ORIGINAL ARTICLE

The experience of nurse anaesthetists in assessing postoperative pain in orthopaedic patients

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ABSTRACT

Aim To explore the experiences of anaesthesia nurses in assessing postoperative pain in patients undergoing total hip and/or knee arthroplasty.

Methods Data were collected through four focus group interviews (FGI) using the critical incident technique (CIT). The participants were six men and 12 women, all registered nurses with further education in anaesthesia with at least five-year experience of caring for patients on a postoperative ward.

Results Maintaining communication with orthopaedic patients, different ways to assess pain, the assessment of unresponsive patients, using pain assessment scales and different work circumstances influencing their use, were stated as the main problems the nurses emphasize while assessing the pain of patients.

Conclusion Skills related to observing the behaviour and experience of pain in different individuals are needed to ensure an understanding of patients' pain, as well as the patients' ability to estimate their pain, where the intensity of the pain varies in different patients. Further studies are needed to examine the way health professionals assess pain, depending on the patients' ability to transform their pain from a subjective feeling into an objective numeric grade. The way individuals assess their pain differently and the way the resulting knowledge and experience of postoperative care may help nurses and other health-care professionals.

Key words: experiences, nurse anaesthetists, orthopaedics, pain, qualitative research

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INTRODUCTION

Total hip (THA) and total knee arthroplasty (TKA) are currently two of the most successful, cost-effective orthopaedic surgical treatments in modern medicine. THA and TKA aim to reduce pain and improve mobility, function and quality of life in patients with osteoarthritis, when non-surgical treatment has failed (1,2). The aims also include reducing anxiety, managing postoperative pain, preventing postoperative complications and obtaining the patient's full participation in the rehabilitation process after surgery (1). Despite good and excellent results in the majority of patients, some of them are dissatisfied (2). When postoperative pain is assessed and managed in good time, suffering is reduced and the result is earlier mobilization and shorter hospital stay, with resulting lower hospital costs and a higher degree of patient satisfaction. Over the past fifty years, the hospital length of stay (LoS) following THA and TKA has been falling all over the world (3). In order to reduce the length of hospital stay, patients must receive adequate treatment for pain (4). Although we are increasingly aware of the necessity to provide good pain management following surgery, this is still a weak area in orthopaedics (5). For this reason, assessments of pain in order to provide comfort for patients and an acceptable balance between the level of pain and avoiding negative side-effects have become increasingly important in the health-care profession (6).

In order to help patients experiencing pain, health-care professionals need to know about pain, communicate effectively with patients, be able to assess pain correctly, understand possible post-surgical complications, the use of analgesics and how to relieve pain (7,8). It is also very important that they know how to talk to patients and include them in decision-making regarding the management of their pain (9,10). In situations where patients do not speak the local language or come from a cultural minority group or are from a low-income background, it may be more difficult to communicate with them in order to assess pain (11,12). Since pain is something individuals feel subjectively, communication between patients and health-care professionals may be a problem, so a numeric scale can be used to help patients report their pain levels themselves (13). The scales that are used most frequently in Sweden are the numeric rating scale (NRS), the visual analogue scale (VAS) and the verbal scale (VS) (14). These are all said to be good and practical for all concerned and they aid communication related to post-surgical pain. Nevertheless, some studies have shown that professionals still find it difficult to understand their patients' pain and do not always accept what they say (15,16). Both their skills in communication and the conditions of work affect their assessment of pain (17,18). A nurse's education, his/her competence and accreditation category may also affect his/her pain assessment (19).

Many health-care professionals are included in the assessment and management of pain in orthopaedics. They have various roles. Doctors prescribe therapy for pain relief, while nurse anaesthetists (NA) assess, administer analgesics and evaluate the effect and the level of pain (7,8). They are trained to perform their tasks responsibly, respectfully and with an open mind regarding the patient's health. In their post-surgical work, they should initiate and support and communicate well to ensure the patient's safety (20). Although NA assess pain and administer pain relief, in Sweden they are not trained in prescribing drugs. It is more difficult to communicate with patients after surgery since the communication is based on their individual desire and capacity to express how they are feeling (21).

