

CHAPTER 4

FINDINGS AND DISCUSSION

This study aimed to develop a Pain Assessment Protocol (PAP) for assessment of postoperative pain in orthopedic patients using an action research approach. Five nurses participated in this study. Eleven postoperative patients were interviewed before the development and use of the PAP and fourteen patients were interviewed after the use of the PAP. In this chapter the findings related to the research questions and discussion are presented together to enhance understanding of the study. The findings from the study are presented as follows:

1. Participants' characteristics
2. Findings related to the practice of acute pain assessment before the use of PAP
3. Findings related to the effectiveness of the practice of acute pain assessment before the use of PAP as perceived by patients and nurses
4. Findings related to the use of PAP to improve acute pain assessment
5. The structure and process of PAP

1. Participants' Characteristics

1.1 Nurse characteristics

Five nurses participated in the study and their demographic data are presented in Table 1. All were registered nurses, three with diploma qualification and two with certificate qualification. The certificate qualification was a three-years

nursing program that was later upgraded to a three years diploma program. Two nurses in the study were considered senior nurses with more than 10 years of working experience in the orthopedic ward and the mean working experience was 9.8 years. The mean age of the participating nurses was 34.2 years. Three of the nurses had attended a 6-month post-basic orthopedic course.

The influence of working experience and the post-basic course attended by the nurses on pain assessment was not examined in this study. However, from participant observations, the researcher observed that nurses with more experience tended to be less sensitive to patient's complaint of pain compared to less experienced nurses who would be more concerned with patient's complaints of pain. This was similar to the findings of Choiniere et al. (1990) that nurses with less experience were easily overwhelmed and emotionally affected by patients' pain and nurses who were frequently exposed to pain were more inclined to take the pain as normal.

Table 1 Demographic Data of Nurses (n = 5)

Characteristic	Frequency
Age (years)	
20 – 30	2
31 – 40	1
>40	2
Professional education	
Nursing certificate	2
Diploma	3
Post basic orthopedic course	3
Working experience (years)	
<5 years	1
>5 but <10 years	2
>10 years	2
Married	5

1.2 Patient characteristics

1.2.1 Patients' characteristics before the use of PAP

Before the implementation of the PAP, postoperative patients were approached for an interview regarding their satisfaction with the pain management. Eleven postoperative patients agreed to be interviewed regarding their satisfaction with the practice of pain management before the use of PAP. Nine out of eleven patients were male and two were female. Their age ranged from 15 to more than 50 years with a mean age of 30.7. Four patients had been diagnosed with fracture of the upper limb, two patients with fracture of the lower limb, and one patient each diagnosed with osteosarcoma proximal tibia, gangrene of the right toe, amputation of the right finger, laceration wound to forearm and monkey bite to left leg. Three patients had an operation for wound debridement, another three patients were admitted for removal of intermedullary nailing, two patients had insertion of plate, and one patient each had undergone incisional biopsy, amputation of the right toe and reconstruction of the left index finger. For the worst pain score during 24 hours, six out of eleven patients had severe pain (10-7), three had moderate pain (6-4) and two had mild pain (3-1). The educational backgrounds of the patients were: two patients were illiterate, two patients had graduated from university, three patients were college students, three were high school graduates and one patient was still studying in high school.

1.2.2 Patient characteristics after the use of PAP

Fourteen patients consented to participate in the study and were interviewed regarding their satisfaction with the pain management after the use of the PAP. All the participating patients were male; their age was between 15 and 41 years,

and the mean age was 26.3 years. Six out of fourteen patients were diagnosed with fracture of the lower limb, four with fracture of the upper limb, and one each diagnosed with laceration of knee, fracture of malleolus, prolapsed intervertebrae disc and monkey bite. Eight patients had operation for insertion of plate, two patients had wound debridement and external fixation, and one each had disectomy and removal of plate. Six patients experienced moderate pain intensity, three patients experienced mild pain intensity and five patients experienced worst pain intensity during the postoperative period.

2. Findings related to the practice of acute pain assessment before using PAP

During the reconnaissance phase, nurses were interviewed and participant observation was conducted in order to understand the practice of acute pain assessment for postoperative patients in the orthopedic ward before the use of the PAP. The information gathered about the practice of acute pain assessment for postoperative patients before the use of PAP were 1) routine care for postoperative patients, 2) providing emotional support, 3) knowing patient to be in pain, and 4) documentation of pain

2.1 Routine care for postoperative patients involved taking observation of vital signs, assessment of circulation, elevation of affected part and administration of prescribed postoperative analgesics

Once the postoperative patients were transferred to the ward, nurses carried out routine postoperative care as prescribed in the postoperative notes of the patients. Routine postoperative care was taking observations of patients' vital signs, that is the blood pressure, pulse, respiration and assessment of temperature, color, and sensation

to the affected parts. Nurses also ensured that the affected parts were kept elevated to reduce swelling and that the drainage bottle was functioning. The observations of the vital signs and assessment of the circulation to the affected parts were recorded in the observation and circulation chart at least hourly or each two hours for 4 hours and later every four hours when the patient's condition was stable. Besides observation of the vital signs and assessment of the circulation to the affected part, another part of routine care was the administration of the prescribed postoperative analgesics to the patients. The administration of the postoperative analgesics was each 4 or 6 hours as written in the postoperative orders. As stated by some nurses:

After POP (Plaster of Paris) application...we elevate the part with POP and observe circulation chart, give analgesic...for postoperative patients...see what is the postoperative order and give them the analgesic

(N1)

...we will see what is the prescribed postoperative medication and give them the medication...if they are in pain...give them medication 4 hourly, 6 hourly or prn

(N3)

2.2 Providing emotional support and comfort

Postoperative patients were given postoperative analgesics after they complained of pain. But sometimes if they complained of pain before the next due dose, nurses would try to give comfort to the patient by changing their position, giving emotional support or asking patient to try and go to sleep or to say their prayers. As one nurse stated:

If patient complain pain then we change position, elevate the part...still complain of pain...asked them to try to sleep, say their prayer and give emotional support.

