Pain experience in Fibromyalgia Syndrome: The role of alexithymia and psychological distress

Marialaura Di Tella[a], Ada Ghiggia[a,*], Valentina Tesio[a], Annunziata Romeo[a], Fabrizio Colonna[c], Enrico Fusaro[c], Riccardo Torta[b,c], Lorys Castelli[a]

[a] Department of Psychology, University of Turin, Turin, Italy
[b] Department of Neuroscience, University of Turin, Turin, Italy
[c] A.O.U. Città della Salute e della Scienza Hospital of Turin, Turin, Italy

ARTICLE INFO

ABSTRACT

Background: Fibromyalgia (FM) is a chronic pain syndrome with a high prevalence of alexithymia, a personality disposition that affects emotional self-awareness. The present study aimed to investigate the relationship between alexithymia and pain, differentiating between the sensory and affective components of pain experience, in a sample of FM patients.

Methods: One hundred and fifty-nine FM patients completed a battery of tests assessing pain experience, pain intensity, alexithymia and psychological distress. In order to characterize the clinical profile of alexithymic FM patients, alexithymic and non-alexithymic groups were compared on the different measures. Two regression analyses were performed on the total sample, in order to investigate the relationship between alexithymia and pain, controlling for psychological distress.

Results: Alexithymic FM patients presented higher scores on all the clinical measures compared to non-alexithymic ones. Positive correlations were found between alexithymia and the affective, but not the sensory, dimension of pain experience variables. Regression analyses showed that alexithymia (difficulty identifying feelings factor) ceased to uniquely predict affective pain, after controlling for psychological distress, particularly anxiety. In addition, none of the alexithymia variables significantly explained pain intensity variance. Finally, a significant effect of anxiety in mediating the relationship between alexithymia and affective pain was found.

Limitations: No longitudinal data were included.

Conclusions: These findings show the presence of higher levels of pain and psychological distress in alexithymic vs. non-alexithymic FM patients, and a relevant association between alexithymia and the affective dimension of pain experience. Specifically, this relationship appears to be significantly mediated by anxiety.

1. Introduction

Fibromyalgia (FM) is a syndrome primarily characterized by chronic, widespread musculoskeletal pain (Mease et al., 2005; Mease et al., 2009). Its prevalence is estimated to be 3–6% of the world population (WHO, 2008) and it occurs predominantly in women (Anderberg et al., 2000; Branco et al., 2010). The etiology of this syndrome is not completely understood, but growing evidence suggests that FM could be considered a *central sensitization syndrome*, caused by increased sensitivity of the central nervous system to pain signals (Williams and Gracely, 2006).

Although pain represents the core feature of FM, the symptomatology often includes a heterogeneous series of other conditions, such as physical and mental fatigue, disrupted or non-restorative sleep, headache, irritable bowel, psychiatric disorders, cognitive impairment, and other functional complaints (Abeles et al., 2007; Mease et al., 2005; Schmidt-Wilcke and Clauw, 2011).

Among the psychological factors, a high prevalence of depression (20–80%) and anxiety disorders (13–64%) has been widely reported (Fietta et al., 2007; Montoya et al., 2005). Only recently have researchers started to focus their attention also on alexithymia, a personality trait, largely observed in "psychosomatic" disorders

(Taylor, 2000). Alexithymia is characterized by difficulty in identifying and describing subjective feelings, difficulty in distinguishing between feelings and bodily sensations of emotional arousal, restricted imagination processes, and a stimulus-bound, externally oriented cognitive style (Sifneos, 1972; Taylor et al., 1997). Most of the studies have reported high levels of alexithymia in FM patients, suggesting the presence of a deficit in emotional self-awareness (Castelli et al., 2012; Di Tella et al., 2015; Sayar et al., 2004; Steinweg et al., 2011).

The inability to adequately identify one's own feelings could interfere with the successful regulation of emotions, resulting in increased negative affects and chronic sympathetic hyperarousal (Lumley et al., 1996). Moreover, the failure to correctly recognize physical sensations as the bodily expressions of emotions could lead alexithymic individuals to misinterpret their emotional arousal as signs of disease, further worsening the whole symptomatology (Lumley et al., 1996; Tuzer et al., 2011).

Previous studies have, in fact, shown a strong positive association between alexithymia scores and scores for negative affectivity, especially anxiety and depression (Honkalampi et al., 2001; Luminet et al., 2001; Malt et al., 2002), suggesting a possible role of alexithymia in intensifying psychological distress.

Alexithymia has also been found to be positively associated with pain intensity and pain-related functioning in different chronic pain conditions (Glaros and Lumley, 2005; Lumley et al., 2002). However, the results are still controversial and in some cases non-significant associations (Cox et al., 1994; Friedberg and Quick, 2007; Millard and Kinsler, 1992) or mixed results have been yielded (Celikel and Saatcioglu, 2006; Lumley et al., 2005). This pattern of outcomes has also been shown in FM syndrome; no correlation or positive association was found between alexithymia and different pain measures (Huber et al., 2009; Malt et al., 2002; Martínez et al., 2015; Sayar et al., 2004).

