

Research Article

Pain Management in Patients with Fractures after Surgical Intervention, Using Music Therapy as a Non Pharmacological Method

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Abstract: **Introduction:** The purpose of this study is to summarize current post-pain control techniques for fracture patients in southern Ethiopia. Elderly and sensory impaired people with fractures are more likely to be undertreated for pain, particularly if they have gait instability at any stage of the fracture. Previous research has revealed little about the efficacy of acute pain therapy in people with fractures and gait instabilities. **Methodology:** In this study, data on latest pain management practices were collected from 124 nursing staff via questionnaire. They worked in the operating rooms of Bule Hora Hospital, Ethiopia. The questionnaire received a 54 percent response rate. Factor analysis and parametric methods were used to analyze the data. **Results:** Half of those interviewed (54%) said that post-operative pain care for fracture patients was adequate. Only about a third of respondents said they used pain scales on their unit, with VAS being the most popular. The usage of pain scales was strongly associated to respondents' evaluations of something like the sufficiency of post-operative pain management in this patient group ($p = 0.001$). **Conclusion:** The findings can be used in nursing practice and research to develop complementing teaching programs for surgical ward nurses. More study is needed to describe the current state of pain management procedures from the perspective of fracture patients.

Keywords: Pain, fracture, post-operative pain, surgical pain, nursing staff.

Introduction

Fractures are a relatively common occurrence. Around a quarter of a million fractures occur in Ethiopia each year, with between 21-25% of these patients exhibiting significant gait instability.¹ Persons with fractures are at a high risk of falling and sustaining subsequent fractures due to impaired sensory perceptions, which leads to diminished balance and gait. Fracture appears to be a risk factor for self-sustaining falls.²

The definition of acute pain is "pain that has just begun and is likely to last only a short time." It usually has a clear temporal and causal connection to injury or sickness. Sensory impaired patients are more likely to receive inadequate therapy for acute pain. This has been demonstrated in the field of acute pain management, where patients have not gotten proper pain management during their hospital (In patient) stay.³ Adults with fractures are also at risk for underestimation of pain and significant delays in analgesic treatment while pain is being assessed. The quantity of opioid analgesia given to individuals with severe or medium fractures was one-third that of sensory intact people. Two-thirds higher opioid analgesic was given to the sensory intact group than to the sensory impaired group.⁴

Human subject rights must be considered as part of proper pain management, and hence are at danger of insufficient pain management.⁵ Nursing professionals play a critical role in ensuring that this vulnerable patient population receives high-quality care. Inadequate pain management in elderly individuals with hip fracture results in not just human suffering but also extended hospital stays, delayed ambulation, and long-term functional damage.⁶

Provide pain medication before to unpleasant occurrences (such as wound healing or dressing) and routinely, according to evidence-based standards.⁷ Delivering analgesics all around clock, evaluating and recording analgesic effects and side-effects, using the first four hours, post-operative pain should be assessed at least every hours, and pain should be assessed using pain scales.⁸

It is critical to provide appropriate pain medication prior to unpleasant events (such as wound healing or dressing), because post-surgical movement-related pain is more significant than pain while resting. Movement-related pain, on the other hand, appears to be a secondary factor in post-surgical pain management.⁹

In an acute care context, pain intensity assessments at least every 4 hours are required to guide pain preventive and therapeutic decisions.¹⁰ This restricted usage of analgesic administration around the clock could be explained by a lack of acquaintance with, and execution of prevailing evidence-based pain management guidelines.⁷

Patients with gait impairment can frequently self-report discomfort levels. Self-reporting has been the standard method for pain evaluation, it is the most reliable predictor of pain existence or severity.^{6,7} People with modest fractures can make accurate pain reports, but those with more significant gait and sensory impairments may struggle or be unable to do so. The Visual Analogue Scale (VAS), Verbal Descriptor Scale (VRS), and Faces Scale are all used to assess pain severity. The VAS is a horizontal line with verbal anchors on either ends that is commonly used, particularly in hospital settings.⁹⁻¹⁰

