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You Get Used to It, Or Do You: Symptom Length Predicts Less Fibromyalgia Physical Impairment, but only for those with Above-Average Self-Efficacy

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Abstract

To determine whether the effects of symptom duration on fibromyalgia physical impairment are moderated by symptom self-efficacy, data from 572 female participants, who were members of a large health maintenance organization and had a diagnosis of fibromyalgia syndrome (FMS) were assessed. Age, symptom duration, history of physical, sexual, and emotional abuse, fibromyalgia-specific self-efficacy (Arthritis Self-Efficacy Scale adapted for FMS [ASES]), depression (Centers for Epidemiological Studies Depression Scale [CES-D]), fibromyalgia physical impairment (Fibromyalgia Impact Questionnaire [FIQ]), and pain (McGill Present Pain Index [PPI]) were measured five times across 18 months. Linear regressions were performed to predict baseline FIQ and PPI cross-sectionally. Of primary interest was a hypothesized interaction between ASES and symptom duration, which was significant in relation to FIQ but not PPI. Multilevel mixed models were performed to determine whether the same pattern existed longitudinally controlling for baseline symptom duration as an effect of time and ASES. The interaction was significant in the models for both FIQ and PPI. These results suggest that the effects of age and symptom duration on FMS are unique, and that self-efficacy plays a crucial role in moderating disease course (measured by symptom duration or time) in FMS.

Keywords

Fibromyalgia; self-efficacy; symptom duration; moderation; age

Fibromyalgia syndrome [FMS] is a chronic, painful, debilitating condition of unknown etiology. It is frequently treatment-resistant, though some pharmacological and behavioral interventions may help (Bradley, 2009; Goldenberg, Burckhardt, & Crofford, 2004; Hassett, Cone, Patella, & Sigal, 2004; Recla, 2010). Approximately five million people in the United States, predominantly women, are affected by FMS (Silveman, Sadosky, Evans, Yeh, Alvir, & Zlateva, 2010).

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Diagnostic criteria for FMS are largely subjective, including a patient-reported history of chronic, widespread musculoskeletal pain and painful sensitivity (Wolfe et al., 1990). Fatigue, sleep disturbances, cognitive problems, and psychiatric disorders are also common (Giesecke et al., 2003; Wolfe et al., 2010). Pain in FMS is difficult to treat. Intragroup differences among FMS sufferers increase the challenge of developing effective interventions (Malt, Olafsson, Lund, & Ursin, 2002; Turk, Okifuji, Sinclair, & Starz, 1996; Turk, Okifuji, Sinclair, & Starz, 1998). Intragroup classifications that consider psychological factors (e.g., Giesecke et al. 2003) have received increasing interest (Alegre de Miquel et al., 2010). The American College of Rheumatology [ACR] now acknowledges the importance of non-myalgic factors in FMS (Wolfe et al., 2010).

Previously, researchers have suggested that FMS has less impact as duration and age increase (Cronan, Serber, Walen, & Jaffe, 2002; Wigers, 1996; Kennedy & Felson, 1996). This is reasonable given the consensus that FMS is not a progressive disorder (Kennedy & Felson, 1996). However, these effects could be mediated or moderated by various factors. For example, greater age and symptom duration may produce more effective strategies for coping with complications that arise from FMS. Or, continued exposure might result in habituation after prolonged pain (*cf.* Smith et al., 2008). In either case, social-cognitive processes, such as self-efficacy, may moderate the effect of symptom duration on pain experiences (Smith et al., 2008; Edwards, Bingham III, & Haythornthwaite, 2006).

Self-efficacy—one's beliefs about his or her ability to accomplish a given objective (Bandura, 1977)—may predict adjustment to FMS and present a mechanism through which positive change could be effected. Self-efficacy is related to the primary symptoms of FMS: pain, depression, and disability (Arnstein, Caudill, Mandel, Norris, & Beasley, 1999; Denison, Åsenlöf, & Lindberg, 2004; Keefe, Lefebvre, Maixner, Salley Jr, & Caldwell, 1997; Smarr et al., 1997). A strong sense of self-efficacy increases resilience and minimizes susceptibility to stress and depression in FMS (Bandura, 2001; Sahar, Thomas, & Clarke, 2016). Self-efficacy may buffer the relationships between health and perceived stress, stress vulnerability, and negative life events in pain populations. Self-efficacy was a more important determinant of disability than pain intensity or duration among primary care patients reporting musculoskeletal pain (Asghari, Julaeiha, & Godarsi, 2008). It also has been identified as a more important predictor of physical functioning than re-injury or pain-related beliefs among chronic low back pain sufferers (Lorig, Chastain, Ung, Shoor, & Holman, 1989). Self-efficacy predicts long-term disability and pain behavior over and above pain, distress, and personality factors (Asghari & Nicholas, 2001), and it was a significant determinant of depression and disability, even after controlling for pain intensity and demographic variables, among chronic pain patients (Asghari et al., 2008).

The present study aimed to examine the extent to which self-efficacy affects FMS impact over time. We hypothesized that the effects of symptom duration on physical impairment and pain in FMS would be moderated by self-efficacy, such that higher self-efficacy would predict improved outcomes controlling for depression symptomology (Asghari & Nicholas, 2001; Asghari et al., 2008), exercise habit (Fink & Lewis, 2017), history of abuse (the only traumas measured in the study; Smith et al., 2010), and age (Carstensen, Pasupathi, Mayr, &

Nesselrode, 2000; Shallcross et al., 2013; Yeziarski, 2012) given their established relationships with the outcomes.

