Original Article

Postoperative Pain Characteristics in Turkish Orthopedic Patients

Funda Esen Büyükyilmaz, MSc, RN, and Türkinaz Aştı, PhD, RN

Abstract:

Postoperative pain is a subjective concept that can only be defined by the individual experiencing it. This research was planned as a descriptive study to make postoperative pain assessments of patients who have undergone major orthopedic surgery. The study sample consisted of 150 patients who met the inclusion criteria and agreed to participate in the study. Data were collected using a questionnaire form that included sociodemographic, postoperative pain characteristics, and the McGill Pain Questionnaire. The data obtained were assessed using the SPSS 10.0 program. The mean age of the patients was 54.13 ± 18.12 years, 67.3% were female, 72.7% of the patients had a history of previous surgery, 43.3% had had hip prosthesis surgery, and 70.7% when their analgesic medications were taken on PRN basis. They experienced "external" pain at the surgical site and in pressure areas according to type of surgery and verbalized their pain at the highest percentages as "throbbing," "tiring," "troublesome," and "nagging." In addition the majority of the patients (95.3%) stated that their pain was decreased with analgesic medication administration, and 78.7% stated that position change and physical therapy (69.3%) increased their pain. In the assessment of pain severity on the third postoperative day, the Present Pain Intensity was determined to be a mean of 1.75 ± 1.02 (on a scale of 0 to 5), and 78.7% had "intermittent" pain. In addition, worst/severe pain severity was determined to be a mean of 4.55 ± 0.70 on the third postoperative day. Statistically significant differences were found between patients' pain severity scores ($p \leq .001$). This study determined pain characteristics on the third postoperative day in Turkish orthopedic patients. After an evaluation of the conclusions, nurses must learn the postoperative pain characteristics of orthopedic patients to implement safe and effective postoperative pain management.

From the Florence Nightingale College of Nursing, Ist University, Istanbul, Turkey.

Address correspondence to Funda Esen Büyükyilmaz, MSc, RN, Florence Nightingale College of Nursing, Ist University, Abide-i Hurriyet, 34381 Istanbul, Turkey. E-mail: fundabuyukyilmaz@hotmail.com

Received August 29, 2008; Revised November 24, 2008; Accepted January 29, 2009.

1524-9042/$36.00

doi:10.1016/j.pmn.2009.01.003

Pain is a subjective concept that can only be defined by the individual experiencing the pain and has a negative effect on the individual's quality of life (Lellan, 2006; Wentz, 2009). The much-quoted adage by McCaffery (1968), "pain is

whatever the experiencing person says it is, existing whenever he says it does," has become a cornerstone of the nursing literature (Lellan, 2006; Mann & Carr, 2006; McCaffery, 1968).

In the postoperative period, one of the most important patient reports is postoperative pain, acute pain that begins with the surgical trauma, decreases over time, and ends with healing of the tissue. Postoperative pain is caused by ischemia and the release of neuropeptides at the site of trauma and throughout the nervous system (Black, Hawks, & Kene, 2001; Eti-Aslan, 2006; Wentz, 2009). In particular, it is known that ischemic pain is of concern in postoperative orthopedic patients (Gregory, 2005). Orthopedic surgery is often cited as among the most painful of surgeries. The severe pain seen so frequently after orthopedic surgery is largely a result of the nature of the surgical procedure, which often involves significant muscle and skeletal tissue repair or reconstruction (Pasero & McCaffery, 2007). Özer (1998) suggested that the long duration of these procedures, the patients' immobility during this time and in the early postoperative period (especially the first 24-48 hours), the material used in the postoperative period, such as tight bandages, dressings, casts, drains, and traction, and the fear experienced during the preoperative period were found to increase postoperative pain in Turkish orthopedic and trauma patients. In addition, problems such as infection (actual/current) and distention diagnosed in the postoperative period and an individual's values/experience of pain may increase the severity of pain (Eti-Aslan, 2006; Gregory, 2005; Wentz, 2009).

In this context, it is very important to make a "pain assessment" in the postoperative period. Closs and Briggs (2002), Manias, Bucknall, and Botti (2004), and Kuğuoğlu, Eti-Aslan, and Olgun (1998) determined that measurement tools that include all of the dimensions of pain need to be used. The data obtained will ensure that the correct nursing diagnosis is made, that expected patient outcomes and interventions are determined, and that effective/quality nursing care is planned, implemented, and evaluated (Acaroğlu, Şendir, & Kaya, 2008; Potter, 2009).