(N1)

2.3 Knowing patient to be in pain from verbal complaint of pain from patients, asking patient about pain and observing patient's expression

There was no formal pain assessment method used by nurses to assess pain in their postoperative patients. Patients who experienced pain after they were transferred to the ward would complain to nurses and request analgesics. Nurses would also ask patients if they were having pain before giving the prescribed postoperative analgesics. Nurses knew that their patients were experiencing pain from patients' verbal complaints, asking patients if they had pain and by observing patient's expression.

2.3.1 Verbal complaint of pain from patient

As postoperative pain was not assessed formally, postoperative patients who experienced pain would usually verbally complain of the occurrence of pain to the nurses and request an analgesic. Patients usually used the words 'pain', 'severe pain' and 'cannot stand pain' as their complaint to the nurses. Nurses would use patients' complaints as an indicator that the patients were experiencing pain to administer the prescribed postoperative analgesics. As some nurses stated,

....depends on the type of operation...Some patients cannot tolerate pain and complain that their pain is severe...

(N3)

...some patient when they come back from OT (operating theatre)...they immediately complain pain...we comfort them and...give them analgesics

(N1)

2.3.2 Asking about pain

Nurses also stated that not all patients who had pain verbally complained that they had pain. Some patients were quiet and never complained. To know if their patients were in pain nurses would ask their patients if they had pain before giving postoperative analgesics or ask if the pain was reduced after analgesics were given. As nurses indicated:

Before giving injection if patient complained of pain ask how much and after half hour ask again but never chart just ask verbally

(N1)

Ask patient if they have pain or not because some patient keep quiet do not complain

(N3)

2.3.3 Observing patients' expression

Some patients did not verbalize nor complain that they had pain.

Nurses would observe their facial expression as an indicator that patients were in pain, or observe if patients would cry when they couldn't tolerate the pain.

For patients with no APS (Acute Pain Service is the team of anesthesiologist who provide pain treatment and explore the treatment given to their selected patients) chart...we observe the facial expression

(N2)

Observe patients and see their expression....some patients do not complain but keep quiet or some will cry

(N3)

2.4 Documentation of pain

Eleven nursing notes of the patients interviewed were reviewed with regard to documentation of pain, and administration of postoperative analgesics. From the eleven nursing notes reviewed, two (18.1%) were found to have documentation about administration of medication. Nine (81.8%) of the nursing notes did not have pain or administration of analgesics documented. The documentation found in the nursing notes was the orders of postoperative care of patients as prescribed by doctors in the postoperative notes. Though normally nursing process was used in the care of postoperative patients, and nurses identified pain as one of the nursing diagnosis but there was no continuity of reports written about patients' pain and the nursing interventions given to the patients. Some nurses documented medication being given to patients, and the pain reduction and some documented the type of analgesic given, dose and route, as stated by two nurses:

...if patient complain of pain asked how much, like the APS if 80% after half hour give injection asked again...never chart just asked verbally...for patient under APS we chart they have the form...other patient we only write in our nursing report...medication given...pain reduced

(N1)

...after analgesic given we ask if pain is relief or not and we document analgesic given example IM Voltaren 50mg given

(N2)

3. Findings related to the effectiveness of the practice of acute pain assessment before the used of PAP as perceived by patients and nurses

Ten questions selected from the Patients Outcome Questionnaire of Quality Improvement Guidelines for the Treatment of Acute and Cancer Pain (Appendix K) were used to interview eleven patients regarding their satisfaction with the current practice of pain management. During the interview, patients were asked to score their satisfaction with the overall pain treatment and nurses' response to their reports of pain using the Likert scale of 1- 6 (1 – very dissatisfied, 2 – dissatisfied, 3 – slightly dissatisfied, 4 – slightly satisfied, 5 – satisfied and 6 – very satisfied). Patients who were satisfied with the overall pain treatment were also satisfied with the way nurses responded to their reports of pain. Patients who were not satisfied with the overall pain treatment were also not satisfied with the way nurses responded to their report of pain.

Six out of eleven patients were satisfied with the overall pain treatment and the way nurses responded to their report of pain. Four patients were slightly satisfied and only one patient was slightly dissatisfied. Two out of four patients who were slightly satisfied gave the reason that they could not sleep; another two stated that they could not tolerate the pain, while the patient who was slightly dissatisfied gave the reason that he could not tolerate the pain, and could not sleep and the nurse told him to wait for the next dose of pain medication. Six out of eleven patients experienced severe pain (7-10) in the past 24 hours and four out of these six patients rated slightly satisfied with the pain treatment and one slightly dissatisfied as presented in Table 2.

Table 2 Patients' satisfaction with practice before the used of PAP (n=11)

Items	Frequency
Worst pain score in the last 24 hours	
Severe (7-10)	6
Moderate (6-4)	3
Mild (3-1)	2
Satisfied or dissatisfied with overall pain treatment	
Slightly dissatisfied	1
Slightly satisfied	4
Satisfied	6
Satisfied or dissatisfied with way nurses respond to your reports of pain	
Slightly dissatisfied	1
Slightly satisfied	4
Satisfied	6

Nurses were also interviewed regarding their satisfaction with their practice of postoperative pain assessment before the use of PAP. Though postoperative patients experience of acute pain was not formally assessed, nurses did not mention the perceptions that they were satisfied or dissatisfied with their practice. However, their perceptions regarding their practice of pain assessment could be categorized into two themes - it was difficult to know if patients were really having pain, and how to improve the situation. The difficulties in knowing if patients were really having pain were categorized into three sub-themes: 1) different pain experience among patients, 2) unpredictable pain experienced by some patients, and 3) overestimation of pain by relatives. From these findings, nurses and researcher concluded that the practice of pain assessment before the use of PAP was not effective due to no formal

postoperative pain assessment and many difficulties encountered. To improve these difficulties a system to assess and record patients' pain was suggested.

