

Mental Symptoms are Related with Impact of The Disease and Impairment in Quality of Life in Female Patients with Fibromyalgia

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ABSTRACT

Mental symptoms are related with impact of the disease and impairment in quality of life in female patients with fibromyalgia

Objective: Diagnostic criteria of fibromyalgia are revised in 2010 by including mental symptoms and excluding tender points. Although dominance of pain still prevails on the diagnostic criteria, quality of life (QoL) surveys showed that fibromyalgia is strongly associated with mental components of health status, i.e. depression, anxiety and alexithymia. It is aimed to assess determinants of QoL and impact of the disease in patients with fibromyalgia.

Methods: Fifty seven female outpatients (mean age±SD: 40.93±6.85; age range: 24-56) with fibromyalgia were enrolled. Fibromyalgia Impact Questionnaire, Short Form-36 QoL survey, Beck Depression Inventory, State-Trait Anxiety Inventory, 20-item Toronto Alexithymia Scale were the measurement tools.

Results: Predictor of impact of the disease was alexithymia, particularly, difficulty in identifying feelings (DIF) domain. Predictor of physical health was age, whereas predictors of mental health were depression and trait anxiety.

Discussion: Alexithymia, particularly DIF domain may be a more specific predictor of fibromyalgia symptoms, whereas depression and anxiety are more burdensome mental symptoms for fibromyalgia. Pain and mental symptoms are seemed to be processed separately. Targeting mental symptoms may provide better treatment outcomes, thus multidisciplinary approaches including psychiatry are necessary.

Key words: Pain, alexithymia, quality of life, fibromyalgia

ÖZET

Fibromiyalji olan kadın hastalarda mental belirtilerin yaşam kalitesi ve hastalık şiddeti ile ilişkisi

Amaç: Fibromiyalji tanı ölçütleri, mental belirtiler dahil edilerek ve de hassas noktalar çıkarılarak 2010 yılında değiştirilmiştir. Yeni tanı ölçütlerinde ağrı hala en belirgin özellik olarak yerini korumaktadır, ancak yaşam kalitesi araştırmaları fibromiyaljinin depresyon, anksiyete, aleksitimi gibi yaşam kalitesinin mental bileşenleri ile ilişkili olduğunu göstermektedir. Bu araştırmada fibromiyalji hastalık şiddeti ve yaşam kalitesinin belirleyicilerinin araştırılması hedeflendi.

Yöntem: Ayakta izlenen ve fibromiyalji olan 57 kadın hasta (ortalama yaş±SS: 40.93±6.85; yaş aralığı: 24-56) çalışmaya alındı. Fibromiyalji Etki Anketi, Kısa Form-36, Beck Depresyon Ölçeği, Durumluluk-Süreklilik Kaygı Envanteri ve 20 maddelik Toronto Aleksitimi Skalası ölçüm araçlarıydı.

Bulgular: Hastalık etki şiddetinin belirleyicisinin aleksitimi, özellikle de duygulan tanımadaki güçlük (DTG) faktörü olduğu tespit edildi. Yaşam kalitesinin fiziksel sağlık özeti belirleyicisi yaş, mental sağlık özeti belirleyicileri ise depresyon ve sürekli anksiyete puanlarıydı.

Tartışma: Aleksitimi ve özellikle DTG alt birimi fibromiyalji belirtileri için yordayıcı olabilirken, depresyon ve anksiyete fibromiyalji için daha fazla yük getirici mental belirtiler olabilir. Fibromiyalji ağrı ve mental semptomlar ayrı işleniyor gibi görünmektedir. Tedavide mental semptomların da ayrıca ele alınması tedavilerin başarı şansını artırabilir. Bu nedenle, psikiyatrinin de aralarında yer aldığı multidisipliner yaklaşımlara ihtiyaç vardır.