Method

Participants

The original randomized clinical trial included 572 female members of a health maintenance organization [HMO]. For participant demographics, see Table 1. All participants reviewed and signed an informed consent and were treated in accordance with American Psychology Association (2010) ethical guidelines. The original study was approved by the University and HMO Institutional Review Boards (IRBs).

Measures

Self-Efficacy.—Perceived self-efficacy was measured using the Arthritis Self-Efficacy Scale (ASES; Lorig et al., 1989) with the term “arthritis” changed to “fibromyalgia.” This 20-item, self-administered scale measures participants’ confidence in their ability to perform specific tasks, such as decreasing their pain or walking 100 feet on flat ground in 20 seconds. It uses a scale ranging from 0 (very uncertain) to 100 (very certain) and yields three subscale scores: self-efficacy for pain, function, and other symptoms. Subscale scores were summed to create a total self-efficacy score. In the present study, the scale showed high internal consistency ($\alpha = .92$, $n = 571$), and test-retest reliability ($ICC = .608$).

Depression.—The Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977) is a 20-item, self-administered assessment of depression symptomatology. It uses a 4-point Likert-type scale ranging from 0 (rarely or none of the time) to 3 (most or all of the time). Scores can range from 0 to 60, with 19 indicating depressed mood for chronic pain populations (Turk & Okifuji, 1994). In the present study, the CES-D was moderately consistent ($.625 \leq \alpha \leq .719$, $n = 572$) and stable over time, $ICC = .490$. Depression and ASES were significantly correlated at all time points, $r = -.5501$ to $-.4912$, $ps < .001$.

Symptom Duration.—Symptom duration was measured through a medical history in which participants were asked in which year they first started experiencing FMS symptoms. Participants reported a mean of 13.91 years of symptoms ($SD = 13.20$, $Min = 0$, $Max = 66$). Participants’ ages were significantly correlated with symptom durations, $r = .315$, $p < .001$.

History of Abuse.—Participants reported whether they had experienced physical, emotional, or sexual abuse (1 = No, 2 = Yes) at baseline. In our sample, 17.28% ($n = 99$) reported a history of physical abuse, 16.93% ($n = 97$) reported a history of sexual abuse, and 46.6% ($n = 267$) reported a history of emotional abuse. The correlations among these were statistically significant, $ps < .001$: physical and emotional, $r = .47$; physical and sexual, $r = .51$; emotional and sexual, $r = .41$.

Exercise.—Participants reported whether they had exercised in the past two weeks (1 = No, 2 = Yes). The following prevalence of exercise was observed across the respective time

points: 78.5% (n = 449), 73.85% (n = 353), 75.96% (n = 357), and 73.71% (n = 342), ICC = .400.

Fibromyalgia Impact.—Fibromyalgia impact was measured using the Fibromyalgia Impact Questionnaire (FIQ). The FIQ is a self-administered questionnaire that includes 19 items that assess the impact of FMS on physical functioning, psychological symptoms, social activities, and global wellbeing in people (Burckhardt, Clark, & Bennett, 1991). For the present study, only the physical function subscale was used to remove any undue overlap that may exist between the other subscales and the predictors in the model (e.g., CES-D and psychological symptoms). It consists of 10 items that measure functioning or physical impairment in everyday tasks during the past week (e.g., preparing meals and doing laundry; Bennett, 2005). The FIQ has demonstrated reliability (.56 r .95 for function) and validity for people with FMS (Burckhardt et al., 1991). The physical function subscale had excellent internal consistency ($\alpha = .91$) and good re-test reliability, ICC = .578.

Pain.—The Present Pain Intensity (PPI) index from the McGill Pain Questionnaire (MPQ; Melzack, 1975) was used to assess pain. Participants were asked to rate their pain using a 6-point scale, where 0 = no pain, 1 = mild, 2 = discomforting, 3 = distracting, 4 = horrible, and 5 = excruciating. The short-form MPQ (0–5 vs. 0–10) PPI scale was designed to accelerate administration while maintaining accuracy (Dworkin et al., 2009, Melzack, 1987). Test–retest reliability for the PPI item was fair, ICC = .325, and reasonable given it measures present pain. The FIQ Physical Subscale and MPQ PPI were significantly correlated at all time points, .4522 r .5027, $ps < .001$.

Procedure

Participants from the HMO were recruited using a variety of methods including newspaper advertisements, mass mailings, flyers in physicians' offices, and physician referrals. To be eligible for the study, participants had to be diagnosed by a physician and meet the ACR's 1990 diagnostic criteria for FMS (Wolfe et al., 1990, *cf.* Wolfe et al., 2010). At an initial interview, informed consent was obtained, and a trained examiner performed a manual tender point exam to confirm the diagnosis. At the initial assessment, participants completed questionnaires. Then participants were randomly assigned. The intervention arms included control (no treatment), social support (group meetings), and social support plus education (self-management strategies). No intervention effects were found in the original study (Oliver, Cronan, Walen & Tomita, 2001).

