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The use of distraction as a pain management technique among nurses in a North-central city in Nigeria

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A B S T R A C T

Purpose: Distraction is an effective and readily-available pain management intervention which can be highly valuable in low-resource health facilities. It is an integral part of the pain management course in the nursing curriculum of many Nigerian universities. Hence, this study seeks to determine the gap between theory and clinical practice. The aim of this study is to assess the beliefs of nurses on distraction as a pain management intervention, and their use of distraction during clinical practice.

Design: A descriptive survey was conducted.

Methods: 170 questionnaires were distributed to nurses in a tertiary hospital in Nigeria. There was a response rate of 96%. Data were analyzed using both descriptive (such as frequency and percentages) and inferential statistics (such as chi-square).

Results: Majority of the study participants were familiar with distraction and its use in pain management (98.8%). The majority of the participants (97.5%) indicated they use distraction as a pain management technique, and they (61.3%) believed that distraction can be effective, without administering any pharmacological agent. The nurses (84%) mostly used distraction to manage post-operative pain.

Conclusion: From the nurses' perspective, it appears distraction is well-utilized in clinical practice. However, there is a need to educate nurses on the use of various distractors and other non-pharmacological interventions in order to improve pain management.

Clinical implication: The use of distraction among Nigerian nurses is encouraging, but they should be cautious about using distraction alone for pain management. Nurses should endeavor to use distraction with a pharmacological agent, as appropriate.

1. Introduction

Pain is the most prevalent reason for seeking health care (National Center for Complementary and Integrative Health, 2018). It accounts for 80% of visits to physicians and 78% of visits to the emergency unit (Sinatra, 2010; Todd et al., 2007; Walid, Donahue, Darmohray, Hyer, & Robinson, 2008). Estimates indicate that, globally, 95% of people have suffered from body pain and 85% have suffered from both body and head pain (GlaxoSmithKline, 2017). In addition to disease-related pain, pain is often experienced due to medical procedures for diagnosis and treatment. Persistent and unrelieved pain can be detrimental to a person's physical, psychological and social well-being (Page, Huguet, & Katz, 2014; Twycross & Williams, 2014). It can cause physical problems such as chronic pain syndromes (Page, Huguet, & Katz, 2014). It can also cause psychological symptoms such as distress, sleeplessness, needle phobia, depression, post-traumatic stress disorder (PTSD); and social setbacks such as decreased compliance with treatment and poor relationship between patients and the health professionals (Mathews, 2011; Peterson et al., 2014). The effects as mentioned above can result in prolonged hospitalization, frequent outpatients' visits, and increased healthcare costs (Genik, McMurtry, & Breau, 2015; Twycross & Williams, 2014).

Primarily, it is recommended that pain should be managed with pharmacological interventions such as local anesthesia, sedatives and general anesthesia (Da Silva, de Aguiar, Waisberg, Passos, & Park, 2011). Nonetheless, in low-resource healthcare settings, this remains unattainable due to the cost and unavailability of these drugs (Soyannwo, 2010). Moreover, these drugs can cause mild to life-threatening side-effects such as respiratory distress (Chiaretti et al., 2014). Hence, some healthcare practitioners are reluctant in administering them for procedural pain relief (Finley, Kristjánsdóttir, & Forgeron, 2009; Smeland, Twycross, Lundeberg, & Rustøen, 2018). Furthermore, research studies have indicated that pharmacological interventions do not provide optimal pain relief when used alone (Ernsten, Hepp, Fehm, & Schaal, 2018; Koller & Goldman, 2012). Hence, research studies and clinical guidelines have strongly recommended the use of both pharmacological and non-pharmacological therapies for optimal pain relief (Association of Paediatric

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Anaethestists, 2012; British Pain Society, 2010; Czarnecki et al., 2011; Registered Nurses' Association of Ontario, 2013).

There are different types of non-pharmacological interventions; examples include distraction and acupuncture. One of the commonly used non-pharmacological interventions is distraction. Koller and Goldman (2012) define distraction as 'a strategy—whether cognitive or behavioral—that draws a child's attention away from noxious pain stimuli.' Though the definition's subject is a child, its meaning adequately explains distraction regardless of age. It has been postulated that distraction modifies cognitive pain perceptions by altering nociceptive responses and triggering an internal pain-suppressing system (DeMore & Cohen, 2005). Therefore, it causes a decrease in the activation of areas in the brain (e.g.: thalamus and insula) which contribute significantly to pain perception (Bushnell, Ceko, & Low, 2013). This physiological change is sometimes explained using the gate control theory (GCT) (Melzack & Wall, 1965).

