

# Descriptions of pain in elderly patients following orthopaedic surgery

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## Descriptions of pain in elderly patients following orthopaedic surgery

The aims of this study were to investigate what words elderly patients, who had undergone hip surgery, used to describe their experience of pain in spoken language and to compare these words with those used in the Short-Form McGill Pain Questionnaire (SF-MPQ) and Pain-O-Meter (POM). The study was carried out at two orthopaedic and two geriatric clinical departments at a large university hospital in Sweden. Altogether, 60 patients (mean age = 77) who had undergone orthopaedic surgery took part in the study. A face-to-face interview was conducted with each patient on the second day after the operation. This was divided into two parts, one tape-recorded and semi-structured in character and one structured interview. The results show that a majority of the elderly patients who participated in this study verbally stated pain and spontaneously used a majority of the words found in the SF-MPQ and in the POM. The patients also used a number of additional words not found in the SF-MPQ or the POM. Among those patients who did not use any of the words in

the SF-MPQ and the POM, the use of the three additional words 'stel' (stiff), 'hemska' (awful) and 'räd(d)(sla)' (afraid/fear) were especially marked. The patients also combined the words with a negation to describe what pain was not. To achieve a more balanced and nuanced description of the patient's pain and to make it easier for the patients to talk about their pain, there is a need for access to a set of predefined words that describe pain from a more multidimensional perspective than just intensity. If the elderly patient is allowed, and finds it necessary, to use his/her own words to describe what pain is but also to describe what pain is not, by combining the words with a negation, then the risk of the patient being forced to choose words that do not fully correspond to their pain can be reduced. If so, pain scales such as the SF-MPQ and the POM can create a communicative bridge between the elderly patient and health care professionals in the pain evaluation process.

**Keywords:** pain descriptors, elderly, pain assessment, pain scales.

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## Introduction

It is widely accepted that pain is a multidimensional subjective experience that does not lie on a single dimension (1, 2). As an experience, pain cannot be shared with others in an objective way; it must be communicated in a subjective way, the patient's way. McCaffery (3) states: 'Pain is whatever the experiencing person says it is, existing whenever he says it does'. The verbal report of pain is considered to be the single most reliable indicator of how much pain a person is experiencing (4–8). However, when assessing the patient's pain, health care professionals must

also be able to interpret the content/message in this report. This interaction is, according to Dudley and Holm (9), the primary source of information about the patient's pain.

To a large extent research dealing with how pain is communicated has focused on distinguishing words associated with the pain experience in written language and how different groups of patients use those words. In their pioneering work, Melzack and Torgerson (10) derived from clinical literature relating to pain, words, 102 in all, that were used to describe the qualities of pain and classified them into three main categories (i.e. sensory, affective and evaluative). The McGill Pain Questionnaire (MPQ) was developed based on these results (11). The Short-Form McGill Questionnaire (SF-MPQ) was later developed by Melzack (12) due to 'a shortened version of the standard MPQ is desirable for some types of research (such as pharmacological studies) which require more rapid acquisition of data than the standard MPQ', and

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contains 11 sensory and four affective words. The patient is asked to assign the intensity between 'none' to 'severe' to each of these 15 descriptors. The patient is also asked to specify the pain intensity by choosing one of six words, which also are numbered 0–5 [Present Pain Index (PPI)]. The SF-MPQ has been translated and validated in Swedish (13). It has been argued that the fact that the MPQ was developed in Canada can have an influence when it is used also in other English speaking countries (14–16).

It has also been questioned whether the words in the MPQ, which are derived from the clinical literature, are representative and usually included in ordinary people's vocabularies (14). Furthermore, words used to quantify pain do not necessarily have the same meaning for all persons (17). Herr and Mobily (18) stated that the MPQ is too complex to use for elderly patients in pain. The MPQ has also been criticized as being too time consuming to administer and 'the choice of some pain descriptors that are either difficult to comprehend and/or not spontaneously used by patients with chronic pain' (15), and that this fact may force people to choose a non-relevant pain descriptor. However, the SF-MPQ has been used in studies of elderly patients to evaluate post-operative pain (19) and chronic osteoarthritis pain (20).