Analytic Strategy

First, linear regressions were performed to assess the effects of age, symptom duration, ASES, CES-D, history of abuse, and exercise on FIQ and MPQ PPI scores at baseline (pre-intervention). Symptom duration and ASES were centered to create an interaction term. Finally, an interaction of ASES by age was entered the same way.

To explore these processes using a longitudinal approach, linear growth models were performed in Stata 12.1 using data from baseline, 6 months, 12 months, and 18 months. Random intercepts and slopes and an unstructured covariance matrix were specified. The

first models explored the fixed effects of time, ASES, CES-D, exercise in the past two weeks, age at baseline, baseline symptom duration, presence of abuse reported at baseline, and *intervention arm*. The second models included an interaction of time by ASES on FIQ and MPQ PPI scores.

Results

The linear regressions performed to assess the effects of age, symptom duration, ASES, CES-D, history of abuse, and exercise on FIQ scores at baseline were statistically significant (see Table 2). The main effects of age and ASES demonstrated that, holding other predictors constant, as individuals became older and had higher ASES scores, they were predicted to have less FMS physical impairment. The main effect of depression revealed that as depression increased, FMS physical impairment increased. The interaction of symptom duration by ASES showed that, controlling for other variables, a longer duration of symptoms predicted lower FIQ scores *only for those who had ASES scores above the mean* (see Figure 1). The effect of symptom duration on FIQ was nearly zero at the mean of ASES, and *the effect of symptom duration on FIQ became positive when ASES was below the mean*. Thus, greater symptom duration predicted less FMS physical impairment *only for those with above-average efficacy*; for those with below-average efficacy greater FMS physical impairments were predicted. For the distribution of ASES scores in the present sample, see Figure 2.

The linear regressions performed to assess the effects of age, symptom duration, ASES, CES-D, history of abuse, and exercise on MPQ PPI scores at baseline were statistically significant (see Table 3). The main effect of ASES demonstrated that, holding other predictors constant, as individuals had higher ASES scores, they were predicted to have less pain intensity. The effects of symptom duration and the interaction were not significant. Among covariates, only CES-D was a significant and positive predictor of pain intensity.

For the longitudinal analyses, the overall models predicting FIQ scores were statistically significant (see Table 4). The main effect of ASES demonstrated that as self-efficacy went up FIQ scores decreased. As CES-D scores increased, so did FIQ scores. There was no main effect of age on FIQ in the presence of the other variables; however, there was a main effect of exercise, such that across all assessments endorsement of fortnightly exercise predicted significantly lower mean levels of physical impairment. There was a main effect of time; but the marginal effect was not significant. However, the moderating effect of self-efficacy demonstrated that increases in impairment occurred for those low in self-efficacy; however, at the highest levels of self-efficacy, impairment scores decreased significantly over time (see Figure 3).

The models for MPQ PPI scores were statistically significant (see Table 5). The main effect of ASES demonstrated that as efficacy increased McGill PPI scores decreased. As CES-D scores increased, so did PPI scores. There was no effect of age or exercise on PPI in the presence of the other variables; however, there was an effect of physical abuse history, such that endorsement physical abuse at baseline predicted significantly higher PPI scores. There was no significant main effect of time on pain experience, but the marginal effect showed

significant decreases in pain over time. However, the interaction of efficacy and time demonstrated that although those with high self-efficacy experienced significant reductions in pain, those with low self-efficacy experienced non-significant increases in pain (see Figure 4).

Discussion

The results from this study provide further evidence of the relationship between age, symptom duration, psychosocial processes, and fibromyalgia physical impairment (Cronan et al., 2002; Kennedy & Felson, 1996; Wigers, 1996). This study corroborates research in FMS indicating that understanding the multifactorial nature of the disorder is crucial (Alegre de Miquel et al., 2010; Giesecke et al., 2003; Malt et al., 2002; Turk et al., 1996; Turk et al., 1998). Consistent with the ACR's provisional diagnostic criteria (Wolfe et al., 2010), the analysis supports the importance personal and illness histories and psychological characteristics in FMS.

The prominence of self-efficacy in determining positive health outcomes has been documented for FMS. Symptom self-efficacy has been shown to significantly affect the relationships between self-reported pain and physical functionality, anxiety, and depression (Miró, Martínez, Sánchez, Prados, & Medina, 2011; Van Liew, Brown, Cronan, Bigatti, & Kothari, 2013). Puente et al. (2015) found that self-efficacy affected emotional outcomes and self-report measures of pain but noted that pressure induced pain measures were not affected. This is indicative of the complex role that metacognitions play in determining pain and function in FMS (Kollmann, Gollwitzer, Spada, & Fernie, 2016). Our study extends this knowledge by demonstrating that self-efficacy predicted—both cross-sectionally and longitudinally—wholly unique functional trajectories by moderating symptom duration (or time, longitudinally) on the impact of FMS. For those with above-average self-efficacy, improvements were expected with increased symptom duration or over time; however, for those below average in self-efficacy, increased symptom duration predicted *worsening* self-reported pain and functioning. Interestingly, the effect of time and the interaction of time by self-efficacy was significant longitudinally, but not cross-sectionally, for pain. The marginal slope showed that on average participants experienced decreases in pain throughout the course of the study. Although it is possible that this difference reflects a placebo (attentional) effect or regression to the mean, the moderation by self-efficacy provides valuable insight even *if* these are the reasons for the improvement.

