

UNLV Forewarned: Emotional Awareness Predicts Fibromyalgia Pain

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ABSTRACT

Fibromyalgia (FM) patients often have chronic pain, fatigue, and diminished quality of life (Segura-Jimenez & Borges-Cosic, 2015). FM is more common in women (Lumley et al., 2017), who tend to feel more fatigue and have less physical impairment than men (Aparicio et al., 2012), and older patients have longer-lasting pain and lower well-being (PeñAcoba et al. 2013). Addressing negative emotions more effectively may result in fewer FM symptoms. Lumley et al. (2017) found that therapy reduced overall FM symptoms, depression, and anxiety, but had no effect on FM pain. Therefore, our study examined whether emotional awareness is related to both FM pain and fatigue after controlling for age, sex, education, and negative affect.

Adults diagnosed with FM ($n = 230$) were recruited from the community. The data for this current project were obtained at baseline. Participants completed three measures: the Levels of Emotional Awareness Scale (Lane, Quinlan, Schwartz, Walker & Zeitlin, 1991), the Patient-Reported Outcomes Measurement Information System Fatigue Short Form (Cella et al., 2007), and the Brief Pain Inventory (Cleeland, 2009).

Using hierarchical multiple regression to control for sex, age, education, and negative affect, we found emotional awareness improved prediction of FM pain, though not fatigue. For pain, none of the control variables were significant predictors at step 1, but emotional awareness did improve prediction at step 2. For fatigue, only negative affect was a significant predictor: It predicted pain at step 1 and emotional awareness did not improve prediction at step 2. This suggests that FM pain and fatigue may have different mechanisms.

INTRODUCTION

Fibromyalgia (FM) is a complex multidimensional syndrome characterized by chronic pain throughout the body as well as symptoms of fatigue, emotional disturbances, and general diminished quality of life (Segura-Jimenez & Borges-Cosic, 2015). Research showed that there were significant differences between male and female patients, with overall FM impact and physical impairment being lower in women with FM, and women feel more fatigue, whereas men present higher FM global impact and worse physical impairment (Aparicio et al., 2012). Older patients reported longer-lasting pain in physical functioning and well-being (PeñAcoba et al., 2013).

Emotional awareness is the cognitive skills that allows you to describe your own emotions as well as the emotions of others (Lane & Schwartz, 1987). People with higher levels of emotional awareness are able to better identify and integrate emotional information. According to Lumley et al. (1996) the inability to identify emotions could result in increased negative affects such as depression and anxiety. Alternatively, the pain that comes from FM can trigger negative affective states (e.g., anxiety and depression) because of the stress it puts on the individual (Furlong, Zautra, Puente, López-López, & Valero, 2010).

Our research focuses on if LEAS hand scores improve the prediction of FM pain and fatigue, after controlling for sex, age, education, and negative affect. If LEAS hand scores can improve the prediction of FM pain and fatigue, researchers may be able to find innovative ways to prevent further negative symptom expression and help improve the lives of numerous FM patients.

Table 1
 Hierarchical Multiple Regression of Fatigue

Predictor	Fatigue		Pain	
	ΔR^2	β	ΔR^2	β
Step 1	.22**		.20	
Sex		.01		-.01
Age		-.02		-.07
Negative Affect		.45**		.15
Education		-.08		-.06
Step 2	.01		.05*	
Sex		.00		-.04
Age		-.04		-.12
Negative Affect		.45*		.17
Education		-.06		-.01
LEAS Self		.06		-.27
LEAS Other		.12		.10
LEAS Total		-.22		-.00

* $p < 0.50$. ** $p < .001$.

METHOD

Participants

There were 230 fibromyalgia patients; 216 female (93.9%), 14 male (6.1%); 219 White, eight Black, and three did not identify as either. Ages ranged from 20 to 74, with a mean of 49.1 with a standard deviation of 12.2.

Measures

In order to determine the results of our research questions, we used five measures that tested for three different constructs: emotional awareness, pain, and fatigue.

For emotional awareness, we used the Levels of Emotional Awareness Scale (LEAS; Lane, Quinlan, Schwartz, Walker & Zeitlin, 1991). This scale contains 20 open-ended scenarios that involve two people, oneself and another, and are meant to evoke an emotional response. Participants are required to answer two questions: "How would you feel?" and "How would the other person in the same scenario feel?" (Barchard et al., 2011). Hand scores are calculated in a three-step process (Barchard et al., 2011). First, individual words and phrases are assigned scores, with higher scores indicating more precise emotions. Second, Self and Other scores are calculated as the highest Word-level scores for the emotions attributed to that person. Third, the Item score is calculated as the maximum of the Self and Other scores (Barchard et al., 2011).

In order to test for the construct pain, we used the Brief Pain Inventory (BPI; Cleeland, 2009). It contains two body diagrams, four pain severity items, and seven pain interference scale items. BPI assesses pain using the response scale ranging from "worst" to "now." The scoring is then determined by how much pain has interfered with seven daily activities: general activity, walking, work, mood, enjoyment of life, relations with others, and sleep. The mean is calculated from these items, with higher scores indicating higher levels of pain interference with daily lives.

