

**Original article**

**Comparison of Psychiatric Symptoms and Attitudes of Coping with Stress in Somatization Disorder and Fibromyalgia and Osteoarthritis and Their Relatives**

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**Abstract**

**Objectives:** The aim of this study is to compare patients with fibromyalgia, their first degree relatives; osteoarthritis patients, their first degree relatives; patients with somatization disorder and healthy controls in terms of psychological symptoms, somatic complaints and ways of coping with stress. **Materials and Methods:** The study is planned as cross-sectional. Patients who presented to the Düzce University Faculty of Medicine, Physical Medicine and Rehabilitation Outpatient Clinic between June 2016 and January 2017 and who diagnosed with fibromyalgia and osteoarthritis, and their first-degree relatives, patients with somatization disorders and a healthy control group who filled out the informed consent form was included in this study. The socio-demographic information query form, Coping Inventory for Stressful Situations (COPE) Form, Psychological Symptom Checklist (SCL-90) and the Visual Analog Scale (VAS) were applied to all volunteers. Covariance analysis was used to compare groups in terms of scale scores. **Results:** It was determined that the groups were not homogeneous in terms of age, VAS, education level, sex, marital status and occupation. The groups were compared taking into account the impacts on the COPE and SCL-90 scores of these characteristics which are thought to be confounders. As a result of the evaluations, it was determined that the patients with fibromyalgia and somatization preferred *the problem-focused coping* and *emotional-focused coping* attitudes significantly less and *the non-functional coping attitude* significantly more. Osteoarthritis patients were found to be in the middle of both sides on many occasions. However, there was no significant difference among the groups in terms of psychological symptoms when the effect of the confounding factors were eliminated. **Conclusion:** Since the findings achieved suggest that fibromyalgia and somatization disorder are the same diseases, it has been concluded that more research should be conducted on the subject.

**Keywords:** COPE; fibromyalgia; osteoarthritis; SCL-90; somatization

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**Introduction**

Fibromyalgia syndrome (FMS) is a complex clinical manifestation presenting itself with pain spread throughout the body and accompanied by a variety of other symptoms.<sup>1</sup> Being observed in clinical practice frequently, FMS has become a major public health problem due to the high ratio of labor loss, impaired quality of life and increased treatment costs.<sup>2</sup> Osteoarthritis (OA) is

the most common articular disease in the world, characterized by destruction in joint cartilage and subchondral bone.<sup>3</sup> Somatization disorder (SD) is a disease in which many somatic complaints are observed in many organ systems, lasting more than several years and causing major loss of function or the search for treatment, or both.<sup>4</sup>

In FMS, complex symptoms observed in patients may be “*associated with stress*” since there are no

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clinical, laboratory or radiological findings. One of the symptoms of stress is physical complaints. People presenting with physical complaints as a result of stress either model someone else in using physical symptoms, or somatic complaints replace stress to get rid of stress. People who are suffocated by the burden of stress may resort to somatization as a form of destressing, or “*coping with stress may be a learned attitude*”. Learning occurs most frequently in the family one lives with. Stress may reveal physical symptoms and emotional symptoms which are psychiatric symptoms. Therefore, FMS patients should be investigated to determine whether they model the ways their own family members cope with stress. Or whether they use somatization to cope with stress. In order to understand this, the ways these patients and their first-degree relatives cope with psychiatric symptoms and stress should be established.

The purpose of this study is to compare patients with fibromyalgia, their first degree relatives; osteoarthritis patients, their first degree relatives; patients with somatization disorder and healthy controls in terms of psychological symptoms, somatic complaints and ways of coping with stress.

### **Materials and Methods**

#### ***Study Design and Sample***

This study is planned as cross-sectional. Patients who presented to the Düzce University Faculty of Medicine, Physical Medicine and Rehabilitation Outpatient Clinic between June 2016 and January 2017 and who were diagnosed with FMS and OA according to the American College of Rheumatology (ACR)<sup>1</sup> criteria and their first-degree relatives were included in the study. In addition, patients diagnosed with SD according to the DSM-IV criteria who presented to the Psychiatry Outpatient Clinic and healthy control subjects were included for comparison.

An informed consent form was given to the subjects for consenting to participate in the study and to have their information used for scientific purposes. Additionally, approval was received from the clinical trials ethics committee of Düzce University before data collection was initiated.

Illiterate and smaller than 18 age and patients with psychiatric problems were excluded from the study.

Information obtained as a result of a five-month data collection period was transferred to the database and data quality control was performed. A total of 354 subjects meeting the inclusion and exclusion criteria volunteered to participate in the study. However, a small variance in the number of subjects occurred according to the scale or the question evaluated since some of them did not answer some questions in surveys and scales. After data quality control, data collected from 89 FMS patients and 86 first-degree relatives of FMS patients, 72 OA patients and 70 first-degree relatives of OA patients, 70 SD patients and 37 healthy controls were evaluated.

