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Alexithymia and depression in patients with Fibromyalgia:

When the whole is greater than the sum of its parts.

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Abstract

This study investigated the link between alexithymia and depressive symptoms in Fibromyalgia (FM). 181 FM women and 181 healthy controls (HC) were compared using the Hospital Anxiety and Depression Scale and the Toronto Alexithymia Scale. A moderation analysis was performed to examine the moderation effect of the group (FM vs. HC) on the relationship between alexithymia and depression. Group was a significant moderator, highlighting a stronger relationship between alexithymia and depressive symptoms in the FM compared to HC. The study highlighted that the association between alexithymia and depression is different when we consider FM patients rather than the healthy population.

Keywords: Fibromyalgia; Alexithymia; Depression.

1. Introduction

Fibromyalgia (FM) is a syndrome characterized by chronic widespread musculoskeletal pain (Clauw, 2009). The estimated prevalence ranges between 3% and 5%, with women more affected than men. FM is defined as a “central sensitization syndrome” caused by an increased sensitivity in the central nervous system to pain signals (Jones et al., 2015).

Its development and maintenance may be due to a complexity of factors ranging from genetic to psychological (Clauw, 2015). FM is often associated with other symptoms: fatigue, disrupted or non-restorative sleep, cognitive disorders, alexithymia, depressive/anxiety disorders (Walitt et al., 2015).

Alexithymia (“no words for feelings”) is a complex personality construct characterized by an inability to identify and describe one’s own feelings, a lack of imagination and an externally-oriented style of thinking. The prevalence of alexithymia in FM ranges between 15% and 44% vs. 6-8% in the general population (Di Tella and Castelli, 2013). Indeed, this construct seems to be a relevant factor in somatoform disorder and chronic pain patients (Lumley et al., 2007). Specifically, it has been hypothesized that alexithymia could lead patients to amplify their bodily sensations, especially those associated with emotional arousal and to misinterpret these as symptoms of a medical illness (Steinweg et al., 2011).

Alexithymia was found to co-occur with depressive symptoms in many clinical populations, as well as in FM patients (Penacoba et al., 2013). Although some studies have investigated the relationship between alexithymia and depression, the link between these two important clinical issues in FM patients is still controversial (Lumley et al., 2007; Martinez et al., 2015). On these bases, we used a hierarchical regression to investigate the relationship between alexithymia and depressive symptoms in FM patients through a cross-sectional case-control study.

2. Methods

All patients were consecutively recruited at the Fibromyalgia Integrated Outpatient Unit and the Institutional Review Board approval was obtained. 181 patients with a diagnosis of FM, made by an expert rheumatologist, according to the criteria of the American College of Rheumatology, gave their informed consent to the study.

The exclusion criteria were: (1) under 18 years old, (2) low educational level (under 5 years), (3) a history of neurological disorders and (4) severe psychiatric disorders (according to an expert psychiatrist examination).

A Healthy Controls (HC) group of 181 women with no history of chronic pain, matched by age and years of education and meeting the same exclusion criteria, was also recruited.

Psychological distress was assessed by the Italian version of the Hospital Anxiety and Depression Scale (HADS), a self-report questionnaire specifically developed to exclude the effect of somatic symptoms possibly due to a medical condition. We analysed only the Depression subscale (HADS-D), whose score ranges from 0 (absence of depression) to 21 (severe depression), using a validated cut-off of 8 (Bjelland et al., 2002).

Alexithymia was measured using the 20-Item Toronto Alexithymia Scale (TAS-20), which include 3 factors: difficulties in identifying subjective feelings (DIF), difficulties describing one's emotions to other people (DDF) and externally-oriented thinking (EOT). A higher score indicates a greater level of alexithymia.

2.1 Statistical analyses

The internal reliability and consistency of the scales were measured using Cronbach's alpha coefficient. For comparisons between the two groups, Student's *t*-tests were run. Cohen's *d* was calculated to assess effect sizes.

A hierarchical multiple regression analysis assessed the moderation effect of group on the association between alexithymia and depressive symptoms. In order to avoid reductions in

statistical power, only confounding variables that significantly correlated (Pearson correlation) with the dependent variable were included in the regression models.

3. Results

The two groups were matched for age (FM vs. HC, mean \pm SD: 51.7 ± 10.2 vs. 51.1 ± 10.5 , $t(360) = -0.55$, $p = \text{NS}$) and for years of education (11.0 ± 3.3 vs. 11.8 ± 3.8 , $t(355) = 1.94$, $p = \text{NS}$).

Cronbach's alpha (α) was used to evaluate the reliability of the two questionnaires: a good value ($\alpha > .80$) was found for the HADS-D in the FM group ($\alpha = 0.82$) and a slightly lower coefficient ($\alpha = 0.74$) for the HC sample. As far as the TAS-20 was concerned, in both the FM patients and the HC, Cronbach's alpha was good for the total score ($\alpha = 0.81$; $\alpha = 0.82$ respectively) and for the DIF factor ($\alpha = 0.81$; $\alpha = 0.82$). On the contrary, poor internal reliability values were found for the DDF in both the FM ($\alpha = 0.69$) and HC ($\alpha = 0.59$) and for the EOT factor ($\alpha = 0.57$) in HC. An unacceptable value for the EOT factor ($\alpha = 0.49$) was found in the FM group.