3.1 Difficult to know if patient were really having pain

3.1.1 Different pain experience among patients

Nurses found that patients who were 12 to 17 years old tended to report more frequent pain, and need more attention and support from their relatives.

OK but sometimes it's difficult to know if the patient is really in pain because some patients like aged 12 to 17 years complain more frequent pain if relatives are with them and they want relative to pamper them...give them support

(N1)

Nurses also had difficulty in knowing if elderly patients who were restless and senile, experienced pain as these patients needed to be talked to and calmed down before they could be asked about their pain.

For elderly patients it's difficult if they are senile and restless, then relatives and we have talk and calm them before asking questions.

(N1)

3.1.2 Unpredictable pain

Nurses were not able to predict when postoperative patients would experience pain. Some patients complained of pain immediately after they were transferred to the ward, some patients took longer before they complained of pain and some patients continuously complained of pain.

Some patients complain pain immediately after they return from OT...some continuously complain of pain...some never complain of pain at all

(N3)

My experience in this ward is working with postoperative patients with unpredictable pain.... some patients experience pain immediately after come back from OT after the effects of anesthetic drug have gone...some take longer before they complain pain

(N2)

3.1.3 Overestimation of pain by relatives

As most orthopedic patients were immobilized, patients' relatives were encouraged to stay with them and assist nurses in giving basic care such as feeding and cleaning the postoperative patients and giving emotional support. They also played a role in communicating patients' needs to the nurses. They helped patients to communicate about their pain to the nurses and request pain relief. Nurses would reconfirm with patients about their pain, but at times they found that some patients denied what the relatives complained about. This usually occurred at night when the relatives observed that the patients could not sleep. As one nurse stated:

Sometimes it's difficult to know if patients are really in pain...if the relative are with them...the relative complain that patient is having pain but when we asked patient...they say they are not in pain...usually happened at night when patient did not sleep

(N1)

3.2 How to improve difficulties

3.2.1 Having a system (chart) for assessing and recording patients' pain

With the experience of using the APS form to assess patients' pain, nurses said that using a pain assessment tool to assess patients' pain might help them in their care for postoperative patients, and they could record what actions they had taken for the patients. As stated by two nurses:

Patients under the APS team have pain score chart and sedation chart and we ask their pain score and observe the effect of the medication...Maybe if all patients have pain chart like the APS it will help

(N3)

If we can have a system for assessing like a chart, we can chart what we had done and gave to the patient...sometimes we have problem...especially if pain is not relieved immediately...maybe we can try a way of charting especially for postoperative pain

(N2)

The main finding from the reconnaissance phase regarding the practice of postoperative pain assessment was that there was no formal assessment of postoperative pain. Routine care for postoperative patients consisted of taking vital signs, assessing the circulation to the affected part, elevating the affected part and giving postoperative analgesics as prescribed and when the patient complained of pain. The routine postoperative care performed by nurses in this study was the standard care for postoperative patients, as these things were also done to monitor cardiac function and promote tissue perfusion and to detect complications as

discussed by Shumaker (1997). Idvall and Rooke (1998) supported the routine postoperative care performed by nurses in this study, detecting and acting on signs and symptoms, performing prescriptions and performing pre- and postoperative care, as important aspects of nursing care expressed by surgical nurses in their study.

Nurses in this study were able to know that their patients were having pain from patients' verbal reports of pain, asking patients about pain and observing patients' expressions. These methods used by the nurses in this study to determine their patient's pain was supported by findings from Ferrel, McCaffery, and Grant (1991), who found that asking patients about their pain and observing patient behavior were also used by their nurses. Nurses in this study did not have a standardized method to assess patients' pain as some nurses asked patients about the presence of pain and some depended on patient's verbal complaints. This was consistent with Zalon (1993), as nurses in her study used inconsistent methods to assess pain, such as waiting for patients to indicate presence of pain, some assessed pain on a schedule, some only ascertained the presence of pain and some used verbal descriptors. The observation of expressions like crying, keeping quiet and facial expressions by nurses in this study to determine patients' pain was agreed with by Sternbach (1968, cited in Wells, 1984), that expressions of pain take many forms such as moaning, crying, facial expressions, body positioning and manner in which one reacts with the environment. However, Thomas et al. (1998) found that the use of pain-related behaviors for pain assessment by nurses did not agree with patient's self-reports of pain as nurses estimated low pain severity using pain-related behaviors compared to patient's self-reports.

Nurses in the present study stated that younger patients report more frequent pain than older patients, especially if relatives were with them. This was similar to the LaMontagne, Hepworth and Salisbury (2001) study of 74 adolescents who underwent major orthopedic surgery, which found that patients whose parents were highly anxious had the highest postoperative anxiety and self-reported the most pain on the second and fourth postoperative days. This finding supported that younger patients in this study who were accompanied by relatives, usually parents reported more frequent pain to the nurses than elderly patients. This is also supported by Gillies et al. (1999), who suggested that poor understanding of the needs of adolescents leads to mistaken beliefs towards them as they are said to be attention-seeking as also stated by nurses in this study. Elderly patients reporting less pain could be due to decreased transmission of pain and increased pain threshold (Closs, Fairtlough, Tierney & Currie, 1993). Another reason could be that elderly patients are more sensitive to opioids than young patients due to slowed metabolism, excretion and elimination of the drugs (Kaiko et al., 1982 cited in Closs, 1994) leading them to request less frequent analgesics, and also less complaints of pain from elderly could be because of increased cognitive impairment, as suggested by Parmelee et al. (1993, cited in Simons & Malabar, 1995).