According to Fabrega and Tyma (21), there are basically four words in the English language to describe a pain experience, these are 'pain', 'hurt', 'sore' and 'ache'. In the Swedish language and in clinical practice, mainly the words pain (*smärta*), ache (*värk*) and hurt (*ont*) are used to describe a pain experience (22). There also seems to be a significant difference between the intensity of these concepts when they are evaluated by means of Visual Analogue Scale (VAS) ratings (23, 24). Gaston-Johansson (25) developed the Pain-O-Meter (POM). The Swedish version contains 23 descriptors for pain experience (12 sensory and 11 affective words), which have been derived through concordance analysis of Swedish newspapers and novels and categorization of conceptual areas of the word pain (*smärta*), ache (*värk*) and hurt (*ont*) (22, 23, 26–28). Each one of the descriptors has an assigned intensity value (ranged 1–5) with one representing the lowest intensity and five representatives the highest pain intensity. The POM also makes it possible to locate the pain and obtain information about duration or whether the pain is continuous or intermittent (25). The Swedish version of the POM has been used in palliative care to assess the patients' (mean age between 67 and 71 years) pain experience (29, 30). Bostrom et al. (29) reported that when using the POM, 24 of 75 patients (mean age 70 years; ranging between 35 and 88 years) could not describe their pain or used words not listed on the POM.

Both the SF-MPQ (12) and the POM (25) are also equipped with a VAS, which assesses pain intensity. It has also been argued that when rating scales such as VAS, the Graphic Rating Scale (GRS) and the Numerical Rating

Scale (NRS) are administered to geriatric patients, the evaluation process is substantially improved if the application is combined with supplementary questions allowing the patient to verbally describe possible experience of pain (31, 32) and pain relief (32). Lenz et al. (1) argue that the use of unidimensional measurements when assessing various symptoms is not appropriate. However, the use of scales providing a list of predefined descriptors (e.g. MPQ) is not uncomplicated either, as people differ in their ability to distinguish between symptoms and to apply a specific label (1). Accordingly, the aims of this study were to investigate what words elderly patients who had undergone hip surgery used to describe their experience of pain in spoken language and to compare these words with those used in the SF-MPQ and POM.

## Method

Two orthopaedic clinical departments and two geriatric clinical departments at a large university hospital in Sweden were used for data collection over an 8-month period.

### Criteria for inclusion

- Age 65 or older.
- Ability to understand and respond to a question.
- Admitted to the orthopaedic department for the first hip replacement due to Cox-arthritis (elective).
- Admitted to the geriatric departments for surgical repair of the first hip fracture (trauma).
- Had undergone operation on Monday, Tuesday or Wednesday.

In total, 76 patients fulfilled the selection criteria. Of these, seven patients refused to participate, four patients were excluded for medical reasons and a further five patients were excluded due to poor sound quality of the tape-recorded interviews. This resulted in 60 patients (38 first hip replacements (19 men and 19 women) and 22 first hip fractures (eight men and 14 women) being finally included in the study. The mean age for the total sample was 77 years (range 65–91 years; SD = 6.8). For the patients with their first hip replacement, the mean age was 75 years (range 65–87 years; SD = 6.0) and for the patients with a hip fracture, the mean age was 81 years (range 67–91 years; SD = 5.9).

### Procedure

A face-to-face interview was conducted with each patient on the second day after the operation. This was divided into two parts, a tape-recorded semi-structured and a structured interview. The interview took place in the patient's room, which were mostly four-bed room. This meant that the interviews were sometimes interrupted by the round or members of the staff, but also by the patients

in adjacent beds who wanted to take part in the interview and communicate their point of view regarding the topic discussed. However, this is often a normal situation for the health care professional when assessing the patient's pain in the clinical practice.