Person-cantered care (PCC) has been advocated as a key indicator of quality of care by the World Health Organization (WHO) and by the Institute of Medicine at the US National Academy of Science (22). There are many definitions of PCC and one of them is Watson's theory (23) of human caring, which is widely used in nursing practice. Nursing is a caring science with ethical and philosophical implications. Human beings are connected to each other in the caring process; a nurse's humanity embraces the humanity of others to preserve the dignity of self and others. A holistic approach is used in the transpersonal caring relationship (24). Nursing care, according to Watson (23), is not conventional nursing, when the nurse provides care to the patient. Nurses take care of patients' physical needs, as well as their minds and souls. "Caring is the heart of nursing" and therefore an obligation to patients, families, communities and the universe. A hu-

man-to-human connection is established while the nurse provides care. A vital consciousness is created within the care provided by the nurse and received by the patient. This practice model demonstrates the four elements of Watson's theory, which are relational caring, a transpersonal, caring relationship, the caring moment and caring, healing modalities (24). Providing love and holistic care to patients through curative factors evokes the "caritas" process. The nurse treats the person as a whole. The nurse-patient relationship becomes transpersonal and authentic when the nurse embraces the spirit of the patient and provides holistic care (25). Watson's theory is an excellent theoretical framework that can be applied in different settings and populations. It is also a constructive tool that can easily be adapted by health-care professionals (25).

The aim of this study was to explore the experiences of NA in assessing postoperative pain in patients who have undergone total hip and/or knee arthroplasty.

PARTICIPANS AND METHODS

Participants and study design

The study was conducted on the orthopaedic ward of a hospital that performs THA and TKA surgery, located in western Sweden. The goal of the study was presented at a meeting with the participants. NAs with at least five-year experience of caring for patients on a postoperative ward were asked to take part in the study. Twenty-four of those were sent a letter of invitation and, of those, six males and twelve females agreed to take part in the survey. Four nurses were unable to take part due to a lack of health-care staff. The nurses all had between five and twenty-two years of experience of orthopaedic care and treating patients for pain following surgery. Eleven had undergone post-graduate training in nursing. Their age ranged from 35 to 65 (median 40) and they had been working as anaesthesia nurses for four to thirteen years (median 12 years) (Table1). The author conducted focus group interviews (FGI) to collect data.

Table 1. Demographics of 18 participants in terms of education, work and years of experience

Characteristic	Number (%) of participants
Gender	
Male	6 (33)
Female	12 (67)
Education level	
Anaesthesia nurses	11 (62)
Master's	7 (38)
Age	
31-40 years	7 (38)
41-50 years	5 (27)
51-60 years	4 (22)
≥ 60 years	2 (13)
Experience (years)	
≤ 5	4 (22)
6-10	5 (27)
11-15	3 (16)
16-20	4 (22)
≥ 20	2 (13)

Methods

This study takes a qualitative, descriptive approach, using the method known as the critical incident technique (CIT). The CIT was described by Flanagan (26) in order to record the actions of the people who are best able to define an incident. It is a systematic, inductive and highly flexible method, which results in specific and factual descriptions of incidents, aimed at resolving specific issues (27). According to Flanagan, the analysis of an incident in CIT must have a goal that is specifically defined, along with the positive and negative features and issues involved in the activity. Three pieces of information must be given in order for the CIT to be of use and effective. The situation that preceded the incident, the actions and conduct of the main person involved in the incident and the outcome of that conduct must be described. The type of problem defines how many incidents are necessary, but 100 incident analyses are deemed to be adequate for qualitative analysis (28).

The author conducted four FGIs, from August 2014 to October 2015. They began with casual conversation and open-ended questions using a guide based on Kvale's suggestions (29). The key questions asked were: *"Please tell me about your experience with patients and their pain post-surgery"* and *"What negative and positive situations have you encountered while working with these patients?"*. During the interview, the content was deepened, clarified and considered using more direct questions. The author only intervened in order to ask more questions or to pursue information the nurses had given. The participants had all given a prior signed, informed consent. The FGIs took place on the surgical ward and were led by the first author. They took from two to two and a half hours and were recorded and transcribed.

Statistical analysis

Having read the transcription of every interview with great care, the problematic situations mentioned by the participants were identified. It took specific experience (critical incident) mentioned by nurses to be positive or negative according to how they experienced it, when they had used interpreters to talk with orthopaedic patients. The interviews identified 243 critical incidents with each subject describing from seven to thirty-six incidents. Some mentioned several incidents related to a certain situation, but some did not mention any at all. The incidents were first abstracted from the text of the interview and then labelled and categorized in groups according to the type of behaviour. From this, a theme and three categories were deduced, which were then sorted into eight subcategories on the basis of their narrower similarities and differences. We went on doing this until we categorized all the critical incidents, as appropriate.

As there was no physical intervention and no information on individual health issues was involved in the study, there was no need to involve the ethical board according to Swedish law (30). The World Medical Association Declaration of Helsinki (31) was, however, considered carefully. The informants' identities were protected, i.e. their names and personal identity numbers were not stated in the recordings or any publications. The audiotapes used for the interviews were stored in a locked safe at the hospital.