In Turkey, pain assessment is a major problem in postoperative patients, because nurses have inadequate knowledge about the care of patients' pain, and pain control methods (Akbaş & Öztunç, 2008). Furthermore, Eti-Aslan (2006) determined that acute pain is prevalent in patients at a rate of 30%-97% during the postoperative period in Turkey. If nurses understand postoperative pain characteristics (location, characteristics, duration, and severity) in orthopedic patients, they can implement safe and effective postoperative pain management.

To guide individualized patient care, this research was planned to assess pain in patients who have undergone major orthopedic surgery during the postoperative period.

The research questions were as follows:

1. In what region of the body is the pain located?
2. With what frequency are verbal pain descriptors used?
3. How long is the duration of the pain?
4. What factors increase or decrease the pain?
5. What is the pain severity (at the moment and the worst/severest pain)?

METHODS

The research was planned as a descriptive study to make postoperative pain assessments of patients who have undergone major orthopedic surgery.

Sample and Setting

The research was carried out with patients who were hospitalized on the orthopedic and trauma wards of two university hospitals in Istanbul, Turkey, from February to July 2004.

Based on the literature, the research sample criteria were as follows. Patients were admitted to one of the wards where the research was being conducted for a major surgical procedure, including arthroplasty (hip and knee prosthesis etc.), vertebral reconstruction (scoliosis, lordosis, kyphosis), tumor resection (osteosarcoma etc.), and hemiarthroplasty. They were assessed on the third postoperative day. The patients were ≥18 years old, did not have another acute illness that causes pain, and had not developed any complications during surgery or the 3 postoperative days (Özer, 1998; Şendir, 2000; Yıldız, 1999).

Data were obtained from 150 patients for statistical analysis. Permission to undertake this study was received from the hospital ethics committee. Before this study, the patients were informed of the purpose of the research. Participants were assured of their right to refuse to participate or to withdraw from the study at any stage. The anonymity and confidentiality of the participants were guaranteed.

Data Collection Method and Instruments

A Patient Information Form and the McGill Pain Questionnaire (MPQ) were used on the patients' third postoperative day to assess their pain before night treatment time (analgesic medications as needed or antiinflammatory medication). At this time, the patients had finished their physical therapy procedures and had rested slightly. The instruments were administered by the researchers to all of the participants in face-to-face interviews in the patients' rooms.

Patient Information Form

Developed by the researchers, the Patient Information Form includes questions about sociodemographic variables, such as age, gender, marital status, history of previous surgery, and questions related to postoperative pain and current surgery characteristics and use of analgesic medications.

McGill Pain Questionnaire (MPQ) (Appendix 1)

The MPQ was chosen because it is the most widely examined multidimensional method of pain assessment, has had its validity and reliability tested the most, and is the most widely used tool for assessing pain (Erdine, 2000; Kuğuoğlu, Eti-Aslan, & Olgun, 2003). The MPQ was developed in 1971 by Melzack and Torgerson, and the validity and reliability study for the Turkish version of the MPQ was conducted by Kuğuoğlu, et al. in 1998. The Cronbach alpha value obtained from the tool was found to be 0.98 (Kuğuoğlu, et al., 2003). In this study, the Cronbach alpha value was calculated to be 0.78. The MPQ was administered by the researchers with patients who agreed to participate in 15- to 20-minute interviews.

The MPQ has four sections. The first section has statements about the location of the pain, the second section has statements that describe the pain, the third section assesses the duration of the pain, and the fourth section assesses the severity of the pain (Erdine, 2000; Kuğuoğlu et al., 2003; Lellan, 2006; Mann & Carr, 2006; Melzack, 1975, 2005).

1. *Pain Location*. There are two pictures of the body, one a front view and the other a back view, for the patient to mark the body region or regions that were affected by pain. The location of the patient's pain is marked on the picture of the body. If the pain is external, the letter "E" is written on the body; if the pain is internal, the letter "I," and if it is both, "EI" is written.
2. *Word Descriptors of Pain*. On the questionnaire given to the patient, there are two- to six-word descriptive statements in 20 items. The first ten items (1-10) refer to the sensory dimension of pain, the next five items (11-15) refer to the affective dimension of pain, item 16 indicates an evaluation of the pain, and the last four items (17-20) indicate miscellaneous characteristics of pain. There is a line that goes from mild to severe for the statement about pain in every item. The patients can mark an item from every group that is appropriate for them, or they can skip an item if there is no statement that appropriately describes their pain.
3. *Duration of Pain*. In this section, there is a group of words that the patient can choose from which describe the pain's association with time. There are also questions about the factors that increase and decrease the pain.
4. *Pain Severity*. In this section, the patients answer according to the severity of their pain. These questions are marked as: 0: no pain; 1: mild; 2: discomforting; 3: distressing; 4: horrible; and 5: excruciating. The total of the points from these questions is the Present Pain Intensity (PPI). The lowest possible PPI is 0, and the highest is 5 points. A low PPI indicates that the patient's pain is mild/low, and a high PPI score indicates that the patient's pain is severe/high.