#### ***Data Collection Tools***

A socio-demographic information query form, Psychological Symptom Checklist (SCL-90)<sup>5</sup>, Coping Inventory for Stressful Situations (COPE-60 items)<sup>6</sup> and the Visual Analog Scale (VAS) were applied to all volunteers to assess pain.

SCL-90 is a five-point Likert scale with 90 items and 10 sub-domains and is developed to determine the frequency and severity of psychiatric symptoms. As the scale score increases, the level of psychological disorder increases. An SCL-90 score of greater than 1,0 indicates the presence of a mental problem, between 0,5-1 indicates a moderate problem, and below 0,5 indicates no problem (Table 1 and Table 2).

COPE is a scale comprised of 60 questions and 15 sub-domains developed to determine the coping strategies used in stressful events. These scales are defined in 3 summary scales and coping styles are explained with more general definitions. Items in the COPE scale are anchored by “*usually do not do this at all*” and “*usually do this a lot*” on a 4-point scale. A low score received from the sub-domain of the scale indicates that those scales are used less, whereas a high score received indicates that those scales are used more. Sub-domain of the scales used, questions from the sub-domains and the meanings of sub-domains are given in Tables 1 and Table 3.

**Table 1.**Scales used in the study

Scale	Sub-domains	Question numbers in Scales	Total Score	
SCL-90 (90 questions) <sup>5</sup>	Somatization	1,4,12,27,40,42,48,49,52,53,56,58	Present	
	Obsessive-compulsive	3,9,10,28,38,45,46,51,55,65		
	Interpersonal sensitivity	6,21,34,36,37,41,61,69,73		
	Depression	5,14,15,20,22,26,29,30,31,32,54,71,79		
	Anxiety	2,17,23,33,39,57,72,78,80,86		
	Hostility	11,24,63,67,74,81		
	Phobic anxiety	13,25,47,50,70,75,82		
	Paranoid ideation	8,18,43,68,76,83		
	Psychoticism	7,16,35,62,77,84,85,87,88,90		
	Additional items	19,44,59,60,64,66,89		
	<b>Total SCL90 score (Global Severity Index)</b>	<b>Average score of the 90 items</b>		
COPE (60 questions) <sup>6</sup>	1. Active coping	5,25,47,58	Absent	
	2. Restraint	10,22,41,49		
	3. Planning	19,32,39,56		
	4. Use of instrumental social support	4,14,30,45		
	5. Suppression of competing activities	15,33,42,55		
	6. Positive reinterpretation and growth	1,29,38,59		
	7. Religious coping	7,18,48,60		
	8. Humor	8,20,36,50		
	9. Use of emotional social support	11,23,34,52		
	10. Acceptance	13,21,44,54		
	11. Behavioral disengagement	9,24,37,51		
	12. Substance use	12,26,35,53		
	13. Denial	6,27,40,57		
	14. Mental disengagement	2,16,31,43		
	15. Focus on and venting of emotions	3,17,28,46		
	Summary scales	Problem Focused Coping		(summation of 1-5 sub domain)
		Emotional Focused Coping		(summation of 6-10 sub domain)
Nonfunctional Coping		(summation of 11-15 sub domain)		

**Table 2.** Sub-domains meanings of SCL-90 scale

Scale	Sub-domains	Meaning
SCL-90 <sup>5</sup>	Somatization	This dimension reflects distress arising from bodily perceptions such as cardiovascular, gastrointestinal, respiratory, and other systems with autonomic mediation.
	Obsessive-compulsive	This dimension reflects symptoms typical of obsessive-compulsive disorder. Experiences of cognitive attenuation are also included in this dimension.
	Interpersonal sensitivity	This dimension focuses on feelings of personal inadequacy and inferiority in comparisons with others.
	Depression	Most of the typical symptoms of depressive syndromes according to current diagnostic criteria are included here.
	Anxiety	This dimension is composed of symptoms that are associated with manifest anxiety. Some somatic correlates of anxiety are also included here.
	Hostility	Thoughts, feelings, or actions characteristic of the negative affect state of anger are reflected here. Qualities such as aggression, irritability, rage, and resentment are included.
	Phobic anxiety	The items of this dimension are actually all manifestations of agoraphobia.
	Paranoid ideation	Paranoid ideation is represented here as a disordered mode of thinking.
	Psychoticism	Items include withdrawal, isolation, and schizoid lifestyle as well as first-rank schizophrenia symptoms such as hallucinations and thought-broadcasting.
	Additional items	These items contribute to the global scores of the questionnaire but are not scored collectively as a dimension. They primarily touch upon disturbances in appetite and sleep patterns.
	<b>Total SCL90 score (Global Severity Index)</b>	<b>All questions</b>