RESULTS

The analysis of the interviews in this study resulted in one theme, three main categories and eight subcategories (Table 2).

Table 2. Overview of categories, subcategories and theme

Categories	Subcategories	Theme
Communication	Talking and listening to patients Other ways to assess pain Assessment of unresponsive patients	
Pain assessment scales	Pain scales in assessment of pain intensity Pain scales in assessment of treatment choices Work circumstances as influence in using pain assessment scales	Practical and organizational difficulties in assessment of postoperative pain
Practical issues	Time aspect Stress	

Communication

The NAs stated that the assessment of postoperative pain in orthopaedic patients is a long process that begins when the patients undergo surgery and ends at discharge. The process has many steps, but according to the nurses, one of the most important is communication with the patients. The orthopaedic patients usually underwent surgery under general anaesthesia and, to communicate with them, they needed to be awake. Communication with patients with pain was sometimes easy, sometimes difficult for nurses, but there were situations in which it was impossible. In these situations, they had to use other tools and most of them asked their colleagues for help.

Talking to and hearing the patient

In order to assess the patients' pain, many NAs said that they needed to communicate with them. They said that, depending on the length of the and the intensity of pain during surgery, it took them longer to wake up. The patients needed more opioids and so they were anesthetized more deeply. NAs described communication with patients in two phases. The first phase is to communicate with the patients as they come round. The reactions of patients about to wake up and patients who are awake were different.

One nurse described this as follows: *"I started bringing my patient round early, but he did not wake up and this took time. I would rather have him awake and ask if he had pain"*.

Another study nurse stated, *"I think I once had a patient who was awake..., I thought so... but he was so influenced by opioids that he could not talk"*.

Some NAs emphasized, however, that the only true communication with patients is when they are fully awake and the assessment of pain is only possible then. They pointed out that there was no point in communicating with half-awake or intoxicated patients, since they provide no sensible information. The group of NAs with more experience, who had worked with patients for a few years, wanted to talk to the patients and hear what they had to say.

One NA said, *"I assess pain and communicate only when the patients are awake. That's when you get the best answers"*.

Another one said, *"The most important thing is that they are awake.... they can talk, I use the VAS scale and it works really well"*.

Other ways to assess pain

According to most NAs in the present study, verbal and non-verbal communication cannot be separated. Where one stops, the other begins. However, they agreed that there were circumstances in which the patients were awake but were unable to communicate. This may be because these patients did not communicate or they needed extra time to initiate communication. In these circumstances, all the NAs in the present study used various methods to assess their pain, such as observing the patient's vital signs, examining the patient especially carefully, observing the patient's appearance, circulation, respiration, making eye contact with the patient, consulting other colleagues and checking the surgical wounds in particular.

One NA mentioned other ways to assess pain, *The patients always make me extra nervous... you have to do your work, but sometimes you have to guess... you are not quite sure what you are doing"*.

Another one said, *"In that case, I check the patient several times..., I look at the device and the patient…, ask my colleagues…, but I would rather communicate with the patient"*.

Assessment of unresponsive patients

The majority of NAs in this study described a special group of patients that are extremely difficult in terms of pain assessment. Patients in this group are impossible to communicate with. This is due to aphasia, dementia or the fact that they were born abroad and there was a language barrier. In all these cases, and in the process of assessing pain in these patients, NAs had to work harder and do their best to make the patients happy and ensure that they were not in pain. In these cases, all they had learned and all their knowledge of pain was not sufficient when the patient was unresponsive.

One NA said, *"I once asked the patient if she was in pain, and she asked me: 'Where is my mother?'"*, and another one, *"I asked my patient about pain and showed him the VAS scale, but he only spoke Arabic and I understood nothing"*.

Pain assessment scales

According to all the NA in the study, after a patient is awake, the assessment of postoperative pain usually begins by screening patients, followed by asking about the location, duration and intensity of pain and, if necessary, giving analgesics and sedatives. According to most NAs, communication, discussion and the assessment of pain are very important when caring for patients with postoperative pain. On the other hand, most NAs said this was very difficult. The NA used the visual analogue scale (VAS) and numeric rating scale (NRS). These are almost always used for the assessment of pain intensity and choosing treatment.

Pain scales in assessments of pain intensity

The majority of NAs mentioned that they use a variety of scales repeatedly over a short period to monitor signs of pain in order to increase their understanding of the patients' experience and the intensity of their pain. The intensity of pain was assessed many times and scales were used as soon as the patients were awake, until they left to the postoperative ward. The assessment of the intensity of pain was a predictor for medicating patients for pain. Depending on the intensity of the pain, the medication was short or long acting.

