of knowledge that a nurse has, specifically related to pain management; other studies have utilized this same survey tool and have demonstrated that the tool is effective, reliable and accurate (Brant *et al.* 2017; Shoqirat *et al.* 2019). Therefore, the availability and use of this tool versus others or, one which is created by the researcher promotes the validity and reliability of the study's findings (Polit and Beck 2013).

1.2.5.7. DATA MANAGEMENT AND ANALYSIS

The completed surveys were returned by the mail; once they have been returned, they were scanned into a computer so an electronic copy is available and was then be stored in a locked filing system. The scores on the survey was examined and analyzed for professional and personal predictors for knowledge and attitudes about pain. Descriptive statistics including means, percentages, frequencies and standard deviations was be utilized examine knowledge and attitudes about pain responses. Additionally, ANOVA and t-tests was utilized in order to test for comparison and determine any relationships between the dependent variable of knowledge about pain and the independent variables, such as area of practice, nursing degree and nursing experience.

This study was compared directly to the findings of those in the existing pool of research, which helps to contribute to the overall pool of evidence-based findings and may be relevant to others looking to perform similar studies. The data was collected shortly after all participants have been enrolled. After the participants have confirmed their selection and participation by telephone, they were being mailed the Nurses' Survey. The participants were asked to return the survey within two weeks of it being posted. A follow up telephone call was made to participants who have not returned the survey within this time period. When the surveys have been returned by post, they were collected for management and analysis.

1.2.5.8. Ethical consideration:

The relevant Human Research Ethics Committee (HREC) for this proposal is Ministry of health and it is approval. This hospital classified under of the public hospital Saudi Arabia government health. The main ethical consideration to be taken into account with this research relates to the data management and storage and protection of the identities of the participants. The data was stored in both a locked filing cabinet and a computer that is password protected; only the two researchers had access to these, which means privacy of the participants was upheld. The study does not include vulnerable populations although cultural considerations can be made if any participants tick that they are from an Indigenous background; the survey was culturally competent. All participants were also being given the option to withdraw from the study at any time, thereby protecting the right to autonomy and making their own decisions.

Additionally, the researchers do not anticipate that any harm or risk was delivered to the participants for their involvement in this study, but was aware and manage any potential harm or risk that does arise. If any emotional harm occurs as a result of participants answering questions about pain, counseling services was recommended, although this was not anticipated.

1.3.Study findings:

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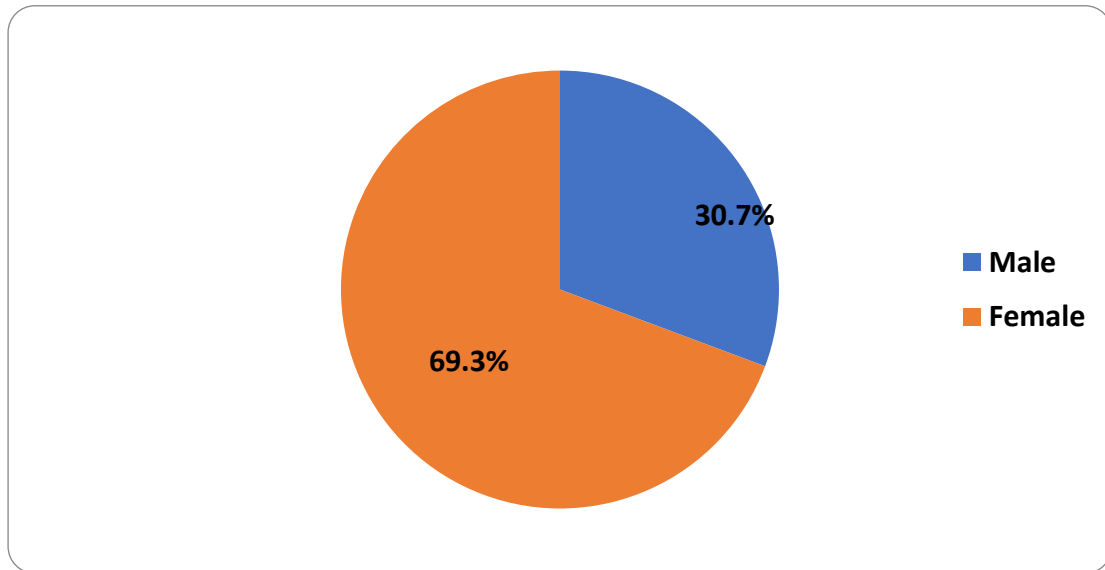


