

Understanding the Invisible Illness: Connections between Fibromyalgia and Emotional Awareness

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ABSTRACT

Fibromyalgia is a muscular rheumatism that afflicts approximately five million adults in the United States (Weirwille, 2011). Patients with fibromyalgia commonly display deficits in emotional awareness (Mankus, Boden, & Thompson, 2015), which is the ability to understand and identify one's own and others' emotions (Lane et al., 1990). Moreover, previous research has shown that emotional awareness and expression therapy (Lumley et al, 2017) reduces fibromyalgia symptoms. This study aimed to examine the relationship between fibromyalgia symptoms and various aspects of emotional awareness. Participants were 230 fibromyalgia patients who completed the Levels of Emotional Awareness Scale (Lane et al., 1990) and several symptom measures. Global emotional awareness and several of its subcomponents correlated negatively with pain severity and fatigue, and these relationships remained after controlling for age and sex. Future research should determine if targeted treatment to improve those subcomponents of emotional awareness is able to reduce fibromyalgia pain and fatigue.

INTRODUCTION

Fibromyalgia is associated with deep musculoskeletal pain across the body, muscle stiffness, fatigue, and impaired memory and concentration (Lumley, Schubiner, Lockhart, Kidwell, Harte, Clauw, & Williams, 2011). The diagnosis of fibromyalgia is difficult, as the symptoms are purely subjective with no pathological signs (Goldenberg, Burckhardt, & Crofford, 2004). Cognitive behavioral therapy and pharmacological interventions are the most common treatments, but they lack effectiveness for most patients (Friedberg & Jason, 2001; Lumley et al., 2017). Therefore, improvements in fibromyalgia treatments are needed.

Patients with fibromyalgia commonly display deficits in emotional awareness (Lumley et al., 2017). Emotional awareness is the ability to understand and identify one's own emotions and those of other people (Mankus, Boden, & Thompson, 2015). It includes clarity of emotions (the extent to which people identify, label, and represent their own emotions), emotion differentiation (how people represent the type of emotion they experience), and attention to emotion (the degree to which people deal with their emotions; Mankus, Boden, & Thompson, 2015). Emotional awareness and expression therapy reduces fibromyalgia symptoms (Lumley et al., 2017), but it is unclear which aspects of the therapy are more relevant. Therefore, this study aimed to examine the relationship between fibromyalgia symptoms and several subcomponents of emotional awareness.

When examining this relationship, we controlled for differences in age and sex. Fibromyalgia is more likely among people over the age of 50 (Weirwille, 2011). In contrast, older adults (35 years of age and above) generally have better emotional awareness compared to younger adults (under 35 years of age), as older participants are able to identify the sources of their emotions, focus less on negative thoughts and emotions, and use their life experiences and expanded vocabularies to more accurately express their emotions (Mankus, Boden, & Thompson, 2015). In addition, women are more likely to get fibromyalgia than men (Weirwille, 2011), and women with fibromyalgia tend to have higher pain levels than men (Castro-Sánchez et al., 2012). In contrast, women are generally more attentive to their emotions than men, suggesting higher levels of emotional awareness (Mankus et al., 2015). Thus, controlling for age and sex is important.

Given the conflicting relationships of fibromyalgia and emotional awareness with age and sex, we hypothesized that some aspects of emotional awareness would continue to be related to fibromyalgia symptoms after controlling for these variables. Understanding which aspects of emotional awareness are related to fibromyalgia symptoms (after controlling for sex and age) might allow researchers to improve treatments and thus quality of life.

METHOD

Participants

This paper used the same participants as Lumley et al. (2017). The participants were 230 fibromyalgia patients (216 female, 14 male), who were recruited for a study on fibromyalgia treatments. Ages ranged from 20 – 74 (mean 49.12, standard deviation 12.24). 227 of the participants disclosed their ethnicity, with 219 being white and 8 being black. 3 participants did not provide information about their ethnicity.

Measures

The Levels of Emotional Awareness Scale (LEAS; Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990) is an open-ended measure of emotional awareness. Respondents state how they and another person would feel in each of 20 emotionally evocative scenarios. In this study, patients completed 10 of the items at baseline (before starting treatment) and the remaining 10 items later. This paper uses the data from the 10 items that were administered at baseline.

