



KNOWLEDGE AND PRACTICE OF NON-PHARMACOLOGICAL PAIN MANAGEMENT TECHNIQUES AMONG NURSES AND MIDWIVES IN AMINU KANO TEACHING HOSPITAL

Umar, L. B.^{*1}, Umar, Y.¹, Abdullahi, H. I.¹, Awwal, M. L.¹, Nura, A. Y.², Umar, A.B.³, Ahmed, S.¹, Saleh, G. N.¹ and Hafsat, M.S.¹

¹Department of Nursing Sciences, Bayero University Kano, Kano State

²Department of Geography, Yusuf Maitama Sule University, Kano State

³Department of Nursing Science, Ahmadu Bello University, Zaria

* **Corresponding Author:** ulbello.nur@buk.edu.ng; +2348036628115

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ABSTRACT

Background: Every year tens of millions of people around the world with life-threatening illnesses suffer unnecessarily from severe pain and other debilitating symptoms due to their lack of access to proper pain assessment and management, non-pharmacological pain management technique can be very important in helping patients deal with their pain either acute or chronic one.

Aim: This study, therefore aimed to assess the knowledge and practice of non-pharmacological pain management techniques among nurses and midwives in Aminu Kano Teaching Hospital (AKTH), Kano State, Nigeria.

Methods and Materials: descriptive cross-sectional design was used for the study, the target population for the study was 503. Validated self-administered questionnaire was used to collect the data from 104 nurses and midwives. The respondents were selected using a cluster and random sampling of all departments in Aminu Kano Teaching Hospital. Data was analyzed using descriptive and inferential statistics.

Results: The results showed that 58.8% of the respondents had poor knowledge of non-pharmacological pain management techniques, only 3.5% of them had very good knowledge. The study also revealed that most of the respondents 95.3% have practiced at least one of the techniques, it was revealed that changing position was the most practiced technique by 71.8% of the respondents. The study also showed that there was no significant relationship between knowledge and practice of the non-pharmacological techniques.

Conclusion: In Conclusion, knowledge of non-pharmacological pain management techniques was discovered to be poor, and the practice was very good. To improve their knowledge and make them updated with proper non-pharmacological pain management, they should be encouraged and motivated to attend in-service trainings of up-to-date knowledge of pain and pain management skills.

Keywords: Pain, Non-pharmacological pain management, Nurses, Knowledge, Practice

INTRODUCTION

Millions of people daily suffer from pain wherever they are, whether in the hospital, their homes or assisted living facilities; this pain experiences negatively influence their day-to-day activities (Bicek, 2004). According to the World Health Organization, It is estimated that tens of millions of people suffer untreated moderate to severe pain

each year, including 5.5 million terminal cancer patients and 1 million patients in the last phases of HIV/AIDS, approximately 25-50 million Americans endure chronic pain (Human Rights Watch, 2011). Generally, pain is an unpleasant feeling and emotional experience that is related to real or potential tissue damage (Vaajoki, 2013).

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Pain is the main symptom that necessitate people to seek health care, it impacts negatively on the quality of life, increasing the vulnerability of an already vulnerable population. Although many disciplines are involved in pain management, nurses play a pivotal role in the assessment, relief, and evaluation of pain, if an acute pain is ineffectively managed it can lead to negative physiological and psychological problems including the development of chronic pain syndrome (Craig, 2014).

Commonly used drugs like narcotics and non-steroidal anti-inflammatories are prescribed to relieve pain, however, the pain is often under-treated and the patients continue to suffer from the ill effects of the pain and inappropriate management of the pain (Bicek, 2004). Medical pain management has since been in crises from the pervasiveness of pain to inadequate treatment of the pain, from the escalation of opioids prescription to an epidemic of addiction, also death due to diversion and overdose have also been an issue, hence this rising costs of pain care and managing adverse effects of that care has prompted action from various state and federal agencies including the Veterans Health Administration, National Institutes of Health, Federal Dental Association and Center for Disease Control (Tick *et al.*, 2017). Therefore as a way to counteract the effect of the above medical crises pressure had been exerted for pain management to shift away from total reliance on opioids, ineffective procedures and surgeries towards comprehensive pain management that includes evidence-based non-pharmacological options ((Vaajoki, 2013 and Tick *et al.*, 2017)). Therefore for this and other reasons, the use of non-pharmacological pain management and other complimentary medical attempts were today being adopted in practice and are reported to be of great benefit in the management of patients pain (Uçan and Ovayolu, 2007).