Fig.1: Distribution of nurses according to gender (n=150)

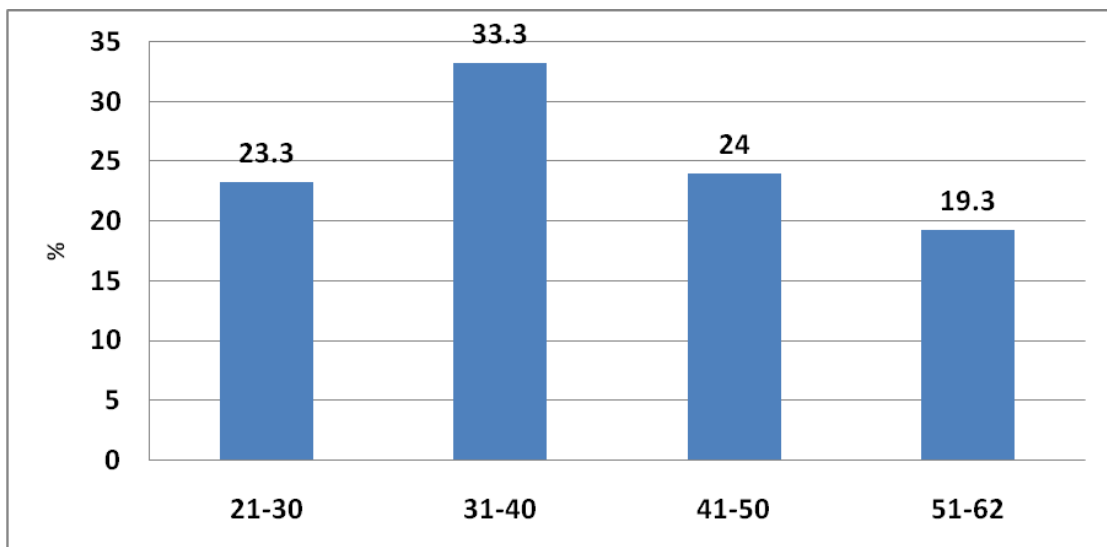


Fig.2: Distribution of nurses according to age group (n=150)

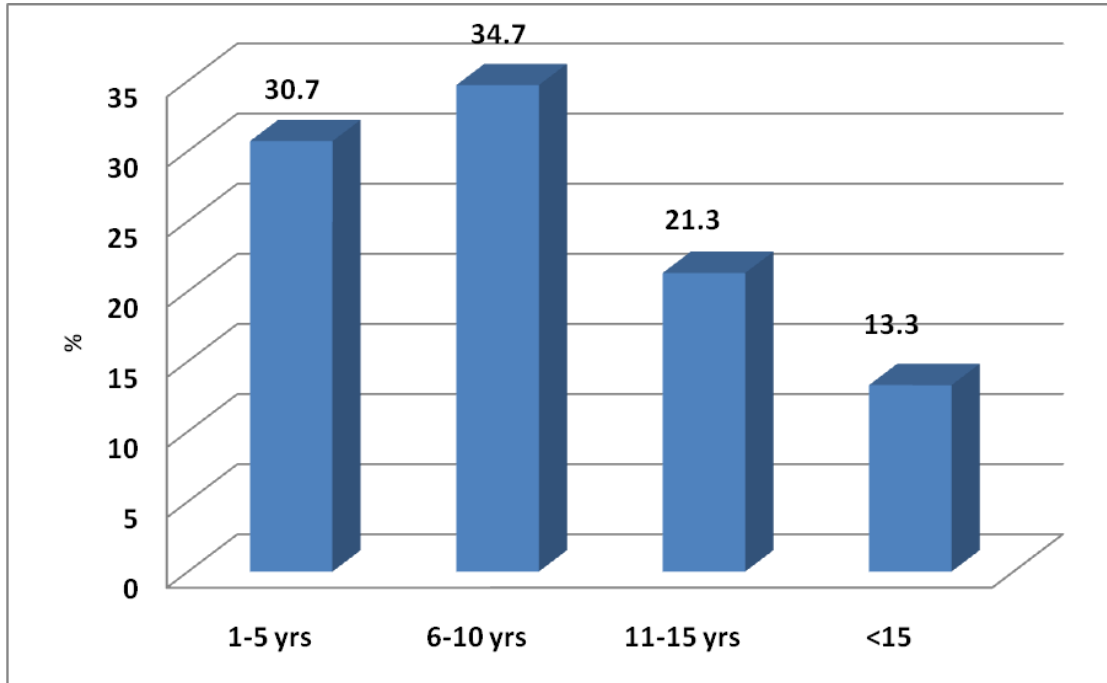


Fig.3: Distribution of nurses according to years of experience (n=150)