The LEAS was scored by hand and using Program for Open-Ended Scoring (POES; Leaf & Barchard, 2013) and Wordlist 2.5 (Barchard, 2013). Hand scores measure overall emotional awareness (Barchard et al., 2013). Previous research (Barchard, Bajgar, Leaf, & Lane, 2010; Barchard & Picker, 2017) has shown that POES produces scores that are at least as valid as LEAS hand scoring. This study used POES to calculate both overall emotional awareness (Highest-4 and Highest20-Unique) and four emotional awareness subcomponents (complexity, granularity, specificity, and verbosity).

Highest-4 is a measure of overall emotional awareness. It is calculated as the sum of the word scores that have the highest value for each item. These word scores are then summed across the entire set of 10 items.

Highest20-Unique is a measure of overall emotional awareness. It is calculated as the sum of the word scores for the 20 words with the highest word scores across the entire set of items.

Emotional specificity is the tendency to use precise emotion words (e.g., happy), rather than vague ones (e.g., good). Specificity was calculated as the maximum word score for all emotion words in each item. If a response contained no emotion words, emotional specificity was set to 0. Specificity was summed across all items.

Emotional complexity is the tendency to describe one's emotions using a variety of emotion words (e.g., physical sensations, actions, and specific emotions). It was calculated as the number of unique emotion words for each item and was then summed across items.

Emotional granularity is the tendency to distinguish between similar emotions. Unlike the previous two scores, a single emotional granularity score was calculated for the entire test. Specifically, we counted the unique emotion words across the entire set of 10 items. If respondents used different emotion words in the different items, they obtained higher scores.

Emotional verbosity is the tendency to talk at length about emotions. It was calculated as the total number of words across the entire set of 10 items.

One of the primary outcome measures was the pain severity index of the Brief Pain Inventory, which is used to assess pain severity and how this pain interferes with normal functioning (Cleeland, 2009). To score pain severity, the Brief Pain Inventory uses four pain items—current, worst, least, and average pain—to represent patients' pain intensity over the past week. These items are rated on 0-10 scales, where a score of 0 means no pain and increases gradually until it reaches 10, which is worst pain. The mean of these four items was used to assess pain severity during the past week. To score pain interference, this measure notes whether a patient's pain interferes with seven typical daily activities (general activity, walking, work, mood, enjoyment of life, relations with others, and sleep). Patients can choose from 0-10 for each item, with 0 meaning no interference, and 10 meaning interferes completely. Pain interference is scored as the mean of these seven items and is only used if at least four of seven of the items are marked by a participant.

The Pittsburgh Sleep Quality Index was utilized to measure sleep problems for the participants. This self-rated questionnaire measure generates scores for seven items (subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction), where the sum for each item yields one global score that is designed to observe sleep quality over a one-month time interval (Buysse, Reynolds, Monk, Berman, & Kupfer, 1988). The global score has a range from 0-21 points, with each of the seven individual items ranging from 0-3 points. A higher score represents better sleep.

The Center for Epidemiological Studies-Depression Scale was used to assess depressive symptoms in participants (Radloff, 1977). Twenty items are asked by an interviewer, and responses are scored from zero to three on a scale that represents how often a specific symptom occurs, with higher scores indicating more symptoms (Radloff, 1977).

Anxiety symptoms were analyzed by the Generalized Anxiety Disorder-7 scale. This measurement has a 7-item questionnaire that assesses participants' anxiety symptoms, and an additional item to determine the duration of anxiety symptoms (Spitzer, Kroenke, Williams, & Lowe, 2006). Responses for how often over the past two weeks participants experienced specific anxiety symptoms are scored as 0, 1, 2, and 3, which represent "not at all," "several days," "more than half the days," and "nearly every day," respectively (Spitzer, Kroenke, Williams, & Lowe, 2006). Getting a higher score for this measure represents worse, more prolonged anxiety symptoms in a participant.

To measure fatigue, the Patient-Reported Outcomes Measurement Information System (PROMIS) Fatigue short form was used. PROMIS is a system of item banks (Merriwether, 2017) with six to ten questions each. Responses are scored on a Likert scale. Higher scores indicate less fatigue.

The 12-item Short-form Health Survey physical component score was utilized to measure physical functioning in participants. This measure includes 12 multiple-choice items that assess physical and mental health, and how these responses effect the participants' usual activities (Ware, Kosinski, & Keller, 1996).

To assess participants' general life satisfaction, we used the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). This measure is a five-item scale that includes sentences such as "I am satisfied with my life" and "If I could live my life over, I would change almost nothing" that allow the participant to respond in a yes or no format.

Participants rate their agreement with each of the five items in a scale of 1-7, where 1=strongly disagree, 2=disagree, 3=slightly disagree, 4=neither agree nor disagree, 5=slightly agree, 6=agree, and 7=strongly agree. Higher scores on this scale indicate more satisfaction.