Anahtar kelimeler: Ağrı, aleksitimi, yaşam kalitesi, fibromiyalji

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INTRODUCTION

Fibromyalgia is characterized by widespread pain, physical and mental symptoms (1). Former diagnostic criteria, suggested by American College of Rheumatology (ACR) in 1990 (1) was controversial because of the scant description and inappropriate criterion tender points (2). In 2010, the ACR revised the diagnostic criteria by removing tender points and including mental symptoms (3).

Although physiopathology of pain remains unclear in fibromyalgia (4), it is suggested that a shared mechanism may cause both pain and mood disturbances in fibromyalgia (5,6). According to this model, monoamines including norepinephrine and serotonin projecting from brain stem to spinal cord and forebrain are responsible for both mood regulation and pain processing. On the other hand, pain conditions are very frequently accompanied by depressive and anxiety disorders, and thus it is difficult to distinguish whether depressive and anxiety symptoms are primary or secondary to distress of the pain condition (7). Likewise, Yunus (8) stated that it is not clear whether mental symptoms precede the onset of pain and disability or follow the development of fibromyalgia. Nevertheless, it is indicated in recent studies that pain and mental symptoms are independent phenomena in fibromyalgia. For instance, Evren et al. (9) found that improvement of pain in patients with fibromyalgia with venlafaxine treatment was independent from improvement of depression and anxiety symptoms. Gormsen et al. (10) suggested that distinct mechanisms are responsible for pain and mental symptoms and these two phenomena are processed separately in fibromyalgia.

Alexithymia is a trait suggested to explain the relationship between pain and affective spectrum disorders. Lumley et al. (11) suggested that alexithymia contributes to affective components of pain by influencing adaptive emotion regulation and then resulting in increased negative affect (i.e. sadness, anger) and psychological arousal (11); and negative affect is associated with higher symptom levels in fibromyalgia (12,13). Dimensions of alexithymia are therefore thought to reflect deficits in the cognitive processing

and regulation of emotions and to contribute to the onset or maintenance of several medical and psychiatric disorders (11,14).

QoL is found to be deteriorated in fibromyalgia in several studies (10,13,15-20). In a systematic review by Hoffman and Dukes (19), fibromyalgia was strongly associated with the mental component of health status, more than other pain conditions like osteoarthritis or rheumatoid arthritis. Recent studies suggested that deterioration of QoL might not be mediated by chronic pain only, but also by the presence of depressive symptoms in fibromyalgia (10,13).

It is aimed to assess whether alexithymia is directly effective on clinical parameters or mediated by different psychopathological aspects such as anxiety and depression. Second aim was to check whether impact of the disease or mental symptoms are more burdensome to these patients in this study. In this context correlates of burden of the disease and QoL were assessed.

METHODS AND MATERIALS

Fifty seven female outpatients (mean age±SD: 40.93±6.85; range: 24-56) with fibromyalgia according to operational criteria proposed by the American College of Rheumatology (3) participated in this study. This study was done in collaboration with Istanbul Physical Therapy and Rehabilitation Hospital and Bakırköy Research and Training Hospital for Psychiatry, Neurology and Neurosurgery. Consecutive outpatients of Istanbul Physical Therapy and Rehabilitation Hospital were enrolled. Initial assessments were done by a clinician from Physical Therapy and Rehabilitation department. Then a psychiatric assessment was done by a psychiatrist (MIA or ODB). Ethical committee approved the study and each participant gave a written informed consent. Mental retardation, cognitive impairment, prior psychiatric diagnosis or any psychotropic medication were the exclusion criteria.

Measures

Participants were assessed with a socio-demographic data form. Other measurement tools were as follow:

Fibromyalgia Impact Questionnaire (FIQ):

Fibromyalgia impact questionnaire is suggested to be a measure of disease impact in fibromyalgia (21). Turkish version has been adapted by Sarmer et al. (22). FIQ is involved with functional capacity, professional situation, psychological disturbances and physical symptoms.