In GCT, Melzack and Wall (1965)posit that a gating system modulates pain in the spinal cord, which opens and closes nerve impulses to the brain. The gating mechanism is influenced by cognitive processes such as memory and attention (Melzack & Wall, 1965; Mendell, 2014). Hence, attending to the noxious stimuli increases pain perception; while attending to a pleasant stimulus reduces pain perception (Ochsner & Gross, 2005). Examples of distractors include music, watching television, playing a video game, interactive toys, controlled breathing, and guided imagery/relaxation (Rezai, Goudarzian, Jafari-Koulaee, & Bagheri-Nesami, 2017). Its effectiveness for pain relief has been well-documented in systematic review (Birnie et al., 2014; Bukola & Paula, 2017; Koller & Goldman, 2012; Uman, Birnie, Noel, Parker, Chambers, McGrath, & Kisely, 2013).

Despite the wealth of evidence on the effectiveness of various pain management strategies, pain management remains poor in low resource settings like Nigeria (Soyannwo, 2010). Researchers and experts have attributed the poor pain management to: unavailability of analgesics in rural hospitals, lack of funds to purchase prescribed analgesics, health professional's lack of knowledge, poor attitude towards pain management among health professionals, and low governmental prioritization for pain management (Soyannwo, 2010; Ughasoro, Udem, Ibeneme, Uzochukwu, & Onwujekwe, 2015). It is logical to suggest that, in low resource settings, in the absence of pharmacological therapies, non-pharmacological therapies such as distraction can be used to provide some amount of pain relief. Various studies have assessed the knowledge, attitude, and beliefs of nurses about non-pharmacological interventions (Kwekkeboom, Bumpus, Wanta, & Serlin, 2008; Manwere, Chipfuwa, Mukwamba, & Chironda, 2015; Mwanza, Gwisai, & Munemo, 2019; Samarkandi, 2018). Two studies conducted in Zimbabwe demonstrated that nurses had little knowledge about non-pharmacological interventions; in one study, 76% could not identify the types of non-pharmacological interventions (Manwere et al., 2015, 2019). Hence, there is a disparity in the knowledge of non-pharmacological interventions in some low resource settings.

In Nigeria, undergraduate nursing students undergo training on pain management as part of their nursing curriculum. They are taught that distraction is a core aspect of pain management. However, it is not clear if this knowledge is translated into clinical practice. Hence, this study assessed the use of distraction for pain management in a Nigerian tertiary hospital.

2. Aim

The main aim of this study is to assess nurses' beliefs about distractions, and the use of distraction for pain management.

3. Methods

3.1. Study design and setting

A cross-sectional and descriptive design was adopted in this study. It was conducted in the only tertiary health institution in Kwara State, Nigeria. Kwara State is one of the six states that make up the North Central geopolitical zone in Nigeria. The hospital provides generalized and specialized healthcare services, such as haemato-oncological, psychiatric, pediatric, nephrology, obstetrics and gynecology. One of the core aims of the institution is for its patients to achieve the highest possible level of pain relief.

3.2. Participants

The study participants were selected using purposive sampling method. They are all registered nurses/registered midwives working in 7 separate wards in the hospital. These wards include the male and female medical and surgical wards, pediatric, stroke and psychiatric wards. The total population was 287. The sample size was calculated using Cochran's (1977) formula for calculating sample sizes (Sarmah, Bora-Hazarika, & Choudhury, 2013).

$$\text{Samplesize(S)} = \frac{n}{1 + \frac{n}{N}}$$

$$\text{n} = \frac{z^2 pq}{d^2}$$

Using test statistic (z) of 1.96 at 95% confidence interval, estimated proportion of an attribute in a population (p) is 0.50, q is 1-p, total population (N) = 284 and the desired level of precision (e) = 0.05, the estimated sample size was calculated as 163 nurses/midwives.

The registered nurses/midwives were purposively selected using inclusion and exclusion criteria. The inclusion criteria were: (1) registered nurses (RN) and/or registered midwives (RM) who work in the ward and provide direct clinical care and (2) nurses/midwives who have worked for at least one year in the ward. The exclusion criteria were: (1) registered nurses/midwives working in the ward who do not provide clinical nursing care to patients (e.g.: nurses holding administrative roles such as the Deputy Director of Nursing Services (DDNS)) and (2) nurses who have worked for less than one year in the ward.

