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An Investigation of Alexithymia, Type D Personality Traits, and Childhood Traumas in Patients with Fibromyalgia

Dr. Burcu Sırlıer Emir, M.D[1]*, Sevler Yıldız, M.D[2], Şeyma Sehlikoğlu, M.D[3], Erkan Çakmak, M.D[4], Nevzat Gözel, M.D[5]

[1]Specialist, Elazığ Fethi Sekin City Hospital, Departmant of psychiatry, Elazığ, Turkey
[2]Associate Professor, Elazığ Fethi Sekin City Hospital, Departmant of psychiatry, Elazığ, Turkey
[3]Assistant Professor, Adıyaman Training and Research Hospital, Department of psychiatry, Adıyaman, Turkey
[4]Assistant Professor, Fırat Üniversity, Faculty of Medicine, Department of internal medicine, Elazığ, Turkey
[5]Associate Professor, Fırat Üniversity, Faculty of Medicine, Department of internal medicine, Elazığ, Turkey

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***Corresponding author:** Dr. Burcu Sırlıer Emir, M.D
Specialist, Elazığ Fethi Sekin City Hospital, Departmant of psychiatry, Elazığ, Turkey

Abstract **Original Research Article**

Although not completely understood, fibromyalgia is characterized by intense physical complaints with psychiatric factors involved in its etiopathogenesis. The present study aimed to investigate alexithymia, type D personality, and childhood traumas that might accompany fibromyalgia in those patients. The study enrolled 44 healthy controls and 44 patients with fibromyalgia. Sociodemographic and Clinical Data Form, Type D Personality Scale (DS-14), Toronto Alexithymia Scale (TAS), and Childhood Trauma Questionnaire (CTQ-28) were used for the purposes of collecting data from all the participants. The group including patients diagnosed with fibromyalgia had significantly higher type D personality traits compared to the control group (p=.015). Furthermore, there was a significant intergroup difference by the TAS scale (p<0.05). CTQ-28 total and emotional, physical neglect, and emotional abuse subscales were higher in the patient group compared to the control group (p<0.05). Upon intragroup comparison of DS-14 subscale and CTQ-28 subscale scores in the patient group, patients with negative affection were significantly more emotionally neglected (p=.009). There was a moderate positive correlation between the CTQ-28 total scores and the TTS total score of patients with fibromyalgia (r=.54, p=.01). Individuals with fibromyalgia have a history of childhood trauma, difficulty in expressing their emotions, and distressed personality structures. Psychological assessment and psychosocial support therapies would prove to be beneficial in the treatment of fibromyalgia, a psychosomatic disease.

Keywords: Fibromyalgia, alexithymia, type D personality, childhood trauma.

INTRODUCTION

Fibromyalgia is a chronic musculoskeletal disorder characterized by morning stiffness and fatigue along with widespread muscle and joint pain especially in the neck, shoulders, back, and hips [1]. The disease is associated with a significant decreases in the quality of life due to symptoms and the most common complaints in patients are reported as fatigue, sleep disturbance, depression, and cognitive problems [2, 3]. It is well-established that psychosomatic diseases are associated with childhood traumas [4]. Previous studies suggested that fibromyalgia also occurred due to childhood trauma [5-7]. Individuals with childhood trauma experiences may have difficulty in recognizing and expressing emotions, i.e., alexithymia [8]. The alexithymia term was initially used to define certain personality traits as an expression of psychosomatic disorders [9]. This is because of the fact that individuals with alexithymia may misinterpret their emotional states as physical illness [10]. Alexithymia was higher compared to the healthy control group in a study, which investigated 70 female patients with fibromyalgia [11]. Personality construct is also important along with habits and behaviors of individuals in the interpretation of physical diseases [12]. Personality is considered the individual difference with regard to perception and use of acquired knowledge and experience. "Distressed personality" or Type D personality is comprised of social inhibition (SI) and negative affectivity (NA) sub-dimensions. NA is defined as a depressed mood and a tendency to experience quick anger, where SI is defined as the tendency to prevent the expression of emotions and behaviors in social environment [13]. Type D

personality pattern is observed in certain mental illnesses [14]. There are previous studies, which investigated personality constructs in patients with fibromyalgia [15], yet to the best information of the authors there was no previous study, which investigated in combination the childhood trauma, alexithymia, and type D personality associated with this disease. The present study aimed to investigate the association between those psychiatric conditions, which may be interrelated in fibromyalgia, a psychosomatic disorder.

