UNLV

Ab

Emotional

Mikee Gonzales[a], Amanda Ro

ostract

Awareness Pre

oth[a], Ray E. López[a], Ying Huan

Measu

Levels of Emotional Awareness Scale (LEA
ure emotional awareness. LEAS is composed o
Other, and LEAS Total. All measures are comp

edicts Pain in Fi

ng[a] , Kimberly A. Barchard[a] Hea

res

S; Barchard et al., 2011) was used to meas-
of three specific measures: LEAS Self, LEAS
prised of 20 open-ended scenarios with the in

bromyalgia Pat

ather Doherty[b], David Williams[c],

Result

Looking at fatigue predictability, the Hierarchic

ients

, and Mark Lumley[b]

s

al Multiple Regression using

Fibromyalgia (FM) is a neural mu
spread fatigue, pain, tenderness, trou
hough the cause of FM is unknown,
in emotional awareness. Previous re
expression therapy improves pain, c
itive affect, and overall FM sympton
study examines whether emotional a
tigue, after controlling for sex, age,
FM patients volunteered for a treatm
Levels of Emotional Awareness Scal
ment Information System Fatigue Sh
Positive and Negative Affect Schedu
of FM pain but not fatigue. This sug
ferent mechanisms.

Intro

Fibromyalgia (FM) syndrome is
pain and tenderness, fatigue, trouble
(Middendorp et al., 2008). No know

usculoskeletal disorder characterized by wide-
uble sleeping, and mood disturbances. Alt-
patients with FM commonly display deficits
search showed that emotional awareness and
ognitive dysfunction, anxiety, depression, pos-
ms, but did not improve fatigue. Therefore, this
awareness is related to both FM pain and fa-
education, and negative affect. A total of 230
nent study. At baseline, they completed the
le, the Patient-Reported Outcomes Measure-
hort Form, the Brief Pain Inventory, and the
ule. Emotional awareness improved prediction
gests that FM pain and fatigue may have dif-

oduction

characterized by ubiquitous musculoskeletal
sleeping, and mood disturbances
n organic disease causes the bodily pain and

Other, and LEAS Total. All measures are comp
tention of evoking an emotional response invol
Each item has two questions, “How would you
feel?”. Self and other score responses to each I
scores are then added together (self and other)
sponses are scored based upon the type of word
ing in higher scores (Barchard et al., 2011).

The Brief Pain Inventory (BPI) (Cleeland, 2
el of pain felt by each participant and how muc
contains two body diagrams, four pain severity
items (Cleeland, 2009). Body diagrams are use
pain. To assess pain severity, BPI uses the resp
(current pain). Scoring is determined by how m
daily activities: general activity, walking, work
ers, and sleep (Cleeland, 2009). Pain Severity i
items (Cleeland, 2009). Pain interference is sco
items (Cleeland, 2009). Higher scores indicate
ence in their daily lives (Cleeland, 2009).

The Patient-Reported Outcomes Measureme
Short Form (Cella, Yount, & Rothrock, 2007) v
PROMIS is administered as a self-report measu
tigue, pain intensity, pain interference, physical
2007). PROMIS Fatigue Short Form contains s
of fatigue and interference of fatigue on daily a
scale ranging from 1=”never” to 5=”always.” F

rised of 20 open-ended scenarios with the in-
lving two people (Barchard et al., 2011).
feel?" and "How would the other person
LEAS item were scored separately. Item
to calculate the total score on per item. Re-
ds used: More specific emotion words result-

2009) was used to measure the subjective lev-
ch pain interferes with daily activities. BPI
items, and seven pain interference scale
ed by the participant to denote where they feel
onse scale: worst, least, average, and now
much pain has interfered in seven particular
, mood, enjoyment of life, relations with oth-
s scored as the mean of the four severity
ored as the mean of the seven interference
higher levels of pain severity and interfer-

ent Information System (PROMIS) Fatigue
was used to assess the fatigue construct.
ure for a multitude of factors including fa-
l function, and sleep disturbance (Cella et al.,
seven items that measure both the experience
activities. PROMIS uses a 5-point response
For accuracy, these items are scored using

Looking at fatigue predictability, the Hierarchic
LEAS Hand scores while controlling for sex, age,
showed that negative affect is the only variable tha
to the prediction of FM fatigue (beta = .45, p < .00
change with the addition of LEAS sums (R-square

When looking at pain predictability, the Hierarc
when controlling for sex, age, negative affect, and
fect is the only variable to have a significant contri
pain (beta = .17, p < .001). There was significant c
(R-squared change = .09, p > .05). Although LEAS
weight among all other LEAS variables, that beta-
icant.

Discussi

The purpose of this study was to evaluate wheth
the prediction of FM pain and fatigue, after contro
negative affect. We found that although LEAS Ha
prove the prediction of FM pain, it does not howev
diction of fatigue. Although LEAS improves the pr
not determine which specific measure (Self, Other,

Previous research showed that emotional aware

cal Multiple Regression using
negative affect and education
t made a significant contribution
1). There was no significant
d change = .01, p > .05).
chical Multiple Regression of Pain
education shows that negative af-
bution to the prediction of FM
hange with the addition of LEAS
S Self scores had the highest beta-
weight was not statistically signif-

ion

her LEAS hand scores improve
lling for sex, age, education, and
nd Scoring does significantly im-
ver significantly improve the pre-
redictability of FM pain, we could
, or Total) was responsible.
ness and expression therapy im-

tenderness experienced by FM patie
Mease, Buskila, & Sarszi-Puttini, 20
sparse, previous data suggest that FM
(Williams & Gracely, 2006). FM aff
Health Organization [WHO], 2008);
of 50 (Fietta, Fitetta, & Manganelli,