Toronto Alexithymia Scale (20-item):

Alexithymia was screened by 20-item Toronto Alexithymia Scale (TAS-20) (23,24). The Turkish version of the TAS-20 has been validated on a Turkish sample by Gulec et al. (25). Items of TAS-20 are rated on a five-point (1-5) Likert scale, and total scores range from 20 to 100. TAS-20 includes three dimensions: (I) Difficulty in identifying feelings (DIF); (II) Difficulty in describing feelings (DDF); (III) Externally oriented thinking (EOT).

Beck Depression Inventory (BDI): The Turkish version (26) of BDI (27) was used to evaluate depressive symptoms. BDI is a self-report questionnaire that includes 21-item. Answers of each item are arranged in 0 to 3 order (0: least, 3: most), and score range is 0-63. Total score is the sum of all items.

State-Trait Anxiety Inventory (STAI):

Spielberger's State-Trait Anxiety Inventory (STAI) is a self report scale including 40-items (28). The Turkish version of the scale has been validated by Öner and LeCompte (29). Two distinct parts measure state and trait anxiety separately. Each item is on a Likert scale ranging from 1 (not at all) to 4 (very much so).

Short Form 36 (SF-36): Short Form 36 (SF-36) is a tool for measuring QoL in patients with physical and psychiatric diseases and disorders. Ware and Sherbourne (30) developed the SF-36 and Koçyiğit et al. (31) adapted into Turkish. Higher scores imply better health conditions. It consists of eight scaled scores, which are weighted sums of the questions in their sections. Each scale is directly transformed into a 0-100 scale based on the assumption that each question is equally weighted. Each of eight items was standardized according to the following formula:

$$\text{Standardized Scale} = \frac{(\text{Transformed Scale} - \text{Population mean})}{\text{Population standard deviation}}$$

Population mean values were obtained from Demiral et al. (32). Two main summary measures, physical and mental health were calculated with weighing items according to the instructions suggested by the developers.

Statistical Analysis

SPSS for Windows 17.0 was the software used. Differences with a p value lower than 0.05 were accepted as significant. Correlations were obtained with Pearson's correlation test. Predictors of impact of fibromyalgia and physical and mental health subsections of SF-36 were obtained by running four different sets of linear regression analyses for each dependent variable.

RESULTS

Socio-demographic characteristics of the patient group are presented in Table 1 and clinical characteristics are given in Table 2.

Table 1: Sociodemographic characteristics of the patients with fibromyalgia

	Fibromyalgia (n=57)
Age	40.93 (6.85)
Education	
Uneducated	6 (10.5%)
Primary School	36 (63.2%)
High School	11 (19.3%)
University	4 (7%)
Marital Status	
Married	53 (93%)
Single	4 (7%)

Impact severity of the disease correlated with DIF, EOT and total scores of TAS-20 ($p < 0.01$) and depression ($p < 0.05$) scores (Table 3). Physical health summary of SF-36 correlated only with age ($p < 0.05$) and mental health summary of SF-36 correlated with depression and state and trait anxiety scores ($p < 0.01$).

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Table 2: Clinical characteristics of the patients with fibromyalgia [Mean (±SD)]

Patients with fibromyalgia (n=57)					
BDI		17.74 (8.66)		Physical Function	40.50 (21.45)
STAI	State	53.23 (10.67)	SF-36 Subscores	Role Physical	24.88 (30.93)
	Trait	51.58 (8.50)		Body Pain	34.04 (13.89)
TAS	Total	53.44 (11.55)		General Health	40.05 (19.53)
	DIF	17.91 (5.86)		Vitality	44.49 (19.92)
	DDF	14.11 (4.54)		Social Function	55.38 (25.57)
SF-36	EOT	21.25 (4.36)		Role Emotional	31.84 (35.09)
	MHS	31.60 (15.51)		Mental Health	53.31 (15.87)
	PHS	29.18 (9.14)			
FIQ		62.7 (12.92)			