MATERIALS AND METHODS

Required local ethics committee approval was obtained on December 1, 2022 (No. 2022/14-17). The study was performed in compliance with the ethical standards prescribed in Declaration of Helsinki (revised 1983 version). Patient group was comprised of 44 female patients diagnosed with fibromyalgia, who presented to the General Internal Medicine and Rheumatology outpatient clinics of Fırat University Hospital between January 2023 and April 2023, and met the study criteria. The healthy control group included 44 healthy women without any medical conditions, who presented to Fethi Sekin City Hospital for regular annual check-ups. The participants were assessed by an internal medicine specialist and then psychiatrists conducted approximately 30-minute structured interviews based on DSM-5. Upon collection of signed written informed consents from all the participants, a sociodemographic data form, the Type D personality scale (DS-14), the Toronto Alexithymia Scale (TAS), and the Childhood Trauma Questionnaire (CTQ-28) were completed. Patients, who were unable to answer the questions, who were illiterate, who had impaired hearing and speech, who had a history of alcohol and substance abuse during the last 6 months, who d,d not age between 18 and 65 years, and who had neurological disorders were excluded from the study. Eight patients with fibromyalgia were excluded because of incomplete responses to the scale questions, where 6 individuals from the healthy group were excluded because of their refusal to take part in the study.

Scales used in the study

Sociodemographic data form: This form included items to collect data on age, marital status, economic status, etc to provide the authors with detailed information about the participants.

Type D personality scale (DS-14): It was developed to assess social inhibition (SI), negative affectivity (NA), and type D personality. The 14-item Likert-type scale includes two subscales measuring SI and NA. The validity and reliability study of the scale for the Turkish language was performed by Alçelik *et al*., [16, 17].

Toronto Alexithymia Scale (TAS): Developed by Taylor et al. to measure alexithymic traits pursuant to theoretical knowledge. The scale consists of 26 items and its Turkish validity and reliability have been established [18, 19].

Childhood Trauma Questionnaire (CTQ-28**):** The original scale was developed by Bernstein *et al*., where the adaptation, validityi and reliability study for the Turkish language was conducted by Şar *et al*., [20, 21].

Statistical Analysis

For the purposes of the study, categorical variables were presented in frequency and percentage, where descriptive statistics and continuous variables as mean ± standard deviation. Categorical variables were grouped, percentages were calculated and Pearson's Chi-squared or Fisher's exact test was used to compare frequencies, as appropriate. The Kolmogorov Smirnov test was used to test the normal distribution hypothesis for continuous variables ($p>0.05$) and kurtosis and skewness values were also taken into consideration. For the comparison of the averages of the two groups, independent samples to test and Mann Whitney U test were used for data with and without normal distribution, respectively. For calculating the direction and magnitude of the relationship between quantitative variables, Pearson's correlation test was used for variables with normal distribution. All statistical analyses, tables, and graphs were performed using the Statistical Package for the Social Sciences (SPSS) version 22 (IBM Corp, Armonk, NY). A P value of < 0.05 was considered significant, statistically demonstrating and the existence of a relationship between the variables.

RESULTS

The present study consisted of a total of 88 participants, with 44 patients diagnosed with fibromyalgia and 44 healthy controls. The mean age of the patient group and the control group was 41.32 ± 9.5 years and 41.34 ± 12.1 years, respectively. The study participants were selected by a simple randomized method with an aim to provide similar distributions in terms of age and gender, and the sociodemographic and clinical characteristics of the patient and control groups are shown in Table-1.

In the present study, there was no significant difference between the patient and control groups by presence comorbid psychiatric conditions, use of psychiatric medication, smoking, alcohol and substance use, and organic disease ($p>.005$). The prevalence of fibromyalgia was significantly higher in the families of the patient group compared to the control group ($\chi 2$: 3.474, SD: 1, $p<.005$). A significantly higher proportion of the participants in the patient group had previously received psychiatric treatment compared to the control group ($\chi 2$: 6.175, SD: 1, $p=.013$). This result was indicative of a significant difference upon comparison of patient and control group by psychiatric treatment history. The Mann Whitney U test results suggested a similar relationship between smoking and the duration of fibromyalgia diagnosis in the patient group ($p=.924$).

