



Psychosocial assessment of patients with chronic pain

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Abstract

The main object of this study is to evaluate the psychological status of chronic pain patients (CPP) and describe the characteristics and frequency of psychological disorders of CPP. Two hundred sixty-three patients with complaints of chronic pain longer than 1 year and fifty healthy volunteers were included in the study. Patients with cancer were not included. Turkish version of Symptom Checklist-90 Revised (SCL-90-R) was used for the assessment of the psychological status of participants. CPP were divided into 5 subgroups regarding their painful regions: Headache, cervical or upper extremity pain, axial or radicular back pain, lower extremity pain, and diffuse pain. Global severity index (GSI) and subscales of SCL-90-R were analyzed. In CPP, GSI and almost all subscale scores of SCL-90-R were significantly higher than the control group. Headache patients had worse psychological symptoms than other subgroups of CPP. SCL-90-R scores of female patients were significantly higher than males. 24.7% of patients had moderate and 14.8% had severe psychological symptoms. While the intensity of the pain had a moderate correlation with increased psychological symptoms, the level of education and age had a weak negative correlation with SCL-90-R scores. Patients with chronic pain are convenient to have psychological symptoms. While almost half of the patients have increased psychological symptoms, the degree of the symptoms can be serious in some of them. Thus, treatment of chronic pain necessitates a multidisciplinary approach.

Keywords: anxiety, chronic pain, depression, headache, SCL-90-R

1. Introduction

It is well known that the psychological mood of individuals who suffer pain is worse than normal people. The two most prevalent psychological symptoms of chronic pain patients are depression and anxiety. Many patients with chronic pain and psychiatric illness have a physical basis for pain in the body since perception is worsened by overlying psychiatric illness (1-3). Decreased levels of serotonin and norepinephrine in depressive patients can be associated with the development or increased perception of chronic pain. Serotonin and norepinephrine are important neurotransmitters in the descending inhibitory system, and both inhibit nociceptive dorsal horn neurons when locally applied (4). This is the explanation of why selective serotonin-norepinephrine reuptake inhibitors (SNRIs) have effects both on depression and pain. Studies indicate that opioid analgesia is enhanced with antidepressant treatment and decreased after the depletion of serotonin and norepinephrine (5, 6) Patients with depression have been found to have higher levels of proinflammatory cytokines and acute-phase proteins even the patient does not have a medical illness or pain complaint. It is controversial if there is an association between the increase of pro-inflammatory cytokines and the development of depression (7-10).

When pain becomes chronic, sensory input plays a diminished role, while affective and cognitive pathways play a more prominent role in the creation of painful perceptions (11). Working for patients with an altered psychological state is a challenge for pain physicians. Taking history, getting enough information, performing a physical examination, ordering laboratory, or screening tests, giving medical advice, and providing patient compliance for the treatment may sometimes become difficult. Additionally, patients with psychological problems have a lower rate of treatment success. Research has indicated that psychiatric comorbidity harms treatments for chronic pain, such as rehabilitation, spinal cord stimulation, or opioid therapy (1, 12, 13).

Prolonged duration of pain increases the psychological symptoms of patients (14). While assessing patients with chronic pain, performing a psychological approach can be useful for preventing unnecessary, expensive, time and energy-consuming tests or procedures for diagnosis. Devoting a few minutes to the patient's psychological state may help the physician to decide the most proper diagnosis or treatment approaches. Medical physicians should not hesitate to consult patients with psychiatry physicians.

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Detection of psychological problems should not ignore medical complaints and signs. It should be kept in mind that a patient with medical issues may have psychological problems as well as a patient with psychological issues may have medical problems. The lifetime prevalence of suicide attempts in patients with chronic pain ranged from 5% to 14% and the rate of suicide attempts is double that was found in the general population (1). It is still unclear if their pain worsens the psychological state of chronic pain patients, or they feel more pain because of their worsened psychological state.