BDI: Beck Depression Inventory, STAI: State-Trait Anxiety Inventory, STAIS: State Anxiety Subscale, STAIT: Trait Anxiety Subscale, TAS: Toronto Alexithymia Scale, DIF: Difficulty in Identifying Feelings Subscale, DDF: Difficulty in Describing Feelings Subscale, EOT: Externally Oriented Thinking Subscale, SF-36: Short Form-36, MHS: Mental Health Summary, PHS: Physical Health Summary, FIQ: Fibromyalgia Impact Questionnaire

Table 3: Correlations between clinical variables

	Age	FIQ	DIF	DDF	EOT	TAS	BDI	STAI ^S	STAI ^T
FIQ	0.1								
DIF	-0.03	0.41**							
DDF	-0.1	0.22	0.55**						
EOT	0.15	0.41**	0.48**	0.12					
TAS (total)	0.01	0.46**	0.91**	0.71**	0.66**				
BDI	-0.01	0.31*	0.25	0.38**	0.33*	0.38**			
STAI^S	0.09	0.16	0.12	0.28*	0.18	0.22	0.53**		
STAI^T	0.08	0.22	0.02	0.13	0.04	0.07	0.50**	0.76**	
PHS	-0.32*	-0.16	-0.01	-0.02	-0.02	-0.06	-0.08	-0.08	-0.05
MHS	-0.04	-0.25	-0.17	-0.25	-0.07	-0.19	-0.55**	-0.50**	-0.51**

Pearson's correlation test. *p<0.05, **p<0.01. See explanations of the abbreviations at Table 2.

Table 4: Predictors of disease impact in fibromyalgia

	Unstandardized Coefficients		Standardized Coefficients	t	P
	B	Standard Error	Beta		
TAS total*	0.52	0.13	0.46	3.89	<0.001
DIF [†]	0.89	0.27	0.41	3.30	0.002

Linear Regression analysis. *df=1.56, F=15.11, Adjusted R²=0.20. †df=1.56, F=10.86, Adjusted R²=0.15 Dependent variable: FIQ; *Independent variables: Age, TAS total, STAI (state, trait), BDI. †Independent variables: Age, DIF, DDF and EOT subscores of TAS, STAI (state, trait), BDI. See explanations of abbreviations at Table 2.

the disease was only total score of the TAS-20 [p<0.001 df=1.56, F=15.11, Adjusted R²=0.20. Dependent variable: FIQ; Independent variables: Age, TAS total, STAI (state, trait), BDI] (Table 4). Furthermore, a second regression to detect which dimension of alexithymia determine the impact of the disease revealed that DIF is the predictor of the impact of the disease [p=0.002, df=1.56, F=10.86, Adjusted R²=0.15. Dependent variable: FIQ; Independent variables: Age,

DIF, DDF and EOT subscores of TAS, STAI (state, trait), BDI].

No relationship was detected between physical or mental domains of QoL and impact of the disease. Predictor of physical health domain of QoL was age (p=0.015, df=1.56, F=6.35, Adjusted R²=0.087) and predictors of mental health domain of QoL were depression (p=0.003) and trait anxiety (p=0.013, df=2.56, F=16.23, Adjusted R²=0.35) scores (Table 5).

Table 5: Predictors of physical and mental health dimensions of quality of life

		Unstandardized Coefficients		Standardized Coefficients	t	P
		β	Standard Error	Beta		
Physical Health*	Age	-0.43	0.17	-0.32	-2.52	0.015
Mental Health^y	BDI	-0.70	0.22	-0.39	-3.14	0.003
	STAI^r	-0.58	0.23	-0.32	-2.57	0.013

Linear Regression analyses. *df=1.56, F=6.35, Adjusted R2=0.087. ^ydf=2.56; F=16.23, Adjusted R2=0.35. *Dependent Variable: Physical Health subsection of SF-36; ^yDependent variable: Mental Health subsection of SF-36; Independent Variables: Age, BDI, FIQ, TAS (total, DIF, DDF, EOT). See explanations of abbreviations at footnote of table 2.