Additionally, although symptom duration and age were correlated, their effects on FMS physical impairment and pain appear to be unique. The effect of age on physical impairment, but not pain, was *negative* and statistically significant beyond the effects of symptom duration. Unlike symptom duration, the effect of age was not moderated by self-efficacy. Longitudinally, the moderation of the effect of time cannot be distinguished as “symptom duration” or “age” per se; however, the baseline models suggest that the moderation effect is stronger for symptom duration. This is reasonable as the cumulative strain on coping resources would be amassed more directly as time with symptoms increased, not age.

Although it may be tempting to consider differences in functioning measured by the FIQ as being attributed to a lack of FMS specificity, greater age predicted *less* functional issues suggesting that general changes in functioning because of age are not a plausible explanation. It is possible that symptom duration reflected some form of disease course in FMS, but this seems unlikely given other studies have not revealed significant changes in pain over time in FMS (Felson & Goldenberg, 1986; Haviland, Banta, & Przekop, 2011; Kennedy & Felson, 1996; Noller & Sprott, 2003). The effect of age on physical impairment could reflect differences in neural pain signaling across age groups (Yeziarski, 2012), the psychological impacts of negative stimuli or negative emotional experience across the lifespan (Carstensen et al., 2000; Noller & Sprott, 2003; Shallcross et al., 2013), or, possibly, disease progression as a function of age of onset. However, if differences in pain processing were the mechanism, it seems unlikely that the relationship with pain would not be significant. Researchers have shown that aging predicts decreased negative affect (Kratz et al., 2007), greater levels of acceptance (Shallcross et al., 2013), and acceptance has been found to buffer the effects of pain on negative affect in FMS (Kratz, Davis, & Zautra, 2007). In FMS, quality of life and health status satisfaction have been found to improve over time despite unchanging pain (Noller & Sprott, 2003).

Lastly, exercise predicted greater improvements in function longitudinally, but not cross-sectionally, and baseline reports of physical abuse predicted higher pain longitudinally, but not cross-sectionally. The effect of physical abuse was marginally significant in the baseline model, so it seems reasonable that this difference is a result of increased power in the longitudinal model (Hedeker & Gibbons, 2006). With respect to exercise, power alone does not seem to explain the difference. Research in FMS has revealed significant effects of exercise on functioning longitudinally (Da Costa et al., 2005; Sañudo, Carrasco, de Hoyo, & McVeigh, 2012), but it is interesting that these differences emerged as significant in our sample only when differences were considered over time.

Researchers should continue to explore the intricacies of age, psychosocial (e.g., affect and acceptance) and behavioral (e.g., exercise) factors, symptom duration, and self-efficacy simultaneously to further explicate these processes. The PPI index from the MPQ was administered in this FMS-specific study, but it is possible that participants reported pain other than FMS-specific pain. Future studies should investigate the relationship between self-efficacy and objective pain, which seems to behave distinctly in these processes (Puente et al., 2015). Researchers could also attempt an ecological momentary assessment of pain approach to exploring these relationships. Finally, although the sample reflects typical FMS sufferers, future studies could examine these relationships within different demographics, as our sample was mostly White and middle-aged and exclusively female.

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Glossary

FMS	Fibromyalgia Syndrome
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ACR	American College of Rheumatology
HMO	Health Maintenance Organization
IRB	Institutional Review Boards
ASES	Arthritis Self-Efficacy Scale
CES-D	Center for Epidemiologic Studies Depression Scale
FIQ	Fibromyalgia Impact Questionnaire
PPI	Present Pain Intensity
MPQ	McGill Pain Questionnaire