#### *The semi-structured part of the interview*

The interview questions were formulated bearing in mind the fact that in the Swedish language and in clinical practice, the concepts of pain (smärta), ache (värk) and hurt (ont) are used to describe a pain experience (22). Below, hurt, ache and pain will be designated as pain. After an opening question 'Is your hip troubling you?', the patients were asked, 'Right now, are you in pain from your hip, or does it hurt or ache', to investigate how the patients labelled their pain experience according to the properties of these concepts. In order to elicit the evaluative aspect of the pain experience, the patient was asked to 'Describe in your own words how much pain do you have in your hip, or how much does it hurt or ache now when you are lying down (alternatively, sitting)' and 'Describe in your own words how much pain you think you would have in your hip, or how much it would hurt or ache, if you stood up on the floor'. To probe terms and descriptors that related to the sensory aspect of the pain experience, the patient was requested to 'Describe in your own words how the pain, aching or hurting in you hip feels right now'. Terms and descriptors of the affective aspect of the patient's pain experience were probed by a suggestion to 'Describe in your own words what you feel when you think about the pain, aching or hurting in your hip'. During the interview, probing was used in order to encourage the patient to respond to the questions in such a comprehensive a way as possible.

#### *The structured interview*

The patients were asked to rate the pain in their hip when resting and the anticipated pain when moving on a Verbal Numerical Rating Scale (VNRS), where 0 represents 'No pain' (Ingen smärta) and 10 'The worst pain imaginable' (Värsta tänkbara smärta). A VNRS 0–10 'No pain' and 'The worst pain imaginable' has been used in different pain populations (33, 34). This scale was used both by the orthopaedic and the geriatric wards, but more routinely at the orthopaedic ward. The verbal form of this scale has never been validated in an elderly population, although a paper copy of the NRS has proved to be applicable in the case of Swedish geriatric patients (31).

Demographic variables such as age and sex were obtained. To obtain the patients' cognitive function at the time of the interview, a Mini-Mental State Examination (MMSE) was applied (35, 36). The test ranges from 0 to a maximum of 30 points and has been tested in number of different populations for validity and reliability (35, 36).

The nurse responsible for the patient's care completed a short questionnaire that provided information on the patient's analgesic treatment and type of operation (Table 1).

#### *Analysis of the interviews*

The semi-structured interviews were transcribed verbatim. The 60 tape-recorded interviews altogether formed a corpus consisting of 67 211 words. The number of words in the interviews ranged from 467 to 1992 with an average of 1120 words (interviewer 30 615, mean = 510; range 228–891; patients 36 596, mean = 610, range 149–1459).

The data were analysed using NVIVO<sup>®</sup> version 1.1, which is a computer software program for qualitative analysis. Software was also developed specifically for these analyses at the Department of Linguistics at Göteborg University, Sweden.

#### *Statistical analysis*

Mann–Whitney *U*-test was used when comparing independent groups. Spearman's  $\rho$  was used to determine the magnitude of association between age, MMSE scores, pain intensity rated on the VNRS and the number of words used in the SF-MPQ and the POM. Fisher's test for pair comparison was also used to test differences in the patients' use of the unique words in the pain scales (37). All tests were two-tailed at the significance level  $p < 0.05$ . These data were analysed in SPSS for Windows version 10.1.

**Table 1** Demographic data of the patients

| <i>Background data</i>                            | <i>n</i> |
|---|----------|
| Sex   |          |
| Men   | 27       |
| Women   | 33       |
| Age   |          |
| Mean  | 77       |
| SD  | 6.8      |
| Range   | 65–91    |
| Mini-Mental State Examination scores              |          |
| Mean  | 26       |
| SD  | 3.4      |
| Range   | 14–30    |
| Timetabled analgesic medication                   |          |
| Paracetamol                                       | 6        |
| Paracetamol/dextropropoxyphene                    | 3        |
| Paracetamol/tramadolhydrochloride                 | 46       |
| Paracetamol/others                                | 3        |
| Others  | 2        |
| Rated pain ( <i>n</i> = 59) (mean in centimetres) |          |
| Just now  | 2.8      |
| Expected when moving                              | 7.3      |
| Before injury/operation                           | 5.4      |

*Linguistic analysis*

As pain is considered to be an ‘overall experience’ (1, 2), the interviews were analysed as a total corpus and not divided depending on the question asked. This was done both at the group level and the individual level. An analysis was performed on the basis of the words that are to be found in the SF-MPQ (including the PPI) and POM. Here, the translation of the English version of the SF-MPQ into Swedish is based on Burckhardt and Bjelle (13). As the words in the Swedish version of the POM do not fully correspond with the American version, the translation from Swedish into English was conducted by the developer of the POM, Professor Fannie Gaston-Johansson.