DISCUSSION

Although fibromyalgia is characterized by depression and anxiety, impact of the disease was predicted by alexithymia and this finding was previously shown by several studies (12,34-38). Alexithymia may prompt to report undifferentiated physiological facets of emotions, instead of feeling aspects of emotions. An approach by Lumley et al. (11) is that alexithymia contributes to affective components of pain by influencing adaptive emotion regulation and then resulting in increased negative affect and psychological arousal. It is suggested that negative affect may cause a response bias that may contribute to higher estimation in self-reports on alexithymia and negative outcomes (i.e. pain intensity, poor QoL) (39,40). On the other hand, Lumley et al. (39) suggest that heightened psychological arousal with alexithymia may cause physiological arousal and might be experienced as aversive physical symptoms and reported as such. De Gucht et al. (33) investigated 377 patients with somatoform symptoms and found that DIF dimension of alexithymia is significantly related to somatoform symptoms; based on this, they suggested that DIF might be more specific predictor of somatoform symptoms rather than general alexithymia.

Impact of the disease (i.e. intense pain) might be expected to bring greater challenge to coping abilities and may bring more distress, therefore cause more impairment in QoL scores. But impact of the disease did not show any association with QoL. Accordingly, with regard to the statements of Evren et al. (7) and Yunus (8), the assumption that "there is discrepancy in processing pain and mental symptoms and these phenomena are detached" (9,10) becomes strengthened.

Hallberg et al. (41) found that trait anxiety is

positively correlated to catastrophizing and negatively correlated to coping strategies. This finding puts anxiety in a central position that anxiety may be related to cognitive distortions in fibromyalgia. It may also manifest itself that patients with fibromyalgia are frequently diagnosed with anxiety disorders as well as depressive disorders (1). Burden of the patients with anxiety and/or depression may thus be higher than patients without. Consistent with this, recent studies related presence of depressive symptoms in fibromyalgia with deterioration of QoL (10,13).

On the contrary, some authors commented that it is not clear whether mental symptoms are triggered by distress of pain (7,8). However, pain may not be the only domain to trigger distress; some somatic symptoms in fibromyalgia like dizziness, stiffness, fatigue may indicate a cognitive background that may involve as well as pain. Catastrophization is another proposed reason of distress and in a systematic review by Petrak et al. (40), the determinants of QoL in somatoform pain disorders were age (younger age leads to a negative evaluation of physical health) and catastrophization (found to be a major determinant of mental health). Catastrophization may itself emphasize emotional responses (42). This cognitive style has frequently been observed in depressed patients with fibromyalgia (43,44).

Müller et al. (45) even proposed a classification of fibromyalgia according to morbidity of psychopathologies: In type 1 disease, immune and rheumatologic mechanisms are responsible. Depressive disorders can be observed in type 2 and 3 disease; and type 4 disease is a somatoform pain disorder. Although this classification needs to be further tested, fibromyalgia patients may differ according to the presence of mental symptoms, which may explain the diverseness of studies.

To establish causal connections, further follow up studies are needed. Mild cases who do not seek for treatment and patients who did not accept to be enrolled might have caused inaccuracy. Fibromyalgia is more common in women than in men (3.4% of women and 0.5% of men) in the general population (46). Since patients of our sample were all female, results of this study may not be generalizable to male patients with fibromyalgia. This was an open trial and sample size was relatively small. A number of tests were run with no control for inflation of type I error. Finally,

self-report measures on subjective complaints were other limitations of this study.

To conclude, alexithymia, particularly DIF domains determine impact of the disease and anxiety and depression predict mental health summary of QoL in fibromyalgia. Cognitive behavioral therapies targeting emotional disturbances, negative emotions (i.e. anxiety and depression) and difficulty in identifying feelings may help to improve treatment outcomes. Multidisciplinary approaches including psychiatry are necessary for patients with fibromyalgia.

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