In Africa, in spite of the fact that pain from surgical procedures constitutes a far greater burden, pain from HIV/AIDS and cancer

had been largely explored as a more cause of concern (Woldehaimanot *et al.*, 2014).

In Nigeria, a study conducted in Calabar on the assessment and management of hospitalized patients pain among 50 nurses, the results showed that 84% of the respondents do assess pain before managing it while 16% do not and the major techniques used by the respondents in assessing the pain were of observing the pain related behaviors and vital signs only but none of them make use of any of the graphical or numerical tool to assess the quality and intensity of the pain (Idang *et al.*, 2014).

According to a study reported by Pilewska-kozak *et al.*, (2017), about 80% of women in labor had requested the midwives to make use of Non-Pharmacological Pain Management Technique (NPPMT) for them to aid in their labour pain management, the NPPMT used were water immersion, hypnosis, reflexology, aromatherapy, massage, breathing techniques, vertical positions, music therapy, and TENS (Idang *et al.*, 2014). However, the major obstacle to achieving effective pain management is insufficient knowledge about them by the nurses and midwives (Sewunet, 2017). Some nurses have also reported the use of music therapy at some points in their practice to relieve pain, nurses' frequent administration of non-pharmacological pain management techniques have been severally reported in children, however, only a few studies have reported its frequency of administration in adults (Kwekkeboom *et al.*, 2008)

Generally, researches have shown that nurses' use of non-pharmacological methods in managing patients' pain was very low, however, the commonest used methods reported by them are cognitive-behavioral therapy, distraction, helping with activities of daily living and positioning (Yurdanur, 2012). Some researchers have reported knowledge gap with regards to a detailed explanation of nurses' use of NPPMT and their application to care for specific conditions or symptoms (Svendson and Bjørk, 2014).

Some other studies have also revealed that nurses and midwives do have poor knowledge and negative attitude towards pain management in general, which consequently affect their practice of NPPMT (Cochrane, 2015). However, a more recent study report conducted at university of Maiduguri, teaching hospital on nurses knowledge and practice of non-pharmacological pain management techniques the result has shown that a greater percentage of nurses are knowledgeable about non-pharmacological techniques in the management of pain, nevertheless same study has also shown that the nurses years of working experience have a greater effect on their knowledge and confidence in the practice of these NPPMT and also a lot of them reported practicing them alongside the pharmacological techniques (Umar *et al.*, 2017).

MATERIALS AND METHODS

Research Design and Instrument:

A descriptive cross-sectional survey design was used to carry out the study. A close-ended structured questionnaire was adapted from Sisay (2017) in Addis Ababa from a similar study (Sisay, 2017). The questionnaire included three sections, section A; for the socio-demographic data, section B; covers the knowledge assessment, section C; assesses the practice. A pilot study was conducted on 10% of the sample size to ascertain the reliability of the research instrument. A Cronbach's alpha value of 0.812 was obtained at a p-value of $p < 0.05$ for the internal consistency reliability.

Setting

The study was conducted in Surgical, Medical and Labour ward of Aminu Kano Teaching Hospital (AKTH) Kano. AKTH is a tertiary health care facility established by Act CAP 463 of 1st January, 1985, with an essential responsibility of providing excellent services in all of fields of medicine, provide conducive environment to staff of all cadres, conducting research for

the advancement of medical care and provision of support to primary and secondary health services among others. It also serves as a teaching hospital for Bayero University Kano. AKTH is made up of various departments which includes; Medicine, Surgery, Obstetrics & Gynecology (O&G), Accident & Emergency (A and E), Ophthalmology, ENT (Otorhinolaryngology), Dental and Maxillofacial, Anesthesiology and Intensive care, Psychiatry, Pediatrics, Pharmacy, Nursing Services, Radiology, Physiotherapy, Health Records, departments among others. AKTH is 506 bedded hospital with staff strength of over 3,001 persons in different health and health related departments/units. AKTH have a total number of 503 nurses and midwives.