3.3. Data collection tool

The researchers developed a structured, self-administered questionnaire as the data collection tool for the study. Two studies related to the topic of this current study were used as a guide to develop the questionnaire (Manwere et al., 2015, 2019). The topics of these studies are: 'Knowledge and attitudes of registered nurses towards pain management of adult medical patients: a case of Bindura Hospital' and 'Knowledge on Nonpharmacological Methods of Pain Management among Nurses at Bindura Hospital, Zimbabwe.' The questionnaires of these studies could not be retrieved; however their published reports provided guidance in the selection of the content of this study's questionnaire. The face and content validity were considered appropriate after a team of nursing researchers reviewed it. The internal consistency was measured using Cronbach Alpha, which showed a result of 0.76. This result shows the questionnaire is unidimensional, this indicates that it is reliable. The questionnaire assessed the use of distraction for all types of pain being managed at the hospital. The questionnaire contains 34 questions which are split into four (4) different sections. First section consists of questions that elicit the demographic data of the participants. Second section assesses the participants' fundamental beliefs about distraction and its effectiveness. Third section assesses the participants' use of distraction as a pain management technique in the hospital. Fourth section determines the factors that influence the use of

distraction.

3.4. Data collection procedure

The nurses/midwives who met the inclusion criteria were identified and contacted, in person, at the various hospital wards. The aim of the study was explained to each prospective participant and they were invited to participate. Each nurse/midwife who agreed to participate was given a questionnaire to complete privately. The researcher waited to collect the completed questionnaires. Some participants opted to complete their questionnaires later; these were collected by the researcher at the participants' desired time. The contact details and names of the participants were not requested to ensure confidentiality. All the completed questionnaires were put in an envelope, sealed and placed in a secured compartment. The questionnaires were distributed and collected by one of the authors from 1st to 14th October 2017.

3.5. Ethical considerations

Ethical approval was obtained from the hospital's Ethical Committee. Before administering the questionnaire, the study was explained to each participant and informed consent was obtained. Participants were informed that they could decline participation and participation was voluntary. They were informed to avoid writing their names or any form of identification on the questionnaire to ensure anonymity.

3.6. Data analysis

The data was analyzed using statistical product for service solutions (SPSS) 20.0 (SPSS, Inc., Chicago, IL). Descriptive statistics (percentages, and frequency) were used to determine normality of the data and the description of the sample. The chi-square test was used to test the relationships between the categorical variables.

4. Results

170 nurses were eligible for participation in this study. Of the 170 questionnaires distributed to RNs, 163 questionnaires were retrieved for analysis. That was a response rate of 96%. The remaining 7 questionnaires were not returned to the researchers. Of the 163 participants, 89% were females and 54% were between the ages of 21 and 30 years. The median age was 25 years. 81% of the participants were from the Yoruba ethnicity. The majority of the participants (73%) had either a Registered Nurse (RN), Registered Midwives (RM) or both as their maximum qualification and none had a Master's degree. Half of the participants had spent less than 3 years in service and the majority of them (54%) were Nursing Officers. See Table 1 for the socio-demographic data of the participants.

Table 1
The demographic distribution of the study respondents.

Demographics		Frequency (%)
Gender	Male	18(11)
	Female	145(89)
Age	21 – 30	88(54)
	31 – 40	25(15.3)
	41 – 50	34(20.9)
	51 and above	16(9.8)
Marital status-	Single	82(50.3)
	Married	77(47.2)
	Widowed	2(1.2)
	Divorced	0(0.0)
	No response	2(1.2)
Tribe	Yoruba	133(81.6)
	Hausa	4(2.5)
	Igbo	10(6.1)
	Others	8(4.9)
Years in service	No response	8(4.9)
	Less than 3 years	82(50.3)
	4 – 10 years	27(16.6)
	11 – 20 years	34(20.9)
	Above 20 years	20(12.3)
Maximum qualification	Registered Nurse	56(34.4)
	Registered Nurse/Registered Midwife	60(36.8)
	Bachelor of Nursing Science.	39(23.9)
	Registered Midwife	4(2.5)
	Master of Science	0(0.0)
	Others	2(1.2)
	No response	2(1.2)
Professional ranking of respondents	Nursing Officer	54.60
	Senior Nursing Officer	14.70
	Principal Nursing Officer	6.20
	Assistant Chief Nursing Officer	14.70
	Chief Nursing Officer	8.60
	No response	1.20