More than half the patients (61.9%) showed clinically relevant levels of depressive symptoms (HADS-D), compared to the 33% of the HC group. What is more, FM patients reported statistically significant higher mean scores \pm SD vs. HC: 9.3 ± 4.3 vs. 6.0 ± 3.5 , $t(346.2) = -7.98$, $p < 0.001$, with a large effect size ($d = .842$).

As far as alexithymia was concerned (TAS-20), the FM patients reported significantly higher scores compared to the HC on the total score (FM vs. HC, mean \pm SD: 52.2 ± 13.2 vs. 47.2 ± 13.3 , $t(350) = -3.53$, $p < 0.001$) and on the DIF score (FM vs. HC, mean \pm SD: 20.8 ± 7.3 vs. 15.6 ± 6.8 , $t(357) = -6.97$, $p < 0.001$). No statistically significant differences were found between RA and FM groups on the DDF and EOT scores.

The HADS-D was negatively correlated with years of education ($r = -0.133$; $p = 0.012$), while no correlation was found with age, considering the whole sample. The TAS total score was

significantly correlated with depressive symptoms, both in FM ($r = 0.492$; $p < 0.001$) and in HC group ($r = 0.305$; $p < 0.001$).

A hierarchical multiple regression analysis was performed to examine whether integrating the interaction term (TAS-20_Centred \times Group) to the regression model accounted for a significant higher variance in depressive symptoms (Table 1).

Table 1 about here

Although education seems to make a significant contribution (Step 1), explaining 3% of the variance, this effect was not maintained in Step 2 when also alexithymia and group were included. Indeed, both alexithymia and group showed a significant effect in Step 2. With the addition of the moderator variable (interaction term TAS-20_Centred \times Group), both alexithymia and group maintained their significance, and the moderator explained an additional and statistically significant 1.7% of the total variance. The slope grows faster in the FM patients, which means that the level of alexithymia has a greater and statistically significant impact on depressive symptoms in the FM compared to the HC. Overall, the model explained 35.2% of the variance.

4. Discussion

As previous studies have already investigated, alexithymia might be a potential predictor for the development and maintenance of depressive symptoms (Tolmunen et al., 2011). Also, alexithymia can hamper emotion regulation, which may increase the occurrence of psychological distress.

While some studies aimed to clarify the role of psychological factors on pain through regression analyses (Shibata et al., 2014), to our knowledge no studies have investigated the kind of relationship that connects alexithymia and depressive symptoms in FM.

On these bases, our study aimed to quantify the effect of alexithymia on depressive symptoms in a sample of FM patients.

The nature of the association between alexithymia and depressive symptoms is still controversial, since it basically depends on how alexithymia is considered and, especially, measured. Some studies have interpreted it as a reaction to trauma or medical disease (Honkalampi et al., 2000), in contrast to an opposite perspective where it is considered a stable trait of personality (Penacoba et al., 2013). Studies refer to these two kinds of interpretations as secondary and primary alexithymia, respectively.

Going further than previous studies, we ran a hierarchical regression to investigate whether the link between alexithymia and depressive symptoms could be stronger in FM patients than in HC.

As expected, we found a significantly higher presence of both depressive symptoms and alexithymia in FM patients with respect to the control group, confirming previous findings, but with a larger sample size (Huber et al., 2009; Pedrosa et al., 2008; Fietta and Manganelli, 2007). The results highlight not only a higher prevalence of alexithymia and depressive symptoms in FM, but that this link, already present in healthy controls, tends to become stronger in FM.

We confirmed that these two clinical aspects appear to be linked to each other, but this association is very different when we consider FM patients rather than the healthy population. Further longitudinal studies, including different population (e.g. inpatients, other chronic pain or psychiatric conditions) are needed to clarify and confirm the nature and the causal direction of this link. What is more, given that only females were included, results cannot be generalized to males. Also, future studies should use other instruments, such as the Toronto Structured Interview for Alexithymia, which are less likely to be biased by negative affects (anxiety, depression and pain).

In conclusion, the stronger link between alexithymia and depressive symptoms found in FM could depend on different mechanisms not mutually exclusive. On one side alexithymia can exacerbate depressive and pain symptoms through the misinterpretation of the bodily sensations. On the other side, pain and depressive symptoms themselves could lead to a reduction of the ability to mentalize emotions, and thus to a secondary alexithymia. In both cases, a psychotherapeutic treatment focusing on alexithymia should be considered a key clinical aspect in the treatment of FM. This could lead FM patients to break this vicious circle, not only reducing the presence of depressive symptoms, but also decreasing pain sensations by improving their ability to better distinguish emotional states from bodily sensations.

Conflicts of interest

The authors have no conflicts of interest to disclose.

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Table 1.

Hierarchical multiple regression with depressive symptoms as dependent variable and alexithymia as predictor variable, moderated by group.

Predictor variables	<i>B</i>	β	<i>t</i>	<i>R</i> ²	ΔR^2	<i>F</i>
<i>Step 1</i>				0.030	0.030	5.97*
Education	-0.155	-0.131	-2.44*			
<i>Step 2</i>				0.334	0.304	48.08*
Education	-0.002	-0.002	-0.04			
Group	2.794	0.328	7.09*			
TAS-20_Centred	0.120	0.381	8.05*			
<i>Step 3</i>				0.352	0.017	38.65*
Education	-0.015	-0.013	-0.28			
Group	2.800	0.329	7.18*			
TAS-20_Centred	0.078	0.248	3.67*			
TAS-20_Centred \times Group	0.080	0.180	2.75*			

**p* value < 0.05

Abbreviation: *TAS-20*: 20-item Toronto Alexithymia Scale.