The patient is asked to mark the line and the 'score out from left side of the line towards the mark. The VAS requires the ability to differentiate minute differences in pain intensity and might even be difficult for some people to complete. The Verbal Descriptor Scale (VRS) is an instrument that has already been expressly certified for use with people (0 = little if any pain, 4 = incredibly painful suffering).⁷⁻¹⁰

Music therapy has long been used to shift attention away from pain and generate a state of relaxation and well-being. Music decreases pain intensity as well as narcotic doses following surgery, but again the extent of the benefit remains minor.⁶

Because the evidence base for using non-pharmacological therapies to address acute pain has to be developed, there are certain restrictions to their usage. Current understanding does not demonstrate high levels of reliability from either of these treatments.^{6,7,10}

There has been an increase in interest in pain treatment techniques throughout the previous decade. In order to develop successful ways for controlling pain in patients with fractures in the acute-care setting, more research is needed.⁷ The focus of this research was to look at nurses perception on how fracture patients having gait instability as well as sensory impairment dealt with pain after surgery using music therapy.

Materials and Methodology

Design

The current situation of post-operative pain treatment techniques for patients with fractures as evaluated by nursing staff was assessed using a cross-sectional design. The university hospitals in

Bule Hora were used, in Southern Ethiopia; the hospital treated almost 20% of all fracture patients hospitalized.

Development of Questionnaire

A new questionnaire was created because no questionnaire was identified to examine post-operative pain management procedures by nursing staff in persons with fractures in an acute care context. The scale was created using data from prior investigations. The pain management methods discussed in this article are part of a larger body of information about analgesic side effects, pain management barriers, Post-operative Pain Management in Fracture Patients, the most effective non-pharmacological pain treatment procedures, pain-related behavioral changes, operational preconditions for establishing pain management, and pain management expectations. On a separate form, the nursing staff said that all of the items were clearly defined and straightforward to complete. The scale's visual design was also changed to make it easier to use. When caring for patients with fractures, nursing staff were asked how post-operative pain management procedures are implemented on their units.¹¹⁻¹³ (Table 1).

Table 1. Questionnaire Components and Related Research (Person(s) and Publication Year)

Questionnaire	Person(s) and Publication Year
Assisting with everyday activities	Herr et al. ¹¹
Music as a non-pharmacological therapy	

Procedures

Each unit had a point of contact who delivered the questionnaires and chatted with the participants. The questionnaire came with a cover letter outlining the method, and participants were requested to answer. The data was collected from April to May 2021.

Data and Methods

By calculating percentages of the extent of opinions on a five-point Likert scale (1= completely disagree, 2 = disagree to some extent, 3 = neither agree nor disagree, 4 = agree in some amount, 5 = completely agree),¹⁴ pain treatment procedures among 123 nursing staff were evaluated. Numbers 4 and 5 imply agreement, whereas numbers 1 and 2 suggest dissent. The mean total variables, which were obtained from components, were divided into two groups, with 3.5 indicating disagreement and 3.5 indicating agreement.

SPSS 17.0 for Windows was used to analyze the data. For such demographics of something like the nursing staff, descriptive statistics were developed. Histograms were used to examine the distribution's normality. To see whether there were any significant changes in the nurses' responses based on background characteristics, the researchers utilized the Two Independent Samples T-test and Analysis of Variance. P value 0.05 was used to determine statistical significance.

The sub scales were refined (as part of the scale development) and or the underlying factor structure of each subscale being investigated using factor analysis. Spearman's correlation also indicated good internal consistency for the scale as well as associated subscales. The percentages of opinion for each statement were calculated from the responses to those same participants' questions concerning pain treatment practices.

Description of the Participants

Nursing staff at Bule Hora University Hospital (N=229) provided data. A total of 54 percent of the nursing staff (n=124) completed the survey. They were 41 years old on average (SD 11.6).

The median length of time spent in their present job was 8.5 years, and the median length of time spent in health care has been 12 years (Table 2).