4.1. Nurses' beliefs about the use of distraction as a pain management technique

Nurses' beliefs about the distraction were largely positive. The majority (98.8%) of the participants knew what distraction was. The majority of the nurses (96%) believed that distraction is a safe and effective intervention for pain. They largely (61.3%) believed that distraction can be effective, without administering any pharmacological agent. The nurses largely (76.7%) agreed that distraction is an important component of pain management and it should not be excluded from the treatment plan. See Table 2 for the responses of the participants on their beliefs on distraction.

4.2. Nurses' use of distraction as a pain management technique

The majority (98.8%) of the respondents were familiar with distraction and its use in pain management. Most participants (97.5%) indicated that they use distraction as a pain management technique. Less than half (36.8%) of the participants always asked their patients about their hobbies to provide distraction but only 22.1% of the respondents always used the patients' hobby as the distractor. More respondents (92.6%) indicated that they 'always or sometimes' ask about the patients' hobby but fewer respondents (85.3%) 'always or sometimes' never implemented the patients' hobby as a distractor. The commonly used types of distractors were music (73%) and chatting (59.5%). The nurses initiate a chat with a patient during a painful procedure, with the aim of distracting them. Massage (81.6%) and exercise (81.8%) were also indicated as non-pharmacological pain management interventions. Less than half (42.9%) of the participants indicated distraction was always effective in reducing pain while 52.1% stated that it was sometimes effective. See Table 3 for the responses of nurses on their utilization of distraction.

Distraction was mostly used to manage post-operative pain (84%), and it was least used to manage venepuncture (24%). (See Fig. 1) Many nurses indicated that the factors that influence their implementation of distraction in practice include: their prior knowledge on distraction, the pain intensity and the workload of the nurse (See Table 4).

5. Discussion

Distraction is a highly recommended non-pharmacological intervention for pain management and it is frequently indicated as a nursing action. Nurses are obligated to assess pain, provide pharmacological and non-pharmacological therapy for pain relief and assess the effectiveness of these interventions (Sadeghi, Mohammadi, Shamshiri, &

Table 2
The beliefs of nurses about the use of distraction for pain management.

Variable	Frequency (%)				
	Strongly agree	Agree	Disagree	Strongly disagree	No response
Distraction is a process of preventing someone from feeling as much pain as they would have felt by turning their attention towards a pleasant source.	80 (49.1)	81 (49.7)	2(1.2)	0(0.00)	0(0.00)
Knowledge of distraction improves the quality of pain management	57(34.5)	100(61.3)	4(2.5)	0(0.00)	2(1.2)
Distraction is a safe intervention for pain management.	89 (54.6)	70 (42.9)	2 (1.2)	0(0.00)	2 (1.2)
Distraction is an effective intervention for pain management.	40 (24.5)	113 (69.3)	4 (2.5)	0(0.00)	6 (3.7)
Distraction is important in the management of my patients' pain	62 (38.0)	87 (53.4)	8 (4.9)	2 (1.2)	4 (2.5)
Distraction is effective even if I do not use analgesics for my patient's pain	30 (18.4)	70 (42.9)	54 (33.1)	4 (2.5)	5 (3.1)
Distraction must be used with analgesics to be effective	56 (34.4)	79 (48.5)	18 (11.0)	8 (4.9)	2 (1.2)
Distraction should not be a part of pain management.	10 (6.1)	26 (16.0)	50 (30.7)	75 (46.0)	2 (1.2)

Table 3
Nurses' use of distraction as a pain management technique.

Variable	Response	Frequency (%)
Do you use distraction in managing your patients' pain?	Yes	159(97.5)
	No	4(2.5)
How often do you document in the nursing notes whenever you use distraction to manage a patient's pain?	Always	74(45.4)
	Sometimes	67(41.1)
	Never	20(12.3)
	No response	2(1.2)
How often do you ask your patients about their hobbies in order to implement distraction?	Always	60(36.8)
	Sometimes	91(55.8)
	Never	12(7.4)
How often do you use the patient's hobby as the method of distraction?	Always	36(22.1)
	Sometimes	103(63.2)
	Never	24(14.7)
Does your patient verbalize less pain after the use of distraction?	Always	70(42.9)
	Sometimes	85(52.1)
	Never	6(3.7)
	No response	2(1.2)

Table 4
Factors influencing the use of distraction by the respondents.