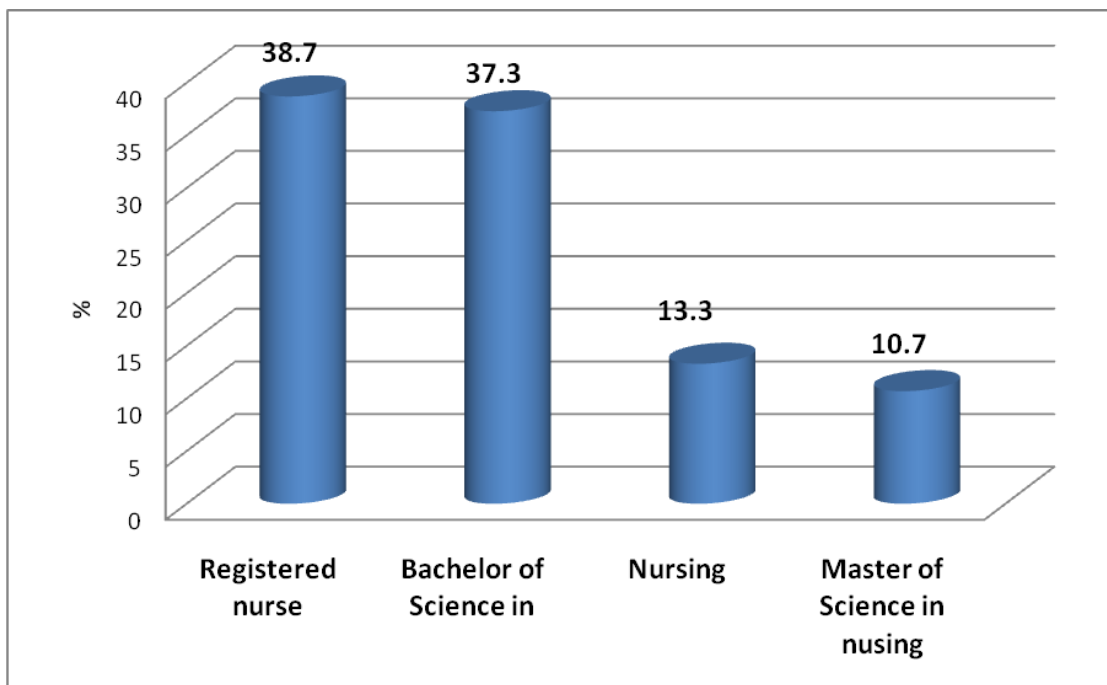


Fig.4: Distribution of nurses by education level (n=150)

Table 1: Overall mean attitude of nurses towards pain management barriers at
Saudian Emergency Department Setting

Attitude	Strongly agree		Agree		Disagree		MS	AD
	No.	%	No.	%	No.	%		
Pain is seen in the patient's behavior	48	32.0	88	58.7	14	9.3	1.7733	A
Distraction reduces pain intensity	56	37.3	72	48.0	22	14.7	1.7733	A
Non-pharmacological interventions are very effective for mild to	51	34.0	81	54.0	18	12.0	1.7800	A
The use of placebo is important in determining if the patient's	44	29.3	81	54.0	25	16.7	1.8733	A
Medical patients usually do not experience pain which is as	66	44.0	56	37.3	28	18.7	1.7467	A
When a medical patient complains of pain the best management	77	51.3	52	34.7	21	14.0	1.6267	P
Using pain assessment tools usually makes nursing more	79	52.7	56	37.3	15	10.0	1.5733	P
Medical patients who complain of pain often, will be seeking	68	45.3	72	48.0	10	6.7	1.6133	P
Nurses are best judges of the patient's pain intensity because they spend 24 hours with the patient	67	44.7	73	48.7	10	6.7	1.6200	P
Because patients are not medically educated cannot give a reliable report of their pain	57	38.0	82	54.7	11	7.3	1.0667	P
Overall mean attitude score	613	40.9	713	47.5	174	11.6	1.64466	P