**Table 3.** Sub-domains meanings of COPE-60 scale

	Sub-domains	Meaning	Coping Way
COPE-60 <sup>6</sup>	1. Active coping	Taking steps to eliminate the problem	Problem Focused Coping
	2. Restraint	Waiting for the right moment to act	
	3. Planning	Thinking about dealing with the problem	
	4. Use of instrumental social support	Seeking advice from others	
	5. Suppression of competing activities	Focusing only on the problem	
	6. Positive reinterpretation and growth	Reframing the stressor in positive terms	Emotional Focused Coping
	7. Religious coping	Using faith for support	
	8. Humor	Making light of the problem	
	9. Use of emotional social support	Seeking sympathy from others	
	10. Acceptance	Learning to accept the problem	
	11. Behavioral disengagement	Giving up trying to deal with the problem	Nonfunctional Coping
	12. Substance use	Using alcohol or drugs to reduce distress	
	13. Denial	Refusing to believe the problem is real	
	14. Mental disengagement	Distracting self from thinking about the problem	
	15. Focus on and venting of emotions	Wanting to express feelings	

**Statistical Analysis**

Descriptive statistics (Mean, Standard Deviation, Minimum and Maximum values, count and percent frequencies) of the data obtained were calculated and given in the tables (Table 4 and Table 5). The

internal consistency between items and between sub-domains of the scales were determined by the Cronbach Alpha coefficient. The relationships between scores were examined using the Spearman Rank correlation coefficient. A suitable chi-square test was used in the relationship between categories of socio-demographic characteristics and groups, and the variance analysis model was used in the comparison of five groups with regard to age, VAS and number of siblings. Since significant differences were observed between groups with regard to the age, VAS, sex, education level, occupation, and marital status, these variables were taken as covariates in the model and covariance analysis was used in

the comparison of groups regarding total scores and sub-domain scores and different groups were determined by the Tukey HSD test. The statistical significance level was taken as  $p < 0,05$  and SPSS (ver. 18) was used in calculations.

**Results**

A significant difference was detected in terms of age, VAS and mean number of siblings among groups enrolled in the study (Table 4).

Significant differences were found with regard to sex, marital status, education level, distribution of occupation, place of residence and substance use among the groups. This result indicates that groups are not homogenous in terms of characteristics (Table 5).

**Table 4.** Descriptive values of numerical variables

Variables	FMS			Relatives of FMS			OA			Relatives of OA			Control			Somatization disorder			P
	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	
Age	89	50,6 <sup>a</sup>	13,2	86	41,2 <sup>b</sup>	13,8	71	61,4 <sup>c</sup>	12,5	69	42,4 <sup>b</sup>	15,6	37	31,4 <sup>d</sup>	11,5	70	33,3 <sup>d</sup>	13,4	<0.001
VAS	81	6,6 <sup>a</sup>	3,0	72	4,0 <sup>b</sup>	3,3	53	5,8 <sup>c</sup>	2,9	44	3,6 <sup>b</sup>	3,0	36	0,8 <sup>c</sup>	1,4	70	0,0 <sup>c</sup>	0,0	<0.001
Number of siblings	86	4,9	1,9	86	4,7	2,2	71	5,7	2,5	68	4,5	1,9	36	4,5	2,2	70	4,6	4,80	0.115