One possible explanation for these unclear results is the multi-dimensional characterization of pain. Pain, indeed, is not a unique entity, but includes at least two components, one sensory and the other affective (Lumley et al., 2002; Melzack and Katz, 1999). The sensory dimension refers more to the intensity of pain perception, while the affective one can be considered the unpleasant feelings experienced as a consequence of chronic pain. Discriminating between these two components is important because they are influenced by different mechanisms and based on specialized brain systems (Melzack and Casey, 1968; Melzack and Wall, 1988). The sensory-discriminative dimension of pain is influenced primarily by the rapidly conducting spinal systems (the neospinothalamic tract, the spinocervical tract, and the post-synaptic neurons in the dorsal column system), while the motivational-affective dimension of pain appears to be regulated by the brainstem reticular formation and the limbic system, which receive projections from the somatosentory pathway.

The studies which have taken this distinction into account showed that alexithymia might be related mostly to the affective, rather than the sensory, dimension of pain and that this association could be mediated by psychological distress, especially depression (Honkalampi et al., 2001; Huber et al., 2009; Lumley et al., 2002; Malt et al., 2002).

Given this uncertain evidence, the present study aimed at throwing light on the relationship between alexithymia and pain in a large sample of FM patients, differentiating between the sensory and affective dimensions of pain experience on the basis of Melzack and Casey's model (1968).

To achieve this aim, the following specific goals were addressed:

1. To characterize, for the first time, the clinical profile of alexithymic FM patients by comparing them to non-alexithymic ones on pain (pain experience and pain intensity) and psychological distress (anxiety, depression and emotional distress).
2. To investigate, by means of multiple hierarchical regression analyses, the relationship between alexithymia and pain, controlling for

psychological distress (anxiety, depression and emotional distress).

2. Methods

2.1. Participants and procedure

One hundred and fifty-nine female participants with FM (52.5 ± 10.2 years of age) were consecutively recruited from the Fibromyalgia Integrated Outpatient Unit (FIOU), a multidisciplinary unit based on the collaboration between rheumatologists, psychologists and psychiatrists at the San Giovanni Battista University Hospital of Turin. All patients had a main diagnosis of fibromyalgia, made by an expert rheumatologist in the field. The exclusion criteria were: under 18 years old, low educational level (< 5 years) or insufficient knowledge of the Italian language, and the presence or history of a neurological or severe psychiatric disorder.

The usual clinical procedure for FM patients included a first visit to the rheumatologist who made/confirmed the diagnosis of FM, and a second visit to a psychologist and a psychiatrist together with the rheumatologist to formalize the patient's care by the FIOU. At a separate session, participants filled out psychological questionnaires, after a clinical interview.

The study was approved by the "*Città della Salute e della Scienza*", Hospital of Turin ethics committee and was conducted in accordance with the Declaration of Helsinki. All the participants gave their written informed consent to participate in the study.

2.2. Measures

2.2.1. Pain evaluation

The *Questionario Italiano sul Dolore* (QUID) (De Benedittis et al., 1988), the Italian adaptation of the McGill Pain Questionnaire (Melzack and Katz, 1992, 1999), is a self-report measure used to assess an individual's pain experience. Patients chose the adjectives from 16 subclasses to describe their pain during the previous month. The adjectives from the categories are reported as follows: sensory (periodic, pulsing, pounding, penetrating, burning, smarting, tender); affective (exhausting, nauseating, suffocating, distressing, hurting); evaluative (annoying, worrying, tormenting, nagging, troublesome); mixed (sensory-evaluative; sensory-affective; evaluative).

For the purposes of the present study, only the scores on the sensory (QUID-S) and the affective (QUID-A) dimensions were reported, expressed as a portion of the maximum possible score in each subscale (which ranges from 0 to 1). Several studies have shown the stability and high internal consistency of the QUID, as well as the concurrent, predictive and construct validity of its component (De Benedittis et al., 1988).

In addition, as an index of pain intensity, the item "Pain" of the Italian version of the Fibromyalgia Impact Questionnaire (FIQ) (Bennett, 2005; Sarzi-Puttini et al., 2003) was used to assess the average intensity of pain in the previous week on a scale ranging between 0 and 10. The questionnaire evaluates the severity of disability due to FM and it includes 20 items. The overall score range from 0 to 100, with the highest score corresponding to the highest level of impairment.

2.3. Alexithymia

Alexithymia was assessed using the Italian version of the Toronto Alexithymia Scale (TAS-20) (Bressi et al., 1996; Taylor et al., 2003). The subjects were asked to indicate the extent to which they agreed or disagreed with each statement on a five-point Likert scale. The results provide a TAS-20 total score, and three subscale scores that measure different aspects of alexithymia: difficulty identifying feelings (DIF), which measures the inability to distinguish specific emotions or between emotions and the bodily sensations of emotional arousal;