The overestimation of pain by relatives as stated by nurses in this study could be due to the high anxiety of relatives as suggested by LaMontagne et al. (2001), who said that parents' emotional states are indicators of children's emotional states and subsequently indicate their pain experience.

The practice of documentation of pain in the present study was not consistent and nurses found there was a need to have a system of charting, also supported by

previous studies (Briggs & Dean, 1998; Camp & O'Sullivan, 1987; Jadlos, Kelman, Marra, & Lanoue, 1996; White, 1999). Nursing documentation about postoperative patients did not reflect any information about patient's pain though some nurses did state that they wrote about giving analgesics. The written reports were about the patient's general condition, which was stated as 'condition stable', or 'no complaints' and did not reflect the patient's pain. This finding was similar to Briggs and Dean's study (1998), who found that nurses tend to report positive aspects about their patients. A systematic method of assessment and documentation or charting as stated by nurses in this study could provide documented information that would be accessible to other healthcare providers in giving care to postoperative patients as supported by White (1999). This is important as it could lead to continuity of care for postoperative patients.

The routine practices of the nurses in caring for postoperative patients were generally focused on the maintaining of homeostasis and preventing complications. Nurses in the present study did not include pain assessment as part of their routine postoperative care though they were administering postoperative analgesics to patients. In trying to improve the practice of pain assessment, some issues were identified with regard to the practice before the use of PAP. The identified issues were:

1. Acute pain assessment was not included in the routine care of postoperative patients.
2. Nurses faced difficulties in identifying pain as addressed by patients with different pain experiences, patients with unpredictable pain, and when relatives overestimate patients' pain.

3. A standardized tool for pain assessment is needed to assist nurses in their care for postoperative patients experiencing pain.

4. Inconsistent documentation of nursing reports about care of postoperative patients.

The issues identified from the findings based on the practice of acute pain assessment before the use of PAP were used to develop the PAP. A Pain Assessment Protocol (PAP) consists of a pain assessment tool and guideline for assessment of pain. The PAP provided a standardized approach for nurses to assess their postoperative patients with acute pain. The pain assessment tool also provided nurses with a method to chart or document their pain interventions.

4. Findings related to the use of PAP to improve practice of acute pain assessment

In trying to improve the practice of acute pain assessment for postoperative patients, a Pain Assessment Protocol that consisted of a pain assessment tool and guideline was developed. Findings from the development and implementation of the PAP are presented as follows: 1) using the pain assessment tool: Removing the Faces Rating Scale, 2) reflections on the use of the pain assessment tool, 3) developing a written guideline for PAP, 4) implementing the PAP, 5) reflection on the use of PAP, and 6) patient satisfaction with the practice after using of the PAP.

4.1 Using the Pain Assessment Tool: Removing the Faces Rating Scale

Three nurses participated in the initial process of using the pain assessment tool. Upon using the pain assessment tool, two of the three nurses commented that

two of their recruited patients was confused when asked to score their pain intensity using the Face Rating Scale but they could use the Numerical Rating Scale to score pain intensity.

...I also got confused when the patient asked me which of the face should he choose...he (patient) said that the picture was not clear difficult to tell which face...but the patient can tell me how much score he can give me...

(N2)

The researcher also encountered the same problem when one of the patients recruited into the study was confused as to which face he should choose that shows his pain and asked the researcher to decide for him.

Eeh...difficult to tell, not this (showing to the second face on the tool) or maybe this (showing to the fourth face on the tool)...this two looks no difference...not easylah...hee hee (laughing)

(P5)

So as not to confuse the nurses and patients, the group agreed that only the Numerical Rating Scale would be used to assess patients' pain intensity. The Face Rating Scale on the pain assessment chart was removed (Fig.4). No other changes were made, as, the nurses did not have any other comments about the other items on the pain assessment tool besides the Face Rating Scale.

The nurses and the researcher continued using the pain assessment tool on the postoperative patients as they were recruited into the study during their transfer to the ward. The postoperative patients were approached and informed about the study. When the patient consented to participate, the pain assessment was conducted

simultaneously with the observation of patients' vital signs that was done immediately when patients were transferred to the ward. The pain assessment tool was used for four weeks.

Upon using the pain assessment tool nurses found that their ability to use it pain was based on their knowledge of using the APS form. Nurses realized that using the pain assessment tool was one of the ways that patients could communicate more with the nurses as nurses would not only be taking patients vital signs but would ask about their pain.

Nurses also encountered difficulties when some of the patients were not able to give them a pain intensity score, and also they were not sure how often they should assess their patients' pain. With the used of the pain assessment tool the themes identified could be categorized into positive themes and negatives themes. The positives themes were: 1) ability to use the pain assessment tool, 2) use as a communicating tool, and the negative themes were 3) difficult to assess drowsy patients, and 4) frequency of pain assessment.

4.1.1 Ability to use the pain assessment tool

Nurses' experience of using the APS form helped them to understand the pain assessment tool and they did not find using the tool problematic, as they were able to explain to their patients how to give a score. One nurse stated:

We are used to the APS, it is not difficult to use the tool...only the APS score is less that is 0-4 but this one is 0-10

(N1)

4.1.2 Use as a communicating tool

Asking postoperative patients about their pain was not part of the routine care conducted by nurses. But with the use of the pain assessment tool, nurses were communicating more with patients and were able to identify that not all patients who complained of pain needed postoperative analgesics but they needed nurses to talk and give them emotional support, as indicated by one nurse:

Some patients when we asked them about their pain, they felt OK and did not need us to give medication...When we asked...they felt like... eem you know they really did not want medication...just wanted us to ask them...we used the tool we had to ask them...they said they can stand the pain...asking to give them comfort

(N3)

4.1.3 Difficult to assess drowsy patients

Although nurses stated that their experience helped them to understand how to use the pain assessment tool, they also encountered some difficulties when patients were still drowsy due to the effect of the anesthetic drugs, and could not understand the nurses when they were asked to score their pain intensity. Nurses also were not sure of how frequently or how often they should assess a patient's pain. Nurses were able to take patients' vital signs even though they were drowsy or sleepy, but were not able to assess the pain, as experienced by two nurses.