Influencing factor	Frequency (%)
Prior knowledge on distraction	159 (98)
Regular seminars on distraction	134(82)
A conducive and stimulating ward environment	131(80)
Provision of distractors	149 (91)
Staffing levels	106(65)
Pain intensity	139(85)
The workload on the nurse	106(65)

Bagherzadeh, 2013). Hence, this study assessed nurses' beliefs and use of distraction for pain management in a Nigerian tertiary hospital. Overall, it is indicative that nurses have largely positive beliefs about distraction. This resonates with the findings by Kwekkeboom et al. (2008), in which, it was reported that nurses believed in the effectiveness of distraction and other psychological interventions. In this current study, the majority of the nurses indicated that distraction is effective without using drugs. Though this statement is true, some factors can render distraction ineffective. Studies have identified factors such as severe pain, age, the invasiveness of the procedure, unpleasant past experiences with a procedure and high levels of anxiety (Dahlquist & Pendley, 2005; Kwekkeboom et al., 2008). Nurses must be aware of these factors and perform a proper assessment of a patient before implementing distraction. In cases where distraction fails, the nurse should endeavor to identify the factor that may have caused the failure. Also, they should be cautious of using distraction alone for severe pain.

The utilization of distraction among nurses is optimal, as 98% of the participants use it in practice. Similarly, other research studies have also documented a high utilization of distraction among nurses

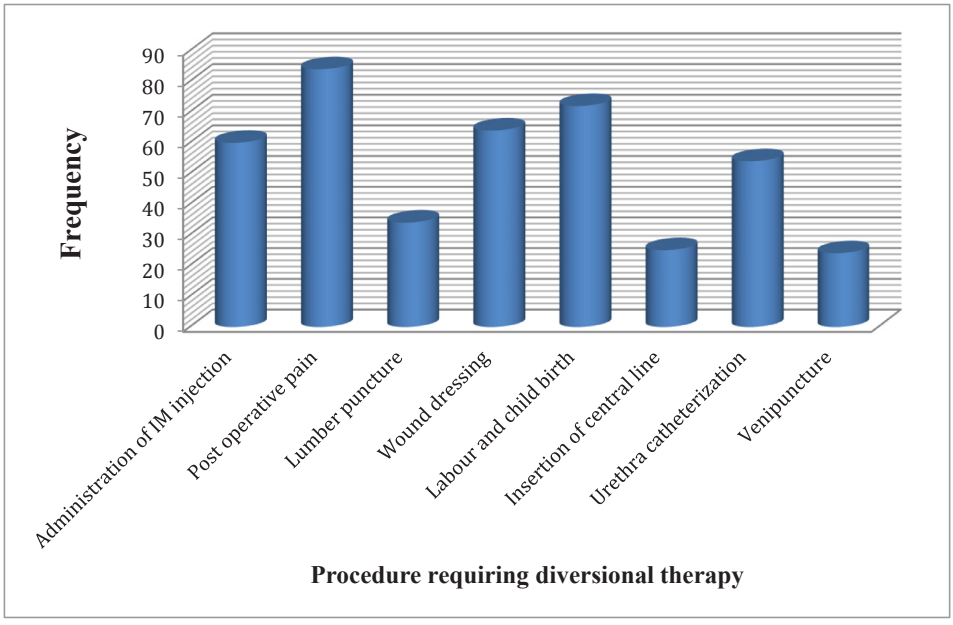

Fig. 1. Nurses' use of distraction for common procedures.

(Kwekkeboom et al., 2008; Mathew, Mathew, & Singhi, 2011). This is contrary to the findings from two studies which were conducted in Zimbabwe, where nurses demonstrated poor knowledge and utilization of distraction and other non-pharmacological interventions (Manwere et al., 2015, 2019). The positive finding recorded in Nigeria may be due to the pain management courses that nurses undergo during their undergraduate courses. However, it is discouraging to discover that only 45% document their pain nursing interventions in their nursing notes. Other research studies have documented similar findings. A clinical audit conducted in Australia also noted that nurses often failed to document the pain assessment results (Shrestha-Ranjit & Manias, 2010). All the nurses surveyed by Richards, Sullivan, Briggs, Young, and McCann (2004) rarely documented the pain management interventions in their nurses' notes. This may be due to the heavy workload, hence the unavailability of time to document. Documentation is a critical aspect of nursing care, as it plays a major role in the continuum of nursing care. Failure to document will lead to a loss of history about the successes and/or failures of distraction interventions for patients. It is imperative that the importance of documentation is emphasized to nurses regularly. Moreover, nursing notes need to be monitored regularly by nursing auditors/supervisors to ensure that documentation is done properly and regularly.