Researchers asked about patients' pain severity at the moment and the worst/severest pain on the third postoperative day. Because their analgesic medications had been stopped on that day (taken on a PRN basis), and patients had started physical therapy in the therapy room and their room, the patients had to cope with their pain and could easily answer our questions about their postoperative pain.

Data Analysis

The data obtained were analyzed by the Statistical Package for Social Science for Windows (SPSS) version 10.0, licensed to Istanbul University. The frequency and percentage values of the group variables, arithmetic means, and standard deviations of numeric variables were calculated. Student t test was used to determine the difference between the groups. In this study, a p value of $<.05$ was considered to be statistically significant.

RESULTS

The mean age of the 150 patients studied was 54.13 ± 18.12 (range 19-93) years. Of the sample, 67.3% were women, 59.3% were married, and 72.7% had previously had surgery. In addition, 43.3% had had hip prosthesis surgery and 70.7% were taking nonopioid analgesic medications when needed (PRN) (Table 1). The majority (81.3%; n = 122) of the patients had "external" pain at the surgical site (e.g., hip, knee, vertebra) and in areas of pressure (e.g., back, breast, buttocks), and 78.7% (n = 118) had "intermittent" pain (Figs. 1 and 2). The words most commonly used to describe their pain were as follows: "throbbing" (78.0%), "jumping" (12.7%), "drilling" (22.7%), "cutting" (26.7%), "cramping" (40.7%), "tugging" (14.7%), "hot" (28.0%), "tingling" (24.7%) "stinging" (52.7%), "aching" (46.0%), and "tender" (42.0%) in the sensory section; "tiring" (69.3%), "sickening" (8.0%), "fearful" (18.0), "grueling" (29.3%), "wretched" (2.7%) in the affective section; "troublesome" (61.3%) in the evaluation section; and "spreading" (40.7%), "tight" (56.0%), "cold" (6.0%), and "nagging" (74%) in the miscellaneous section (Table 2). The majority of the patients (95.3%) stated that their pain was decreased with analgesic medication administration, and 78.7% stated that position change and physical therapy

TABLE 1.
Distribution of Patients' Personal Characteristics

Characteristic	n	%
Gender		
Female	101	67.3
Male	49	32.7
Marital status		
Married	89	59.3
Divorced	38	25.3
Single	23	15.4
Type of surgery		
Hip prosthesis	65	43.3
Knee prosthesis	37	24.7
Hemiarthroplasty	28	18.7
Tumor resection	11	7.3
Vertebra reconstruction	9	6.0
Type of analgesic medication		
Nonopioid	106	70.7
Opioid + nonopioid	41	27.3
Opioid	3	2.0
Past surgical history		
No	41	27.3
Yes	109	72.7

(69.3%) increased their pain (Table 3). In the assessment of pain severity on the third postoperative day, the PPI was determined to be a mean of 1.75 ± 1.02. In addition, worst/severest pain was determined to be a mean of 4.55 ± 0.70 (especially during movement/physical therapy) on the third postoperative day. Statistically significant differences were found between patients' pain severity at the moment and the worst/severest pain ($p \leq .001$) (Table 4).

DISCUSSION

This study showed the third postoperative day pain characteristics and differences in pain severity results of patients on an orthopedic ward who had had a major surgical procedure. Schoen (2007) determined that pain is most common in orthopedics and must be evaluated closely. The critical features of pain are type, location, severity, duration, and precipitating factors.

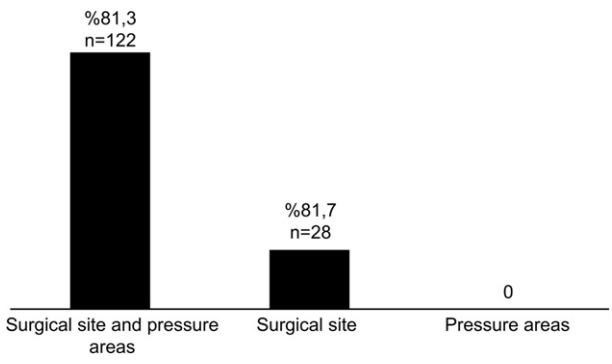


FIGURE 1. ■ Distribution of patients' pain location.