...when patient is drowsy, I cannot really assess the pain...have to try and ask patient to give the score...This is new to the patient... it takes time for patient to understand if...still drowsy

(N1)

We do it when we take observation of vital signs...sometimes when patient is sleeping we do not disturb...and when patient still drowsy they cannot give the score to their pain...we have to wait till they complain pain...then we ask...

(N3)

4.1.4 Frequency of pain assessment: How often and how long

The assessment of postoperative pain was performed simultaneously with other postoperative care. The postoperative observation of vital signs was conducted immediately as patients were transferred to the ward, followed by hourly observation for 4 hours and then observations every 4 hours. But nurses found that patients who were drowsy could not respond appropriately. Nurses also stated that patients who were sleeping were not assessed, as they expected that sleeping patients did not have pain.

Only that how long will we have...to assess patients' pain...Do we assess until patient discharge or after 24 hours...if we use the APS...we used for 24 hours...when the anesthetist...review...medication change to oral...we need to have some standard...how long to assess

(N1)

...if we know when to assess like hourly or two hourly or like we take the postoperative observation...it is OK...if we want to assess hourly sometimes if busy...cannot do it...at least we assess 4 hourly then I think it will be OK...not clear how often we should assess the pain

(N2)

The one-page pain assessment tool was initially developed with two types of pain rating scale, the Face Rating Scale (FRS) and the Numerical Rating Scale (NRS).

It was later changed to NRS only because nurses said that some patients were confused with the FRS and not able to score their pain intensity using it. Three patients recruited during the three weeks of the study process were confused with the FRS. The confusion of patients with the FRS in this study was not consistent with Carey et al. (1997), who reported that 48.6% of their patients found the FRS easy to use compared with the NRS. It could be that cultural beliefs of the patients in the study that did not encourage expressions of pain prevented the patients from using the faces with tears on the FRS as reported by Casas, Wagenheim, Banchero, and Mendoza-Romero (1994, cited in Stuppy, 1998). However, the examination of cultural beliefs was beyond this study. The nurses preferred the NRS because they were able to understand it from their experience of using the NRS for the APS team. With their experience, they were able to communicate with patients by asking patients to give a score between 0 to 10 for their pain or asking patients to give a score between 0 to 100% and converting it to 0 to 10. Again, patients' preference of the NRS was not examined in this study.

Nurses in the present study were using the PAP as a communicating tool to communicate with patients about their pain. Nurses also found that with more frequent communication, they were able to identify that not all patients needed analgesics for their pain, but patients would appreciate if nurses spent time asking them about their pain and give emotional support. Carr and Thomas (1997) supported this finding, as patients in their study cited emotional support as important and nurses 'being there' as giving emotional support that could distract them from their pain. Closs, Briggs, and Everitt (1999) also supported the finding that the increased contact,

and 'being there' when needed, psychologically affects pain outcome and patient's sense of control over their pain.

Nurses in this study stated that they had difficulty in assessing pain if patients were drowsy and would not assess patients if they were sleeping. This was similar to Schafheutle, Cantril and Noyce's (2001) finding that 48.6% of nurses (n=146) in their study did not ask pain-related questions during drug rounds because the patients were asleep or had communication problems.

4.2 Reflections on the use of the pain assessment tool

The experience using the pain assessment tool was reflected on after three weeks of implementation and six patients had participated. Issues identified from this phase were used to revise and improve the pain assessment tool. Factors that facilitate and inhibit the use of the pain assessment tool were also discussed. Nurses stated that the facilitating factor that helped them to use the pain assessment tool was their experience and knowledge of using the APS pain assessment tool, and the inhibiting factor was the patient's condition. The outcome of using the pain assessment tool was also discussed.

4.2.1 Inhibiting factors

The significant inhibiting factor that made the use of the pain assessment tool difficult was the patient's condition. As some patients were drowsy from the effect of the anesthetic drugs, they were not able to respond to the questions asked by nurses about their pain. Nurses were not able to assess the self-report of pain from these patients simultaneously with the taking of observation and would wait for the patient to complain about their pain occurrence. Pain assessment would not be

done if patients were asleep and this sometimes made the nurses question the use of the pain assessment tool, as postoperative analgesics could be given to patient after they complained.

The action to overcome the inhibiting factor was planned for the next cycle of action research.

4.2.2 Facilitating factors

Knowledge and experience of using the APS form to assess patients pain score and sedation scores helped nurses when they used the pain assessment tool. Their understanding of the NRS to assess pain intensity helped them in explaining to patients how to score their pain intensity. The one-page tool was another facilitating factor that helped nurses in using the pain assessment chart, as nurses did not require much time in recording their assessment and pain intervention provided to the patients.

4.2.3 Outcomes of using the pain assessment tool

Major outcomes from the development and use of the pain assessment tool were: 1) nurses were communicating more frequently with their patients, and 2) standardization of frequency of pain assessment was to be developed.

1. Using the pain assessment tool, moved the nurses' focus of care from routine postoperative care to patient-centered care. The use of a pain assessment tool requires nurses to ask patients' about their pain and this changed the nurses' focus from routine postoperative care to focusing on individual needs. Nurses realized that patients perceived nurses asking them about their pain as providing support and attention.

2. A standardized pain assessment guideline was to be developed to assist nurses in their assessment of patients' pain. How frequently or when pain should be assessed needed to be standardized as some patients who were drowsy or asleep do not have their pain intensity assessed. A guideline for pain assessment needed to be written for nurses to standardize their practice of pain assessment for postoperative patients.