One NA said, *"I examine and observe constantly and I ask my patients many times about their pain..., I show them the scale many times over a period of five minutes"*; another one, *"The VAS scale is very helpful; depending on the number on the scale, I give injections of morphine or alfentanyl"*.

During the pain assessment process, situations or circumstances sometimes arose that were amusing and made the day more interesting. These situations gave the NA an incentive to do their work.

According to one of the NA in the study, there was a funny situation as follows:

"I once asked one of my patients to self-rate his pain... to estimate it on a scale of 1-10 and he asked me if I meant millimetres or meters." Another NA said, *"I asked the same thing, but the answer was 'I have pain that is 110 on your scale'"*.

Pain scales in assessments of treatment choices

Pain assessment scales were described by all the NAs in this study as very useful in the choice of drugs or pain relief procedures. The scales were

used to choose whether to give patients long-lasting or fast-acting drugs and regarding what should be given to the patient.

The NAs had different experiences relating to how patients responded regarding pain intensity and treatment.

One NA described his experience in this way: *"Depending on the number on the VAS scale, I give medicine, usually fast-acting medication, and the patients react quickly."* Another nurse described it differently, *"I often have patients who have pain after surgery, I give medicine according to an estimation of the VAS, but patients sometimes react and sometimes they don't."*

How work-related circumstances affect the use of pain assessment scales

Work-related circumstances and the use of pain assessment scales are often associated with the length of work experience, where the nurses worked in the past and whether they were familiar with the use of the various pain scales. The majority of NAs stated that the most experienced NAs were usually more accustomed to using pain scales.

One NA noted, *"Pain scales are very good... I use them every day and they are very good for assessing pain in patients."*, and another NA, *"I used to work at the neonatal unit and psychiatry and I was not used to using pain scales. I learned to use them at the surgical ward"*.

Practical issues

The majority of NAs in the present study expressed frustration with having too little time to provide care to orthopaedic patients and thoroughly assess their pain after surgery. Patients in pain after surgery require extra time, energy, commitment and patience, but there was no time. They often had no one to call on because there was always someone who was sick or at home. Different situations related to lack of time led to an increase in stress in the majority of nurses. Most NAs also noted that the constant turnover of new colleagues and their training also took time.

Time aspect

Time was the most frequent of all the practical issues that NAs encountered when they were assessing pain in orthopaedic patients. They stated that surgery was often extensive and the patients were often in a great deal of pain after surgery. Assessing their pain takes time, time they did not have.

One NA said, *"I wanted to talk a bit more with the patient and assess his general condition, but I couldn't, as there was no time for that"*; another one, *"It's very unprofessional just to ask about pain and leave the patient post-op. But we do not have time for anything more"*.

One nurse said about new colleagues, *"Always new colleagues, always new teaching and time, time flies"*.

Stress

All the NAs in the study suffered additional stress. The majority of NAs in the study emphasized that, in addition to the stress they suffered during their working hours and work, they experienced additional stress, because they had no time and also due to the fact that many of their colleagues were absent from work at the same time. The reason for this may be that people or their children were sick.

One NA said, *"Sometimes I get so stressed that I feel that my hair is getting greyer"*.

DISCUSSION

The findings in the present study shed empirical light on the experience of postoperative pain and pain assessment among NAs who care for orthopaedic patients in the postoperative period. The results provide some indication that pain management for this group of patients needs to be improved in the early postoperative period. The majority of NAs in the present study stated that pain assessment has many steps, but one of the most important is to communicate with patients. Orthopaedic patients usually undergo surgery under general anaesthesia and, in order to communicate with them, they need to be awake. Communication with patients in pain was sometimes easy, sometimes difficult for NAs, but there were moments and situations in which it was impossible. In these situations, NAs had to use other tools such as pain assessment scales, and most NAs asked their colleagues for help. In some circumstances, NAs were limited by time and this caused increased stress. Most NAs preferred direct communication with patients, because they wanted to talk to the patients and hear what they

