A Descriptive Study of Pressure Ulcer Pain

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Despite increased emphasis on addressing patient pain, knowledge and information about pressure ulcer pain remains limited. To describe the quantitative and qualitative characteristics of pain related to pressure ulcers, a study was conducted among 47 hospitalized patients with pressure ulcers using the McGill Pain Questionnaire and Revised Faces Rating Scale. Volunteer participants, admitted for neurological disorders, ranged in age from 38 to 72 years (mean age 60.1 years ± 8.23; 29 men, 18 women), six with Stage II, 32 with Stage III, and nine with Stage IV pressure ulcers. All but three (44, 94.6%) reported pressure ulcer pain; of those, 28 (59.5%) reported constant pressure ulcer pain and 41 (87.2%) did not specify when pain occurred. Dressing change, movement of the afflicted area, and pain at rest were reported by 32 (68.1%), nine (19.1%), and three (6.4%) patients, respectively. “Hot-burning” was the sensory descriptor most frequently used to describe the pain in 52%, 56%, and 67% of Stage II, Stage III, and Stage IV patients, respectively. Three out of six patients with Stage II ulcers rated their pain “discomforting,” 32 of 32 with Stage III ulcers rated pain as “distressing,” and nine out of nine with a Stage IV ulcer rated their pain as “horrible”. Based on the Revised Faces Rating Scale, mean pain intensity was 6.04 ± 2.78 (range 1 to 10), corresponding to moderate pain. For overall pain intensity, Patient Pain Index and Faces Rating Scale-Revised scores were highly correlated (r = 0.90, P < 0.001). Pressure ulcers are painful, most patients report pain as “constant”, and pain assessment should be included in all patient care plans.

KEYWORDS: pain, pressure ulcer, pain assessment, McGill Pain Questionnaire, Face Rating Scale-Revised

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tissue relationship in which the pain is not exclusive or direct; sensitive, emotional, and cognitive aspects that cannot be dissociated from the painful manifestation; and pain as a personal and subjective experience.\(^8\)

A systematic review of MEDLINE, PubMed, and Google using the search terms pressure ulcer pain and pain assessment tools revealed that only a few studies have addressed the pain experience of patients with pressure ulcers. In a cross-sectional, quantitative study of 123 hospitalized patients with pressure ulcers, Dallam et al\(^9\) collected data at 3-month intervals for 1 year to determine the perceived intensity and patterns of pressure ulcer pain. They found that the majority of study participants (68%) reported pain and many perceived the intensity of pain as severe. Nevertheless, only three of 132 (2%) received analgesia for pressure ulcer pain.

In a descriptive study, Shukla et al\(^10\) examined the pain experiences of 50 patients — 26 with acute wounds and 24 with chronic wounds, including pressure ulcers. They found that 92% of patients overall reported pain, 28.3% were in continuous pain, and 65% experienced pain during dressing change. In a cross-sectional, quantitative study of 32 acute, extended, and home care patients conducted by Szor and Bourguignon,\(^11\) 87% experienced pressure ulcer pain during dressing changes and 84% experienced pain at rest. In an international study conducted by the European Wound Management Association (EWMA)\(^12\) describing wound care nurses’ views (N = 3,918) on pain and trauma, the nurses reported that a majority of patients with acute and chronic wounds experienced the most severe pain during dressing change and removal.

Using qualitative methodologies to study the phenomenon of pressure ulcer pain, Rastinehad\(^13\) interviewed 10 subjects, seven with Stage II pressure ulcers. Twenty-two themes were identified including severe pain associated with pressure ulcer. The participants used terms such as burning, shivering, pinching, and stinging to describe their sensory experience. Langemo et al\(^14\) interviewed eight pressure ulcer patients under 55 years of age; seven themes emerged, including extreme pain. The participants used terms such as burning, stinging, and stabbing to describe the nature of their pain experience.

**Methods**

**Patients.** Subjects were recruited from a university hospital in Izmir, Turkey, in the neurology and internal medicine departments (units). Inclusion criteria included age 18 years or older, ability to sense and report pain, and ability to complete the McGill Pain Questionnaire (MPQ)\(^15\) and Faces Rating Scale-Revised (FRS-R)\(^16\). Patients with diagnosed sensorimotor deficiencies (para- or tetraplegia and para- or tetraparesis), diabetes, peripheral vascular diseases, peripheral neuropathy, and muscle spasms — conditions that influence pain perception — were excluded from the study. Each participant was required to have at least one Stage II, Stage III, or Stage IV pressure ulcer; in this hospital, physicians evaluate and record pressure ulcers using NPUAP classification.\(^17\) Patients with pressure ulcers were identified based on their records. Every patient in the units was examined by the researcher to verify the data. Assessments were noted on the observation form, yielding valid data. Forty-seven (47) of 59 eligible patients with pressure ulcers agreed to participate in the study.

The study was explained to patients and informed consent was obtained. Data were collected after approval of the study by the Ethic Committees of Ege University School of Nursing.