Target Population

The study population was a total of (503) registered nurses and midwives working in Aminu Kano Teaching Hospital.

Sample Size and Sampling Technique

Sample size was obtained using census obtained from the total number of nurses in male medical ward (18), male surgical ward A (14) and Ward B (18), female medical ward (18), female surgical ward (18) and midwives in the labour ward (18) giving a total of 104 nurses and midwives all together. Therefore, sample size (n) = 104 (Nursing Services Department, 2018). A Multi-stage cluster sampling of all departments in Aminu Kano Teaching Hospital was done. Stage I from which three clusters were sampled out using a simple random sampling technique i.e. Medicine, Surgery and Obstetrics and Gynecology departments respectively. At the second stage (stage II), simple random sampling was also done to sampled out five wards i.e. Male and female medical wards, male and female surgical wards and the labour ward, forming the third stage (i.e. stage III) and lastly census sampling was used to recruit the whole total number of the nurses and midwives in these sampled wards.

Ethical Considerations

Ethical approval was sought and approved from the health research ethics committee of AKTH where an ethical approval letter with Reference number NHREC/21/08/2008/AKTH/EC/2337 was given. The research participants were given adequate information concerning the purpose of the assessment, verbal consent was obtained from each respondent before administration of the questionnaire and that their participation was voluntary. Utmost degree of confidentiality and anonymity was maintained.

Data Analysis

The data was checked for completeness and consistency, then the answers to the 15 knowledge questions of each individual questionnaire were ranked and scored, a score of < 50% was rated as poor knowledge, 50-74% as good knowledge and 75-100% as very good knowledge. Then it was coded, entered and analyzed in the computer using IBM Statistical Package for Social Sciences (SPSS) version 20, hence,

the data was presented using descriptive statistics in the form of tables, mean and standard deviation, frequency, percentages and charts.

RESULTS

A total of one hundred and four (104) questionnaires were distributed to the respondents in the study. Eighty-five (85) questionnaires representing 82% were returned completed and so analysis was based on 85 respondents.

Table 1 revealed the socio-demographic characteristics of the studied respondent. The table revealed that the mean age of the respondents was 39 ± 1.07 years and majority of the respondents (60%) were females, the table showed that the highest qualification of most of the respondents (56.5%) is RN/RM and only (5.9%) of them have the master's degree qualification. the table also indicated that majority of the respondents (40%) have 10-19 years of working experience and more than two third of them (77.6%) were married.

Table 1: Socio-demographic characteristics of the respondents(n=85)

Socio-demographic characteristics	N	%
Age in years:		
<20	4	4.7
20-29	17	20.0
30-39	29	34.1
40-49	26	30.6
50-59	8	9.4
60and above	1	1.2
Mean±SD	39.6±1.07	
Gender:		
Males	34	40.0
Females	51	60.0
Highest Qualification:	48	56.5
RN/RM	32	37.6
BSc/BNSc	5	5.9
MSc		
Working Experience (in years):	30	35.3
0-9	34	40.0
10-19	15	17.6
20-29	6	7.1
30-39		
Marital Status:	18	21.2
Single	56	77.6
Married	1	1.2
Divorce		

The study findings indicated in table 2 revealed the distribution of nurses and midwives concerning their knowledge of non-pharmacological pain management techniques. The table indicated that 89.4% of them knew that it is any drug sparing method used for the management of pain and 51.8% and 81.2% of them believed that it can never be used alone and that it can only be used for mild control of pain respectively, 45.9% of them thought that

yoga is the use of meditation alone to manage pain and 72.9% knew that guided imagery and music therapy can be moderately effective in the management of pain. The table also showed that 57.6% and 76.5% of them were not able to differentiate the broad categorization of various on-pharmacological pain management techniques into physical and cognitive methods respectively.