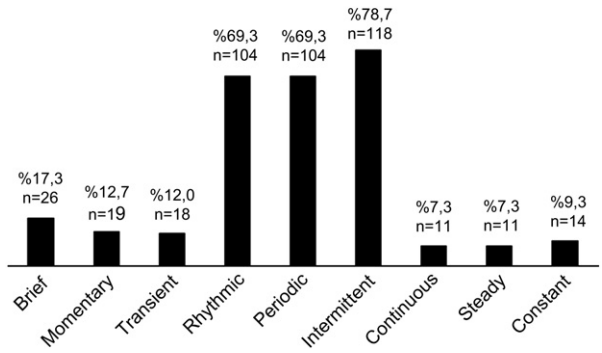


FIGURE 2. ■ Distribution of patients' duration of pain. n = 150. More than one descriptor of the duration of pain may have been used.

In the literature, it has been determined that postoperative pain begins as a result of the surgical incision and gradually decreases with wound healing (Eti-Aslan, 2006; Kanan, 1998). In addition, pain is localized to an extremity and sudden, as with lifting/twisting/bending with arthritis or other disease processes. After the postoperative period, many patients express that the pain increases over the surgical/incisional area. For this reason, pain control for orthopedic surgical patients is essential, because they experience extensive tissue and bone trauma (Harvey, 2005). Pasero and McCaffery (2007) found in a study in parallel with our findings that pain is experienced at the primary surgical site.

The finding of pain's association with time in this study was similar to that found in studies by Kuğuoğlu, et al. (1998) and Özer (1998). In addition, in the literature it has been determined that postoperative pain duration decreases following the recovery process (Erdine, 2000). Therefore, pain duration decreased in "intermittent" time.

The majority of the patients' pain descriptors were "throbbing" (78.0%), "tiring" (69.3%), "troublesome" (61.3%), and "nagging" (74%) (Table 2). Closs and Briggs (2002) observed that patients' verbal descriptors of pain after orthopedic surgery were "throbbing, sharp, burning, aching, tight, nagging." In addition, studies by Dahlen, Zimmerman, and Barron (2006) determined that orthopedic patients marked on words descriptors such as "sharp, aching, tender, tiring-exhausting" on the third postoperative day. Mentioned in the same article was a study by Kuğuoğlu, et al. (1998) and Özer (1998) in which the words "throbbing, ripping, stabbing, exhausting, burning, sharp" were used as descriptors of pain in Turkish surgical patients.

Table 2.
Distribution of Patients' Words Descriptors of Postoperative Pain

No.	Words	n	%	No.	Words	n	%
1	Flickering	4	2.7	11	Tiring	104	69.3
	Quivering	7	4.7		Exhausting	6	4.0
	Pulsing	2	1.3				
	Throbbing	117	78.0				
	Beating	2	1.3				
	Pounding	0	0.0				
2	Jumping	19	12.7	12	Sickening	12	8.0
	Flashing	18	12.0		Suffocating	5	3.3
	Shooting	5	3.3				
3	Pricking	14	9.3	13	Fearful	27	18.0
	Boring	32	21.3		Frightful	2	1.3
	Drilling	34	22.7		Terrifying	2	1.3
	Stabbing	11	7.3				
	Lancinating	4	2.7				
4	Sharp	32	21.3	14	Punishing	1	0.7
	Cutting	40	26.7		Grueling	44	29.3
	Lacerating	13	8.7		Cruel	3	2.0
					Vicious	32	21.3
					Killing	0	0.0
5	Pinching	1	0.7	15	Wretched	4	2.7
	Pressing	1	0.7		Blinding	1	0.7
	Gnawing	7	4.7				
	Cramping	61	40.7				
	Crushing	3	2.0				
6	Tugging	22	14.7	16	Annoying	9	6.0
	Pulling	4	2.7		Troublesome	92	61.3
	Wrenching	2	1.3		Miserable	3	2.0
					Intense	24	16.0
					Unbearable	8	5.3
7	Hot	42	28.0	17	Spreading	61	40.7
	Burning	23	15.3		Radiating	2	1.3
	Scalding	2	1.3		Penetrating	10	6.7
	Searing	0	0.0		Piercing	2	1.3
8	Tingling	37	24.7	18	Tight	84	56.0
	Itching	2	1.3		Numb	17	11.3
	Smarting	11	7.3		Drawing	1	0.7
	Stinging	79	52.7		Squeezing	5	3.3
					Tearing	0	0.0
9	Dull	43	28.7	19	Cool	5	3.3
	Sore	5	3.3		Cold	9	6.0
	Hurting	0	0.0		Freezing	1	0.7
	Aching	69	46.0				
	Heavy	7	4.7				
10	Tender	63	42.0	20	Nagging	111	74.0
	Taut	24	16.0		Nauseating	4	2.7
	Rasping	1	0.7		Agonizing	6	4.0
	Splitting	0	0.0		Dreadful	5	3.3
					Torturing	7	4.7