In this study, our purpose was to evaluate the psychological profile of patients with non-cancer chronic pain and detect the factors which show a correlation with psychological symptoms. We tried to determine the frequency, severity, and type of psychological symptoms accompanying chronic pain. We also evaluated the correlation between demographic features and SCL-90-R scores. We included 263 chronic pain patients with complaints for more than 1 year and 50 healthy volunteers. We created 5 subgroups from pain patients according to their painful body region: headache (Subgroup H), neck or upper extremity pain (Subgroup N-U), axial or radicular back pain (Subgroup B), pain originated from a lower extremity (Subgroup L), and diffuse pain (Subgroup D). We used the Turkish version of SCL-90-R as the psychological assessment tool of this study. SCL-90-R is a comprehensive questionnaire including 90 items and allows evaluating an individual for various psychiatric symptoms: general symptom severity, depression, anxiety, somatization, compulsivity, interpersonal sensitivity, anger-hostility, phobic anxiety, paranoid ideation, and psychoticism. The development of the SCL-90-R began as early as the 1950s under the direction of Parloff et al. and was revised by Degoratis et al. in the 1970s (15-17). A validity and reliability study of the Turkish version of SCL-90-R was performed by Dağ et al. in 1991 (18).

As the result of our literature research, we can say that this study is the first study assessing and comparing different psychological dimensions of chronic pain patients according to the classification of a painful body part.

2. Materials and methods

This study was conducted in the pain medicine clinic of University of Health Sciences Van Education and Research Hospital between the March and May of 2019. Approval of the institutional ethical committee was obtained before the study. All participants were informed about the study and a written informed consent form was taken from all participants. Two hundred sixty-three patients who suffer pain longer than 1 year were included in the study (Group P). Fifty healthy volunteers were included in the study as the control group (Group C). Patients younger than 18, suffering from pain due to cancer, inability to understand and answer the questions of the study, and individuals who do not want to participate in the study were excluded. Additionally,

individuals who are relatives of the patients in Group P or who live with a chronic pain patient in the same house were also excluded from the study. For demographic data: age, gender, education level, marital status, and employment status were asked. The intensity of pain was assessed using a 4-point verbal rating scale (VRS) for Group P. 1: mild pain, 2: moderate pain, 3: severe pain 4: very intense pain. The total duration of the pain complaint was also asked for Group P. Group P was divided into five subgroups regarding the body part that patients complain of pain. Subgroup H (headache) was composed of patients who suffer headaches, Subgroup N-U (neck, upper extremity) was composed of patients who suffer axial or radicular cervical pain or other types of pain on the upper extremity (shoulder pain, carpal tunnel syndrome, elbow pain, etc.). Subgroup B (back) was composed of patients who suffer axial or radicular back pain. Subgroup L (lower extremity) was composed of patients who suffer pain on the lower extremity (gonarthrosis, coxarthrosis, ankle pain, etc.) and Subgroup D (diffuse) was composed of patients who suffer more than one of the above-mentioned regions of the body.

For the evaluation of the psychological states of participants, the SCL-90-R questionnaire was applied. SCL-90-R is a psychological assessment tool consisting of 90 items. These 90 items are rated according to 5-point Likert Scale by participants. 0: not at all, 1: a little bit, 2: moderately 3: quite a bit, 4: extremely. Results of the questionnaire were recorded as a global symptom index (GSI) and these 10 subscales: depression, anxiety, somatization, compulsivity, interpersonal sensitivity, anger-hostility, phobic anxiety, paranoid ideation, psychoticism, and additional scales.

Demographic features of Group P and Group C were compared. GSI and subscales of SCL-90-R results were compared between Group P and Group C and for subgroups of Group P. Association of SCL-90-R scores with demographic features was evaluated.

To determine the frequency of individuals with psychological problems, we used a method similar to Dağ and Radanov (18,19). We classified the individuals as ‘moderate problem’ if their GSI is more than 1 standard deviation (SD), but not more than 2 SDs, higher than the mean GSI score of Group C and ‘severe problem’ if their GSI is more than 2 SDs higher than mean GSI of Group C. Frequency of individuals with psychological problems between groups were compared.