4.3 Developing a written guideline for pain assessment

The researcher did some literature review regarding written guidelines for pain assessment. Results from the review of literature on pain management documentation tool and acute pain management guidelines were presented to the nurses and discussion on the development of a systematic approach to pain assessment was conducted. The written guideline was modified from A Pain Management Documentation Tool (Jadlos et al.,1996) and the Clinical Practice Guideline for The Acute Pain Management Operative for Medical Procedures and Trauma (AHCPR, 1992) and suggestion from nurses were also considered. The guideline consisted of the standard approach to pain assessment, and standard procedure for pain assessment, that is, when to assess patient's pain as stated in the guideline the assessment should be done immediately patient transferred to the ward, every two to four hours for 24 hours and once every shift after 24 hours as suggested by the nurses. What to document was also stated in the guideline (see Fig.5). The product of this effort was the Pain Assessment Protocol (PAP), which consisted of the guideline and the pain assessment tool.

Guideline for using Pain Assessment Protocol to assess postoperative pain

Purpose: To guide nurses during their assessment of postoperative pain

Standard Approach to Pain Assessment

1. Ask patient about their pain regularly
2. Assess pain systematically (use the pain assessment tool)
3. Believe patient and their family in their report of pain
4. Observe for side effects of analgesia
5. Document after each assessment was done, nursing interventions provided, pain relief achieved and document for side effects

Standard Procedure for Pain Assessment**What to document**

1. Pain assessment
 - 1.1 Pain intensity
 - 1.2 Pain relief
 - 1.3 Side effects
2. Nursing interventions
 - 2.1 Administration of analgesics
 - 2.3 Other nursing intervention

When to assess pain

1. Postoperative
 - 1.1 Immediately after the patient was transferred to the ward
 - 1.2 Every 2 to 4 hours for 24 hours
 - 1.3 Once every shift after 24 hours
2. Before and 30 minutes after parenteral analgesics or one hour after oral analgesics.

Figure 5 Guideline for using Pain Assessment Protocol to Assess Postoperative Pain

4.4 Implementing the PAP

After the PAP was developed, the nurses and researcher decided to implement the PAP and recruited two more nurses into the study. The two nurses were informed of the pain assessment tool and the guideline for pain assessment. Each of the two new nurses was scheduled to work on the same shift with two of the three nurses so that they could be coached in using the PAP. The implementation of the PAP was conducted for four weeks. During these four weeks not many cases were scheduled for operation due to the festive seasons for the Chinese and Muslims, that is the Chinese New Year and the Hari Raya Haji. During the four weeks, patients who were transferred to the ward were approached and those who consented were recruited into the study. Eight patients were recruited into the study. During the process of using the PAP, the nurses were interviewed. The researcher did a review of the pain assessment tool and nursing notes.

The outcomes from the implementation of the PAP were the identified themes as follows: 1) knowing when to assess and how much pain was relieved, 2) assess pain before giving analgesics and decide on appropriate pain interventions, 3) have data to confirm patient's pain when relatives reported that the patient having pain, and 4) documentation of care.

4.4.1 Know when to assess and how much pain was relieved

The guideline from the PAP stated that pain assessment should be conducted before and after administration of analgesics. With the written guideline, nurses not only assessed pain as part of the vital signs but also used this guideline to evaluate the effectiveness of the analgesics given to the postoperative patients as nurses stated:

With the use of the guideline, we sort of know when we should assess patients' pain...when patient complained pain after we gave injection...could know how much of pain was relieved because we asked patient to give the score

(N1)

4.4.2 Assess pain before giving analgesic and decide on appropriate pain interventions

Some patients still complained of pain after administration of postoperative analgesics before the next due dose. Nurses would assess patients' pain to know the pain intensity and compare the pain intensity before and after analgesic administration. Nurses used this information to give emotional support to patients to help reduce pain before they could give the next dose of analgesics, and to inform the doctor.

...when the patient complained pain after medication...if pain is reduced then we give emotional support and if still had pain... explained to patient it takes time for pain to "disappear"

(N1)

This is good if the patient complained pain after we gave medication we can know if pain is less or not before we inform doctor

(N4)

4.4.3 Have data to confirm patient's pain when relatives report patient having pain

Beside patients reporting their pain occurrence to the nurses, patients' relatives sometimes report patient's experience of pain and request for an analgesic to be given to the patients. Nurses could reconfirm the relatives reports about patients' pain before giving the requested analgesic.

Still sometime relatives ask medication for patient...when we ask patient to score the pain...it is 4 and patient do not want medication...they say it is OK

(N3)

4.4.4 Documentation of pain assessment and management

With the use of the pain assessment tool, there was evidence of nurses documenting the postoperative pain intensity and administering postoperative analgesics more frequently. Nurses were able to use the pain assessment tool as part of routine postoperative care. Though nurses documented the pain intensity and pain interventions in the pain assessment tool, there was no continuity of the documentation in the nursing reports. Nurses in their use of the nursing process could incorporate the PAP when they care for patients with postoperative pain as the PAP could be used to evaluate pain interventions. However, nurses expressed that the use of nursing process was not useful and requires much of their time and they were not able to incorporate the PAP into the nursing process as part of pain intervention.

With the use of the pain assessment tool and guideline, nurses could know how much of the pain was relieved after they evaluated patient's pain following the administration of analgesics. Nurses reconfirmed a report of pain by patients' relatives before they administered an analgesic, and if the patient did not need an analgesic the nurse could give emotional support to the patient. Nurses could also explain to patients them how long the effect of analgesics would work before pain intensity was reduced. Nurses were unsure of the usefulness of using the pain assessment tool if patient's pain intensity was still the same as before administration of analgesics. The pain assessment tool was also used to document patient's pain intensity and pain intervention.