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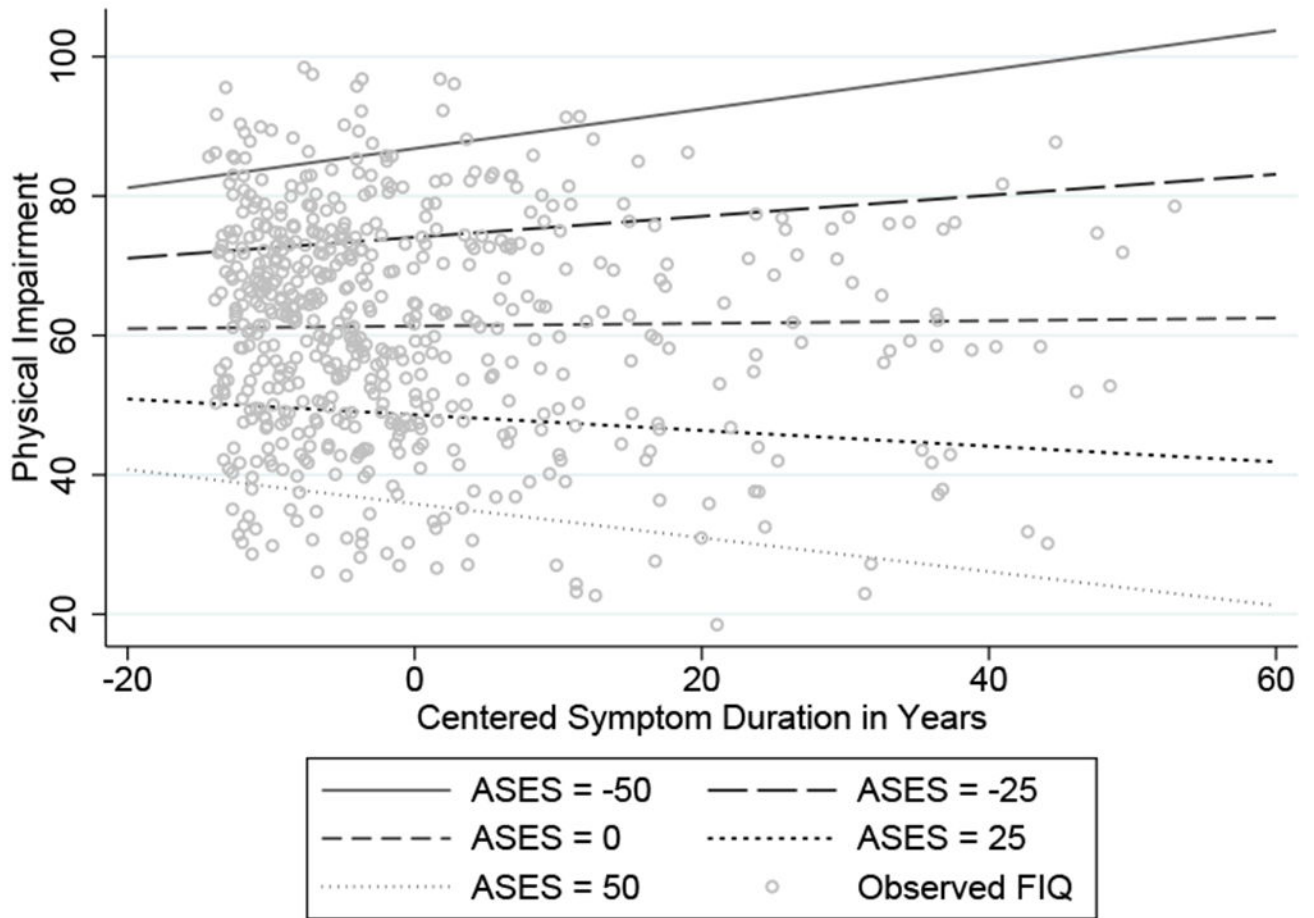


Figure 1.
The effects of symptom duration by self-efficacy on Fibromyalgia Impact questionnaire.