The administration of analgesic pain medication is the most important pharmacologic intervention for decreasing the severity of pain (Erdine, 2000). In studies by Özer (1998) and Yıldız (1999), analgesic pain medication was determined to be the most important intervention for decreasing pain. This finding is similar to those of other research studies. Despite advances in pain management, pain continues to be undertreated. Nonpharmacologic measures may effectively manage pain but often are overlooked or underused. Nurses who are familiar with simple, noninvasive, nonpharmacologic measures, such as patient positioning, thermal measures, massage therapy, aromatherapy, and mind-body therapies, can identify and educate patients

Table 3.
Distribution of Patients' Decreasing and Increasing Factors of Pain (n = 150)*

Factor	n	%
Decreasing		
Analgesic medication	143	95.3
Patient-control analgesia	77	51.3
Hot/cold pads	48	32.0
Imagery positive	34	22.7
Stay on same position	12	8.0
Another implementations (alternative medicine, sand pads)	11	7.3
Physical therapy	10	6.7
Change of attention another way	9	6.0
Massage	3	2.0
Increasing		
Changing position	118	78.7
Physical therapy	104	69.3
Sleeplessness	92	61.3
Anxiety	83	55.3
Changing wound/drain dress	39	26.0
Stay on same position	34	22.7
Leaving their family	30	20.0
Living in hospital	20	13.3
Leaving their job	11	7.3
Constipation	7	4.7

*More than one factor could be reported.

who may benefit from nonpharmacologic interventions (Gatlin, 2007). In addition, studies by Antall and Kresevic (2004), Good, Anderson, Ahn, Cong, and Stanton-Hicks (2005), and Pellino et al. (2005) showed that nonpharmacologic pain interventions reduced pain intensity and patients used fewer opioids. For this reason, nurses should implement nonpharmacologic pain interventions with patient attendance. Also, nurses should encourage patients and their families to use nonpharmacologic pain intervention.

In the examination of the distribution of patients' statements about situations that increased their pain, the overwhelming majority of the patients stated that changing position and physical therapy exercises increased patients' pain (Table 3). This finding can be explained by the fact that in this period (on the third postoperative day) patients' physical therapy programs (range of motion exercises, ambulation, etc.) had just started, their strict bedrest had ended, and their level of independence had increased. In similar studies with orthopedic patients by Closs and Briggs (2002) and Hall-Lord, Larsson, Baath, and Johansson (2004), movement and restricted position accounted for the highest percentage for factors causing pain and discomfort. The findings in other studies are similar to those found in this study. For this reason, nurses and physicians should plan to administer analgesic medications and nonpharmacologic interventions before physical therapy and changing patients' position.

In the present study of the assessment of pain severity on the third postoperative day, PPI was determined to be a mean of 1.75 ± 1.02. In addition, worst/severest pain was determined to be a mean of 4.55 ± 0.70 (especially during movement/physical therapy) on the third postoperative day, and analgesic medications were taken on a PRN basis (Table 4). In the study by Yavuz (2000), the patients' postoperative worst/severest pain score of 3.70 ± 0.41 (0-5 scale) was determined before pharmacologic and nonpharmacologic interventions. In the study by Berge, Dolin, Williams, and Harman (2004) as well, the most severe state of pain was a mean score of 5.19 ± 1.49 (0-10 scale). In a study by Sjöling, Nordahl, Olofsson, and Asplund (2003), approximately 83% of the patients were reported to experience a level of severity of ≥4 in the postoperative period. Özer (1998) determined that orthopedic and trauma patients had a pain severity of 1.64 ± 0.79 at the surgical site and at pressure points on the third postoperative day. And Wang and Keck (2004) determined that surgical patients' pain at its worst scores was 8.90 ± 2.02 (0-10 scale) on the first day. The findings from the present study were similar to this research. Doctors should plan to administer pharmacologics, and nurses should implement nonpharmacologic interventions to decrease pain severity.