The words were lemmatized in order to capture inflectional endings that were present in the corpus. To exclude the possibility that the interviewer had had any influence on the respondents’ language regarding the use of the selected words, a sequence analysis was performed. This analysis showed that the word pain (smärta) occurred in 39 of the interviews first mentioned by the interviewer and later mentioned by the patient, the word ache (värk) was first mentioned by the interviewer and later by the patient in 41 of the interviews and troublesome/distressing (besvärlig) was first mentioned by the interviewer in 25 of the interviews and later by the patients. These words were found in the interview questions and were not included in some of the analysis. However, most importantly, the analysis showed that none of the other words selected from the SF-MPQ and POM was first mentioned by the interviewer (e.g. the interviewer’s probing) and then used by the patient. A frequency list of the words used by the patients in the interviews was drawn up. This was read by one of the authors (I.B.). All additional words (e.g. those not included in the SF-MPQ and POM) which could possibly be used by the patient to describe a pain experience and which occurred with a frequency of 2 or higher, were selected and then studied in the surrounding context in the interview text to confirm or reject that the word as representing a description of pain.

*Ethical considerations*

The written and verbal information given to the patients followed the four basic ethical principals of research: autonomy, beneficence, non-maleficence and justice (38). The study was approved by the Ethics Committee of Göteborg University, Sweden.

**Results**

The patients with hip fractures (81 years) were older ( $p < 0.001$ ) than the patients with hip replacements (75 years). The patients with hip fractures also scored lower on the MMSE (MMSE = 22;  $p < 0.001$ ) compared

to the patients with hip replacements (MMSE = 27). The rated pain prior to injury/operation was higher ( $p < 0.001$ ) in patients with hip replacements (mean score on the VNRS = 7.7) compared to patients with hip fractures (mean score on the VNRS = 0.8), one patient did not complete the VNRS. There were no significant differences between men and women regarding age, MMSE, rating of pain right now, rating of pain before injury/operation and rated anticipated pain when moving.

When asked (question A) (Table 2) ‘Right now, are you in pain from your hip, or does it hurt or ache?’, 43% ( $n = 26$ ) responded that they were experiencing hurt, ache or pain from their hip. Twelve per cent ( $n = 7$ ) reported soreness or used expressions for other types of sensations (e.g. stiffness and grinding). Forty-five per cent ( $n = 27$ ) denied any experience of pain, although 48% ( $n = 16$ ) of these patients rated a pain experience on the VNRS. When the patients were asked and encouraged to ‘Describe in your own words how much pain do you have in your hip, or how much does it hurt or ache now when you are lying down (alternatively, sitting)’ (Question B), 53% ( $n = 32$ ) verbally stated the intensity of their pain experience. Table 2 also shows that 27% ( $n = 16$ ) of the patients gave a different answer to question B compared with question A.

In total, 80% ( $n = 47$ ) of the patients, who completed a rating on the VNRS ( $n = 59$ ), rated a pain experience ‘just now at rest’. Eleven patients rated no pain and verbally denied pain in response to both Question A and Question B. One patient rated no pain but verbally expressed pain in response to Question A but denied any such experience in response to Question B. In addition, one patient, who rated pain on the VNRS, denied feeling pain in response to Question A, but not in response to Question B. When combining Question A and Question B, nine patients denied feeling pain in their responses to both questions but rated a pain experience (VNRS = 2.9), 70% ( $n = 33$ ) of the patients, who rated pain on the VNRS ( $n = 47$ ;

**Table 2** Comparison between question A and question B regarding the patients’ report of pain and sensations ( $n = 60$ )

| Question B  | Question A |           |             | Total |
|-------------|------------|-----------|-------------|-------|
|             | Pain       | Sensation | Denied pain |       |
| Pain        | 23         | 2         | 7           | 32    |
| Sensation   | 1          | 2         | 1           | 4     |
| Denied pain | 2          | 3         | 19          | 24    |
| Total       | 26         | 7         | 27          | 60    |

Question A: ‘Right now, are you in pain from your hip, or does it hurt or ache?’.