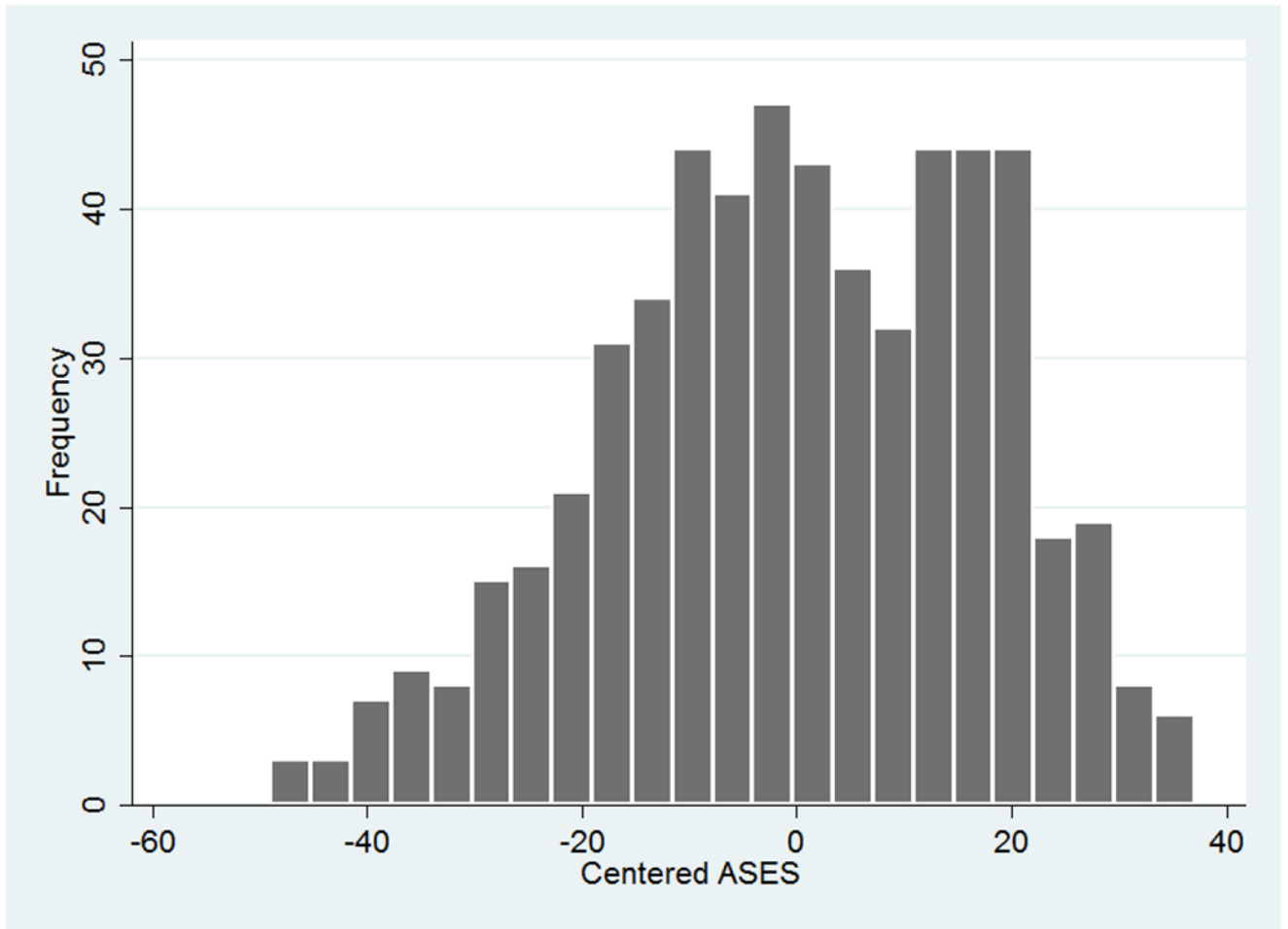


Figure 2.
Distribution of Arthritis-Specific Self-Efficacy Scores.

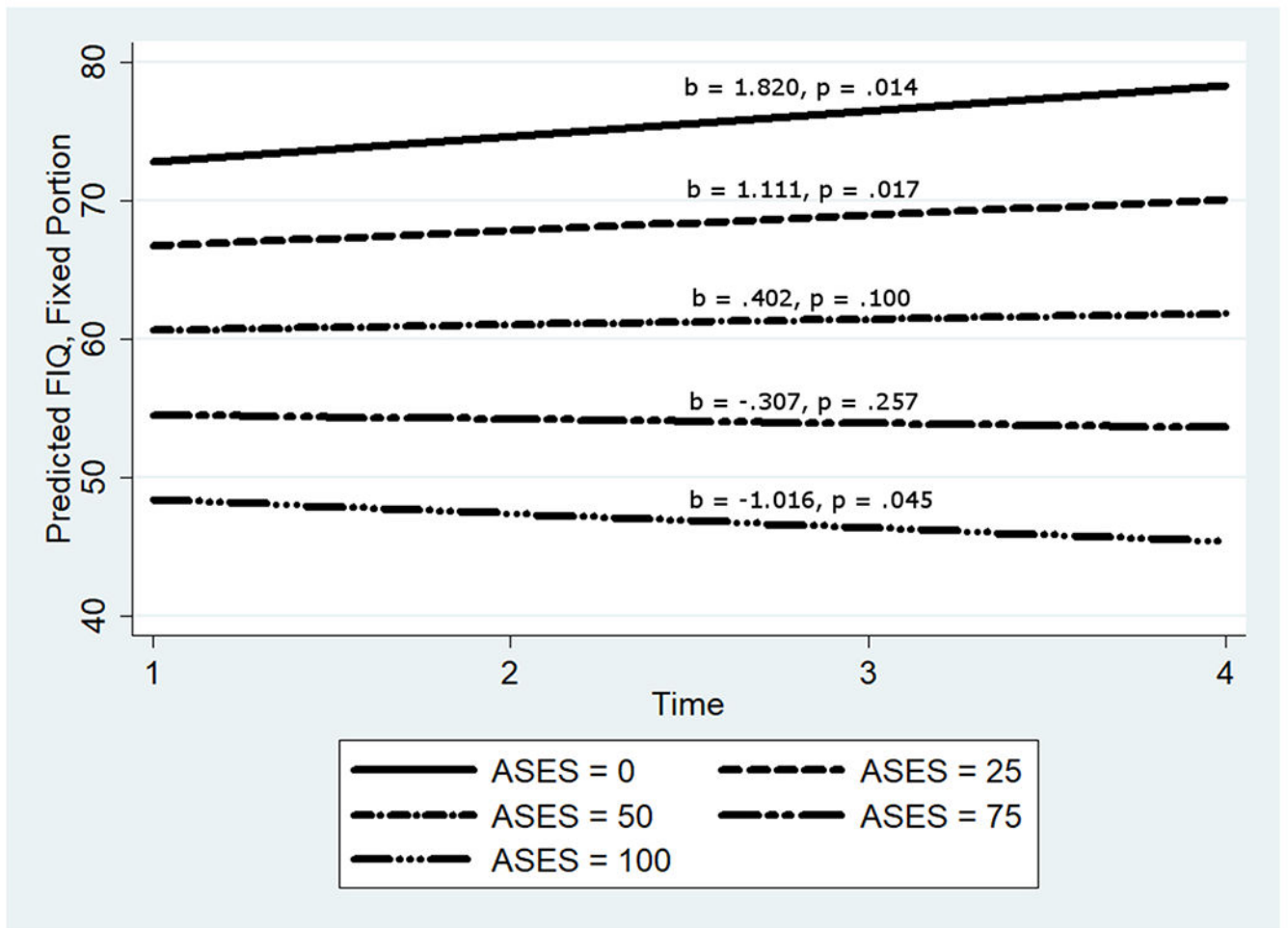


Figure 3.
The longitudinal effects of time and self-efficacy on Fibromyalgia Impact Questionnaire.