There was a statistically significant difference in postoperative third day scores and worst/severest pain scores (Table 4). Although the pain severity scores

Table 4.
Distribution of Mean Scores for Pain Severity

Pain Severity	Scale	Min-Max	Mean ± SD	*t* and *p* Values
PPI (at the moment)	0.00-5.00	0.00-5.00	1.75 ± 1.02	$t = -29.633$
PPI (worst/severest)	0.00-5.00	2.00-5.00	4.55 ± 0.70	$p = .000$*

*$p \leq .001$.

were decreased at the moment in time, pain increased during movement. And it was thought that pharmacologic and nonpharmacologic interventions were not administered effectively on the third postoperative day (especially before movement and physical therapy). The findings in the studies by Hall-Lord et al. (2004) and Dahlen (2006) agree with the present pain severity scores. Those studies determined that pain severity was decreased following the postoperative days in hip and knee arthroplasty patients. Likewise, in the study by Özer (1998), patients' pain severity decreased following the postoperative days in Turkish surgical patients. In the literature, there are many reasons why a patient feels reluctant to move. If the patient is experiencing pain, it must be managed effectively and reduced to a level acceptable to the patient. Frequently, the patient is afraid that moving will cause further pain, damage, or harm. A knowledgeable, confident, and reassuring nursing approach is required to encourage and support the patient at these times (Davis, 2005).

Limitations

The major limitation in the present study is that pain was assessed only on the third postoperative day. We think that patients' analgesic medications (especially opioid drugs) had been administered continuously with patient-controlled analgesia and IM/IV on the first and second postoperative days. Also, we needed to learn about pain characteristics in Turkish orthopedic patients. So we collected our data in the third postoperative day period with the MPQ (including overall pain dimension) while trying to avoid exhausting the patients. Because the patients' analgesic mediations (which were taken on a PRN basis) had been stopped on this day, and the patients had started physical therapy in the therapy room and their room, the patients had to cope with their pain and could easily answer our questions about their postoperative pain.

CONCLUSIONS

The present research findings determined pain characteristics on the third postoperative day in Turkish orthopedic patients. After an evaluation of the conclusions, nurses must learn the postoperative pain characteristics of orthopedic patients to implement safe and effective postoperative pain management. Furthermore, nurses should assess orthopedic patients' pain severity on the third day as on the first and second days. We think that this study is a key measure of postoperative pain. *Pain Management Nursing*'s primary readers are nurses in clinical practice. If nurses understand pain characteristics (location, duration, verbal descriptors, increasing-decreasing factors, and severity) in their patients, they can plan and implement nursing care effectively.

REFERENCES

Acaroğlu, R., Şendir, M., & Kaya, H. (2008). Hemşirelik süreci [Nursing processes]. In K. Babadağ, & T. Atabek Aştı (Eds.), *Hemşirelik esasları uygulama rehberi* (pp. 8–20). Istanbul: Istanbul Medikal Yayıncılık.

Akbaş, M., & Öztunç, G. (2008). Examination of knowledge about and nursing interventions for care of patients in pain of nurses who work at Çukurova University Medical Faculty Balcali Hospital. *Pain Management Nursing, 9*(3), 88–95.

Antall, G. F., & Kresevic, D. (2004). The use of guided imagery to manage pain in an elderly orthopaedic population. *Orthopaedic Nursing, 23*(5), 335–340.

Berge, D. J., Dolin, S. J., Williams, A. C., & Harman, R. (2004). Pre-operative and post-operative effect of a pain management programme before total hip replacement: A randomized controlled trial. *Pain, 110*, 33–39.

Black, J. M., Hawks, J. H., & Kene, A. M. (2001). Medical-surgical nursing. Clinical management for positive outcomes, (6th ed.) Philadelphia: W.B. Saunders.

Closs, S. J., & Briggs, M. (2002). Patients verbal description of pain and discomfort following orthopaedic surgery. International Journal of Nursing. *Studies, 39*, 563–572.

Dahlen, L., Zimmerman, L., & Barron, C. (2006). Pain perception and its relation to functional status post knee arthoplasty: A pilot study. *Orthopaedic Nursing, 25*(4), 264–270.

Davis, P. (2005). Why move? In J. Kneale, & P. Davis (Eds.), *Orthopaedic and trauma nursing*, (2nd ed.) (pp. 76–105) Philadelphia: Churchill Livingstone.

Erdine, S. (2000). Ağrı (Pain). Istanbul: Nobel Tıp Kitabevi.