Question B: ‘Describe in your own words how much pain do you have in your hip, or how much does it hurt or ache now when you are lying down (alternatively, sitting)’.

**Table 3** Comparison between rated pain and verbal report of pain (n = 47)

|            | Rated pain     |                 |                       |                 |             |                 | p-value <sup>a</sup> | p-value <sup>b</sup> |
|------------|----------------|-----------------|-----------------------|-----------------|-------------|-----------------|----------------------|----------------------|
|            | Expressed pain |                 | Expressed a sensation |                 | Denied pain |                 |                      |                      |
|            | n              | M (VNRS-rating) | n                     | M (VNRS-rating) | n           | M (VNRS-rating) |                      |                      |
| Question A | 24             | 4.4             | 7                     | 1.7             | 16          | 3.0             | 0.000                | 0.04                 |
| Question B | 31             | 4.0             | 3                     | 2.7             | 13          | 2.6             | 0.35                 | 0.06                 |

Question A: 'Right now, are you in pain from your hip, or does it hurt or ache?'

Question B: 'Describe in your own words how much pain do you have in your hip, or how much does it hurt or ache now when you are lying down (alternatively, sitting)'.

<sup>a</sup>Represents the comparison between those who expressed pain and those who expressed a sensation.

<sup>b</sup>Represents the comparison between those who expressed pain and those who denied pain.

VNRS = 3.7), said that they felt pain or a sensation in their response to at least one of the two questions.

Table 3 shows that the patients, who verbally denied experiencing pain to Question A, rated significantly ( $p < 0.04$ ) lower compared to the patients who both verbally expressed pain and rated pain experience.

### Linguistic analysis

The words most commonly used were 'värkande' (aching in the POM) (n = 48) and 'besvärlig' (Distressing in the SF-MPQ and Troublesome in the POM) (n = 25), although, both these words were included in the interview questions. Besides 'krampaktig' (cramping), all words that overlapped in the SF-MPQ and POM were found at least once in the interviews with the patients (Table 4). Eight of

the words in the SF-MPQ and five words in the POM were not chosen by any patient (Table 4). When the Fisher's test for pair comparison was applied, this showed that the patients used significantly ( $p < 0.001$ ) more unique words from the POM compared to SF-MPQ.

Table 5 shows that 11 patients did not mention a POM word, and that eight of these patients used one or more of the additional words presented in Table 6. The most common additional words used by these eight patients were 'stel' (stiff) (n = 3) and 'hemsk' (awful) (n = 3). Of the 15 patients who did not mention any of the words found in the SF-MPQ (Table 5), 10 patients used one or more of the additional words presented in Table 6. The additional words most often used by these patients were 'hemsk' (awful) (n = 3) and 'räd(d)sla' (afraid/fear) (n = 3), although here, one patient chose both 'hemsk'

**Table 4** Number of patients who used a specific word in the interview corresponding with words in the POM and in the SF-MPQ including the PPI (in negated form)

| POM                   |             |         | Shared words of the SF-MPQ and POM |                         |        | SF-MPQ                  |               |   |
|-----------------------|-------------|---------|------------------------------------|-------------------------|--------|-------------------------|---------------|---|
| Swedish               | English     | n       | Swedish                            | English                 | n      | Swedish                 | English       | n |
| Värkande <sup>a</sup> | Aching      | 48 (22) | Besvärlig <sup>a</sup>             | Distressing/troublesome | 25 (9) | Lindrig                 | Mild          | 9 |
| Oroande               | Worrying    | 15 (4)  | Ömmande                            | Tender/sore             | 15 (2) | Obehaglig               | Discomforting | 2 |
| Tryckande             | Pressing    | 9       | Fruktansvärd                       | Horrible/terrible       | 15 (1) | Tung                    | Heavy         | 2 |
| Tröttande             | Tiring      | 7       | Molande                            | Aching/grinding         | 14     | Fasansfull              | Fearful       | 1 |
| Irriterande           | Irritating  | 4       | Outhärdlig                         | Excruciating            | 5 (4)  | Måttlig                 | Moderate      | 1 |
| Svidande              | Smarting    | 2       | Stickande                          | Stabbing/pricking       | 5 (2)  | Blixtrande              | Shooting      | 0 |
| Klämmande             | Squeezing   | 2       | Brännande                          | Burning                 | 2 (1)  | Kväljande               | Sickening     | 0 |
| Sönderslitande        | Tearing     | 2       | Gnagande                           | Gnawing                 | 1      | Pulserande              | Throbbing     | 0 |
| Skrämmande            | Frightening | 1       | Skärande                           | Sharp/cutting           | 1      | Sprängande              | Splitting     | 0 |
| Kvävande              | Suffocating | 0       | Krampaktig                         | Cramping                | 0      | Straffande <sup>b</sup> | Punishing     | 0 |
| Mördande              | Killing     | 0       |                                    |                         |        | Grym <sup>b</sup>       | Cruel         | 0 |
| Odräglig              | Unbearable  | 0       |                                    |                         |        | Utmattande              | Exhausting    | 0 |
| Torterande            | Torturing   | 0       |                                    |                         |        | Uttalad                 | Severe        | 0 |