Table 2: Knowledge of Non-pharmacological pain management techniques (n=85)

Knowledge of Non-pharmacological pain management techniques	Yes		No		Don't know	
	N	%	N	%	N	%
Any drug sparing method use for managing pain.	76	89.4	8	9.4	1	1.2
They can never be used alone.	44	51.8	44	47.1	1	1.2
They are only effective for mild control of pain.	69	81.2	12	14.1	4	4.7
Yoga practice is the use of meditation alone to manage pain.	39	45.9	24	28.2	22	25.9
Guided imagery and music therapy are moderately effective in managing pain.	62	72.9	13	15.3	10	11.8
All these are physical methods of Non-pharmacological pain management techniques.	49	57.6	17	20.0	19	22.4
Virtual reality is effective in managing severe pain.	39	45.9	35	41.2	11	12.9
All these are cognitive methods of NPPMT.	65	76.5	17	20.0	3	3.5
Application of heat relieves pain by vasoconstriction.	42	49.4	40	47.1	3	3.5
Acupuncture is an effective Non-pharmacological pain management method.	30	35.3	49	57.6	6	7.1
Emotional support therapy have to do with patient preference on the type of NPPMT.	49	57.6	26	30.6	10	11.8
Environmental modifications is an ineffective Non-pharmacological pain management technique.	62	72.9	18	21.2	5	5.9
Patient's mind preparation towards pain is a poor method of Non-pharmacological pain management technique.	45	52.9	37	43.5	3	3.5
Aromatherapy and hydrotherapy are only used for labour pain relief.	30	35.3	49	57.6	6	7.1
	29	34.1	45	52.9	11	12.9

The pie-chart in figure 1 showed the overall knowledge score of the respondents, it showed that more than half of the respondents (59%) had poor knowledge of

non-pharmacological pain management techniques, 38% had good knowledge and only a few (3%) Space very good knowledge of the techniques.

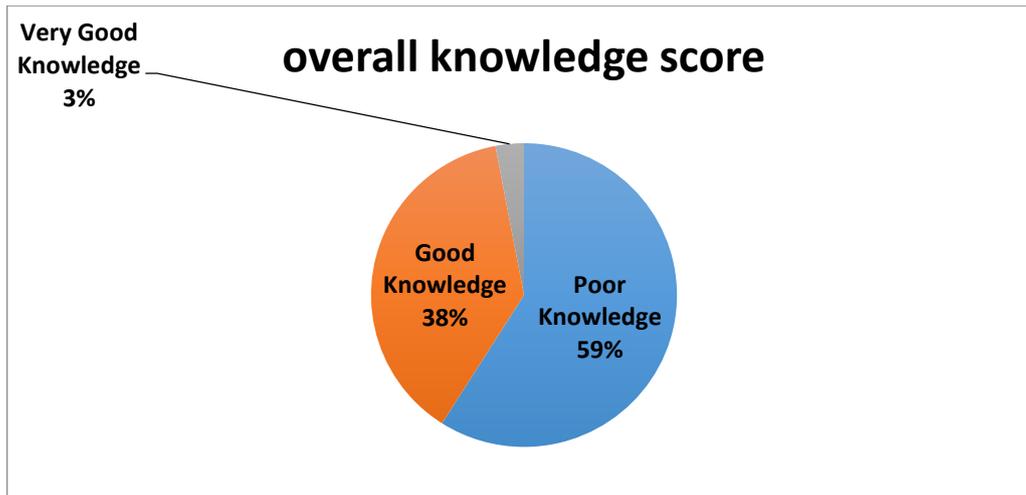


Figure 1: Overall knowledge score.

The bar chart in figure 2 revealed that overwhelming majority (95.3%) had at least practiced one of the non-pharmacological pain management techniques at one time or the other, 71.8%, have ever practiced position changes, 63.5% massage, 47.1%

distraction, 65.9% heat/cold, 70.6% reassurance and 49.4% patient's family involvement to relieve patient's pain respectively, however, only 25.9% and 7.1% make use of imagery and biofeedback.