(A.D.): Assessment Degree, M. s=mean of score [(1 – 1.66) = poor (p); (1.67 – 2.33) =

Acceptance(A); [(2.34 – 3) = Good (G)

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Table 2: Association between overall attitude of nurses towards pain management barriers at Saudian Emergency Department Setting and gender

Gender	Mean	Std. Error of Mean	Sig.
Male	1.6913	.02930	.523
Female	1.7144	.02019	
Total	1.7073	.01660	

*P-value considered significant at less than 0.05 levels

Table 3: Association between overall attitude of nurses towards pain management barriers at Saudian Emergency Department Setting and age group

Age group	Mean	Std. Error of Mean	Sig.
21-30	1.6971	.02795	.268
31-40	1.6760	.02348	
41-50	1.7111	.03858	
51-62	1.7690	.04763	
Total	1.7073	.01660	

*P-value considered significant at less than 0.05 levels

Table 4: Association between overall attitude of nurses towards pain management barriers at Saudian Emergency Department Setting and years of experience

Years of experience	Mean	Std. Error of Mean	Sig.
1-5	1.7391	.03116	.000*
6-10	1.7192	.02958	
11-15	1.6969	.03253	
<15	1.6200	.03880	
Total	1.7073	.01660	

*P-value considered significant at less than 0.05 levels

Table 5: Association between overall attitude of nurses towards pain management barriers at Saudian Emergency Department Setting and education level

Education	Mean	Std. Error of Mean	Sig.
Registered nurse	1.7603	.02836	.000*
Bachelor of Science in	1.7357	.02566	
Nursing	1.5800	.03372	
Master of Science in nursing	1.5750	.03096	
Total	1.7073	.01660	

*P-value considered significant at less than 0.05 levels

1.4. DISCUSSION:

This descriptive cross-sectional hospital based study was conducted among 150 nurses in Altaif area, kingdom Saudia Arabia in three main hospitals. The study aimed to assess nurses' levels of attitudes towards pain management barriers at Saudian Emergency Department Setting. The study showed that the majority of the study were female who accounted for (69.3%) of the total participants while male constituted (30.7%). Most of the study participants (33.3%) were ages between 31 and 40 years old. A high percentage of them 37.3% had Bachelor of Science in nursing, most of them (34.7%) working from 6-10 years. These findings in line with study done by Benimana, who reported that majority of participants 34 (39.5%) are aged between 31-35 years old; (22.1%) are ranged between (26-30)years and (18.6%) are aged between (36-40) years , majority of participants 37 (43%) have between (3-10) years of experience in nursing (Benimana, 2017, Irene, 2012, Tuyishmire, 2017) .The study indicated that the overall attitude of nurses was found poor (1.64466) regarding pain management and barriers. Similar study showed that the majority of the participants (70.1%) had a poor level of attitudes (score < 50%). (AL-

Sayaghi *et al.*, 2022). Also other in accordance study supports the concern of inadequate knowledge and attitudes regarding pain management.

The study showed that the years of experience and education was associated with level of attitudes, $p < 0.05$. These findings not in line with other study that showed educational level and total work experience were non-significant in terms of the attitude scores. Liyew *et al.* (2020), Yaqoob and Nasaif (2015), Al Qadire and Al Khalaileh (2014), and Al-Quliti and Alamri (2015) reported similarly that age, gender, nationality, marital status, qualification, clinical area, and work experience had no significant effects on the score of the nurses' knowledge and attitudes towards pain. However, Umuhoza *et al.* (Umuhoza *et al.*, 2019) reported that gender; age, marital status, qualification, and working experience significantly affected the attitude of nurses. Brant *et al.* (2017) found that nursing experience, qualification, and in-service education affect the nurses' score. Admass *et al.* (2020), and Kahsay and Pitkäjärvi (2019) reported that the qualification significantly affected the attitude scores of the nurses.

Conclusion:

In conclusion the study showed that attitude of nurses regarding pain management was found poor and there was negative attitude in terms of pain management and barriers. This study suggested increased education regarding pain management, as well as an annual assessment of skills for all clinical nurses. However, the expertise gained in training programs could be enhanced through workshops and courses that are conducted on a regular basis in order to keep nurses' knowledge up to date which directly may improve attitude regarding pain management and barriers.

