Observational study

The association between pain characteristics, pain catastrophizing and health care use – Baseline results from the SWEPAIN cohort

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HIGHLIGHTS

• Pain intensity and pain catastrophizing influence the decision to consult healthcare.
• The importance of pain catastrophizing believes differ with pain duration.
• Rehabilitation strategies must incorporate this to meet the individual’s needs.

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ABSTRACT

Background and aim: Pain is common and adds to the global burden of disease. However, individuals suffering from pain are a heterogeneous group in terms of pain spreading, intensity and duration. While pain influences overall health care consultation not everyone with pain consult health care. To be able to provide health care matching the patients’ needs increased knowledge about what factors determines the decision to consult health care is essential. The aim of this study was to explore the combined importance of pain spreading, intensity, duration and pain catastrophizing for consulting health care.

Methods: In this cross-sectional study we used population based survey data from southeast Sweden (SWEPAIN) including 7792 individuals aged 16–85 reporting pain. We used Modified Poisson regressions to analyse factors of importance related to the decision to consult health care.

Results: High and moderate pain intensity, as compared to low, increases the probability of consulting health care ([High PR = 1.7 [95% CI 1.51–1.88], moderate PR = 1.2 [1.15–1.41]]. Having widespread pain, as compared to localised pain, increased the probability of consulting health care (PR = 1.2 [1.03–1.36]). Pain duration was not associated with increased probability of consulting health care (PR = 1.0 CI0.88–1.07). However an interaction (p < 0.05) between pain duration and pain catastrophizing beliefs was seen indicating a combined importance of the two when consulting health care.

Conclusion: Our result suggests that pain intensity, pain spreading and pain catastrophizing independently influence the decision to consult health care while there is an interaction effect between pain duration and pain catastrophizing beliefs where the importance of pain catastrophizing believes differ with pain duration; the importance of pain catastrophizing believes differ with pain duration.

Implications: Treatment and rehabilitation strategies should incorporate this finding in order to meet the individual’s needs focusing on the biopsychosocial model within health care focusing not only on actual pain relief but also on for example acceptance and behavioural changes.

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1. Introduction

Pain is a common condition that adds to the global burden of disease [1]. However since individuals suffering from pain are
Pain is a subjective phenomenon embracing not only structural and biochemical changes or damage but more so a complex mix of sensory, emotional and cognitive variability. Therefore psychological factors such as cognitive reassurance, personality, behavioural adaptation, and social support are important determinants for pain trajectories [14–16]. As such, pain catastrophizing particularly is one of the most important factors and determinant for pain behaviour and believes. The concept originates from catastrophizing in the context of mental ill health i.e., depressive and anxiety disorders, in which the individual use a mal-adaptive cognitive style to cope [17–19]. To have a pain catastrophizing strategy imply a mental set during pain, both present and anticipated pain [19] which magnifies the severity and impact of the pain [20] and eventually influencing the decision to consult health care [19,21,22].

Health care options for patients with pain is increasingly based on the biopsychosocial model embracing biological (medical), psychological, social and contextual factors. Still, only few effective treatment options for individuals with different types of long-lasting pain are available and fully implemented [23–25]. For proper management, it is crucial to identify the combined importance of pain characteristics and psychological factors such as pain catastrophizing on the decision to consult health care. Given this complexity in decision making it is important to further increase knowledge on why and which individuals with pain that consult health care. Such information is both important when designing the assignment strategies and for the content of the treatment and rehabilitation interventions offered to the patients.

A majority of the studies focusing on identifying factors, pain related and others, that explain why an individual with pain consult health care have not hitherto fully reported pain characteristics such as pain spreading on the body, intensity and duration of pain in depths in relation to pain catastrophizing [5,7–13].

Therefore the aim of this study was to explore the combined importance of pain spreading, intensity, duration, and pain catastrophizing for consulting health care.

We explicitly tested the following three hypotheses:

- that pain spreading, high pain intensity, and long pain duration increases the likelihood of consulting health care
- that having high pain catastrophizing increases the likelihood of consulting health care
- that pain spreading, pain intensity, and pain duration affect the likelihood of consulting health care differently depending on level of pain catastrophizing.

2. Materials and methods

2.1. Data collection SWEPAIN

In this cross sectional study we used data from the SWEPAIN cohort. The SWEPAIN study and cohort has previously been described in detailed elsewhere, and the overall aim of the SWEPAIN study was to identify factors associated with transition from local to spread pain [28]. The individuals in the SWEPAIN cohort were selected from a sampling frame based on the total population of the three included regions. The total sample frame consisted of 404,661 (2012) and 410,001 (2013) individuals, 16–85 years old living in south-eastern Sweden. The samples in 2012 and 2013 were both stratified according to municipality and sex to reach individuals living in urban and rural areas and to balance the gender distribution. The 2012 sample was additionally stratified on sick leave status (Yes/no in 2009).

Important for this specific study was that the data was collected by two different baseline surveys on pain and pain symptoms that were sent out in 2012 (February 27–June 15) and in 2013 (October 2–December 10). The questionnaires used within the two surveys were identical on the items reported in this paper, and were only administered at two different time point due to administrative reasons. The postal included different questions on pain, physical and psychological overall health and comorbidities and also sociodemographic factors, and health care utilizations. The 2012 survey was further split into two questionnaires (for more detail see under study sample) sent out on two different occasions with a 9 week period between. The first questionnaire (17 questions) was returned either by post or electronically while the second questionnaire was administrated in paper format only. This second questionnaire was sent only to those reporting pain (Question: Have you suffered from any pain during the last 7 days?) in the first questionnaire. In the second questionnaire the participants where again asked if they Have you suffered from any pain during the last 7 days. Thereafter they were asked if they usually suffered from pain. Finally they were also asked to mark pain sites on a body manikin.

In the 2013 survey, all questions was included in the same one questionnaire and a reminder was sent to non-responders after two weeks and, if necessary, after another two weeks, see under study sample for detailed information. In total, the questionnaire in 2012 was sent to 8982 individuals and the questionnaire in 2013 to 33,915 individuals. A total of 20,470 responded (48% overall response rate).

2.2. Study sample

The study sample was selected through different steps, described below, and the inclusion is further explained in Fig. 1. In the final sample we included responders that in the final step fulfilled the following three inclusion criteria:

- usually suffered from pain (Question: Do you usually suffer from pain?)
- had experienced pain the last 7 days (Question: Have you suffered from any pain during the last 7 days?) and
- marked pain sites on a body manikin.

Descriptive data from the 2012 survey including comparative analysis of patients with local pain, regional pain and widespread pain in relation to the proportion consulting and not consulting health care the previous 12 month period have been reported previously [26].

2.3. Outcome

The outcome health care use, was assessed through the question ‘Have you consulted health care or complementary or alternative medicine in relation to your pain during the last 3 months?’ (No/Yes health care e.g. physician, physiotherapist, psychologist/Yes complementary care e.g., acupuncture, homeopathy, zone therapy, herbal medicine or any equivalent type of consultations). Individuals reporting ‘Yes health care e.g. physician, physiotherapist, psychologist’ was coded as the group consulting health care and used in the analyses of the present study while individuals only consulting complementary medicine was defined as not consulting health care.

2.4. Independent variables

Pain spreading was defined based on the responder’s markings of pain on a standardized anatomical model of a human, a body manikin. The body manikin was divided into 22 sections on the front and 22 sections on the back. From the responses on the manikin three different pain spreading groups were constructed:
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