As a result of Fisher's exact test for comorbid psychiatric conditions, current or past psychiatric treatment history, and benefit from fibromyalgia treatment in the patient group, there was no significant relationship there between. There was no significant correlation between the duration of fibromyalgia diagnosis and previous psychiatric treatment, comorbid psychiatric disorders, and use of psychiatric medication. Upon comparison of the scores from Type D personality scale and subdomains between the patient and control groups, the participants with fibromyalgia presented Type D personality traits at a significantly higher rate compared to the control group (t(88)=8.27; p=.015). Total scores from Toronto alexithymia scale was significantly higher in the patient group (Table-2) ($p<0.05$).

Upon review of childhood trauma scale and subdomain scores in patients with fibromyalgia and control group, individuals with fibromyalgia were significantly more emotionally and physically neglected and emotionally abused compared to the control group (Table-3).

There was no significant correlation between the CTQ-28 total score and the presence of comorbid psychiatric disorders, and previous psychiatric treatment in patients with fibromyalgia. The mean CTQ-28 total scores of patients with fibromyalgia, who were currently on psychiatric medication were significantly higher compared to those of patients with fibromyalgia, who were not taking medication (t(44)=2.38; p=.04). The CTQ-28 exposure of patients with and without a family history of fibromyalgia was similar (p=.829). There was no significant relationship between the CTQ-28 subscale scores of patients, who benefited or did not benefit from fibromyalgia treatment.

In the present study, the total score and subscale scores from the Type D personality scale were similar in participants with fibromyalgia, who received or did not receive psychiatric treatment. Similarly, there was no significant relationship between age and negative affectivity and social introversion in patients with fibromyalgia. Patients, who benefited from fibromyalgia treatment had similar Type D personality scale total and subscale scores compared to patients, who did not. Upon intragroup comparison of Type D personality subscale scores and CTQ-28 subscale scores in the patient group; fibromyalgia patients with negative affectivity were significantly more emotionally neglected ($\chi 2$: 6.918, SD: 1, p=.009). Negative affectivity and social introversion were not significantly correlated with other subscales of the CTQ-28. Fibromyalgia patients with comorbid psychiatric disorders had similar Type D personality scale total scores compared to patients without psychiatric disorders. Fibromyalgia patients on psychiatric medication had significantly more negative affectivity compared to than patients without psychiatric medication use (t(44)=6.57; p=.01).

There was no significant difference as a result of the correlation analysis between the age of fibromyalgia patients and the total score of the Toronto Alexithymia scale (p=.851). Fibromyalgia patients with psychiatric disorders had significantly higher alexithymia total scores compared to patients without psychiatric disorders (t(44)=1.91; p<.05). Total scores of alexithymia were similar between patients who benefited or did not benefit from treatment (p=.440). The total score of alexithymia in socially introvert fibromyalgia patients was significantly higher compared to those, who were not socially introvert (t(44)=2.57; p=.015). Similarly, fibromyalgia patients with negative affectivity had significantly higher alexithymia scores compared to fibromyalgia patients without negative affectivity (t(44)=2.85; p=.007). Student's t-test was performed to compare the childhood trauma subscales and alexithymia mean scores of fibromyalgia patients and the results are shown in Table-4. There was a moderately positive correlation between CTQ-28 total scores and alexithymia total scores of patients with fibromyalgia (r=.54, p<.01).

Table 1: Sociodemographic and clinical characteristics of patient and control groups

Variable		**Patient (n)**	**Control (n)**
Marital Status	Single	6 (%13,6)	12 (%27,3)
	Married	34 (%77,3)	29 (%65,9)
	Divorced	4 (%9,1)	3 (%6,8)
Education	Literate	2 (%4,5)	2 (%4,5)
	Primary School	11 (%25,0)	10 (%22,7)
	Middle School	7 (%15,9)	9 (%20,5)
	High School	11 (%25,0)	14 (%31,8)
	University	13 (%29,5)	9 (%20,5)
Economic situation	Low	3 (%6,8)	3 (%6,8)
	Middle	39 (%88,6)	33 (%75,0)
	High	2 (%4,5)	8 (%18,2)
Organic disease	Yes	11 (%25,0)	9 (%20,5)
	No	33 (%75,0)	35 (%79,5)