Statistical analyses were performed using Statistical Package for the Social Sciences 20.0 (SPSS 20.0) program. Parametric data were presented as mean \pm standard deviation (SD) categorical data were presented as number and percentage. Demographic characteristics of the groups were assessed using the Chi-square test. The Shapiro–Wilk test was used to analyze normal distribution assumptions of quantitative outcomes. For parametric data, the Student’s t-test was used for the investigation of significance between

two groups and one-way ANOVA for more than two groups. For the non-parametric data Mann-Whitney-U test was used for the investigation of significance between two groups and the Kruskal-Wallis test was used for investigating the significance between more than two groups. Spearman correlation analysis was applied to investigate the correlation between SCL-90-R scores and the features of pain (intensity, duration), and the demographic features of participants. A p-value less than 0.05 was considered as 'statistically significant'. Correlation coefficients (CC) less than 0.25 were considered as 'weak correlation', CCs between 0.26 and 0.50 were considered as 'moderate correlation', CCs between 0.51 and 0.75 were considered as 'strong correlation', and CCs more than 0.75 were considered as 'very strong correlation'.

3. Results

Demographic features of all participants are presented in Table 1 and Fig. 1. There was no significant difference between groups in terms of age, marital status, and employment status. The level of education was significantly higher in Group C (p < 0.001). This difference was mostly because of the high rate of illiterate participants in Group P (47.1% versus 16.0%). The rate of females was higher than males in both groups, but there was no significant difference between groups (p = 0.47).

Table 1. Demographic data of participants

	Study Group (n=263)	Control Group (n=50)	P
Age	46.15 ± 13.2	44.5 ± 16.1	0.56
Number of females	206 (77.2%)	36 (72.0%)	0.27
Number of marrieds	231 (87.8%)	36 (72.0)	0.18
Number of non-workers	189 (71.8%)	33 (66.0%)	0.50

The total number of patients, according to painful regions, are presented in Fig. 2. Duration and intensity of pain regarding groups and subgroups are presented in Table 2. The mean duration of pain complaint was 7.61 ± 7.21 years. There was no significant difference in terms of duration of pain between subgroups of Group P (p = 0.177). Regarding the 4-point VRS assessment, the mean severity of pain was 2.78 ± 1.03. It is observed that the pain severity of Subgroup H was significantly more than subgroups B, D, and N-U. In the comparison of Subgroup H and N-U, the p-value was 0.002. While the p-value was 0.44 in comparison of the severity of pain between Subgroup H and B, it was less than 0.001 between H and D. We assumed that the difference between Subgroups H and L was not statistically significant (p=0.09) because of the relatively small number of patients in Subgroup L.

Results of SCL-90-R scores are presented in Table 3 and Fig. 3. We observed that scores of Group P were higher than scores of group C for GSI and all subscales of the SCL-90-R tool. This elevation was statistically significant, except for

compulsivity, hostility, and paranoid ideation. SCL-90-R scores of subgroups of Group P are presented in Table 4. It is observed that scores of headache patients were higher than the other subgroups of Group P, but the difference was only significant between Subgroup H and B and between H and L (p < 0.001 and p = 0.034 respectively). The mean GSI score of Subgroup D was at the second rank, following Subgroup H.

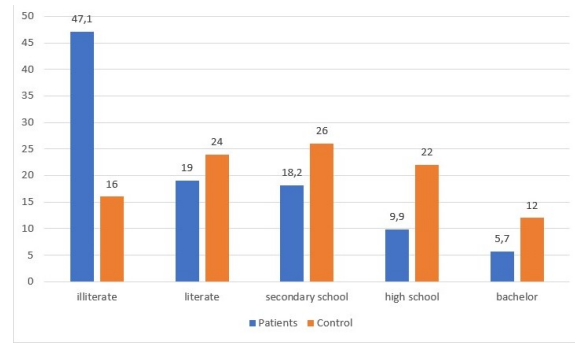


Fig. 1. Education levels of participants. (Results are given as percentages)

Table 2. Mean ± standard deviation of the duration of pain and verbal rating scales of patient group and subgroups

	Duration of Pain (years)	Mean VRS
Group P (n = 263)	7.61 ± 7.22	2.78 ± 1.03
Subgroup H (n = 78)	8.67 ± 9.53	3.30 ± 0.91
Subgroup D (n = 88)	7.78 ± 6.44	2.41 ± 1.10
Subgroup B (n = 57)	7.60 ± 6.13	2.82 ± 0.88
Subgroup L (n = 17)	5.18 ± 4.26	2.64 ± 0.78
Subgroup N-U (n = 23)	5.17 ± 3.78	2.43 ± 0.89