The statement 'No pain' is not analysed, as this is considered not to describe a pain experience.

<sup>a</sup>The words 'värkande' (aching on the POM) and 'besvärlig' (distressing on the SF-MPQ vs. troublesome on the POM) were used by the researcher in order to probe verbal expressions of pain experience.

<sup>b</sup>The statement 'straffande-grym (punishing-cruel)' were considered as two separate words in the analysis.

**Table 5** Frequency of the selected descriptors<sup>a</sup> [SF-MPQ (including the PPI) and POM] used by the patients (%) rated pain (VNRS), mean age and mean of MMSE-score (n = 59)

| Frequency of descriptors | SF-MPQ and POM |      |     |      | SF-MPQ  |      |     |      | POM     |      |     |      |
|--------------------------|----------------|------|-----|------|---------|------|-----|------|---------|------|-----|------|
|                          | n (%)          | VNRS | Age | MMSE | n (%)   | VNRS | Age | MMSE | n (%)   | VNRS | Age | MMSE |
| 0                        | 9 (15)         | 1.1  | 82  | 22   | 15 (25) | 1.8  | 80  | 24   | 11 (19) | 1.3  | 80  | 23   |
| 1                        | 15 (25)        | 3.1  | 76  | 26   | 26 (44) | 3.4  | 77  | 26   | 17 (29) | 3.1  | 75  | 27   |
| 2                        | 17 (29)        | 2.7  | 76  | 27   | 9 (15)  | 2.0  | 74  | 27   | 17 (29) | 2.6  | 77  | 27   |
| 3                        | 11 (19)        | 3.5  | 79  | 25   | 8 (14)  | 3.3  | 75  | 27   | 9 (15)  | 4.1  | 77  | 25   |
| 4                        | 4 (6.8)        | 3.0  | 67  | 28   | 1 (1.7) | 6.0  | 72  | 27   | 4 (6.8) | 3.0  | 73  | 27   |
| 5                        | 2 (3.4)        | 4.0  | 78  | 27   | 0       | –    | –   | –    | 1 (1.7) | 5.0  | 83  | 25   |
| 6                        | 1 (1.7)        | 5.0  | 83  | 25   | 0       | –    | –   | –    | 0       | –    | –   | –    |

<sup>a</sup>The words ‘värkande’ (aching on the POM) and ‘besvärlig’ (distressing on the SF-MPQ vs. troublesome on the POM) were not included as they were used by the researcher in order to probe verbal expressions of pain experience.

**Table 6** Number of patients who used words<sup>a</sup> (which occur ≥2 times in the interviews) in the interview not found in the SF-MPQ (including the PPI) and POM (in negated form)