**Table 5.** Distribution of the categorical variables according to groups

		FMS patients		Relatives of FMS patients		OA patients		Relatives of OA patients		Control		Somatization disorder		P
		n	%	n	%	n	%	n	%	n	%	n	%	
Sex	Women	75	84,3 <sup>a</sup>	53	61,6 <sup>b</sup>	54	75,0 <sup>ab</sup>	44	63,8 <sup>b</sup>	21	56,8 <sup>b</sup>	42	60,0 <sup>b</sup>	<b>0.002</b>
	Male	14	15,7	33	38,4	18	25,0	25	36,2	16	43,2	28	40,0	
Marital status	Married	72	80,9	72	83,7	58	80,6	48	69,6	20	54,1	40	58,0	<b>&lt;0.001</b>
	Single	8	9,0	12	14,0	3	4,2	17	24,6	16	43,2	27	39,1	
	Widow	9	10,1	2	2,3	11	15,3	4	5,8	1	2,7	2	2,9	
Education level	Primary school	61	68,5	32	37,2	54	75,0	24	34,8	11	29,7	17	24,3	<b>&lt;0.001</b>
	Middle School	10	11,2	11	12,8	7	9,7	6	8,7	5	13,5	13	18,6	
	High school	9	10,1	24	27,9	8	11,1	20	29,0	4	10,8	17	22,9	
	University	9	10,1	19	22,1	3	4,2	19	27,5	17	45,9	23	32,9	
Occupation	Housewife	57	64,0	26	31,0	45	62,5	23	33,3	6	16,2	24	34,8	<b>&lt;0.001</b>
	Officer	4	4,5	13	15,5	5	6,9	9	13,0	8	21,6	3	4,3	
	Worker	10	11,2	24	28,6	6	8,3	15	21,7	5	13,5	13	18,8	
	Retired	11	12,4	7	8,3	10	13,9	8	11,6	2	5,4	2	2,9	
	Student	3	3,4	1	1,2	1	1,4	2	2,9	11	29,7	12	17,4	
	Other	4	4,5	13	15,5	5	6,9	12	17,4	5	13,5	15	21,7	
Place of residence	City-Town	59	66,3	59	69,4	49	68,1	58	84,1	31	83,8	55	78,6	<b>0.049</b>
	Village	30	33,7	26	30,6	23	31,9	11	15,9	6	16,2	15	21,4	
Substance use	Cigarette	19	21,3	28	32,9	10	13,9	20	29,0	14	37,8	23	74,2	<b>&lt;0.001</b>
	Cigarette +Alcohol	1	1,1	3	3,5	1	1,4	4	5,8	2	5,4	5	16,1	
	Alcohol +Substance	0	0,0	0	0,0	0	0,0	1	1,4	0	0,0	0	0,0	
	All	0	0,0	0	0,0	1	1,4	0	0,0	0	0,0	3	9,7	
	None	69	77,5	54	63,5	60	83,3	44	63,8	21	56,8	0	0,0	

Internal consistency were found high between the items of the SCL90 and COPE scales and their sub-domain (Table 6).

**Table 6.**Internal consistencies of Scales

ÖLÇEK	Cronbach Alpha Coefficients					
	FMS patients	Relatives of FMS patients	OA patients	Relatives of OA patients	Control	Somatization disorder
SCL-90 (90 items)	0,981	0,980	0,973	0,971	0,981	0,985
SCL-90 (10 sub-domain)	0,966	0,967	0,953	0,954	0,970	0,962
COPE (60 items)	0,939	0,927	0,935	0,953	0,925	0,927
COPE (15 sub-domain)	0,893	0,875	0,897	0,920	0,883	0,872
COPE (3 summary measure)	0,856	0,803	0,802	0,853	0,816	0,804

Due to significant differences with regard to age, VAS, education level, sex, marital status, occupation and place of residence among groups, when comparing the groups in terms of scores, the effects of these factors on scale scores were taken into consideration as well. Thus, corrected means were calculated when a significant relationship was found between said socio-demographic characteristics and scale scores, otherwise correction the mean was not necessary.

When the effect of VAS, age, education, marital status and sex on “*substance use*”, “*denial*” and “*non-functional coping*” in sub-domain of the COPE scale were examined, the effect of education was found to be significant. As the education level increased, those who preferred *substance use* and the *denial* method decreased. It was observed that

the *non-functional coping* method was preferred less in post-graduates. The sub-domain of “*Mental disengagement*” was found to be significantly related to both education level and marital status. The *Mental disengagement* attitude was preferred less in widows and as education level increased. After obtaining this score, after the effect of education and marital status was eliminated, the group means of corrected scores were compared. Since the effect of age, VAS, sex, marital status and education was not found to be significant on 12 other sub-domains and 2 summary scales of the COPE scale, group means with regard to these sub-domains were compared without correcting according to these factors. The results achieved are given in Table 7.