REFERENCES

- Admass, B.A.; Endalew, N.S.; Tawuye, H.Y.; Mersha, A.T. Knowledge and Attitude of Ethiopian Oncology Nurses About Cancer Pain Management: National Survey. *Cancer Manag. Res.* 2020, 12, 9045–9055.
- Al Qadire, M.; Al Khalaileh, M. Jordanian Nurses Knowledge and Attitude Regarding Pain Management. *Pain Manag. Nurs.* 2014, 15, 220–228.

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Al-Mahrezi, A. 2017, 'Towardseffectivepainmanagement: Breakingthebarriers', *Oman Medical Journal*, vol. 32, no. 5, pp. 357-8.

Almalki, M., Fitzgerald, G., and Clark, M. (2011). Health care system in Saudi Arabia: An overview. *Eastern Mediterranean Health Journal*, 17(10), 784–793.

Al-Quliti, K.W.; Alamri, M. Assessment of pain. Knowledge, Attitudes, and Practices of Health Care Providers in Alma-dinah Almunawwarah, Saudi Arabia. *Neurosciences (Riyadh)* 2015, 20, 131–136.

AL-Sayaghi, K.M.; Fadlalmola, H.A.; Aljohani, W.A.; Alenezi, A.M.; Aljohani, D.T.; Aljohani, T.A.; Alsaleh, S.A.; Aljohani, K.A.; Aljohani, M.S.; Alzahrani, N.S.; et al. Nurses' Knowledge and Attitudes Regarding Pain Assessment and Management in Saudi Arabia. *Healthcare* 2022, 10, 528.

Benimana O. Knowledge, Attitudes, Practices and Challenges Faced by Nurses in Pain Management among Surgical Patients in One Referral Hospital in Rwanda. A dissertation, College of Medicine and Health Sciences, Rwanda ,2017,1-107.

Bennetts,S., Campbell- Brophy,E., Huckson,S., Doherty,S.& National Health and Medical Research Council's *National Institute for Clinical Studies National Emergency Care Pain*, management Initiative 2012, 'Pain management in Australian emergency departments: current practice, enablers, barriers and future directions', *Emergency Medicine Australasia*, vol. 24, no. 2, pp. 136-43.

Bernardi, M., Catania, G., Tridello, G. 2007. Knowledge and attitudes about cancer pain management. A national survey of Italian hospice nurses. *Cancer Nursing* 30(2), 20-26.

Brant, J.M., Mohr, C., Coombs, N.C., Finn, S.&Wilmarth, E. 2017, 'Nurses' knowledgeand attitudes about pain: Personal and professional characteristics and patient reported pain satisfaction', *Pain Management Nursing*, vol. 18, no. 4, pp. 214-23.

Brown, A., Bowman, J., Eason, R. 1999 Assessment of nurses' attitudes and knowledge regarding pain management. *Journal of Continuing Education Nursing* 30, 132–39.

Coulling, S. 2005. Nurses' and doctors' knowledge of pain after surgery. *Nursing Standard* 19 (34), 41-49.

Critical Appraisal Skills Programme 2019. CASP Checklists - CASP - Critical Appraisal Skills Programme, Oxford, viewed 4 September 2019, <https://casp-uk.net/casp-tools-checklists>.

Duignan, M. & Dunn, V. 2008, 'Barriers to pain management in emergency departments', *Emergency Nurse*, vol. 15, no. 9, pp.30-4.

Ferrell, B., & McCaffery, M. (2005). Knowledge and attitudes survey regarding pain. Retrieved May 2, 2014, from <http://prc.coh.org/Knowledge%20&%20Attitude%20Survey>
Implementation research. Administration and policy in mental health and mental health services research, 42(5), pp.533-44.

Irene BK, Nurses Knowledge and Practices Related to Pain Assessment in Critically Ill Patients at Mulago Hospital Uganda. Dissertation Muhimbili University of Health and Allied Sciences 2012; 73-1.

Kahsay, D.T.; Pitkääjärvi, M. Emergency nurses' knowledge, attitude and perceived barriers regarding pain Management in Resource-Limited Settings: Cross-sectional study. *BMC Nurs.* 2019, 18, 56.