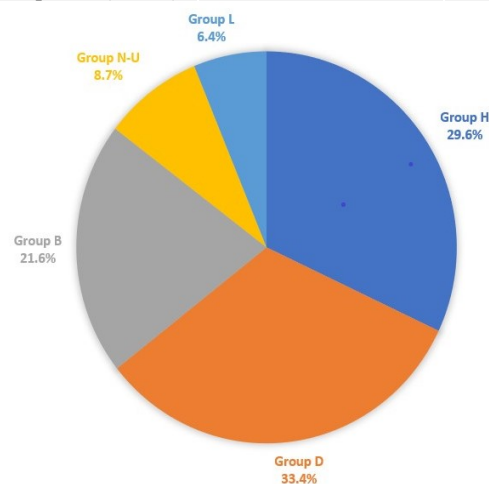


Fig. 2. Distribution of subgroups in chronic pain patients in this study

Correlation between demographic features and SCL-90-R scores was assessed. SCL-90-R scores of the participants regarding group and gender are presented in Table 5. Our results showed that SCL-90-R scores of females were higher in both groups. While this difference was not significant in Group C (p = 0.07), scores of females were significantly higher than the scores of males (p < 0.001) in Group P.

Table 3. SCL-90-R scores of patients with chronic pain and the control group

	Group P	Group C	p
Global severity index	1.04 ± 0.50	0.70 ± 0.42	< 0.01
Somatization	1.46 ± 0.68	0.77 ± 0.60	< 0.01
Compulsivity	1.17 ± 0.63	0.99 ± 0.64	0.07
Interpersonal sensitivity	1.15 ± 0.66	0.83 ± 0.60	0.02
Depression	1.07 ± 0.67	0.85 ± 0.67	0.03
Anxiety	0.94 ± 0.66	0.57 ± 0.48	< 0.01
Anger-hostility	0.74 ± 0.72	0.66 ± 0.65	0.88
Phobic anxiety	0.77 ± 0.68	0.19 ± 0.24	< 0.01
Paranoid ideation	1.00 ± 0.76	0.99 ± 0.71	0.95
Psychoticism	0.69 ± 0.56	0.37 ± 0.32	< 0.01
Additional scales	1.39 ± 0.73	0.88 ± 0.64	< 0.01

Results are presented as mean ± standard deviation

Regarding the ages of the participants, there was a weak negative correlation between the SCL-90-R scores and the age in Group P (p = 0.001, CC = - 0.20). No significant correlation was detected in group C (p = 0.325).

We observed a weak negative correlation between the level of education and GSI scores in Group P (p= 0.007, CC= - 0.166) while there was no correlation in control group (p = 0.841, CC = 0.03). According to the assessment of the correlation of education and GSI scores for all participants, there was a weak negative correlation (p = 0.001, CC = - 0.191).