Procedures

Patients were randomly assigned to one of three types of treatment: emotional awareness and expression therapy, cognitive behavioral therapy, and fibromyalgia education therapy. All patients, in groups of six, met with a therapist for weekly 90-minute sessions for eight weeks. Three assessments were conducted during the study: (1) pretreatment two weeks before group assignments, (2) two weeks after the final therapy session, and (3) six months after the final therapy session. This current paper used only the baseline data that was collected two weeks before treatments began. See Lumley et al. (2017) for more information.

Data Analysis

To determine which aspects of emotional awareness are related to fibromyalgia symptoms, we correlated various aspects of emotional awareness with fibromyalgia symptoms. To determine if these relationships remained after controlling for age and sex, we then calculated partial correlations between emotional awareness and fibromyalgia symptoms, controlling for age and sex.

RESULTS

Emotional awareness was negatively associated with pain and fatigue. Overall emotional awareness (as measured by LEAS hand scores and Highest 20-Unique) and emotional granularity had small negative relationships with pain severity. In addition, overall emotional awareness (as measured by Highest 20-Unique) and emotional specificity had small negative relationships with fatigue. See Table 1. These relationships remained after controlling for age and sex. See Table 2. In addition, overall emotional awareness (as measured by Highest-4) and emotional complexity had significant partial correlations with pain, and emotional granularity had a significant partial correlation with fatigue. Emotional verbosity was not related to any fibromyalgia symptom.

Table 1

Correlations of Emotional Awareness with Fibromyalgia Symptoms

Emotional Awareness	Pain Severity	Fatigue	Depression	Anxiety	Sleep Quality	Physical Functioning	Satisfaction with Life
LEAS Hand scores	-.15*	-.09	-.05	-.05	-.01	.06	.06
Highest 20-Unique	-.19*	-.15*	-.03	-.04	-.05	.04	.04
Highest-4	-.12	-.09	-.01	.00	.02	.06	.04
Specificity	-.09	-.14*	-.04	-.05	-.01	.02	.01
Complexity	-.12	-.09	.01	.04	.00	.04	.03
Granularity	-.15*	-.13	-.02	.00	-.04	.05	.05
Verbosity	-.06	-.04	.02	.05	.02	-.07	-.02

* $p < .05$.

Table 2

Partial Correlations of Emotional Awareness with Fibromyalgia Symptoms, Controlling for Age and Sex

Emotional Awareness	Pain Severity	Fatigue	Depression	Anxiety	Sleep Quality	Physical Functioning	Satisfaction with Life
LEAS Hand scores	-.17*	-.11	-.08	-.09	-.03	.04	.04
Highest 20-Unique	-.21*	-.16*	-.04	-.06	-.06	.03	.03
Highest-4	-.14*	-.11	-.04	-.04	-.01	.04	.02
Specificity	-.10	-.15*	-.05	-.07	-.02	.01	.00
Complexity	-.14*	-.11	-.02	.01	-.02	.03	.01
Granularity	-.17*	-.15*	-.04	-.03	-.06	.03	.03
Verbosity	-.06	-.05	.01	.04	.01	-.07	-.02

* $p < .05$.

DISCUSSION

The purpose of this research was to determine which aspects of emotional awareness are related to fibromyalgia symptoms and whether these relationships remain after controlling for age and sex. We found that overall emotional awareness, specificity, complexity, and granularity were all related to greater pain and fatigue. On the other hand, emotional verbosity was not related to fibromyalgia symptoms. It is not sufficient for fibromyalgia patients to talk about their emotions a lot. Instead, they must use the right kinds of words: describing their emotions using specific words rather than vague ones, and using different words to describe their emotions in different circumstances.

Future studies should consider the relationship between culture and fibromyalgia symptoms. This dataset was collected from participants solely in the United States. Participants from European cultures may be more emotionally

expressive than participants from Asian cultures. Because of this, we predict that fibromyalgia symptoms would be less severe in European participants than in Asian participants. This could affect the relationships between emotional awareness and fibromyalgia symptoms. Within each culture, the relationships between emotional awareness and fibromyalgia symptoms may be lower (due to restriction of range). Across cultures, the relationships may be stronger.

Lumley et al. (2017) found that emotional awareness and expression therapy reduces fibromyalgia symptoms. Perhaps targeting those aspects of emotional awareness that are particularly related to fibromyalgia pain and fatigue (specificity, complexity, and granularity) will lead to even stronger reduction in symptoms.

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