Variable		Patient (n)	Control (n)
Psychiatric disorder	Yes	6 (%13,6)	4 (%9,1)
	No	38 (%86,4)	40 (%90,9)
Smoking	Yes	13 (%29,5)	9 (%20,5)
	No.	31 (%70,5)	35 (%79,5)
Alcohol-substance abuse	Yes	1 (%2,3)	0 (%0)
	No.	43 (%97,7)	44 (%100)
Fibromyalgia in the family	Yes	9 (%20,5)	3 (%6,8)
	No	35 (%79,5)	41 (%93,2)
Previous psychiatric treatment	Yes	10 (%22,7)	2 (%4,5)
	No	34 (%77,3)	42 (%95,5)

Table 2: Differences between psychological measures in patient and control groups

	Patient	Control	F*	p
DCS- ND	1,6 ± 0,4	1,1 ± 0,3	27,5	,000
DCS- SID	9,4 ± 5,9	3,9 ± 3,1	20,4	,000
DCS- Total	24,3 ± 10,7	8,4 ± 6,9	6,1	,015
TTS	50,3 ± 11,1	28,0 ± 5,7	19,7	,000

* Student-t test F value

DKÖ-ND: D-type personality scale negative affect, DCS-SID: Type D personality scale social introversion, SDQ-Total: Type D personality scale total score, TTS: Toronto Alexithymia Scale Total score

Table 3: Comparison of Childhood Trauma Scale and its subgroups in patient and control groups

	Patient	Control	Z*	p
Emotional Neglect	14,2 ± 5,1	6,4 ± 2,7	-6,41	**,000**
Emotional Abuse	6,2 ± 1,6	5,3 ± 0,6	-3,38	**,001**
Physical Neglect	8,1 ± 2,2	5,4 ± 0,8	-6,08	**,000**
Physical Abuse	5,8 ± 1,5	5,1 ± 0,4	-1,92	,054
Sexual Abuse	5,1 ± 0,4	5,0 ± 0,1	-1,69	,091
CTQ-28 t	39,3 ± 7,6	27,2 ± 3,8	-6,66	**,000**

* Mann-Whitney U test Z value

CTQ-28 t: Childhood trauma scale total score

Table 4: Comparison of childhood trauma subscales and mean score of alexithymia in fibromyalgia patients

		Alexithymia	F[a]	p
Physical abuse	No	48,3 ± 10,4	,000	**,042***
	Yes	56,2 ± 11,7		
Physical Neglect	No	47,8 ±11,3	,216	,227
	Yes	52,0 ±10,9		
Emotional Abuse	No	48,4 ± 10,3	,062	**,009****
	Yes	60,1 ± 10,7		
Emotional Neglect	No	43,2 ± 7,6	3,87	**,001****
	Yes	54,3 ± 10,9		
Sexual Abuse	No	49,8 ± 11,4	,692	,462
	Yes	53,8 ± 8,6		

[a] Student-t test F value

*: Student-t test; significant at p< .05 level. **: Student-t test is significant at p< .01 level.

DISCUSSION

As a result of the study, patients diagnosed with fibromyalgia had difficulty in identifying their emotions, felt negative emotions both towards themselves and their environment, and felt insecure around other people. Those patients had a history of emotional and physical neglect and emotional abuse at childhood and that fibromyalgia patients, who had experienced childhood trauma, had more difficulty in identifying their emotions.

Previous studies in the relevant literature investigated the association of type D personality traits with a number of diseases, including cardiovascular diseases, ankylosing spondylitis, chronic renal failure, and dialysis treatment [22-24]. Furthermore, it was shown that type D personality traits were more prevalent in patients with social anxiety disorder and conversion disorder as a result of in the field of mental health studies [25, 26]. It was reported by a study on