The frequency of pain assessment given in the PAP was planned to fit into the nurses' routine postoperative observation for their patients. It was expected to benefit patients, as nurses not only assessed patient's pain before and after administration of analgesics but also would assess patient's pain every 2 or 4 hours during the 24 hours postoperative period, and not only depend on patients complaint before administering analgesics. The present study did not intend to examine the provision of analgesics and frequency of pain assessment, but the assessment of pain by nurses at the stated frequency could help to provide analgesics to patients and prevent swinging levels of pain relief as some patients might complain pain after the peak plasma level of analgesic has passed and the patient cannot tolerate the pain, as found in Taylor (2001); Watt-Watson et al., (2001). The PAP also stated that pain should be assessed once every shift after 24 hours. The once every shift after 24 hours postoperative regime was not consistent with the standard recommendation from the AHCP (1992), which recommended that postoperative pain should be assessed at regular intervals as determined by the operation and severity of pain, at least two hours for one day after surgery. Jadlos et al. (1996) suggested that postoperative pain should be assessed every four hours for 24 hours then every shift for 48 to 72 hours, which was also not consistent with the stated frequency from the PAP guideline. In this study the frequency of pain assessment was much less after 24 hours as nurses suggested that once a shift was feasible for them. Nurses stated that if the assessments were planned more frequently, they might not be able to do them if the ward was busy and sometimes the number of nurses scheduled for each shift might also affect the pain assessment if it needed to be done more frequently. Rond et al. (1999) found that the surgical nurses in their study were less compliant to assess pain in the evening shift,

and were less positive about daily pain assessment, compared to medical nurses as there was less staff working in the evening shift in the surgical ward and this put an extra burden for the nurses. This might support why the stated frequency was less from AHCPR (1992) and Jadlos et al., (1996), and they suggested that for success of implementation, one needs to consider and appraise the characteristics and resources of the ward. Nurses in the present study were also using the pain assessment data to support their reports of patient's pain to the doctors if patient's pain was not relief after administration of analgesics, and thus, according to the Rond et al., (1999) findings nurses had a better insight of their patient's pain and more attention was being paid to patient's pain, providing better pain management.

Documentation of care with the use of the PAP was still not consistent among nurses, as found in the nursing progress notes. Documentation was not used to assist planning for pain intervention. Unfortunately, the existence of the PAP, which could be used to plan for effective pain management, did not ensure proper documentation of practice in reporting patients' pain progress, and this could lead to nurses not providing sufficient pain management for patients with postoperative pain as stated by Frank-Stromborg et al., (2001b). Integrating a new routine into the daily practice requires time and persistence, and encouragement from the researcher and the nursing administrator, as supported by Rond et al. (1999).

4.5 Reflection on the use of the PAP

After using the PAP, discussions were held to reflect on the experience and identify inhibiting and facilitating factors and outcome of the using the PAP. The inhibiting identified was nurses do not have the autonomy to change practice and the

facilitating factor was the presence of the researcher who was the facilitator and work together with the nurses as part of the staff in the ward providing care to postoperative patients when nurses were busy. These issues were discussed:

4.5.1 Inhibiting factors

Nurses were able to use the PAP in their practice of pain assessment for postoperative patients. However, to change the routine practice of postoperative care by including the PAP as part of the nursing documentation needs support from nursing administrators. Nurses expressed their experience of using nursing process in their nursing care. They wanted to change the practice of using the nursing process as the use of the nursing process form requires time for them to assess patients and fill in the form, but without the understanding of the problems encountered and support from the nursing administrators, they were not able to make any changes. They did not have the “say” in changing practice if it was not a directive from the nursing administrators. The bureaucracy in the ward was another inhibiting factor, as the researcher was being told by the head nurses and one of the nurse administrators that any new document that nurses would like to introduce in their nursing care needed to be agreed by the head of the department, who is a doctor.

4.5.2 Facilitating factor

The researcher spent about six to eight hours per day during the study process and working together with the nurses providing postoperative care to patients when nurses were busy was a major factor that helped the use of the PAP. Besides helping the nurses with the use of the PAP, the times spent not only helped the researcher understand the real situation in the ward setting, but to know the nurses more closely and develop a trusting relationship. The relationship that was built

provided the opportunity for the nurses to discuss with the researcher their practice and the problems they encountered, which they were not able to discuss with the administrators.

4.5.3 Outcome of using the PAP

Four major outcomes were identified from the use of the PAP. These outcomes were as follows:

1. Nurses included postoperative pain assessment in their postoperative care of patients, as the pain assessment was performed simultaneously with the observation of vital signs.

2. The Pain Assessment Protocol provided a method or tool that facilitated nurses to communicate with their patients, as during the postoperative care nurses not only take observations of the vital signs, but also have to allocate time to communicate with their patients about their pain, providing a more meaningful communication.

3. The Pain Assessment Protocol also provided a communication tool for other nurses to know about the patient's postoperative pain and interventions as patient's pain intensity; analgesics given and nursing actions were documented with the tool.

4. Nurses could also use the pain assessment tool to communicate with the doctors the need for reviewing the patient's pain management if the patient's pain were not relieved with the prescribed postoperative analgesics.

4.6 Patient satisfaction with the practice after the use of the PAP

Fourteen patients who participated in the study were interviewed regarding their satisfaction with the pain management after the use of the PAP. Five out of fourteen patients experienced severe pain and six patients experienced moderate pain. Eleven patients out of fourteen were satisfied with the overall pain management and nurses' response to their pain. Three patients were slightly satisfied with the overall pain management and nurses' responses to their pain report. The three patients who were slightly satisfied gave the reasons of not being able to tolerate pain and the pain was severe. More patients (eleven out of fourteen) were satisfied with the overall pain management and nurses' response to their pain after the use of the PAP, compared to before the use of the PAP (six patients out of eleven). The patients were satisfied with the pain management because nurses were asking them about their pain and the analgesics were provided when their pain was severe. Patients also stated that they did not have to wait long to get their analgesics.