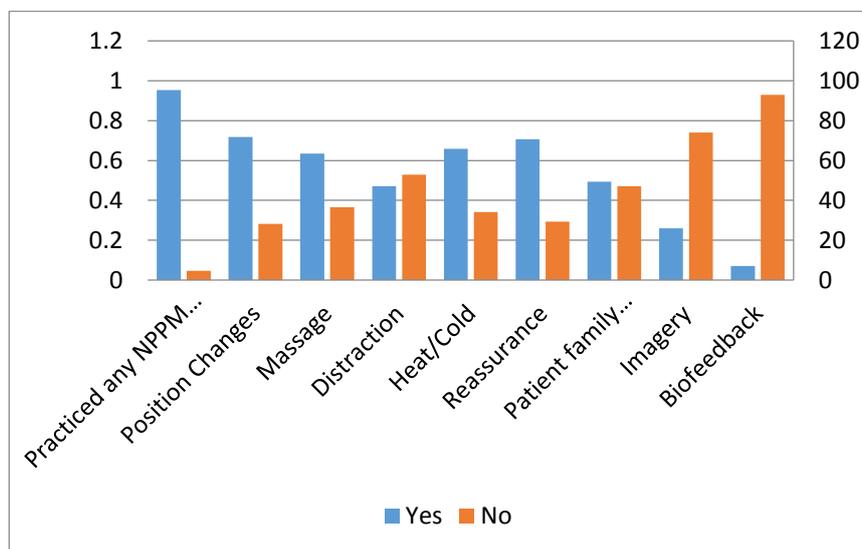


Figure 2: Practice of Non-pharmacological pain management techniques.

Table 3 revealed that only 5.9% of the respondents practices those non-pharmacological pain management methods consistently, most of them 43.5% only practiced them sometimes while 4.7% amongst them had never practiced any. The table also indicated that 55.3% sometimes uses touching while 14.1% rarely does that, 32.9% sometimes uses music while 44.7% have never used it to relieve pain, likewise 32.9% of them uses quiet environment,

44.2% have never used it and only 3.5% of them practices it consistently. The table also indicated that 40% of them sometimes uses early ambulation to relieve patient's pain with about 30% of them who often practices it. About 31.8% of them have never used breathing techniques to relieve patients' pain, 25.9% rarely practice it, 27.1% sometimes and only 4.7% of them practices it consistently.

Table 3: Practice of Non-pharmacological pain management techniques(n=85)

Practice of Non-pharmacological pain management techniques	Never		Rarely		Sometimes		Often		Consistently	
	N	%	N	%	N	%	N	%	N	%
Frequency of using any of the above method.	4	4.7	9	10.6	37	43.5	30	35.3	5	5.9
Use of touching to relieve pain	7	8.2	12	14.1	47	55.3	14	16.5	5	5.9
Use of Music to relieve pain	38	44.7	9	10.6	28	32.9	9	10.6	1	1.2
Use of breathing techniques to relieve pain	22	25.9	27	31.8	23	27.1	9	10.6	4	4.7
Use of early ambulation to relieve pain	8	9.4	8	9.4	34	40.0	26	30.6	9	10.6
Use of quiet environment to relieve pain	19	22.4	12	14.1	28	32.9	23	27.1	3	3.5

DISCUSSION

The study showed that slightly more than one-third of the respondents were within the age of 30-49 years, this could be related to the fact that students were excluded from the study and all the respondents were young and middle age adults working in AKTH, exactly three-fifth of the respondents are females, this may be due to the fact that most of the nurses in AKTH are females. Also the findings of this study revealed that slightly more than half of the respondents have highest qualification of RN/RM and this could be due to the fact that most of the respondents are just currently doing there BNSc degree. Two-fifth of the respondents had working experience of 10-19 years and this may be related to the fact that most of respondents were young and middle age adults, and finally almost four-fifth of the respondents were married which could be related to the same reason as their years of experience. All these attributes were in congruent with that of a study conducted by (Kwekkeboom, *et al.*, 008), in their study on Oncology Nurses’ Use of Nondrug Pain interventions in practice with the following findings of 96% females, 85% of them within the age range of 22-73 and 65% with 10-18 years’ experience with the exception that out of the 96% RN/RM nurses in that study, 44% have associate degrees.