had to say. However, they said that there were circumstances in which the patients were awake, but they were unable to communicate. This was due to patients who did not communicate, or because they needed extra time to begin communicating. In these circumstances, all NAs in the present study used various pain assessment methods to assess their patients' pain: observing the patient's vital signs, examining the patient intensely, observing the patient's appearance, circulation, respiration, making eye contact with the patient, consulting other colleagues and making extra checks of surgical wounds. Sometimes, there were different groups of patients in which all the NAs' knowledge and experience did not help. These patients were in the group of patients with aphasia or dementia or they were born abroad. The findings in the present study are not in line with those in a previous study where the authors stated that ideal communication is based on mutual exchange of information, in which both patients and health-care professionals are active (32). A mutual understanding of patients' pain is only reached by dialogue, where the patients are seen as equals. Previous studies also demonstrate the importance of well-functioning communication in pain assessment (33). However, health-care professionals are generally seen to have limited conversations with patients about their experiences (13). The reason for this may be that patients do not want to talk even if they are awake or the limited time for postoperative care that nurses described in previous studies. Another reason for this may be that person-cantered care has not yet "come to life" in Swedish health care and there is still a tradition of hierarchical communication between health-care professionals and patients (13). The result of the present study and previous studies by the same author show that, despite the fact that NAs want and are prepared for communication with patients and plan to assess their pain, there is always a group of unresponsive patients where this is impossible (11, 20). In these cases, NAs rely on patients' vital signs and appearance. The assessment of postoperative pain usually begins by screening patients, followed by questions on the location of pain, the duration and intensity of pain and, whenever necessary, patients are given analgesics and sedatives. To assess pain in patients after orthopaedic surgery, most NAs in the study used pain assessment scales. Pain scales in the study were used for assessments of the intensity of pain and choice of treatment. However, the NA education and customary use of scales are decisive when it comes to using them. The utilization of pain scales in a clinical context has been highlighted in the past decade and health-care services worldwide have followed the guidelines of the American Pain Society (33). Our study shows that most NAs used pain scales and they helped them assess patients' pain in the postoperative period. Our findings are in line with those of Young et al. who stated that pain scales contribute to a better understanding of patients' pain (34). The findings in this study also show that pain is individual and that patients experience pain in many different ways. Some patients estimated their pain between 1 and 10, while other patients asked about millimetres and meters and estimated their pain as 110 on the pain scale. Health-care services have not yet found ways to use pain scales in a structured manner (35). The NAs also said that patients varied in the way they converted pain into a rating and their difficulty treating these patients. Our findings are in line with those of van Dijk et al. in 2012 (36), which stated that these problems caused difficulties in differentiating a cut-off point between mild and moderate pain. One important reason for this might be the significant individual variations in interpretations of the worst possible pain (37). We found that the NA with more experience of working with orthopaedic patients used pain scales more frequently, while there were sometimes situations with inexperienced colleagues, or those who were not used to using pain scales and new colleagues who needed to be taught by their seniors to use pain assessment scales. This is in line with research where information is found to increase patients' satisfaction with pain management (38). Health-care professionals need to have sufficient time to do all their work, to devote sufficient time to their patients and the assignments involved, but time is limited. The fact that the surgery was often extensive, patients had a great deal of pain, some patients were unresponsive, new colleagues who needed to be taught and the daily situation of colleagues on sick leave are only a few of the things that increase time restrictions and stress. The findings in the present study are in agreement with those in a previous study where the authors identified important factors that generate mental stress, including difficulty balancing priorities and following rules and recommendati-

ons that appear to be contrary to the best care and the need for interdisciplinary teamwork (39). There are four elements in Watson's theory and they are the caritas process, transpersonal, caring relationships, the caring moment and caring, healing modalities (22-25). However, not all segments of Watson's theory were met in the present study. Person-cantered care locates the patient as a subject in first place. It is therefore important during pain assessment to listen actively to the patient's verbal and non-verbal expressions and descriptions of pain. However, this is not always possible. It is important to learn how the patient really feels pain. NAs should observe and investigate other signs of pain, confirming the patient's statements. NAs need an adequate basis for clinical assessments and decisions and this explains the need for data that are adequate in scope, relevance and credibility at the right level.

In conclusion, the result in the present study suggests that, although the patients were fully awake, it was sometimes not possible to communicate with them and assess their pain. Unresponsive patients and various work and organizational problems were the worst problems mentioned. A well-functioning organization and continuity of care facilitate communication and the assessment of pain in patients. Further research is needed to understand how adequate working conditions affect the performance of pain assessments. Skills in the observation of behaviour and the experience of pain in different individuals are needed to ensure an understanding of patients' pain as well as the patients' ability to estimate their pain, where the intensity of the pain varies in different patients. Further study is needed of the way health professionals assess pain depending on the patients' ability to transform their pain from a subjective feeling into an objective numeric grade, the way individuals assess their pain differently and the way the resulting knowledge and experience of postoperative care may help nurses and other health-care professionals.

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