Lewthwaite, B.J., Jabusch, K.M., Wheeler, B.J., Schnell-Hoehn, K.N., Mills, J., Estrella-Holder, E., Fedorowicz. 2011. Nurses' knowledge and attitudes regarding pain management in hospitalized adults. *Journal of Continuing Education in Nursing* 42(6), 251-8.

Liyew, B.; Tilahun, A.D.; Bayu, N.H.; Kassew, T. Knowledge and Attitude towards Pain Management among Nurses Working at University of Gondar Comprehensive Specialized Hospital, Northwest Ethiopia. *Pain Res. Manag.* 2020, 2020, 6036575.

Lui, L.Y.Y., So, W.K.W. & Fong, D.Y.T. (2008). Knowledge and attitudes regarding pain management among nurses in Hong Kong medical units. *Journal of Clinical Nursing*, 1, 1-8.

Matthews, E., Malcolm, C. 2007. Nurses' knowledge and attitudes in pain management practice. *British Journal of Nursing* 16(3), 174-9.

McCaffery, M., Pasero, C. 1999. *Pain: Clinical manual*, 2nd ed. St. Louis, MO: Mosby.

Nuseir, K., Kassab, M. & Almomani, B. 2016, 'Healthcare providers' knowledge and current practice of pain assessment and management: How much progress have we made?', *Pain Research and Management*, vol. 2016, pp.1-7.

Palinkas, L., Horwitz, S., Green, C., Wisdom, J., Duan, N. & Hoagwood, K. 2015. Purposeful sampling for qualitative data collection and analysis in mixed method

Plaisance, L., Logan, C. 2006. Nursing knowledge and attitude Regarding Pain. *Pain Management* 7, 167-75.

Polit, D.F. & Beck, C.T. 2013, *Studyguide for essentials of nursing research: appraising evidence for nursing practice*, Lippincott Williams & Wilkins.

Pretorius, A., Searle, J. & Marshall, B. 2015, 'Barriers and enablers to emergency department nurses' management of patients' pain', *Pain Management Nursing*, vol. 16, no. 3, pp. 372-9.

Rahimi-Madiseh, M., Tavakol, M., Dennick, R. 2010. A quantitative study of Iranian nursing students' knowledge and attitudes towards pain: implication for education. *International Journal of Nursing Practice* 16, 478-83.

Ryan, G. 2018, 'Introduction to positivism, interpretivism and critical theory', *Nurse researcher*, vol. 25, no. 4, pp. 41-9.

Shoqirat, N., Mahasneh, D., Al-Khawaldeh, O. & Al-Hadid, L. 2019, 'Nurses' Knowledge, Attitudes, and Barriers Toward Pain Management Among Postoperative Patients in Jordan', *Journal of PeriAnesthesia Nursing*, vol. 34, no. 2, pp. 359-67.

Tsai, F.C., Tsai, Y.F., Chien, C., Lin, C.C. 2007. Emergency nurses' knowledge of perceived barriers in pain management in Taiwan. *Journal of Clinical Nursing* 16(11), 2088-95.

Tsai, F.C., Tsai, Y.F., Chien, C., Lin, C.C. 2007. Emergency nurses' knowledge of perceived barriers in pain management in Taiwan. *Journal of Clinical Nursing* 16(11), 2088-95.

Tuyishmire ML, Assessment of Nurses Knowledge and Practices towards Pain Assessment in Critically Ill Patients at at Chuk . A dissertation, College of Medicine and Health Sciences, *Kigali Cumpus* 2017;48-1.

Umuhoza, O.; Chironda, G.; Katende, G.; Mukeshimana, M. Perceived knowledge and practices of nurses regarding immediate post-operative pain management in surgical wards in Rwanda. A descriptive cross-sectional study. *Int. J. Afr. Nurs. Sci.* 2019, 10, 145–151.

Wang, H.L., Tsai, Y.F. 2010. Nurses' knowledge and barriers regarding pain management in intensive care units. *Journal of Clinical Nursing* 19, 3188- 3196.

Yaqoob, S.H.; Nasaif, H.A. Nurses' knowledge and attitudes toward pain assessment and management for adult sickle cell disease patients during sickling crisis. *Clin. Nurs. Stud.* 2015, 3, 36.

Yildirim, Y.K., Cicek, F., Uyar, M. 2008. Knowledge and attitudes of Turkish oncology nurses about cancer pain management. *Pain Management Nursing* 9(1), 17-25.