A variety of factors such as age, s
with FM pain levels (Campbell et al
in worsening FM symptoms, emotio
abate and cope with their symptoms
methods are also utilized to treat pai
macological nor non-pharmacologic
universal treatments for FM syndron
accurate way to predict FM pain and
eventually ameliorate their pain and

Patients with FM commonly disp
ability to recognize their own and ot
et al., 2008). The purpose of this stu
proves the prediction of FM pain an
tion and negative affect. To do so, w
constructs: emotional awareness, pa

nts (Giacomelli et al., 2011; Mease, 2005;
009). Although etiological findings for FM are
M may be a central sensitization syndrome
licts 3-6% of the world's population (World
predominantly affecting females over the age
2007).
sex, and catastrophic thinking, are correlated
., 2012). Although negative affect plays a hand
nal-regulation strategies have helped patients
(Middendorp et al., 2008). Pharmacological
n (Staud et al., 2006). However, neither phar-
al methods have been found to be effective
me (Staud et al., 2006). It is possible that an
d fatigue could help patients anticipate and
other symptoms.
lay deficits in emotional awareness (EA), the
hers' emotions (Lane et al.,1991; Middendorp
dy is to evaluate if emotional awareness im-
d fatigue, after controlling for age, sex, educa-
e used five measures that tested three different
in, and fatigue.

scoring tools through Assessment Center Scori
indicate higher fatigue interference with daily l

The Positive and Negative Affect Schedule
can be used to measure both positive and negat
Negative Affect Scale, consisting of 10 items t
affect, including anger, guilt, fear, and distress.
emotion using a 5-point scale (Watson et al., 19
affect.

Proced

Our study used the same procedure as Lumle
awareness. All the data used in this study came
More information on the procedures of this study

Data An

To determine if LEAS hand scores improve the
controlling for sex, age, education, and negative a
gression analyses. Using two blocks, we created t
cant change when adding LEAS score as a predict
cluded education, sex, negative affect, and age. Fo
the same four variables we started with, but with t
and Total. We used the same predictors for both st
measuring "fatigue" running two separate regressi

ng Service (Cella et al., 2007). Higher scores
life.

(PANAS; Watson, Clark, & Tellegen, 1988)
tive affect. In our analyses, we used only the
hat assess emotions associated with negative
Respondents indicate the intensity of each
988). Higher scores indicate higher negative

ure

ey et al.'s 2017 study on FM and emotional
exclusively from the pretreatment baseline.
can be found in Lumley et al. 2017.

nalysis

e prediction of FM pain and fatigue when
ffect, we conducted hierarchical multiple re-
wo models to determine if there was a signifi-
tor. For step 1 (block 1), our predictors in-
or step 2 (block 2), our predictors included
the addition of LEAS sums for Self, Other,
teps for BPI measuring "pain" and PROMIS
ions.

proves overall symptoms, widespread pain, physic
tion, anxiety, depression, positive affect, and life sa
In the therapy sessions, patients identified emotion
them through role-playing and empty chair technic
were encouraged to engage in expressive writing a
tions with the significant people in their lives (Lun
treatment was effective because it reduced negativ
awareness. We found the Negative affect alone had
bution to the prediction of both FM pain but that in
improvement increased the predictability of FM pa
by .09, so the model explains 9% more variance). U
determine why and how LEAS improved predictio
know which of the LEAS variables in particular is
one with the highest beta-weight is LEAS Self sco
quite statistically significant. Because deciphering
proved prediction and possibly even improved trea
search should focus on determining the cause of th
incorporating LEAS.

Table 1

Hierarchical Multiple Regression Predicting FM Fatigue and P

	Fatigue	
Predictors	ΔR^2	β

al functioning, cognitive dysfunc-
atisfaction (Lumley et al., 2017).
s they had avoided and expressed
ques. Outside of sessions, patients
nd to be honest about their emo-
nley et al., 2017). Perhaps this
e affect and improved emotional
d the most single variable contri-
ncorporating LEAS with affect
ain significantly (R2 increases
Unfortunately, we were unable to
n of FM pain because we don't
responsible for this increase. The
res, but that beta-weight is not
these questions could lead to im-
tment of FM pain, future FM re-
e improvement demonstrated by

Pain

Pain	
ΔR^2	β

Me

P

This study used the same participa
There were 230 participants comprise
mean age was 49.1 years, with the st
participant was 20 years-old while the
pants who identified as White and 41
the participants classified themselves

ethod

Participants

ants and raw data as Lumley et al.'s 2017 study. ed of 14 men and 216 women. The participants' tandard deviation of 12.22 years. The youngest e oldest was 74 years-old. There are 179 partici- participants who identified as Black, while 10 of as other.

Step 1	.22**	
Sex		.01
Age		-.02
Negative Affect		.45**
Highest Education		-.08
Step 2	.01	
Sex		.00
Age		-.04
Negative Affect		.45*
Highest Education		-.06
LEAS Self Score		.06
LEAS Other Score		.12
LEAS Total Score		-.22

* $p < .05$. ** $p < .001$.

.20		
	-.01	
	-.07	
	.15*	
	-.06	
.09*		
	-.04	
	-.12	
	.17*	
	-.01	
	-.27	
	.10	
	-.00	