Table 2. Demographics of Nursing Staff (%) (n=124)

Variable	%
Gender	
Female	94
Male	06
Age	
< 36 years	32
36-50 years	31
> 50 years	27
Occupation	
Head nurse	03
Staff nurse	06
Registered nurse	71
Practice nurse	15
Other	05
Work experience in current unit	
< 5 years	28
5-15 years	44
>15 years	28
Work experience in health care	
< 5 years	22
5-15 years	58
>15 years	20
Contract	
Permanent	94
Deputy	06
Employment arrangement	
Fully time	91
Part time	09

The majority of the nursing personnel (91% of them) had not received any post-operative pain management training updates. The major goal of pain management was to achieve minor pain that did not interfere with daily activities. In patients with fractures, more than half believe pain management is sufficient (Table 3).

Table 3. Participating in Update Training, Primary aim and Sufficiency of Pain Management (%) (n= 124)

Variable	%
Participating in update training	
No	91
Yes	09
The primary aim of post-operative pain management in patients with fracture	
Complete pain relief	19
Slight pain, which does not prevent normal functioning	72
Reasonable painlessness with slight discomfort	08
Pain relief only at peak periods	01
Sufficiency of post-operative pain management in people with fracture	
Pain management is sufficient	68
Pain is undertreated	32

Results

According to the findings, the preferred techniques of pain management for nursing staff were "particular pain management procedures" (mean = 4.30), which included repositioning (98%), assisting with daily activities (93%), and cold applications (94%). Providing pain medicine prior to painful occurrences (94%), prior to physical exercise (92%), and on a regular basis (mean 40.52) were the most common analgesic administration techniques. 72% of respondents agreed that such effects of analgesics were assessed and documented. Pain was rarely measured using pain scales (30 percent). The most favored strategy among "emotional practices" was quieting and consoling (84 percent), whereas presence while the patient appeared to be in pain (42 percent) was the least popular.

The parametric tests were used since the variable distributions were normal. To see if there were any significant changes in the nurses' responses based on background characteristics, two Independent Samples T-tests and Analysis of Variance were used. In "emotional pain alleviating approaches" as contrasted to gender ($p = 0.012$) and involvement in update training ($p = 0.034$), statistically significant differences in the nurses' replies were detected based on background characteristics. Females agreed that "emotional pain alleviating measures" were used more frequently in their current work unit. In comparison to those who had not participated in updating training, those who had thought that the employment of "emotional pain alleviating strategies" was more widespread (Table 4).

The others who thought pain management was adequate also agreed that general "analgesic therapeutic approaches" ($p = 0.001$) and "physical methods" ($p = 0.006$) were employed more frequently in their units. Staff members thought the employment of "physical tactics" was more unusual than deputy employees ($p = 0.042$). When compared to those working part time, full-time employees ($p = 0.005$) acknowledged that "particular procedures" were also used more frequently. There are the most disparities in pain management practices.

Table 4. Gender Differences in pain Management, work responses of nurses, agreements, facility and Hospitals Training involvement (n=124)

Background Variable	Analgesic Treatment Practices			Emotional Support			Physical Methods			Specific Methods		
	n	Mean	SD	n	Mean	SD	n	Mean	SD	n	Mean	SD
Gender												
Male	06	4.0	0.49	12	3.8	0.65	09	2.12	1.4	14	4.4	0.44
Female	94	4.0	0.55	88	3.1	0.71	91	2.6	0.84	86	4.2	0.45
	ns.*			p=.011			ns.			ns.		
Hospitals Training involvement												
Yes	32	3.9	0.44	22	4.3	0.61	11	2.33	0.82	28	4.4	0.55
No	67	4.1	0.54	77	4.02	0.72	88	2.04	0.88	72	4.2	0.44
	ns.			p=.035			ns.			ns.		
Facility of pain management												
Undertreated	62	3.1	0.54	68	3.1	0.72	58	2.4	0.76	54	4.01	0.41
Sufficient	38	4.22	0.44	32	3.1	0.76	48	2.11	0.91	48	4.4	0.44
	p< .001			ns.			p=.007			ns.		
Agreements												
Permanent	91	4.04	0.55	88	3.07	0.71	86	2.11	0.88	82	4.06	0.41
Deputy	06	4.01	0.55	12	3.06	0.07	14	2.04	0.99	18	4.66	0.41
	ns.			ns.			p=.03			ns.		
Work responses of Nurses												
Fully time	96	4.01	0.55	89	3.06	0.69	83	2.02	0.88	91	4.07	0.44
Part time	04	4.22	0.50	11	3.05	0.71	17	2.01	0.90	09	4.04	0.53
	ns.			ns.			ns.			p=.005		
* ns. =not significant.												