**Table 7.** Comparison of COPE scores of the groups

COPE	FMS patients (n=87)		Relatives of FMS patients (n=86)		OA patients (n=70)		Relatives of OA patients (n=65)		Control (n=36)		Somatization disorder (n=70)		P <sup>a</sup>
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
1. Active coping	10,72 <sup>b</sup>	2,84	12,20 <sup>a</sup>	2,33	11,62 <sup>ab</sup>	2,88	11,82 <sup>a</sup>	3,07	12,03 <sup>a</sup>	2,90	10,66 <sup>b</sup>	3,12	<b>0,002</b>
2. Restraint	8,90 <sup>b</sup>	2,72	10,45 <sup>a</sup>	2,81	10,04 <sup>a</sup>	2,68	9,46 <sup>ab</sup>	2,48	9,94 <sup>ab</sup>	2,38	8,80 <sup>b</sup>	2,65	<b>0,001</b>
3. Planning	10,75 <sup>b</sup>	2,93	12,04 <sup>a</sup>	2,43	11,37 <sup>a</sup>	2,99	11,00 <sup>a</sup>	3,20	11,92 <sup>a</sup>	2,56	10,61 <sup>b</sup>	3,20	<b>0,012</b>
4. Use of instrumental social support	11,32	2,84	11,91	2,53	11,58	2,94	10,93	3,26	11,31	2,81	11,24	3,50	0,459
5. Suppression of competing activities	10,31	2,61	10,41	2,46	10,15	2,76	9,87	2,63	9,11	2,42	9,57	2,35	0,070
6. Positive reinterpretation and growth	10,75 <sup>b</sup>	2,69	12,55 <sup>a</sup>	2,30	11,66 <sup>ab</sup>	2,68	11,88 <sup>ab</sup>	2,97	11,05 <sup>ab</sup>	2,62	10,64 <sup>b</sup>	3,03	<b>0,001</b>
7. Religious coping	11,72 <sup>a</sup>	2,65	13,31 <sup>b</sup>	2,91	13,87 <sup>b</sup>	2,71	12,66 <sup>ab</sup>	3,18	12,50 <sup>ab</sup>	2,91	11,59 <sup>a</sup>	3,02	<b>0,001</b>
8. Humor	7,64	3,13	8,08	2,90	7,76	2,96	7,60	2,88	7,53	2,52	6,70	2,87	0,104
9. Use of emotional social support	10,91	2,88	11,58	2,89	11,06	2,82	10,51	2,79	10,11	3,17	10,77	3,10	0,123
10. Acceptance	9,38 <sup>b</sup>	2,70	10,89 <sup>a</sup>	2,48	10,39 <sup>a</sup>	2,93	9,34 <sup>b</sup>	2,74	9,36 <sup>b</sup>	2,68	9,25 <sup>b</sup>	3,05	<b>0,001</b>
11. Behavioral disengagement	8,70 <sup>a</sup>	3,15	7,53 <sup>ab</sup>	2,99	7,39	2,54	7,20	2,44	7,12	2,75	8,90	2,62	<b>0,001</b>
12. Substance use	5,93	3,26	6,00	3,06	5,88	3,18	6,23	2,98	6,22	3,00	6,61	2,93	0,743 <sup>a</sup>
13. Denial	8,40 <sup>a</sup>	3,08	7,87 <sup>ab</sup>	2,97	7,99 <sup>ab</sup>	2,10	7,08 <sup>b</sup>	2,90	7,26 <sup>b</sup>	2,94	8,68 <sup>a</sup>	2,93	<b>0,028<sup>a</sup></b>
14. Mental disengagement	10,19 <sup>a</sup>	3,08	8,88 <sup>b</sup>	3,06	8,70 <sup>b</sup>	2,93	8,83 <sup>b</sup>	2,82	9,09 <sup>b</sup>	2,76	10,79 <sup>a</sup>	2,84	<b>0,010<sup>a</sup></b>
15. Focus on and venting of emotions	10,98	2,57	11,28	2,92	10,93	2,86	10,21	2,91	10,75	3,05	11,14	2,95	0,297
<b>Problem Focused Coping</b>	50,67 <sup>a</sup>	10,93	55,00 <sup>b</sup>	9,38	55,76 <sup>b</sup>	11,75	53,07 <sup>ab</sup>	11,62	53,31 <sup>ab</sup>	10,61	50,69 <sup>a</sup>	10,50	<b>0,012</b>
<b>Emotional Focused Coping</b>	52,00 <sup>a</sup>	9,28	56,41 <sup>b</sup>	8,75	55,75 <sup>b</sup>	10,12	53,99 <sup>ab</sup>	10,80	53,75 <sup>ab</sup>	9,42	51,21 <sup>a</sup>	9,82	<b>0,002</b>
<b>Nonfunctional Coping</b>	43,29 <sup>a</sup>	11,94	40,30 <sup>ab</sup>	11,78	38,17 <sup>b</sup>	11,38	38,99 <sup>b</sup>	10,80	37,36 <sup>b</sup>	10,56	44,66 <sup>b</sup>	11,04	<b>0,010<sup>a</sup></b>

<sup>a</sup>: Adjusted *p* values according to ANCOVA model, other *p* values were not adjusted because covariate effects were found not significant