In this study, distraction is least used to manage venepuncture (24%) and mostly used to manage postoperative pain. Similar to the finding of this study, Melhuish and Payne (2006), reported that distraction was not generally used in managing venous cannulation. The finding in this present study may be due to the nurses' perception that venepuncture is not as painful as post-operative pain, hence, it requires little or no pain relief. It is worth noting that venepuncture is one of the major sources of pain for patients, particularly children (Babaie, Shirinabadi, Nourian, Pourhoseingholi & Masoumpoor, 2015). If distraction is rarely used by nurses to manage venepuncture, then what form of pain relief is used? A study carried out in South-West Nigeria showed that only one out of 232 healthcare professionals knew about the use of topical anesthetics for pediatric procedural pain relief, and none of them had used it before (Ughasoro et al., 2015). This study indicates health professionals do not use topical anesthetics for venepuncture. Though this study focuses on children, it may be indicative of what is happening to all patients. This indicates that it is imperative that a study is conducted to understand pain management practices in hospitals in Nigeria and other low-resource healthcare settings.

According to the study respondents, one of the factors that influence the use of distraction is the availability of distractors. In many low resource settings like Nigerian hospitals, distractors are the least concerns of many hospital administrators. Hence, nurses in these settings must explore the use of cheap distractors which require less training and equipment, such as music, relaxation, guided imagery, and massage. These options were well-utilized by our respondents. Another challenge arises with another influencing factor: staffing levels and workload of nurses. It is common for a nurse and two health assistants to be assigned to man a fully occupied 32-bedded ward on a shift. The huge workload can deter a nurse from providing optimal pain management using distraction. Hence, nurses must explore the use of distractors that can be used by the patient without the presence of a nurse. Examples include music, playing phone games and deep breathing exercises. More education is needed to train nurses on how to administer these interventions.

This study has provided a detailed insight into the nurses' beliefs and their use of distraction in a Nigerian hospital. To the best of the knowledge of the authors, this is the first study on this topic conducted in Nigeria. Despite the strengths of this study, it has a few limitations. A survey may not totally reflect nursing practice in clinical settings. Hence, an observational study on nurses' pain management practices might be useful in determining nurses' actual practices. Also, all the participants were from the same hospital. Hence, similar factors such as the availability of equipment, training sessions and the hospital culture may have influenced the findings of this study.

5.1. Implications for nursing education, practice and research

Distraction is a valuable technique in pain management. Nurses should be further educated on distraction, and the various procedures and types of pain it should be used for. Nurses must be cautious of using distraction or any non-pharmacological intervention alone for the management of moderate-severe pain. It is essential that both pharmacological and non-pharmacological interventions are used in managing pain. As practiced in most nursing undergraduate programmes in Nigeria, other nursing institutions in developing countries should include pain management courses in their nursing curriculum. This can serve as a foundation to facilitate the inclusion of distraction and other non-pharmacological interventions in nursing care. Additionally, this is a need to conduct research studies to determine patient satisfaction with pain management, both pharmacological and non-pharmacological.

5.2. Conclusion and recommendations

Nurses are implementing distraction in their pain management hence improving the pain experience of their patients. Nurses should endeavor to utilize distraction with analgesics/anesthesia to ensure that the pain relief is optimal for every patient. This study presents the utilization of distraction from the perspective of the nurses. It will be holistic to determine the level of patients' satisfaction with distraction, and pain management interventions as a whole. Also, educational programmes must be developed to enlighten nurses about the latest research findings on distraction and other pain management interventions. These programmes should also focus on developing skills relevant to implementing distraction and encouraging nurses to document their nursing interventions always.

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Ethical approval details

Ethical approval was obtained from the University of Ilorin Ethical Committee. The ethical approval reference number is UIL/COHS/FCS/37.

Declaration of Competing Interest

None

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijans.2019.100158.

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