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Characteristics and consequences of the co-occurrence between social anxiety and pain-related fear in chronic pain patients receiving multimodal pain rehabilitation treatment

Matilda Wurm*, Sara Edlund, Maria Tillfors, Katja Boersma

Center for Health and Medical Psychology (CHAMP), School of Law, Psychology and Social Work (JPS), Örebro University, Sweden

HIGHLIGHTS

- There is a subgroup with comorbid social anxiety in the studied pain population.
- Central factors stated by the shared vulnerability model are found in this group.
- This group has higher symptomatology compared to other subgroups.
- This group has unchanged clinically high levels of symptoms posttreatment.

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ABSTRACT

Background and aims: Chronic pain problems are related to specific pain related fears and maladaptive pain-coping but also commonly co-occur with other anxiety problems. Shared emotional vulnerability factors may explain this comorbidity and may influence treatment outcome. Indeed, pain patients going through multimodal pain treatment are a heterogeneous group and treatment results vary. One understudied anxiety disorder co-occurring with pain is social anxiety. This may be relevant as many pain-related challenges are situated in social contexts. The aim of this study is to investigate the occurrence of subgroups with differential patterns of social anxiety and pain related fear in a sample of chronic pain patients who receive multimodal pain treatment. The aim is also to study the characteristics of these potential subgroups and the consequences of different patterns of social anxiety and pain related fear.
Methods: 180 patients with chronic musculoskeletal pain answered questionnaires before and after a multimodal pain treatment in a hospital rehabilitation setting in middle Sweden. A cluster analysis using pre-treatment scores on the Social Phobia Screening Questionnaire and the Tampa Scale of Kinesiophobia was performed. Subgroups were thereafter validated and compared on impairment due to social anxiety, pain catastrophizing, anxiety, and depression. Moreover, subgroups were described and compared on vulnerability factors (anxiety sensitivity, negative affect) and outcome factors (pain intensity, pain interference, and return to work self-efficacy).
Results: Four distinct clusters emerged: (1) low scores, (2) pain-related fear only, (3) social concern only, and (4) high social anxiety and pain-related fear. Patients high on social anxiety and pain-related fear had significantly higher levels of anxiety sensitivity, negative affect, and higher general emotional symptomatology. They also had remaining problems posttreatment.
Conclusions: A subgroup of patients with clinical levels of social anxiety has suboptimal rehabilitation results, with residual emotional problems and high levels of emotional vulnerability.
Implications: These patients may be in need of additional treatment efforts that are not being met today. To prevent insufficient treatment results and prolonged work disability, these patients need to be detected during screening and may benefit from pain treatment that takes their emotional problems into account.

* Corresponding author at: JPS, Fakultetsgatan 1, 70182 Örebro, Sweden. Tel.: +46 019 303508.
E-mail address: matilda.wurm@oru.se (M. Wurm).

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1. Introduction

Problems with adaptation to chronic pain have been linked to psychological factors such as pain-related fear, avoidance behaviours, and other maladaptive pain-coping strategies [1]. Besides fears specific to pain and its consequences, other psychological problems such as anxiety disorders are overrepresented in chronic pain patients [2–4]. An important question is how to understand this comorbidity.

The 'shared vulnerability model' proposes that underlying factors such as vulnerabilities (e.g. negative affect, anxiety sensitivity), triggers (e.g. traumatic life events), and cognitive behavioural factors (e.g. hypervigilance, catastrophizing, avoidance) may explain this comorbidity [5]. However, evidence supporting this model is mainly based on pain populations with comorbid posttraumatic stress. Studies are needed that investigate the propositions of this model in pain populations with other comorbid anxiety problems.

One potentially important disorder to investigate is social anxiety disorder as the prevalence in chronic pain populations is increased and disorder specific problems may be amplified. The prevalence of social anxiety in pain populations is 11–36% compared to 0.5–15% in the general population [6,7]. Pain patients may feel shame about not being able to function on the same level as before pain onset [8,9]. This may lead to or exacerbate problems central to social anxiety, such as the fear of being judged, self-criticism or avoidance of social situations [10–14]. Also, existing social anxiety may make it harder to deal with chronic pain. For example, socially anxious pain patients may find it challenging to express their needs, especially when talking to authority figures like doctors or bosses [15,16]. This increased prevalence and the symptom overlap could partly be explained by shared underlying factors. To the best of our knowledge, no study has evaluated the association between social anxiety and chronic pain problems in relation to underlying vulnerability factors and interpersonal consequences.