When we evaluated the 15 sub-domains and 3 summary scales of the COPE scale, we determined that patients diagnosed with FMS and patients with somatization disorder preferred the “*active coping, restraint, planning, positive reinterpretation and growth, religious coping and acceptance*” strategies significantly less than other groups. On the other hand, patients diagnosed with FMS and somatization patients preferred *behavioral disengagement, denial and mental disengagement* attitudes more compared to the other groups. No significant difference was observed with regard to other sub-domain scores. In addition, we determined when we evaluated the 3 sub-domain results which are more commonly used in the interpretation of the COPE scale that the patients diagnosed with FMS and patients with somatization disorder preferred “*Problem-focused Coping and Emotional-focused Coping*” significantly less and preferred *non-functional coping* significantly more. It has been observed that OA patients could be categorized in the middle of both sides on many occasions. After the effects of age, VAS, education and marital status on SCL-90 scores were eliminated,

no significant difference was observed among groups with regard to mean 10 sub-domain scores and mean general score (Table 8). According to this result, when the effect of socio-demographic factors was eliminated, it was concluded that said groups indicated no significant difference with regard to frequency and severity of psychiatric symptoms. It was determined that the relationship between all SCL-90 scales and education level was negative. It was observed that as education level increased, psychiatric symptoms decreased. On the other hand, it was determined that there was a positive relationship between VAS scores and somatization, and obsessive-compulsive symptoms, interpersonal sensitivity, anger and hostility decreased with age. Sex was found to be associated only with somatization, and higher somatization scores were observed in women. A significant relationship was not found between marital status and SCL-90 points. When the effect of these factors were eliminated, in other words, when individuals with the same sex, same age, same education level and same VAS level but with different groups were considered, no difference was detected in psychological symptoms.

**Table 8.** Comparison of SCL-90 scores of the groups

SCL-90	Adjusted Group Means												Results of ANCOVA	
	FMS patients (n=87)		Relatives of FMS patients (n=86)		OA patients (n=70)		Relatives of OA patients (n=65)		Control (n=36)		Somatization disorder (n=70)		Adj. P <sub>Group</sub>	Covariates with significant effects <sup>a</sup>
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Somatization	1,40	1,03	1,33	0,93	1,24	1,09	1,11	0,97	1,22	0,90	1,30	1,09	0,540*	Sex(F+), Education(-), VAS(+)
Obsessive-compulsive	1,32	1,12	1,19	1,02	1,06	1,17	1,20	1,05	1,09	1,02	1,30	1,17	0,194	Age(-), Education(-)
Interpersonal sensitivity	1,20	0,93	1,00	0,83	0,97	0,92	0,99	0,81	0,92	0,90	0,96	1,00	0,411	Age(-), Education(-)
Depression	1,23	0,93	1,03	0,83	0,98	0,92	0,93	0,81	1,01	0,84	1,20	0,92	0,168	Education (-)
Anxiety	1,09	0,84	0,95	0,83	0,94	0,84	0,84	0,81	0,93	0,84	1,09	0,92	0,415	Education (-)
Hostility	1,02	0,93	0,89	0,93	1,05	1,00	0,88	0,89	0,87	0,90	1,07	1,00	0,628	Age(-), Education(-)
Phobic anxiety	0,75	0,84	0,63	0,74	0,66	0,84	0,60	0,81	0,55	0,78	0,59	0,84	0,786	Education(-)
Paranoid ideation	1,13	0,93	1,10	0,83	0,94	0,92	0,90	0,89	0,95	0,84	1,00	0,92	0,501	Education(-)
Psychoticism	0,86	0,75	0,77	0,74	0,68	0,75	0,69	0,73	0,71	0,72	0,61	0,84	0,397	Education(-)
Additional items	1,33	0,93	1,13	0,83	1,12	0,92	1,00	0,81	1,13	0,84	1,13	0,92	0,288	Education(-)
<b>Global Severity Index</b>	1,18	0,75	1,03	0,74	0,97	0,75	0,93	0,73	0,95	0,72	1,02	0,75	0,288	Education(-)

<sup>a</sup>: (+):Significantly positive correlate with scale scores, (-): Significantly negative correlate with scale scores

The correlations between the sub-domains of COPE and SCL-90 in all individuals regardless of groups are given in Table 9. A significant relationship was found between all the scales of the SCL-90 scale and the sub-domains “*restraint, planning, positive reinterpretation and growth,*

*humor, acceptance, behavioral disengagement, substance use, denial, mental disengagement, focusing on the problem and venting of emotions*” and the “*non-functional coping*” scale of the COPE scale. A negative correlation was found between “*planning, positive reinterpretation and growth*” sub-domain scores and a positive correlation was found with other sub-domains.