558 patients, mostly women, diagnosed with fibromyalgia, a psychosomatic disease, that chronic pain and general health problems were associated with type D personality construct, especially in those with negative affectivity [27]. Both negative affectivity and social isolation were associated with a worse mental and physical health status in fibromyalgia [28, 29]. In the present study, the negative affectivity and social isolation subscales and DS-14 total score of patients with fibromyalgia were higher compared to the healthy group, therefore, the results of the study are consistent with the previous studies in that respect. Alexithymia can be seen in people with type D personality traits [30]. Patients with fibromyalgia have difficulty in recognizing and describing their emotions [31]. Alexithymia was introduced as a term associated with psychosomatic disorders [32], and Tekintaş *et al*., found that the TAS score of patients diagnosed with fibromyalgia was 48.21±11.07 [33]. In the patient group of the present study, similar to other studies, the TAS total score was measured as 50.3 ± 11.1. It was anticipated that the inability to express emotions may be expressed in the form of physical complaints in the future.

Exposure to adverse situations during childhood affects the child's psychological and biological processes. Individuals with negative life experiences during their early years are more akin to present with alexithymic characteristics [34]. Further, there are studies suggestive of the fact that neglect and abuse in childhood might have caused somatization-related conditions in adulthood [35]. Karaş *et al*., reported that emotional abuse, physical abuse, physical neglect, and CTQ-28 total scores were higher in patients diagnosed with fibromyalgia compared to the control group [36]. As a result of the present study, CTQ-28 total and emotional, physical neglect, and emotional abuse subscales were higher compared to the control group. This is indicative of the fact that neglect and abuse as experienced during childhood might affect the symptoms and severity of fibromyalgia. In the present study, the CTQ-28 total mean scores of fibromyalgia patients, who were still on psychiatric medication were significantly higher compared to those of fibromyalgia patients who were not using medication, and the high CTQ-28 emotional neglect score in people with negative affectivity in the patient group was suggestive of the fact that unresolved traumas in fibromyalgia patients led to the use of psychiatric medications during adulthood, and that those traumas induced mental symptoms other than physical fibromyalgia symptoms such as pain.

There was a positive correlation between CTQ-28 and TTS total scores in fibromyalgia patients. Uzun *et al*., also reported a correlation between TTS and CTQ-28 scores and showed that the more trauma the patient was exposed to, the more alexithymia was observed in the clinic setting [37]. In addition, Semiz *et al*., reported that trauma scale scores were high in fibromyalgia patients, which contributed to higher TTS scale scores [38]. This may lead to the conclusion that negative experiences might affect emotional expression. In support thereof, the sample group of the present study had a history of psychiatric treatment prior to the diagnosis of fibromyalgia. Inadequate or irregular psychiatric treatment seems to have contributed to the occurrence of fibromyalgia in people with childhood traumas.

The present study had certain limitations including the fact that it was designed as a cross-sectional study, that all the participants were women, thus we were not able to suggest differences by gender, and that the sample was relatively small.

CONCLUSION

In conclusion, fibromyalgia patients have difficulty in defining their emotions and demonstrate negative affectivity; they are in an effort to be socially accepted, and have a history of previous emotional and physical neglect and emotional abuse. Further studies are required to ascertain whether this condition was present before or after the onset of fibromyalgia. In any case, we believe that the resolution of mental problems can have a positive impact on the clinical picture of the disease.

Ethics statement: The study was conducted in accordance with the Declaration of Helsinki and approved by the Fırat University Clinical Research Ethics Committee (date: December 01, 2022 and number: 2022/14-17).

Conflict of interest: The authors declare that they have no confict of interest.

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REFERENCES

1. Bair, M., & Krebs, E. (2020). Fibromyalgia. *Annals of Internal Medicine*, 3,172(5), ITC33-ITC48.
2. 2.Muñoz, Ladrón de Guevara, C., Reyes del Paso, G. A., Fernández Serrano, M. J., & Montoro, C. I. (2022). Fibromyalgia Syndrome and Cognitive Decline: The Role of Body Mass Index and Clinical Symptoms. *Journal of Clinical Medicine*, *11*(12), 3404.
3. Galvez-Sánchez, C. M., Montoro, C. I., Duschek, S., & Del Paso, G. A. R. (2020). Depression and trait-anxiety mediate the influence of clinical pain on health-related quality of life in fibromyalgia. *Journal of affective disorders*, *265*, 486-495.
4. Yıldız, S., Kazgan, A., Kurt, O., Tabara, M. F., Korkmaz, S., Önalan, E., & Atmaca, M. (2022). Evaluation of Childhood Traumas, Attachment Forms and Defense Mechanisms in Individuals Diagnosed with Obesity. *Firat Tip Dergisi*, *27*(1).