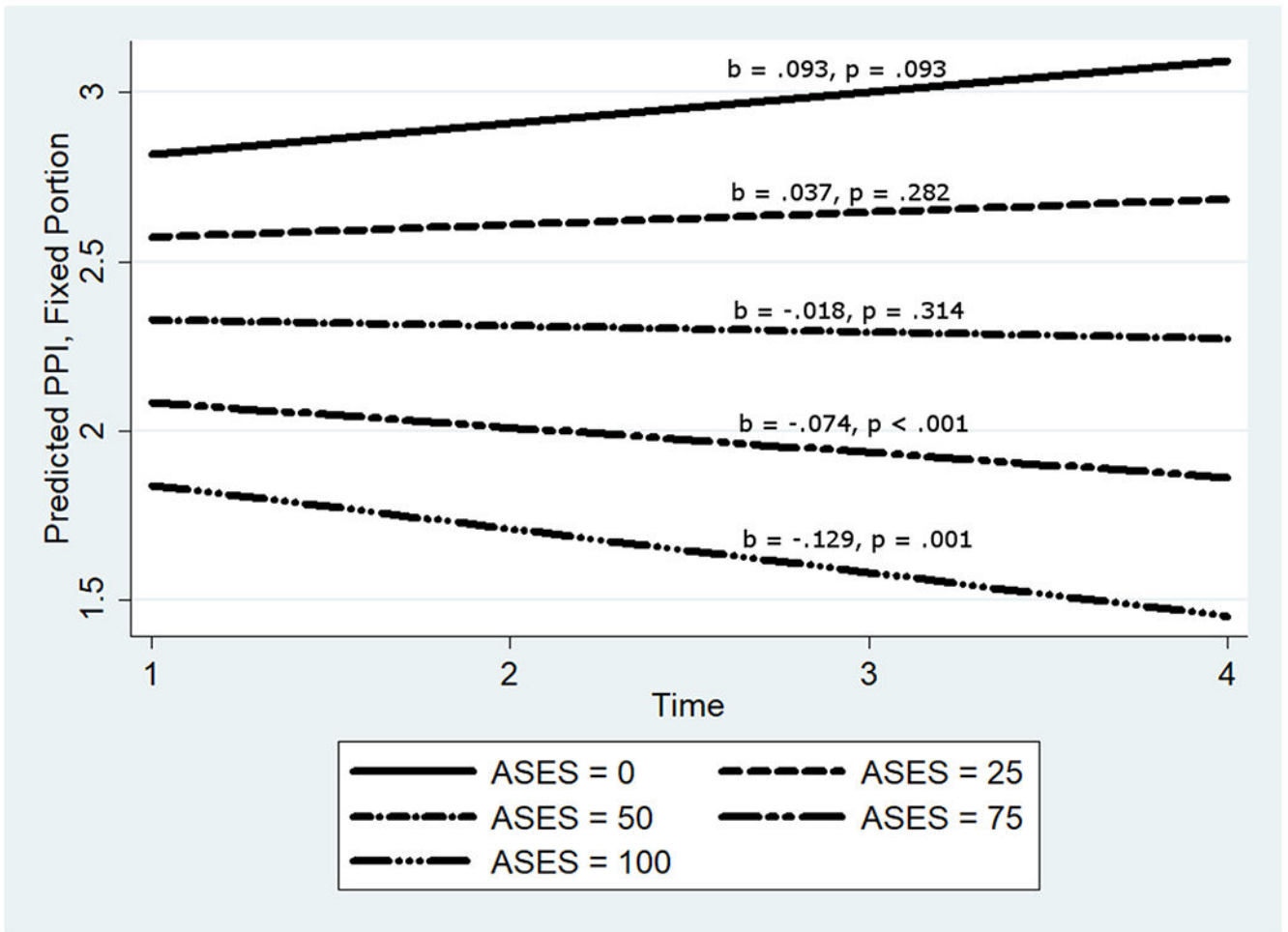


Figure 4. The longitudinal effects of time and self-efficacy on McGill present pain intensity.

Table 1

Participant Demographics

Item	Valid %	N
Ethnicity		
White	85.11	486
Non-White	14.89	85
Age		
18 to 30 years	2.44	14
31 to 50 years	37.17	213
51 to 65 years	44.33	254
66 years or older	16.06	92
Education		
High School Graduate or Less	19.06	109
Associate's Degree/Trade School	50.70	290
Bachelor's Degree	15.21	87
Graduate Level Degree	15.03	86
Income		
Less than \$10,000	5.06	29
\$10,001-\$20,000	10.82	62
\$20,001-\$30,000	15.53	89
\$30,001-\$40,000	21.47	123
\$40,001-\$50,000	15.18	87
\$50,001-\$60,000	9.60	55
\$60,001-\$70,000	6.63	38
\$70,001 or more	12.57	72
Decline to state	3.14	18
Employment Status		
Full-Time	32.64	91
Part-Time	15.88	187
Unemployed	7.85	45
Retired	22.86	131
Disabled	11.34	65
Homemaker	9.08	52
Student	0.35	2
Relationship Status		
Single	10.30	59
Married/Remarried	63.87	366
Widow	4.89	28
Separated	1.4	8
Divorced	19.55	112

Table 2

Baseline Regression Models for Physical Functioning (FIQ Physical Function Subscale)