**Table 9.**Correlations between the sub-domains of COPE and SCL-90 scales in all individuals

COPE 60		SCL90										
		Somatization	Obsessive-compulsive	Interpersonal sensitivity Kişilerarasıduyarlılık	Depression	Anxiety	Hostility	Phobic anxiety	Paranoid	Paranoid ideation	Psychoticism	Global Severity Index
Active coping	r	-,021	-,092	-,069	-,108	-,090	-,102	-,088	-,046	-,089	-,031	-,081
	p	,684	,067	,171	,032	,073	,043	,079	,361	,076	,537	,108
Restraint	r	,159	,208	,236	,215	,205	,157	,251	,228	,226	,141	,229
	p	,002	,000	,000	,000	,000	,002	,000	,000	,000	,005	,000
Planning	r	-,048	-,141	-,099	-,111	-,116	-,118	-,119	-,062	-,113	-,099	-,118
	p	,346	,005	,050	,028	,021	,019	,018	,218	,025	,051	,019
Use of instrumental social support	r	-,046	-,016	-,003	,019	-,021	-,045	,005	-,001	-,030	-,055	-,021
	p	,360	,748	,954	,703	,679	,370	,917	,980	,554	,275	,680
Suppression of competing activities	r	,112	,083	,103	,093	,115	,066	,102	,072	,083	,067	,105
	p	,027	,099	,041	,066	,022	,189	,043	,153	,101	,185	,036
Positive reinterpretation and growth	r	-,022	-,108	-,079	-,121	-,120	-,112	-,167	-,100	-,159	-,087	-,114
	p	,658	,032	,116	,017	,017	,026	,001	,046	,002	,083	,023
Religious coping	r	,089	-,027	-,020	-,022	-,049	-,076	-,059	-,066	-,065	,053	-,016
	p	,080	,591	,696	,659	,329	,131	,242	,194	,200	,291	,746
Humor	r	,109	,162	,120	,133	,192	,129	,135	,185	,199	,176	,174
	p	,032	,001	,017	,008	,000	,010	,007	,000	,000	,000	,000
Use of emotional social support	r	-,018	-,044	-,007	-,018	-,026	-,036	,008	-,029	-,034	-,051	-,030
	p	,718	,381	,893	,727	,613	,480	,872	,562	,506	,308	,546
Acceptance	r	,207	,203	,192	,208	,195	,132	,133	,219	,176	,193	,214
	p	,000	,000	,000	,000	,000	,008	,008	,000	,000	,000	,000
Behavioral disengagement	r	,174	,292	,308	,324	,316	,268	,355	,299	,348	,246	,332
	p	,001	,000	,000	,000	,000	,000	,000	,000	,000	,000	,000
Substance use	r	,140	,215	,236	,218	,349	,262	,296	,235	,335	,226	,274
	p	,006	,000	,000	,000	,000	,000	,000	,000	,000	,000	,000
Denial	r	,098	,238	,258	,205	,230	,184	,256	,258	,302	,205	,247
	p	,050	,000	,000	,000	,000	,000	,000	,000	,000	,000	,000
Mental disengagement	r	,125	,180	,185	,182	,187	,129	,199	,209	,205	,152	,197
	p	,013	,000	,000	,000	,000	,010	,000	,000	,000	,002	,000
Focus on and venting of emotions	r	,070	,083	,162	,151	,128	,140	,101	,156	,101	,099	,137
	p	,170	,099	,001	,003	,011	,005	,044	,002	,046	,050	,006
Problem Focused Coping	r	,032	,004	,036	,021	,016	-,016	,030	,041	,012	,001	,021
	p	,523	,942	,479	,685	,753	,750	,551	,414	,813	,991	,675
Emotional Focused Coping	r	,105	,055	,060	,053	,057	,012	,017	,061	,036	,083	,067
	p	,038	,276	,238	,295	,260	,814	,741	,229	,478	,099	,184
Nonfunctional Coping	r	,168	,289	,329	,308	,348	,284	,347	,333	,371	,266	,341
	P	,001	,000	,000	,000	,000	,000	,000	,000	,000	,000	,000

**Discussion**

FMS is a major disease among chronic pain syndromes. Even though it has diagnostic criteria and many symptoms, there are still no acceptable etiological causes, or inflammation, laboratory, or radiological findings. Prognosis is uncertain, treatment is difficult and there is no certain treatment.<sup>7</sup> FMS is a difficult disease for doctors, patients and their relatives. Therefore, it is one of the leading diseases for which much research is conducted. Therefore, research consisting of mental and physical functions and attitudes will

play an important role in the awareness of the disease.

Stress is any kind of compelling thought or event that challenges and disrupts the harmony of the person.

Stress is a major health problem because it affects many organs etiologically and causes psychological disorders.<sup>8,9</sup>When a given situation is perceived as stress, a series of physiological mechanisms is activated. These mechanisms occur with noradrenaline and cortisol secretion as a result of activation of the sympathetic and



adrenomedullary system with hypothalamic-pituitary-adrenal axis<sup>10</sup>. Stress causes distress in people. The person searches for ways to cope with the stress in order to get rid of their distress. Many people get rid of stress by using coping methods. However, some people use somatization to get rid of the distress caused by stress instead of coping with it.