5. Combas, M., Ozturk, E., & Derin, G. (2022). Childhood trauma and dissociation in female patients with fibromyalgia. *Medicine*, *11*(4), 1635-1640.
6. Wolfe, F., Häuser, W., Walitt, B. T., Katz, R. S., Rasker, J. J., & Russell, A. S. (2014). Fibromyalgia and physical trauma: the concepts we invent. *The Journal of Rheumatology*, *41*(9), 1737-1745.
7. Yavne, Y., Amital, D., Watad, A., Tiosano, S., & Amital, H. (2018, August). A systematic review of precipitating physical and psychological traumatic events in the development of fibromyalgia. In *Seminars in arthritis and rheumatism* (Vol. 48, No. 1, pp. 121-133). WB Saunders.
8. Akpınar, B., & Gümüş Demir, Ü. Z. (2022). Investigation of the Relationship Between Childhood Traumas, Alexithymia and Difficulties in Emotion Regulation in University Students. *International Journal of Social Science*, *6*(26).
9. Şenkal, İ., & Işıklı, S. (2015). Association of childhood traumas and attachment style with depression symptoms: The mediating role of alexithymia. *Turkish Journal of Psychiatry*, *26*(4), 261-67.
10. Güleç, H., Sayar, K., Topbaş, M., Karkucak, M., & Ak, I. (2004). Alexithymia and anger in women with fibromyalgia syndrome. *Turk Psikiyatri Dergisi= Turkish Journal of Psychiatry*, *15*(3), 191-198.
11. Garip, Y., Öztaş, D., Tuncer, Ö. B., & Telci, Ş. (2015). Alexithymia in fibromyalgia patients and its impact on the quality of life. *İstanbul Med J*, *16*, 137-140.
12. Short, S. E., & Mollborn, S. (2015). Social determinants and health behaviors: conceptual frames and empirical advances. *Current opinion in psychology*, *5*, 78-84.
13. Denollet, J. (2005). DS14: standard assessment of negative affectivity, social inhibition, and Type D personality. *Psychosomatic medicine*, *67*(1), 89-97.
14. Kazğan, A., Yıldız, S., Kurt, O., & Korkmaz, S. (2021). Type D personality and self-esteem in conversion disorder: a case-control study. *Journal of Health Sciences and Medicine*, *4*(6), 816-823.
15. Çelebi, E., Ataoğlu, B. B., Ankaralı, H., Özşahin, M., Pasin, Ö., & Ataoğlu, S. N. (2016). A comparıson of the efficacy of pregabalin and duloxetine treatments according to personality characteristics in patients with fibromyalgia. *Duzce Medical Journal*, *18*(2), 47-53.
16. Denollet, J. (2005). DS14: standard assessment of negative affectivity, social inhibition, and Type D personality. *Psychosomatic medicine*, *67*(1), 89-97.
17. Alçelik, A., Yıldırım, O., Canan, F., Eroğlu, M., Aktaş, G., & Şavlı, H. A. (2012). Preliminary psychometric evaluation of the type D personality construct in Turkish hemodialysis patients. *J Mood Disord*, 2(1), 1-5.
18. Taylor, G. J., Ryan, D., & Bagby, M. (1985). Toward the development of a new self-report alexithymia scale. *Psychotherapy and psychosomatics*, *44*(4), 191-199.
19. Okyavuz, U. H. (1993). Investigation of the usability conditions of Toronto alexithymia scale and Courtauld Emotional Control Scale in Turkish sample. *Turk J Psychiatry*, *4*, 18-24.
20. Şar, V., Öztürk, E., & İkikardeş, E. (2012). Validity and reliability of the Turkish adaptation of the Childhood Mental Trauma Scale. *Türkiye Klinikleri J Med Sci*, 32, 1054-1063.
21. Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., ... & Zule, W. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child abuse & neglect*, *27*(2), 169-190.
22. Starrenburg, A. H., Kraaier, K., Pedersen, S. S., van Hout, M., Scholten, M., & van der Palen, J. (2013). Association of psychiatric history and type D personality with symptoms of anxiety, depression, and health status prior to ICD implantation. *International Journal of Behavioral Medicine*, *20*, 425-433.
23. Erkol İnal, E., Demirci, K., Doğru, A., & Şahin, M. (2016). Ankylosing Spondylitis patients with Type D personality have worse clinical status. *Modern Rheumatology*, *26*(1), 138-145.
24. Loosman, W. L., de Jong, R. W., Haverkamp, G. L., van den Beukel, T. O., Dekker, F. W., Siegert, C. E., & Honig, A. (2018). The stability of type D personality in dialysis patients. *International journal of behavioral medicine*, *25*, 85-92.
25. Kupper, N., & Denollet, J. (2014). Type D personality is associated with social anxiety in the general population. *International Journal of Behavioral Medicine*, *21*, 496-505.
26. Kazğan, A., Yıldız, S., Kurt O., & Korkmaz, S. (2021). Type D personality and self-esteem in conversion disorder: a case-control study. *Journal of Health Sciences and Medicine*, *4*(6), 816-823.
27. van Middendorp, H., Kool, M. B., van Beugen, S., Denollet, J., Lumley, M. A., & Geenen, R. (2016). Prevalence and relevance of Type D personality in fibromyalgia. *General hospital psychiatry*, *39*, 66-72.
28. 28ç. Galvez-Sánchez, C. M., Duschek, S., & Reyes Del Paso, G. A. (2019). Psychological impact of fibromyalgia: current perspectives. *Psychology research and behavior management*, 117-127.
29. Carta, M. G., Moro, M. F., Pinna, F. L., Testa, G., Cacace, E., Ruggiero, V., ... & Sancassiani, F. (2018). The impact of fibromyalgia syndrome and the role of comorbidity with mood and post-traumatic stress disorder in worsening the quality of life. *International Journal of Social Psychiatry*, *64*(7), 647-655.
30. Özsoy, F. (2019). Type D Personality Traits and Alexithymia in Alcohol-Substance Addicts. *Cyprus Turkish Journal of Psychiatry and Psychology*, *1*(Special Issue 1), 12-15.
31. Tuna, E. (2023). Emotion regulation in chronic diseases: A review on cardiovascular diseases, cancer, migraine, fibromyalgia and psoriasis. *Journal of Clinical Psychology*, *7*(1), 117-142.
32. Sayar, K., Kirmayer, L. J., & Taillefer, S. S. (2003). Predictors of somatic symptoms in depressive disorder. *Gen Hosp Psychiatry*, *25*(2), 108–114