Eti-Aslan, F. (2006). Ameliyat sonrası ağrı (Postoperative pain). In F. Eti-Aslan (Ed.), *Ağrı Doğası ve Kontrolü* (pp. 159–189). Istanbul: Avrupa Tıp Kitapçılık.

Gatlin, C. G. (2007). When medication is not enough: Nonpharmacologic management of pain. *Clinical Journal of Oncology Nursing, 11*(5), 699–704.

Gregory, J. (2005). Pain management and orthopaedic care. In J. Kneale, & P. Davis (Eds.), *Orthopaedic and trauma nursing*, (2nd ed.) (pp. 140–164) Philadelphia: Churchill Livingstone.

Good, M., Anderson, G. C., Ahn, S., Cong, X., & Stanton-Hicks, M. (2005). Relaxation and music reduce pain following intestinal surgery. *Research in Nursing & Health, 28*, 240–251.

Hall-Lord, M. L., Larsson, B. W., Baath, C., & Johanson, I. (2004). Experiences of pain and distress in hip fracture patients. *Journal of Orthopaedic Nursing, 8*(4), 221–230.

Harvey, C. (2005). Spinal surgery patient care. *Orthopaedic Nursing, 24*(6), 426–442.

Kanan, N. (1998). Cerrahide ağrı [Pain in surgery]. In G. Aksoy (Ed.), *Cerrahi hastalıkları hemşireliği el kitabı* (pp. 11–18). Istanbul: Birlik Ofset.

Kuğuoğlu, S., Eti-Aslan, F., & Olgun, N. (1998). Adölesan ve erişkinlerin postoperatif ağrı değerlendirmesinde McGill Melzack Ağrı Soru Formu (MASF) nun kullanımına yönelik bir çalışma [A study using the McGill Melzack Pain Questionnaire (MPQ) in adolescent and adult postoperative pain assessment.). *VI. Ulusal Hemşirelik Kongresi (Uluslararası Katılımlı)*. Ankara, poster no. 69.

Kuğuoğlu, S., Eti-Aslan, F., & Olgun, N. (2003). McGill Melzack Ağrı Soru Formu (MASF) nun Türkçe'ye uyarlanması [Turkish adaptation of the McGill Melzack Pain Questionnaire (MPQ)]. *Ağrı, 15*(1), 47–52.

Lellan, K. M. (2006). Pain intervention. In L. Wigens (Ed.), *Management of pain* (pp. 100–115). London, U.K.: Nelson Thornes.

Manias, E., Bucknall, T., & Botti, M. (2004). Assessment of patient pain in the postoperative context. *Western Journal of Nursing Research, 26*(7), 751–769.

Mann, E., & Carr, E. (2006). Pain management. Oxford, U.K.: Blackwell. 1–21.

McCaffery, M. (1968). Nursing practice theories related to cognition, bodily pain, and man-environment interactions. Los Angeles: University of California.

Melzack, R. (1975). The McGill Pain Questionnaire: Major properties and scoring methods. *Pain, 1*, 277–299.

Melzack, R. (2005). The McGill Pain Questionnaire. *Anesthesiology, 103*, 199–202.

Özer, N. (1998). Postoperatif dönemdeki hastaların ağrıyı tanımlamaları ve hemşirelerin ağrılı hastalara yönelik girişimlerinin incelenmesi. [Postoperative patient pain assessment and examination of nursing interventions for patients in pain]. *Atatürk Üniversitesi Sağlık Bilimleri Enstitüsü Yüksek Lisans Tezi*. Erzurum.

Pasero, C., & McCaffery, M. (2007). Orthopaedic postoperative pain management. *Journal of PeriAnesthesia Nursing, 22*(3), 160–174.

Pellino, T. A., Gordon, D. B., Engelke, Z. K., Burse, K. L., Collins, M. A., Silver, C. E., & Norcross, N. J. (2005). Use of nonpharmacologic ınterventions for pain and anxiety after total hip and total knee arthroplasty. *Orthopaedic Nursing, 24*(3), 182–190.

Potter, P. A. (2009). Nursing diagnosis. In P. A. Potter, & A. G. Perry (Eds.), *Fundamental of nursing*, (7th ed.) (pp. 230–261) St. Louis, MO: Mosby Elseiver.

Schoen, D. (2007). Pain in the orthopaedic patient. *Orthopaedic Nursing, 26*(2), 140.