Marital status, economic conditions, education level, age, pain and sex may directly affect strategies for coping with stress. In our study, the number of subjects using the method of “*substance use and denial*” to cope with stress decreased with higher education level. This is because educated people are more aware that substance use is hazardous and prefer to face the truth more and reduce user denial. We found that post-graduates preferred the method of “*non-functional coping*” more and educated people used functional coping methods that led to a result. Those who used “*mental disengagement*” decreased in widows and as education level increased. This showed us that these people focused on solving the problem instead of being distanced from stress.

Psychological symptoms are affected by age, pain, sex and education level. Use of psychological symptoms decreased with increased education level. We observed that most of those with a low education level used psychological symptoms more due to being in economical difficulties, not being able to cope with their problems and not being able to find a way to cope with their problems. We found a positive relationship between pain and somatization; because not only is pain a form of expression of somatization, but also somatization is mostly expressed with pain, namely it is revealed by pain. We observed that with increased age, obsessive-compulsive symptoms, interpersonal sensitivity, anger and hostility decreased. This is because people who are advanced in age have developed insight and gained experience as a result of stressful events and they can produce solutions to stressful events. We determined that sex and somatization are related and that the somatization score is high in women. We believe that this is due to the fact that women fall behind in social life and have a lower education level. Due to these demographic differences, after eliminating the effect of education level, age, pain and sex on scores to be able to evaluate coping with stress directly, we achieved the corrected scores of the groups. When the effect of these factors is eliminated, we

did not observe any psychological differences in individuals in any of the groups. This showed us that these factors directly affected psychological symptoms.

We observed that FMS relatives, OA patients, their first-degree relatives and the healthy group used problem-focused coping more. We determined that the scores of the “*denial, behavioral disengagement, mental disengagement*” sub-domains, which are methods of non-functional coping, were significantly higher in FMS patients and patients with somatization disorder compared to other groups. FMS and SD patients used similar coping methods when they faced a stressful environment. This brought up the question ***whether the disease was used as a way to cope*** with stress. This raised the question “Are somatization disorder and FMS the same disease?” Particularly, younger ages (25-30) are ages when people get married, when problems in marriage begin, expectations emerge, economic difficulties are experienced most frequently due to a need to fit in a new social environment, and when people face the facts of life. At these ages, people may face more stress. When patients with FMS and somatization disorder face stress, not being able to fulfill expectations causes an internal conflict and tension. This internal tension increases sympathetic activity and cortisone. A patient, who notices symptoms occurring as a result of these, avoids stress by paying attention to somatic complaints, abandoning his/her conflicts with the outer world. Some learn these physical complaints of stress from family members, they model them, and the stress and somatic complaints switch places. Thus, the person deals with the physical complaints and gets rid of the distress and tension caused by stress. These people cannot produce healthy solutions and cannot find a healthy way out in coping with stress.

Somatization disorder is a chronic disease presenting with somatic symptoms which cannot be explained medically. The disease starts before the age of 30, is observed in a ratio of 4-7% and more frequently in women and patients with this disease visit the doctor more than other patients<sup>11</sup>. Even though there are advancements in studies conducted on somatization disorder, its pathophysiology remains unclear.<sup>12</sup> Emotional status is one of the statuses that affects somatization disorder.<sup>7</sup> Many studies demonstrate a relationship between emotional status and psychiatric disorders.<sup>13</sup>

As distinct from other rheumatic diseases, such as OA, FMS is observed in patients with low socioeconomic and education level and more frequently in women. FMS usually starts between the ages of 25-35 and is observed most intensely between the ages 18-50.<sup>14-16</sup> Even though clear information with regard to exact age of onset does not exist, FMS can even start in childhood. The motivation of FMS patients is low and they visit the doctor more. Ability to cope with stress is reported to be low in these patients.<sup>17</sup> Despair may show an important correlation with any disease with chronic pain, particularly FMS. FMS is affected by stress more than other rheumatic diseases, particularly rheumatoid arthritis and systemic lupus erythematosus.<sup>18-20</sup>

### **Conclusion**

We observed that FMS and somatization share the same features, such as: both are formed only of symptoms; both share similar symptoms; no exact knowledge on their etiopathogenesis exists; both occur in women more frequently; their age of onset is close; both are observed more in people with low education and socio-economic level; the patients visit the doctor more than normal; although both have diagnostic criteria there are no certain laboratory or radiological findings; both use the same methods in coping with stress; both have no certain treatments and have uncertain prognosis. All these results suggested that FMS and somatization disorder are the same disease. Therefore, we concluded that more research should be conducted on the subject we addressed in this study.

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