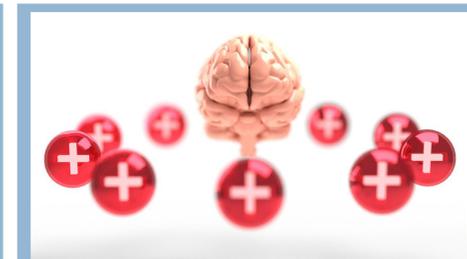
The third measure we used was the Patient-Reported Outcomes Measurement Information System (PROMIS; Cella et al., (2007) Fatigue Short Form created by) in order to test the fatigue construct. The PROMIS Fatigue Short Form evaluates a range of self-reported symptoms, from "mild subjective feelings of tiredness to an overwhelming, debilitating, and sustained sense of exhaustion" ("Fatigue - A brief guide to the PROMIS Fatigue instruments"). The Fatigue Short Form contains items that analyzes a range of symptoms that decrease one's ability to execute daily activities, and they are then scored using scoring tools through the Assessment Center Scoring Service for accuracy (Cella et al., 2007). Higher scores show indication that fatigue interfered with daily life.

Procedures

Lumley et al. (2017) conducted a clinical trial by recruiting patients with FM in the Wayne State University and The University of Michigan communities. Participants were contacted via telephone for a screening of their eligibility. Following the initial screening, the participants were then to attend an in-person screening where they were presented with written informed consent and a research staff member assessed that they indeed had FM. Each patient completed 3 assessments that were conducted by blinded research assistants. Two weeks before randomization, the participants took the pretreatment assessment. Two weeks after session 8, the participants took the post treatment assessment. Finally, the follow-up assessment was taken 6 months after session 8. Each assessment was taken individually, on the computer, and in a supervised setting.

Data Analysis

To determine if LEAS hand scores improve the prediction of fibromyalgia pain and fatigue after controlling for sex, age, education, and negative affect we used multiple hierarchical regression in SPSS. We used two blocks to create two models to see if there was a significant change when adding LEAS score as a predictor. The first model was used to control for sex, age, and negative affect and the second model was the same four variables we started with, but we added LEAS hand scores as a predictor. We were using testing two variables, pain and fatigue, we had to run the regression test twice, once for each symptom.



RESULTS

The first hierarchical multiple regression was used to predict fatigue. At step 1, negative affect predicted fatigue ($\beta = .45, p < .001$). At step 2, we added the three LEAS variables to the regression. The r-squared value did not increase substantially or significantly ($\Delta R^2 = .01, p > .05$). Thus, the LEAS did not improve the prediction of fatigue.

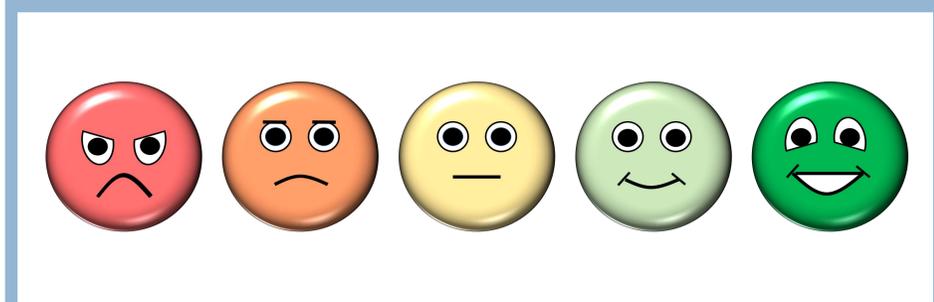
The second hierarchical multiple regression was used to predict pain. At step 1, none of the control variables significantly predicted pain and the overall r-squared value was non-significant ($R^2 = .20, p < .05$). At step 2, the r-squared value increased substantially and significantly ($\Delta R^2 = .05, p < .05$). None of the LEAS variables had statistically significant beta-weights.

When looking at the data for FM fatigue, the only LEAS hand score variable that had a significant beta weight was the LEAS variable for Self at 0.058 (See Table 1).

DISCUSSION

The purpose of this study was to identify if FM pain and fatigue symptoms were able to be better predicted based upon LEAS hand scores. Through our research, we have discovered that LEAS hand scores do indeed predict symptoms of pain and fatigue in fibromyalgia patients.

Our research is imperative because it shows that LEAS hand scores improve the prediction of pain. This means that treatments could be given in advance to extreme pain conditions in fibromyalgia patients, helping them deal with how much pain influences their daily life. Future research in which we administer the LEAS to people with FM before they have much pain or fatigue, to determine if it predict pain and fatigue in the future, could also be imperative. Different treatment options, such as EAET, could be viable options for individuals who suffer with FM symptoms especially if LEAS predicts future pain and fatigue (Lumley et al., 2017). These results could also become more generalized and could help other patients who suffer with similar symptoms. These predictions of FM pain could lead to better quality life for these patients because they will receive proper and effective treatment.



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