5. The Structure and Process of Pain Assessment Protocol

This is to answer the research questions of what are the structure and process of pain assessment protocol.

The structure

The structures in the PAP are of the pain assessment tool, the guideline and the documentation. The pain assessment tool and the guideline provide a systematic method to conduct pain assessment. The pain assessment tool is used for ongoing pain assessment. A patient's verbal report of pain cannot be denied as the most reliable

method for assessing pain. The subjective report of pain is more meaningful if the assessment is conducted using a pain assessment tool. Patients in this study usually reported to nurses that they were having pain; however pain in Bahasa Malaysia means “sakit”, and “sakit” is very general and does not differentiate between severe, moderate or mild pain. The pain assessment tool with the Numerical Rating Scale that was developed provided a tool for patients to communicate their subjective report of pain by subscribing a number from 0 for no pain to 10 for worst possible pain to their pain. Using a pain assessment tool where a number is assigned for pain can provide more information for nurses to assess the severity of patients’ pain. The number assigned to the pain can be helpful for nurses to evaluate their pain intervention and plan for further care.

The written guideline guides nurses and provides standardization for nurses in their pain assessment. The standard approach in the guideline is to how nurses should assess pain, and it was stated in the guideline that nurses should ask pain regularly, assess pain systematically, believe patient and relatives report of pain and document each assessment of pain, intervention provided pain relief and side effect of analgesics. The standard procedure are the what and when. What to document stated that nurses should record pain intensity, pain relief, side effects, and their nursing interventions. When refers to the frequency of pain assessment that should be done that is immediately patient was transferred to the ward, every two to four hours for 24 hours and once every shift after 24 hour and pain should be assess before giving analgesics and after analgesics given. Nurses were not only providing postoperative analgesics when patients complained about their pain, but were also assessing pain

together with other vital signs. The standardization helps nurses to conduct an accurate and complete pain assessment that would benefit the patient.

Documenting pain assessment is important as it provides information for the healthcare teams regarding patient progress and plans for care. Accurate documentation of pain can provide effective pain management. The documentation of pain intensity and pain interventions were recorded onto the pain assessment tool, and which provided evidence that the nurses were assessing the patient's pain and providing nursing intervention. The guideline and the pain assessment tool provide documentation for pain assessment and this could provide information for continuity of care. Therefore, the structures of the PAP are important in provision of a standardized pain assessment and continuity of care for patients with acute pain.

The process of using PAP

Learning from the experience of the study the following process of using PAP starts was used during the implementation of the PAP. The processes were: getting to know the situation, starting small, working together and understanding each other.

Getting to know the situation: This was done before the study was conducted. The researcher spent almost one month being in the ward setting and got a 'feel' for what was going on. This getting to know helps the researcher understand the culture and routine activities of the ward, knowing each of the staff and doctors. The nurses in the ward felt that at times there were not enough nurses to care for patients, and making it sometimes difficult for them to provide special care for patients when they were only providing routine care to them. Nurses in the ward spent more time with patients during dressing procedure and patients would take the opportunity to talk to

the nurses and joke with them. The situation got busier when the specialists did their rounds on Monday and Tuesday, as more changes to the treatment were ordered, which sometimes disrupted the routine activities of the nursing care.

Starting small: The PAP was implemented in 2 cycles of action research. The first cycle was started with three nurses who worked on two different shifts. The three nurses used the PAP during their shift work and the researcher facilitated. This also helped, as the researcher was able to follow each of the nurses during the implementation and have an informal discussion during the process. Starting the implementation with a small number of nurses was decided so that the nurses did not feel threatened that the use of PAP would be another burden in their work. When the three nurses were satisfied and were aware that the use of the PAP needs more nurses to be involved, other nurses were approached to participate in the implementation. Two more nurses participated in the implementation during the second cycle of action research. Two other nurses consented to participate in the study after the pain assessment tool was revised and the guideline written. Starting small provides an opportunity for participating nurses to get more involved and feel their importance in the action. They felt the importance of their participation in making the change a success. Starting small also provides more opportunities for participants to express their experiences and share them with their colleagues.

Working together and understanding each other: During the implementation of the PAP, the researcher did shifts together with the nurse participants. This helped the group to understand the difficulties encountered by the participants and discuss any matters that needed immediate action. Doing shift work together with the nurse participants provided the information on what and why in the practice of pain

assessment and the researcher provided information the need for participants to improve their practices in pain assessment. Nurses were able to reflect on their practice and decide what changes were suitable to their practice situation. Working together and understanding each other helped the group to discuss openly their concerns about their practice, which in turn, helped the nurses to overcome their concerns. Nurses in this ward would have liked to make some changes in their nursing practice, but as there was a shortage of nurses working on each shift, their focus was on routine nursing care. With the implementation of the PAP, which was done simultaneously with the postoperative care, no extra time was taken from their routine care and no extra nurses were needed to assess patient pain, therefore nurses were able to accept the new PAP and include it as part of their routine postoperative care.

From the above process, nurses were able to use the PAP in their practice of pain assessment by the following processes:

- 1) explain to patients how to give a score to their pain intensity,
- 2) assess postoperative pain,
- 3) take appropriate intervention for pain management,
- 4) evaluate pain management provided, and
- 5) document pain intensity and pain intervention.

Sustainability of the Pain Assessment Protocol

After completion of the study, in order to maintain the use of the protocol the researcher found that further actions needed to be taken. These were:

1. Discuss with the Hospital Director the need to have the PAP to provide effective pain management to postoperative patients. This is because the use of PAP requires some financial support, for instance in the printing of the pain assessment tool and guideline.

2. Plan a workshop on pain management with the nursing administration, anesthetists and orthopedic surgeons to disseminate the PAP to other nurses and doctors and to integrate the Pain Assessment Protocol and Nursing Process Documentation.