Effect	Main Effects Model		Interaction 1		Interaction 2	
	<i>F</i> (8, 561) = 101.11, <i>p</i> < .001, <i>R</i> ² = .59		<i>F</i> (9, 560) = 91.57, <i>p</i> < .001, <i>R</i> ² = .60		<i>F</i> (10, 559) = 83.20, <i>p</i> < .001, <i>R</i> ² = .60	
	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>
Age	-.1426	.001 *	-.1423	.001 *	.1054	.433
ASES	-.2912	< .001 *	-.2216	< .001 *	.0137	.914
CES-D	.7534	< .001 *	.7542	< .001 *	.7631	< .001 *
Symptom Duration	.0082	.816	.2740	.011 *	.2297	.036 *
Physical Abuse	1.2060	.403	1.1832	.409	1.0979	.446
Sexual Abuse	-.5077	.716	-.4302	.757	-.4139	.765
Emotional Abuse	-.8308	.426	-.8132	.434	-.7904	.446
Fortnightly Exercise	1.2121	.263	1.1003	.308	.9649	.371
Symptom Duration × ASES			-.0047	.009 *	-.0039	.035 *
Age × ASES					-.0045	.053

Note: FIQ = Fibromyalgia Impact Questionnaire; ASES = Arthritis Self-Efficacy Scale; CES-D = Center for Epidemiological Study Depression Scale.

* *p* .05

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Table 3

Baseline Regression Models for Pain (McGill PPI)

Effect	Main Effects Model		Interaction 1		Interaction 2	
	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>
	<i>F</i> (8, 561) = 11.57, <i>p</i> < .001, <i>R</i> ² = .14		<i>F</i> (9, 560) = 10.36, <i>p</i> < .001, <i>R</i> ² = .14		<i>F</i> (10, 559) = 9.46, <i>p</i> < .001, <i>R</i> ² = .14	
Age	-.0009	.780	-.0009	.782	.0108	.309
ASES	-.0077	.001*	-.0060	.054	.0052	.610
CES-D	.0195	< .001*	.0195	< .001*	.0199	< .001*
Symptom Duration	.0014	.612	.0081	.343	.0059	.493
Physical Abuse	.2035	.073	.2030	.074	.1987	.080
Sexual Abuse	-.0366	.739	-.0346	.752	-.0339	.758
Emotional Abuse	-.0545	.506	-.0541	.510	-.0530	.518
Fortnightly Exercise	.0193	.820	.0165	.846	.0101	.906
Symptom Duration × ASES			-.0001	.408	-.0001	.586
Age × ASES					-.0002	.247

Note: PPI = Present Pain Intensity; ASES = Arthritis Self-Efficacy Scale; CES-D = Center for Epidemiological Study Depression Scale.

* *p* .05

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Table 4

Longitudinal Multilevel Models for Physical Function (FIQ Physical Function Subscale)

Fixed Effect	Main Effects Model		Interaction Model			
	<i>Wald $\chi^2(11) = 1678.48, p < .001$</i>		<i>Wald $\chi^2(12) = 1691.58, p < .001$</i>			
	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>	<i>Marginal B</i>	<i>p</i>
Intervention Arm						
Control v SS	-1.1936	.176	-1.2176	.167	-	-
Control v Combo	-1.2852	.143	-1.2779	.144	-	-
Age	-.1530	< .001*	-.1550	< .001*	-	-
ASES	-.2757	< .001*	-.2440	< .001*	-.2842	< .001
CES-D	.7121	< .001*	.7158	< .001*	-	-
Symptom Duration	.0353	.216	.0348	.222	-	-
Time	.1025	.630	1.8200	.014*	.1195	.571
Physical Abuse	1.8392	1.1645	1.8767	.106	-	-
Sexual Abuse	.3240	1.1323	.3228	.775	-	-
Emotional Abuse	-.0754	.928	-.0571	.946	-	-
Fortnightly Exercise	2.3253	< .001*	2.2767	< .001*	-	-
Time × ASES			-.0284	.015*	-	-

Note: FIQ = Fibromyalgia Impact Questionnaire; SS = Social Support Group; Combo = Social Support plus Education Group; ASES = Arthritis Self-Efficacy Scale; CES-D = Center for Epidemiological Study Depression Scale.

* *p* .05

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Table 5

Longitudinal Multilevel Models for Pain (McGill PPI)

Fixed Effect	Main Effects Model		Interaction Model			
	<i>Wald $\chi^2(11) = 279.28, p < .001$</i>		<i>Wald $\chi^2(12) = 287.19, p < .001$</i>			
	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>	<i>Marginal B</i>	<i>p</i>
Intervention Arm						
Control v SS	.0283	.641	.0277	.648	-	-
Control v Combo	.0271	.653	.0276	.646	-	-
Age	-.0008	.721	-.0010	.669	-	-
ASES	-.0126	< .001*	-.0097	< .001*	-.0129	< .001
CES-D	.0130	< .001*	.0132	< .001*	-	-
Symptom Duration	.0008	.684	.0007	.717	-	-
Time	-.0406	.010*	.0929	.093	-.0402	.010
Physical Abuse	.2226	.006*	.2225	.005*	-	-
Sexual Abuse	.0267	.733	.0259	.739	-	-
Emotional Abuse	-.0282	.626	-.0281	.626	-	-
Fortnightly Exercise	-.0013	.978	-.0056	.902	-	-
Time × ASES			-.0022	.012*	-	-

Note: PPI = Present Pain Intensity; SS = Social Support Group; Combo = Social Support plus Education Group; ASES = Arthritis Self-Efficacy Scale; CES-D = Center for Epidemiological Study Depression Scale.

*
p .05

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