**Data collection.** Data were collected using a two-part instrument: 1) patient demographics (age, sex),
ulcer characteristics (number, location, stage, duration, size, type of dressing), and pain characterization (situations, duration, typical time); and 2) qualitative and quantitative assessment of the painful condition using the MPQ and FRS-R. The researcher pointed to the area of the pressure ulcer and asked the patient to describe the quantity and quality of pain perceived at the pressure ulcer site using the MPQ. Each subject was shown the FRS-R and told to mark the face reflecting the degree of pain felt at the pressure ulcer site. In patients with more than one ulcer, all ulcers were evaluated. The order in which the pain instruments were administered was randomized by flipping a coin to better evaluate agreement between the scales.

**Tools.**

**McGill Pain Questionnaire.** The MPQ has been used to characterize different types of pain (eg, wound pain, labor pain, cancer pain). In this study, it was used to provide a quantitative measure of pressure ulcer pain. The MPQ measures a patient's subjective pain experience using four major psychological dimensions of pain: sensory, affective, evaluative, and miscellaneous. Structurally, the dimensions are further broken down into subclasses. The sensory dimension includes 10 subclasses/42 words (items 1 through 10); the affective dimension contains five subclasses/14 words (items 11 through 15), and the evaluative dimension includes one subclass/five words (item 16). In addition, the miscellaneous dimension has four subclasses/17 words (items 17 through 20). The MPQ has a total of 20 subclasses/items. The summarization of the words selected provides the Pain Rating Index score (PRI).

McGill Pain Questionnaire administration consists of completing the four parts of the instrument. First, patients mark the location of their pain on a line drawing. Then, participants choose the most appropriate from among 78 pain descriptors (eg, dull, sore, hurting, aching) distributed across the 20 subclasses. Next, participants select the description that best applies to their assessment of how the pain changes over time and what relieves or increases it. Lastly, patients assess present pain intensity (PPI) based on a 0 to 5 scale (where 0 = "no pain" and 5 = "excruciating pain"). The validity and reliability of the Turkish version of this scale were tested by Eti et al in 1998.

**Faces Rating Scale-Revised.** The FRS-R has been used to validly and reliably assess pain. The instrument consists of a scale of six faces ranging in expression from smiling to crying, labeled 0 to 10 beneath the faces, respectively. It was adapted from the Faces Pain Scale to facilitate scoring on the widely accepted 0 to 10 metric scale, where 0 corresponds to "no pain" and 10 to "worst possible pain." It has been found to be easy to administer and requires no equipment except for the photocopied faces.

**Data analysis.** Data were analyzed using SPSS version 11.0 for Windows (SPSS, Chicago, Ill). Descriptive statistics were utilized in order to examine demographic data of the patients and the distributions of the items in the MPQ. Qualitative variables (word descriptors) were compared by the Fisher exact test. Quantitative variables (PPI scores) were analyzed using analysis of variance (ANOVA). The Spearman rank correlation coefficient was used to evaluate the association between the PPI and FRS-R scores; $P < 0.05$ was used for statistical significance.

**Results**

**Demographics.** The 47 study participants included 29 (61.7%) men and 18 (38.3%) women; all met inclusion criteria and were able to comply with instructions for both pain assessment instruments. Participant age ranged from 38 to 72 years (mean age 60.1 years ± 8.23) and the primary diagnosis of the patients was neurological disorders (lumbago, vertigo, epilepsy) (58%). Most patients (74%) had one ulcer, six (13%) had two ulcers, and six (13%) had three ulcers for a total of 68 ulcers that included Stage II (six ulcers), Stage III (32 ulcers), and Stage IV (nine ulcers). Of all study ulcers, the most common locations were the sacrum (61.7%), trochanter (17.4%), and heel (11.2%). The mean duration of the ulcers was 1.8 months ± 0.74; the mean size of ulcers was 28.2 cm² ± 4.22. An alternating pressure air mattress was used in the majority of the patients (93.6%). A honey-based, hydrocolloid dressing was used by 16 patients (34%), a hydrogel dressing by 15 patients (31.9%), and a hydrocolloid dressing by seven patients (14.9%).

**Ulcer stage, location, and cause of pain.** Pressure ulcer pain was reported by 44 patients (94.6%) in this
study. Some patients had reported pressure ulcer pain before the researcher’s interview. When classified according to the pressure ulcer stage, three of six participants (50%) with Stage II ulcers, 32 of 32 (100%) with Stage III ulcers, and nine of nine (100%) with Stage IV ulcers experienced pain. Of 44 patients with pain, 41 (87.2%) reported no typical time for the occurrence of pain. In 32 (68.1%) patients, dressing change aggravated pain, for nine patients (19.1%) movement of the afflicted area aggravated existing pain, and three patients (6.4%) reported pain at rest. Six (12.8%) patients received pain medication (analgesic drug) within 6 hours before completion of the questionnaire, none of which were specifically prescribed and administered for pressure ulcer pain.