33. Tekintaş, N. S., Yanartaş, Ö., Durmuş, F. B., & Sayar, K. (2022). Functional Bodily Symptoms and Determinants in Major Depressive Disorder and Fibromyalgia Syndrome Patients.
34. Smith, A. M., & Flannery-Schroeder, E. C. (2013). Childhood emotional maltreatment and somatic complaints: the mediating role of alexithymia. *Journal of Child & Adolescent Trauma*, *6*(3), 157-172
35. Waldinger, R. J., Schulz, M. S., Barsky, A. J., & Ahern, D. K. (2006). Mapping the road from childhood trauma to adult somatization: the role of attachment. *Psychosomatic medicine*, *68*(1), 129-135.
36. Karaş, H., Yıldırım, E. A., Küçükgöncü, S., & Yakut, U. (2017). The relationship of childhood traumas, dissociative experiences and depression with pain in female fibromyalgia patients: A cross-sectional study. *The Thinking Man*, *30*(2), 86.
37. Uzun, Ö., Akdemir, D., Topçu, M., & Özsungur, B. (2013). Childhood traumas, attachment and alexithymia in adolescents with psychogenic seizure-type conversion disorder. *Published Medical Specialization Thesis, Hacettepe University, Ankara*.
38. Semiz, M., Kavakçı, Ö., Pekşen, H., Tunçay, M., Özer, Z., Aydınkal Semiz, E., & Kaptanoğlu, E. (2014). Post-traumatic stress disorder, alexithymia and somatoform dissociation in patients with fibromyalgia. *Turkey physical medicine and rehabilitation journal-Turkısh journal of physical medicine and rehabilitation*, *60*(3).