Results of this study revealed that a little less than nine-tenth of the respondents knows that NPPMT were any drug sparing method for managing pain, this could be due to the fact that it is the most basic knowledge of NPPMT that nurses learnt in school this is in line with similar study conducted by (Bicek, 2004) on Nurses' Attitudes, Knowledge, and use of Non-Pharmacological Pain Management Techniques and Therapies in which 70% of the nurses have responded with similar answer and also contradicts the 10% respondents of Manwere *et al.*, (2015), in his study on Knowledge and Attitudes of Registered Nurses towards Pain Management of Adult Medical Patients (Bicek, 2004).

The study findings on the overall knowledge score of the respondents showed that more than half of the respondents have poor knowledge of non-pharmacological pain management techniques and that only a few less than one-twentieth of the whole respondents have very good knowledge of them. This could be related to the fact that most of the respondents give high preferences to pharmacological methods as the most convenient way of managing every form of pain and that the non – pharmacological techniques can only be applicable in few instances and only as

adjuncts to their pharmacological counterparts, these findings were similar to most findings of the reviewed literatures (Bicek, 2004; Craig 2014; Sisay, 2017 and Manwere, 2015) with 48% poor knowledge with 64.5% and 72.2% knowledge score respectively, which were all considered below the 80% threshold level respectively. Likewise these findings were in contradiction with the findings of Hossain (WHO, 2012) in his study on Nurses' Knowledge and Attitudes, and Pain Management Practice of Post-Operative Children in Bangladesh, in which a percentage of 66.79% was obtained which he categorized as moderate knowledge and (Idang *et al.*, 2014) with a percentage of 60% that he also considered a good knowledge.

The result of this study showed that a lot more than nine-tenth of the respondents have ever practiced any NPPMT and this may be related to the fact that some of these techniques are actually considered as a routine part of nursing care, oblivious to the fact that it actually belongs to the NPPMT family, only about one-twentieth of the respondents answered that they have never practiced any NPPMT, these findings are consistent with 58.3% findings of Peltomaki, (2015) in his study on culture's effect on Practice of non-pharmacological pain management in children, that showed good practice and that of Sisay, (2017) in which 52.8% of nurses have good practice and Bicek, (2014) 60% findings which also revealed such good practices among the study participants. This finding is not in line with the findings of Muchiri and Olowe (2014) in their study on non-pharmacological pain management of children with post-operative pain that revealed that 54% of the nurses have poor practice of non-pharmacological pain management techniques.

CONCLUSION AND RECOMMENDATIONS

Non-pharmacological methods of pain management have been recognized as an

effective way of treating patient's pain. Despite evidence proving this efficacy, it has been found that its knowledge is still poor. It can be concluded from the present study that knowledge of non-pharmacological pain management among nurses and midwives in the study area was poor for most of the study subjects and practice of non-pharmacological pain management among nurses and midwives in the study area was good. 58.8% had poor knowledge about non-pharmacological pain management method, and 95.3% had good non-pharmacological pain management practice. Nurses and Midwives who had practiced Non-pharmacological pain management method were significantly not associated with their knowledge of non-pharmacological pain management method, hence the following recommendations were made:

1. It is recommended that further studies that will cover not only AKTH but other major hospitals across the state and the nation at large, so as to make a more vivid generalization that can be compared with other national or international studies of its kind so as to bridge the gap of limited documented data.
2. Higher educational institutions and other schools of nursing should develop new or review their curriculum to a sound standard that will provide adequate knowledge of pain, pain assessment, non-pharmacological and pharmacological methods of pain management to the younger generation so as to prepare and make them fully conversant with the concept.
3. Aminu Kano Teaching Hospital (AKTH) should also revise their policy and organize pain related continuing education for nurses and midwives so as to provide knowledge to their health personnel's on proper assessment and management of pain.

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