| Swedish        | English      | n      |
|----------------|--------------|--------|
| Hemsk          | Awful        | 17 (1) |
| Stel           | Stiff        | 10     |
| Räd(d)(sla)    | Afraid/fear  | 8      |
| Smärtsam       | Painful      | 7      |
| Svår           | Difficult    | 7 (1)  |
| Plågande       | Tormenting   | 6 (2)  |
| Uthärdlig      | Bearable     | 6      |
| Huggande       | Stabbing     | 5 (1)  |
| Acceptabel     | Acceptable   | 4      |
| Djäv/ulsk/lig  | Hellish      | 4      |
| Olidlig        | Unbearable   | 4      |
| Borrande       | Drilling     | 3      |
| Jäklig         | Awful        | 3      |
| Känningar      | Sensations   | 3 (1)  |
| Bedrövlig      | Awful        | 2      |
| Dov            | Dull         | 2      |
| Förfärlig      | Dreadful     | 2 (1)  |
| Förtvivlan     | Despair      | 2      |
| Gräslig        | Horrible     | 2      |
| Obetydlig      | Slight       | 2      |
| Otrevlig       | Unpleasant   | 2      |
| Ruskig         | Nasty        | 2      |
| Stramande      | Contracting  | 2      |
| Svaghet        | Weakness     | 2      |
| Överväldigande | Overwhelming | 2 (2)  |
| Överkomlig     | Moderate     | 2      |

<sup>a</sup>The word ‘smärta’ (pain) was not included as it was used by the researcher in order to probe verbal expressions of pain experience.

(awful) and ‘räd(d)(sla)’ (afraid/fear). During the interviews, three patients did not use any of the words listed in the SF-MPQ, POM or any of the words shown in Table 6. These three patients rated anticipated pain as moving on the VNRS between 4 and 5.

When the association between age, MMSE scores, pain intensity rated on the VNRS and the number of words used in the SF-MPQ and POM were estimated. The VNRS score of the patients correlated positively ( $r = 0.33$ ,  $p < 0.01$ ) with the number of words that are listed in the POM and mentioned by the patients in the interviews. The numbers of words in the SF-MPQ that were mentioned by the patients correlated negatively ( $r = -0.26$ ,  $p < 0.05$ ) with age. No correlations were obtained between MMSE scores and the number of words used in the SF-MPQ or POM.

The patients used a large number of words not included in the SF-MPQ and POM. The most commonly used words were ‘hemsk’ (awful) (n = 17), followed by ‘stel’ (stiff) (n = 10) (Table 6). The result also shows that several words were used both with and without negations (Tables 4 and 6).

### Discussion

In response to a direct question (question A) ‘Right now, are you in pain from your hip, or does it hurt or ache?’ 43% (n = 26) answered affirmative. However, a total of 80% (n = 47) rated ‘pain just now at rest’ on the VNRS. This disagreement between verbally expressed experience of pain and the ratings on pain scales has previous been observed in geriatric patients (31, 32), patients with cancer (5) as well as among surgical patients (39). The fact that those patients who verbally denied pain in response to question A and rated pain on the VNRS, rated it significant lower ( $p < 0.04$ ) than those who verbally reported pain and rated their pain as well, is in line with a previous study conducted among geriatric patients (31). The results also showed that 12% reported a sensation in response to question A, but rated experience of pain. Closs and Briggs (14) argued that there exists an overlap in the descriptions of pain and discomfort. Bergh et al. (31) suggested that when the patient’s pain were evaluated, this process could be improved by further discussion, which is supported by a

wide variety of expressions of pain, ache, hurt, discomfort and distress.