Two important underlying factors that may explain comorbidity are trait negative affect and anxiety sensitivity. Patients high on these factors may be vulnerable to experiencing stressors more intensely. They may also have more problems regulating emotions triggered by pain and social situations. Indeed, anxiety sensitivity and negative affect have been shown to be elevated in chronic pain as well as comorbid anxiety and pain [5,17,18]. These factors may have treatment implications and are therefore important to study in relation to the comorbidity between chronic pain and social anxiety.

In general, multimodal pain rehabilitation treatments have been shown to be moderately effective in improving outcome when compared to other treatments [19], but group results may hide improvements of varying significance. Several studies have highlighted the existence of subgroups of pain patients with different psychological characteristics and varying progress during treatment [20–24]. It is therefore important to map variations in treatment progress while taking into consideration the existence of subgroups, and to do so on the basis of a theoretical model. This has, to our knowledge, not been done concerning social anxiety. We aim to study the occurrence of subgroups with different patterns of pain related fear (used as a proxy for maladaptive pain-coping) and social anxiety in a sample of chronic pain patients who receive multimodal pain treatment. We use the shared vulnerability model [5] as a theoretical framework and focus on studying variations in anxiety sensitivity and negative affect, as well as treatment outcome.

2. Methods

2.1. Design

This study uses a prospective design with two measurement points, pre and posttreatment in a sample of chronic musculoskeletal pain patients receiving multimodal rehabilitation.

2.2. Procedure

This study used data from a longitudinal project studying the comorbidity between pain and social anxiety in chronic pain patients receiving care at a university hospital based pain rehabilitation clinic in middle Sweden (the Social Anxiety and Pain project, SAP). Data collection was conducted from 2011 to 2014 and new patients were consecutively asked to participate. Participation was voluntary, making the sample self-selected. Participation consisted of answering a battery of self-report measures at four time points during the rehabilitation process: at first visit to the rehabilitation physician (A), before treatment (B), after treatment completion (C), and at 1 year follow up (D). The data collected specifically for this project was supplemented with data collected as part of regular clinical routine [the Swedish Quality Registry for Pain Rehabilitation, SQRP, 25]. During this time period, the clinic had 955 new patients visiting of which approximately 535 went on to receive rehabilitation treatment and 385 chose to answer self-report measures at one or more of the four time points. This study used measures from two time points B and, which 180 patients chose to answer.

Participants provided written informed consent. Data collection was handled by trained health-care providers at the clinic while independent researchers analyzed the data. The Regional Ethical Board reviewed and approved the study.

2.3. Participants

Participants ($N = 180$; 82% female; 90% born in Sweden; 36% with a university education, 49% with an upper secondary school education, 13% with only compulsory school education) were included for analyses given that they had complete data on the variables used for the cluster analysis pretreatment and had filled out posttreatment measurements. All patients suffered from chronic musculoskeletal pain with chronicity defined as lasting longer than 3 months. The average duration of pain-problems was 13.2 years since first pain episode (range: 2–46, sd: 9.3). Most (77%) had generalized pain, defined as pain in more than six areas (divided up in left and right side of the body). More specified areas of pain varied, so that the second most common area of pain (head–neck) was shared by only 3 participants (1.67%). Age ranged from 21 to 70 ($M_{age} = 45.58$; sd = 10.81). Of the patients indicating employment status before treatment, 42% reported that they did not work. The level of education in this sample is fairly representative for the Swedish population (45% upper secondary school, 34% university degree) [26]. To analyze our sample's representativeness we have compared it to a larger study ($N = 4069$) using data from the Swedish Quality Registry for Pain rehabilitation collected between 2005 and 2008 at a different, but comparable, Swedish pain rehabilitation clinic offering multimodal secondary pain rehabilitation to chronic pain patients [27]. Concerning areas of pain, these patients report pain in, on average, 14 areas (sd = 8), which indicates that generalized pain is also common in this sample. No differences were found concerning age between our sample and this sample ($M = 46$, sd = 14, $t(4452) = .57$, $p = .57$), but a χ^2-analysis shows that our sample contained significantly more women (82% compared