Discussion of the Findings

According to the findings, more than 50 per cent of the nursing staff thought post-operative pain management was adequate for fracture patients. Only a third of respondents said their workplace used certain pain scales. These findings contrast prior research, which found that just a third of patients had an objective pain evaluation recorded¹⁵. The conclusion that the use of pain scales is associated with adequate post-operative pain management ($p = 0.001$) needs additional investigation. The Visual Analogue scale (VAS), which appears to be a viable instrument for assessing pain in patients with moderate or severe cognitive impairment¹⁶, is the chosen tool for pain measurement. There seems to be documentation that nurses generally assess pain while using pain rating scales¹⁵. The effectiveness of analgesics were commonly assessed and reported in this study (72%), despite the use of pain measures being insufficient.

Pain management techniques included repositioning, cold therapy, and assistance with everyday chores. Medication (94%) and physical activity (93%) were also prevalent behaviors prior to painful episodes. According to a meta-analysis published in 2011¹⁷, movement-evoked pain is still not the focus of something like the main post-surgical investigations. Pain was frequently assessed every four hours (69 percent). This discovery opposes earlier studies based on medical data collected following admission for something like an acute fracture. The primary disparities there in usage of various pain treatment strategies were observed in this study. "Emotional nursing techniques" are also much more generally utilized procedures in hospitals wherever "analgesic treatment practices" are being used relatively.

Nursing personnel play a vital role in facilitating the presence by patient's attenders who are familiar well with patient's unique means of expressing pain. Because the capacity to interact pain is often reduced in persons with fracture¹⁵⁻¹⁸, recognizing the individuals is important when trying to figure out how cognitively impaired individuals express pain.

Furthermore, meaningful communication on behalf of professionals and families, such like peaceful, expressive engagement and managing to keep patients informed.

Anxiety was discovered to be one of the most important predictors of post-operative pain intensity. The one and only significant indicator of pain throughout this subgroup was state of anxiety, according to a study that looked at the association between pain and potential harm in older persons following orthopedic surgery. In units, a focus on "creating a tranquil and comfortable environment" just wasn't frequent (only 34% agreed). The nursing staff, on the other hand, noted that due to the small, noisy, multi-bed room and a lack of time, staff's ability to create a comfortable environment is limited.

Nurses are mainly accountable for diagnosing pain in patients, as well as giving and evaluating the quality of pain alleviation. They are indeed the group least likely to influence improved health outcomes of the patients on this basis¹⁷⁻¹⁹. This study sheds light on how various pain treatment techniques are currently being used, and indeed the findings should be used by nurses when developing supplementary educational programs.

Ethical Considerations

Hospital granted permission to perform the study according to their own procedures. The Ethical Committee of Bule Hora Hospital granted ethical approval. Nursing staff volunteered to participate in this study, and the data was collected anonymously.

Conclusions

The pilot study uncovered additional information concerning nurses' perceptions of post-operative pain management amongst fracture patients: For patients with fractures, more than half of the nursing staff thought post-operative pain management was adequate. However, because pain

evaluation would be a difficult task, this does not rule out the possibility of under diagnosis. The much more popular pain scale was VAS, which was not appropriate for most fracture patients. Differing scales as well as measures of behavioral expressions of pain should be used in practice depending on the severity of cognitive impairment. According to the findings of this study, nursing personnel should receive updated retraining on how to use various pain scales based on the extent of sensory impairment or gait instability. The usage of pain scales was substantially linked to the idea whether post-operative pain management seemed sufficient within that patient group, therefore educational intervention considered especially reasonable.

Conflict of interest

The authors state that they have no competing interests in this article's authorship or publication.

Abbreviations

VAS =Visual Analogue Scale (0-10)

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