Several words in the POM and SF-MPQ were not mentioned by the patients. However, these scales are designed to match a wide variety of pain experiences (12, 25). It is worth noting that several patients used words not found in the POM or SF-MPQ. This fact may result in, as Deschamps et al. (15) pointed out, a vocabulary being imposed on the patient, which does not fully correspond with the pain experience. Among these patients the use of the additional words, 'stel' (stiff), 'hemska' (awful) and 'räd(d)sla' (afraid/fear) were especially marked. These are all words that in a Swedish context have been found associated with the concepts 'smärta' (pain), värk (ache) and ont (hurt) (26). Closs and Briggs (14) found, in a sample comprising mainly of patients with orthopaedic trauma and hip fractures, that 'stiff' was the most frequently used word in addition to those in the MPQ. The word 'hemska' in Swedish can be translated into the English words (terrible, dreadful, awful, frightful, appalling, horrible, etcetera). The words 'värkande' (Aching in the POM) and 'besvärlig' (Distressing in the SF-MPQ and Troublesome in the POM) were most commonly used by the patients and these words were included in the interview questions, which may have influenced the patient to use these words. However, several Swedish studies have shown that 'värk' (ache), which is used in the POM but not in the SF-MPQ, is one of the most frequently used words used to describe experience of pain (40, 41). In the Swedish version of the SF-MPQ, the word 'aching' is translated as 'molande', which is translated into 'grinding' in the POM. Studies conducted in an English-speaking population, using interviews, show that 'aching' is one of the words most frequently used to describe a pain experience (14, 42). The word 'besvärlig' (distressing) is frequently used in the Swedish language to describe experience of pain (26, 43). Interestingly, with one exception, 'krampaktig' (cramping), all the words that overlap in the SF-MPQ and POM were used by at least one patient. The results also show that the patients used significantly ( $p < 0.001$ ) more of the unique words from the POM compared to the SF-MPQ in the interview. This is not surprising, as the POM was developed in a Swedish context and the SF-MPQ in a Canadian context, and that a careful translation does not necessarily maintain the validity of an instrument (16). Chung et al. (44) concluded in their study that the pain assessment tools used should be relevant to the cultural context. It is important when assessing the elderly patient's experience of pain to use a terminology that is preferred by and familiar to the patient (45). It had been argued that the use of multidimensional pain scales forces the patients to use words that do not satisfactorily describe their pain experience (14, 15).

The lack of association between MMSE scores and numbers of words from the SF-MPQ and POM used by the patients in this study is in line with what Ferrell et al. (46) found when applying the MPQ among nursing home patients. However, the number of words not used is not a problem in the pain evaluation process, the problem is when the patient is forced to use words that do not satisfactorily describe his or her pain experience (14, 15). Several of the words in the SF-MPQ and the POM as well as the additional words were used in their negated form. The reason for this could be that the patient is unable to find an appropriate word to describe his or her experience of pain. The patient then uses a negation to tell the interviewer what the pain experience is not like. The results also show the difficulties involved in translating words which are used to describe pain experiences into another language (14, 15), which is apparent in this study from the words that are shared by the SF-MPQ and POM.

## Conclusions and clinical implications

The results show that a majority of the elderly patients who participated in this study verbally described pain and spontaneously used a majority of the words used in the SF-MPQ and POM. The patients also used a number of additional words not found in the SF-MPQ or POM. The results also show that among those patients who did not use any of the words in the SF-MPQ and POM, the use of the three additional words 'stel' (stiff), 'hemska' (awful) and 'räd(d)sla' (afraid/fear) was especially marked.

When the patient's pain is assessed in the clinical practice, a great deal of attention is focused on the intensity of the pain, for example, the VNRS was used more or less routinely in the wards included in this study. One way of achieving a more nuanced description of the patient's pain and making it easier for the patients to talk about their pain is access to a set of predefined words (e.g. SF-MPQ and POM) that describe pain from a more multidimensional perspective than just intensity. However, if the elderly patient is allowed, and finds it necessary, to use his/her own words to describe what pain is but also to describe what pain is not, by combining the words with a negation, then the risk of the patient being forced to choose a word or words that do not fully correspond to their pain can be reduced. If so, pain scales such as the SF-MPQ and POM can create a communicative bridge between the elderly patient and health care professionals in the pain evaluation process.

## Study limitations

The result of this study should be generalized with caution as the participants in this study represent a subgroup of patients (i.e. elderly patients who have undergone orthopaedic hip surgery). Other variables such as gender and

educational level may also influence the patients' verbal description of their pain experience. Other additional limitations in this study are the circumstances under which the interviews were held. Here, elderly patients were interviewed on the second day after a major surgical operation. It was also difficult to collect data without interruptions and interference by members of the staff or other patients as the interviews took place in the patient's room. These are all factors that may not only have influenced the patients' ability but also willingness to verbally describe their pain experience. However, these conditions reflect a situation common in clinical practice.

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### Author contribution

Ingrid Bergh was responsible for collection and preparation of the data and was the primary author. Magnus Gunnarsson and Jens Allwood were responsible for the linguistic analysis. Anders Odén was responsible for statistical analysis and supervision. Björn Sjöström and Bertil Steen acted as supervisors.

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### Ethical approval

The study was approved by the Ethics Committee of Göteborg University, Sweden.

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