Pain descriptors. The participants used a variety of terms to describe their pain experiences on the PRI, which were subsequently grouped into categories: sensory, affective, evaluative, and miscellaneous. The patients used 13 words to describe their pressure ulcer pain. When the responses of the subjects were pooled, the number of word descriptors increased as the highest stage pressure ulcer increased. Participants with Stage IV ulcers choose three times as many word descriptors as those with Stage II ulcers and 1.5 times as many as those with Stage III ulcers (see Table 1).

Pain intensity. Pain intensity ratings were measured by the PPI and ranged from 0 to 5 (0 = no pain, 5 = excruciating). Of the six participants with Stage II ulcers, three rated their pain “discomforting,” all 32 participants with Stage III ulcers rated them “distressing,” and all nine participants with Stage IV ulcers rated them as “horrible”. These differences were statistically significant ($F = 6.83, P < 0.05$) (see Figure 1).

Pain occurrence. In the entire participant pool, pain was present intermittently in nine (19.1%) patients; 28 (59.6%) said they were in continuous pain. Patients with Stage II ulcers more frequently reported intermittent pain; whereas, patients with Stage III and Stage IV ulcers more frequently reported constant pain.

Statistically significant differences in PPI ratings were found for ulcer duration ($F = 9.56, P < 0.05$) and condition at rest versus dressing change ($F = 6.12, P < 0.05$). The mean PPI score increased as the duration of ulcer increased and patients reported more pain during dressing change than when at rest. No significant differences in PPI ratings were found when comparing the number of ulcers per patient ($F = 1.15, P > 0.05$) or dressing type used ($F = 1.35, P > 0.05$).

The FRS-R mean pain intensity score was $6.04 ± 2.78$ (range 1 to 10), corresponding to moderate pain (see Figure 2). For overall pain intensity, a statistically significant relationship was found between PPI and FRS-R scores ($r = 0.90, P < 0.001$).

Discussion

This study investigated the quantitative and qualitative characteristics of the pain related to pressure ulcers. Current study findings are consistent with those of Szor and Bourguignon and Rastinehad. They reported that the majority of the patients experiencing pressure ulcer pain often used terms including sharp, burning, achling, and throbbing to characterize their sensory experience. Similarly, Quirino et al reported that the majority of the patients used the term burning. The painful condition was described in the present study mainly as hot-burning, as well as throbbing, sharp, and stabbing.
In this study population, perceived pain intensity was highest in patients with Stage IV ulcers, corresponding to horrible pain. Thus, the hypothesis that the more superficial the lesion the higher the pain intensity was not confirmed in the present study. Quirino et al. and Szor and Bourguignon also found that patients with Stage IV pressure ulcers had higher scores, corresponding to excruciating pain. This trend was also observed by Dallam et al. and Langemo et al., who found that patients with Stage IV ulcers tended to report more severe pain than those with lower stage ulcers.

The FRS-R was used as a secondary tool to verify information. Results of this study indicate a very high linear (Pearson) correlation (r = 0.90) between PPI and the FRS-R scores.

Current findings indicate FRS-R scores of 0, 2, 4, 6, 8, and 10 correspond with the PPI scores of no pain, mild, discomforting, distressing, horrible, and excruciating, respectively. Freeman et al. established a high reliability of the Faces Pain Rating Scale compared to the Visual Analog Scale, indicating the usefulness of the former for patients with impaired verbal abilities.

In the current study, most patients reported their pain occurred at the time of dressing change and as being continuous. These findings confirm results of previous studies regarding wound pain. Shukla et al. found that in 30 out of 50 (65%) patients, dressing change aggravated pain, in 17 (37%), movement of the afflicted area aggravated existing pain, and 13 (28.3%) reported pain as continuous. Similarly, in Szor and Bourguignon’s study, 88% of the patients reported pain at dressing changes, 84% reported pain at rest, and 42% reported pain as continuous. Quirino et al. reported that 55% of participants experienced pain at rest and 80% reported constant pain. The EWMA study found that 63% of patients experience pain at the time of dressing change.

**Study Limitations**

This study had several limitations. The limited size of the study restricts its statistical power. Additionally, dressing type, administration of pain medication, and air mattress use were not standardized; these factors may have influenced the results of the study. Also, the time it takes to complete the

![Figure 1. Pain intensity (PPI scores)* by pressure ulcer stage.](image1)

*McGill Pain Questionnaire

![Figure 2. Faces Rating Scale-Revised scores by ulcer stage.](image2)

Range 0 = no pain, 10 = excruciating pain.
MPQ made it challenging for some study participants to complete all evaluations. Studies using a larger and more diverse sample are needed.

**Conclusion**

The findings of this study affirm that pressure ulcers are very painful and increasing awareness of healthcare providers regarding adequate management of pressure ulcer pain is needed. Individual pain assessment should be included as a standard component of the initial pressure ulcer assessment and the Faces Rating Scale is recommended for patients who cannot verbalize their distress. All caregivers should respond to patients reporting pain in an informed, attentive, sensitive manner and incorporate pain-reducing measures into the plan of care.

**References**