Şendir, M. (2000). Total kalça protezi ameliyatı öncesi hasta eğitiminin ameliyat sonrası fiziksel uyum ve yaşam kalitesine etkisi [Effect of total hip prosthesis preoperative patient education on postoperative physical adaptation and quality of life]. *Istanbul Üniversitesi Sağlık Bilimleri Enstitüsü Doktora Tezi, Istanbul*.

Sjöling, M., Nordahl, G., Olofsson, N., & Asplund, K. (2003). The impact of preoperative information on state anxiety, postoperative pain and satisfaction with pain management. *Patient Education and Counseling, 51*, 169–176.

Wang, H. L., & Keck, J. K. (2004). Foot and hand massage as an intervention for postoperative pain. *Pain Management Nursing, 5*(2), 59–65.

Wentz, J. (2009). Pain management. In P. A. Potter, & A. G. Perry (Eds.), *Fundamental of nursing*, (7th ed.) (pp. 1051–1085) St. Louis, MO: Mosby Elseiver.

Yavuz, A. (2000). Postoperatif ağrı yönetiminde non farmakolojik girişimler ve hastanın kendi ağrısını değerlendirmesine göre analjezik uygulaması yöntemi ve rutin analjezi yönteminin karşılaştırılması [Nonpharmacologic interventions in postoperative pain management and comparison of analgesic practice method and routine analgesic method according to patients' own pain assessment]. *Ege Üniversitesi Sağlık Bilimleri Enstitüsü Yüksek Lisans Tezi*. Izmir.

Yıldız, M. (1999). Batın ameliyatı olan hastalarda ağrı özellikleri, etkileyen etmenler ve ağrı yönetiminin incelenmesi [Pain characteristics in abdominal surgery patients: Examination of influential factors and pain management]. *Dokuz Eylül Üniversitesi Sağlık Bilimleri Enstitüsü Yüksek Lisans Tezi*. Izmir.

Appendix 1

McGILL PAIN QUESTIONNAIRE

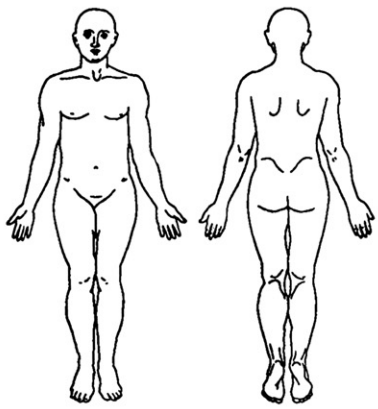
RONALD MELZACK

Patient's Name _____ Date _____ Time _____ am/pm

PRI: S _____ (1-10) A _____ (11-15) E _____ (16) M _____ (17-20) PRI(T) _____ (1-20) PPI _____

1 FLICKERING	11 TIRING	
QUIVERING	EXHAUSTING	
PULSING		
THROBBING	12 SICKENING	
BEATING	SUFFOCATING	
POUNDING		
	13 FEARFUL	
2 JUMPING	FRIGHTFUL	
FLASHING	TERRIFYING	
SHOOTING		
	14 PUNISHING	
3 PRICKING	GRUELLING	
BORING	CRUEL	
DRILLING	VICIOUS	
STABBING	KILLING	
LANCINATING		
	15 WRETCHED	
4 SHARP	BLINDING	
CUTTING		
LACERATING	16 ANNOYING	
	TROUBLESOME	
5 PINCHING	MISERABLE	
PRESSING	INTENSE	
GNAWING	UNBEARABLE	
CRAMPING		
CRUSHING	17 SPREADING	
	RADIATING	
6 TUGGING	PENETRATING	
PULLING	PIERCING	
WRENCHING		
	18 TIGHT	
7 HOT	NUMB	
BURNING	DRAWING	
SCALDING	SQUEEZING	
SEARING	TEARING	
	19 COOL	
8 TINGLING	COLD	
ITCHY	FREEZING	
SMARTING		
STINGING	20 NAGGING	
	NAUSEATING	
9 DULL	AGONIZING	
SORE	DREADFUL	
HURTING	TORTURING	
ACHING		
HEAVY	PPI	
	0 NO PAIN	
10 TENDER	1 MILD	
TAUT	2 DISCOMFORTING	
RASPING	3 DISTRESSING	
SPLITTING	4 HORRIBLE	
	5 EXCRUCIATING	

BRIEF	RHYTHMIC	CONTINUOUS
MOMENTARY	PERIODIC	STEADY
TRANSIENT	INTERMITTENT	CONSTANT



E = EXTERNAL
I = INTERNAL

COMMENTS: