



## Numeric rating scale: patients' perceptions of its use in postoperative pain assessments

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### ARTICLE INFO

#### Article history:

Received 13 June 2013

Revised 30 August 2013

Accepted 28 October 2013

#### Keywords:

Pain scale

Pain assessment

Postoperative pain

Patients' perceptions

### ABSTRACT

**Aim:** The purpose of this study was to describe how patients perceive the use of the numeric rating scale in postoperative pain assessments.

**Background:** There are recommendations to use a pain scale to follow patients' postoperative pain. Most patients prefer the NRS but there is a discrepancy between patients and healthcare professionals how to interpret the ratings from the pain assessments.

**Methods:** A descriptive design with a phenomenographic approach was used. Semi structured interviews were held with 25 patients.

**Results:** Three description categories emerged that illustrate patients' perceptions; use of the NRS facilitated communication of pain, it put demands on healthcare professionals and care routines and it contained interpretation difficulties.

**Conclusion:** The NRS has a place in pain management according to the patients but there is a need for a dialogue to give the patients the opportunity to describe their pain and set a common goal.

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Many patients who have gone through surgery experience moderate to severe postoperative pain (Niemi-Murola et al., 2007). The majority becomes passive recipients of analgesics which often leads to inadequate pain management (Manias, Botti, & Bucknall, 2006). Creating an atmosphere and relationship that provide trust and confidence is therefore essential to encourage patients to become active participants in pain management and assessment (Manias et al., 2006). Several studies emphasize that healthcare professionals should pay more attention to the patients' past experiences, their assumptions and knowledge regarding assessment (Eldh, Ekman, & Ehnfors, 2006; Rejeh & Vaismoradi, 2010). Patients expect to be treated as unique persons, for example treated individually and do not expect freedom from pain, but have their pain relieved (Rejeh & Vaismoradi, 2010). In order to treat pain effectively, healthcare professionals should rely on the patients' experiences during pain assessment, even if they do not seem consistent with their behaviour

or their own beliefs (Al-Shaer, Hill, & Anderson, 2011). If healthcare professionals show sympathy and understanding the patients find it easier to handle pain (Hansson, Fridlund, Brunt, Hansson, & Rask, 2011). It is therefore crucial for the relationship between patients and healthcare professionals that the latter believe the patients (Clarke & Iphofen, 2005; Idvall et al., 2008). Pain scales are one way to improve the communication between patients and healthcare professionals (Hansson et al., 2011).

A major barrier for effective communication at pain assessments is the attitudes of both patients and healthcare professionals. Examples of attitudes among patients are fear of addictions to analgesics together with fear of side effects. Lack of time, staff shortage, workload and prioritization of other duties are described as barriers among healthcare professionals (Bell & Duffy, 2009). Healthcare professionals find it hard to put their own beliefs aside and believe patients' assessments. Furthermore, a consequence of this could be that a patient who does not follow the normal pain pattern might be undertreated (Clarke & Iphofen, 2005). To detect patients' pain guidelines stress the importance of following up pain regularly with pain measurement instruments (Gordon et al., 2005; SFAI, 2011). Joelsson, Olsson, and Jakobsson (2010) found that patients spontaneously used a pain scale to describe the severity of their pain during interviews about pain experiences. The numeric

Interest of conflict: None.

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rating scale (NRS) is an 11-point scale where 0 is no pain and 10 the worst imaginable pain and is preferred by most patients (Hjermstad et al., 2011). There is, however, a discrepancy between patients and healthcare professionals regarding how the ratings from the pain assessment should be interpreted (van Dijk et al., 2012). Several studies have described and compared the use of different pain scales (Hjermstad et al., 2011), but no study has described how patients perceive the use of a pain scale in postoperative care. Knowledge of patients' different perceptions can facilitate healthcare professionals' possibilities to meet individual needs (Sjöström & Dahlgren, 2002). The purpose of this study was to describe how patients perceive the use of the numeric rating scale in postoperative pain assessments.

## 1. Methods

### 1.1. Design, setting and method description

With permission from the Regional Ethics Committee for Human Research at Linköping University Sweden, a study with a descriptive design and a phenomenographic approach was performed. The interviews were conducted between May and November 2012. Participants were recruited from one University hospital (600 beds) and three county hospitals (400, 350 and 300 beds) in the southeast part of Sweden in both urban and rural areas. According to national guidelines postoperatively pain assessment should be performed and recorded every 3–4 hours (SFAI, 2011) however in clinical practice there are variations of compliance. In Sweden all healthcare professionals around the patient use the NRS but are mainly used by nurses. Phenomenography was developed by Marton with the goal of searching for differences and variation in people's perceptions of a phenomenon (Marton, 1981). The approach describes "how things really are" (i.e., the first order perspective) and "how things are perceived" (i.e., the second order perspective). Phenomenography describes the latter perspective, how things are perceived by someone (Marton & Booth, 1997). The intention with the phenomenographic approach is to find a variation of perceptions that exist rather than the core of the phenomenon (Sjöström & Dahlgren, 2002).

### 1.2. Patients

Inclusion criteria were experience of postoperative care after general surgery or orthopedic surgery, age  $\geq 18$  years and an ability to understand Swedish. A purposeful sampling based on a consecutive selection founded on variations in age, gender, education and type of surgery was conducted (Table 1). The severity of the surgery varied from minor (e.g., ankle fracture and appendectomy) to major (e.g., fusion surgery of the spine and nephrectomy). The patients' previous experience of the healthcare system varied since some had no other diseases of significance or had undergone surgery only once while others had undergone several surgical procedures or had other diseases of importance (e.g., morbus crohn, diabetes mellitus or heart failure). All patients who were invited to the study accepted to participate; they had European background except one who was Asian. Exclusion criteria were patients with a cognitive impairment or in need of intensive care.

**Table 1**  
Socio-demographic and clinical characteristics of the patients ( $N = 25$ ).

Gender: male, female	12/13
Age years: median (range)	68 (20–86)
Age, years: 18–55, 56–75, 76–86	7/10/8
Highest education: primary school, Secondary school, University	11/10/4
Type of surgery: general, orthopedic	12/13

### 1.3. Data collection

Patients were invited to participate in the study by a nurse working at the department where the patients had undergone surgery. Postoperatively a letter was handed over with information about the study highlighting that participation was voluntary and also that all data were treated confidentially. If the patient accepted to take part the researcher made contact with him or her. An interview guide (Table 2) was designed by the research team that had both long experiences of postoperative pain and of the phenomenographic method. They were all well aware of their preunderstanding during data collection and analysis. The guide was based on the American Pain Societies recommendations for improving the quality of acute and cancer pain management (Gordon et al., 2005). Semi-structured interviews were audio-recorded and transcribed verbatim. The interviews lasted up to 45 minutes. The interviews took place in between postoperative day 1 and 5, in a separate room at the department where the patient was being treated. To make the patients familiar with the phenomenon studied, a broad opening question was asked about pain relief. Different questions about patients' perceptions of the pain scale were asked (Table 2). Thereafter perceptions were sought in relation to the five areas describing the use of the NRS. Probing questions (due to the patient's answers or the researchers' perspective) were asked such as: "What do you mean?" or "Can you describe this more in detail?" Two pilot interviews were conducted but did not result in any changes in the interview guide which is why they were included in the analyses.

### 1.4. Data analysis

The first researcher read and reread the data several times, discussed them with the second researcher thereafter the analysis was discussed together with the other members of the research team. All were reflective according to their preunderstanding during the analysis. In the next step different statements were concentrated and related statements were grouped. The assembled groups were compared to ensure that they were separated from each other and the perceptions were given appropriate names and finally the descriptive categories were distinctly characterized. The analysis followed the steps described by Sjöström and Dahlgren (2002) (Table 3).

## 2. Findings

An overview of the findings and quotations in relation to all perceptions are presented in Table 4.

### 2.1. Use of the NRS facilitated communication of pain

The patients described perceptions regarding the ability to communicate pain between patients and healthcare professionals but also between healthcare professionals.

#### 2.1.1. NRS facilitated the descriptions of pain

The patients perceived it as easy to describe pain with a number on the NRS. Describing pain merely with words was

**Table 2**  
The interview guide used in data collection with patients in postoperative care ( $N = 25$ ).

What does pain relief mean to you?
How do you perceive rating pain with the NRS?
How do you perceive rating pain with the NRS in relation to choice of treatment?
How do you perceive rating pain on the NRS several times a day?
How do you perceive the healthcare professionals' role in pain assessment?

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