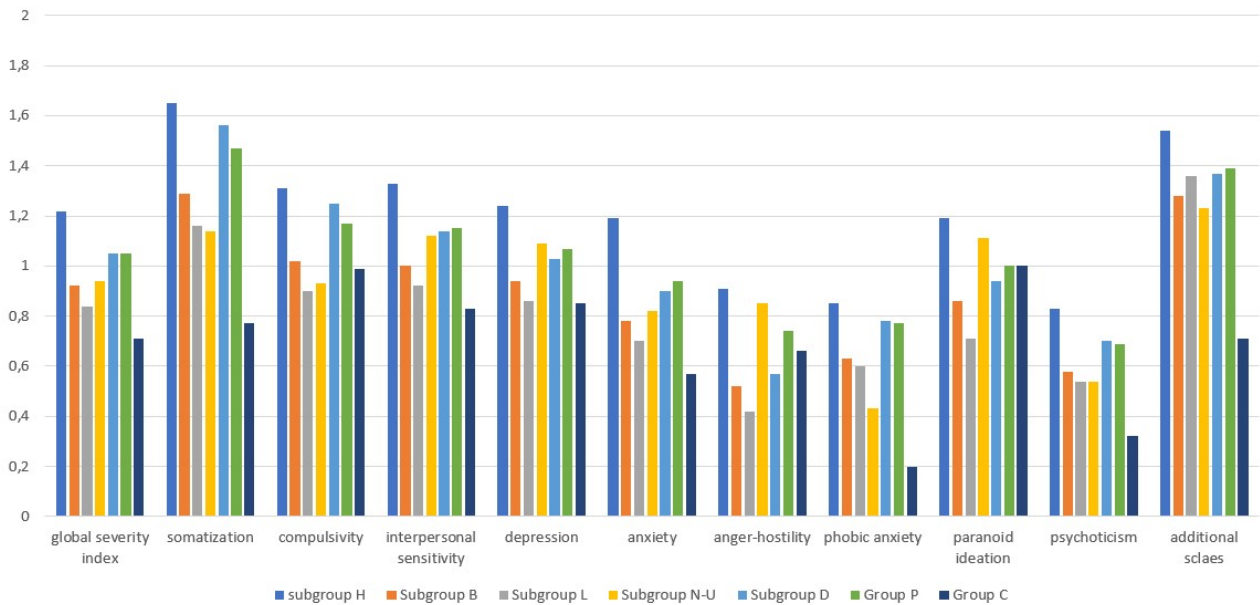


Fig. 3. SCL-90-R subscale scores of participants

Table 4. SCL-90-R scores of main groups and the subgroups of the study

	Subgroup H (n=78)	Subgroup B (n=57)	Subgroup L (n=17)	Subgroup N-U (n=23)	SubgroupD (n=88)	Group P (n=263)	Group C (n=50)
Global severity index	1.22±0.56 (p<0.01)	0.92±0.45 (P=0.01)	0.84±0.37 (p=0.20)	0.94±0.53 (p=0.05)	1.05±0.44 (p<0.01)	1.05±0.50 (p<0.01)	0.71±0.42
Somatization	1.65±0.74 (p<0.01)	1.30±0.60 (p<0.01)	1.16±0.66 (p=0.04)	1.14±0.61 (p=0.02)	1.56±0.63 (p<0.01)	1.47±0.68 (p<0.01)	0.77±0.61
Compulsivity	1.32±0.72 (p=0.01)	1.02±0.55 (p=0.73)	0.90±0.39 (p=0.70)	0.93±0.65 (p=0.91)	1.25±0.60 (p=0.02)	1.10±0.64 (p=0.07)	0.99±0.65
Interpersonal sensitivity	1.33±0.75 (p<0.01)	1.00±0.65 (p=0.17)	0.91±0.49 (p=0.47)	1.12±0.60 (p=0.10)	1.14±0.60 (p<0.01)	1.15±0.67 (p=0.02)	0.83±0.60
Depression	1.24±0.74 (p<0.01)	0.94±0.60 (p=0.37)	0.86±0.59 (p=0.66)	1.09±0.67 (p=0.23)	1.03±0.61 (p=0.07)	1.07±0.67 (p=0.02)	0.85±0.67
Anxiety	1.19±0.73 (p<0.01)	0.78±0.64 (p=0.12)	0.70±0.45 (p=0.26)	0.82±0.59 (p=0.11)	0.90±0.60 (p<0.01)	0.94±0.66 (p<0.01)	0.57±0.48
Anger-hostility	0.92±0.77 (p=0.04)	0.52±0.53 (p=0.24)	1.42±0.48 (p=0.57)	0.84±0.54 (p=0.45)	0.56±0.54 (p=0.43)	0.74±1.20 (p=0.88)	0.66±0.65
Phobic anxiety	0.86±0.75 (p<0.01)	0.63±0.60 (p<0.01)	0.60±0.46 (p<0.01)	0.42±0.63 (p=0.02)	0.91±0.64 (p<0.01)	0.77±1.04 (p<0.01)	0.20±0.24
Paranoid ideation	1.20±0.84 (p=0.17)	0.71±0.66 (p=0.34)	0.71±0.52 (p=0.15)	1.11±0.72 (p=0.64)	0.94±0.72 (p=0.65)	1.00±0.76 (p=0.95)	1.00±0.71
Psychoticism	0.83±0.68 (p<0.01)	0.54±0.49 (p<0.01)	0.54±0.42 (p=0.12)	0.54±0.49 (p=0.32)	0.70±0.48 (p<0.01)	0.69±0.56 (p<0.01)	0.37±0.32
Additional scales	1.54±0.93 (p<0.01)	1.28±0.61 (p<0.01)	1.36±0.68 (p=0.01)	1.23±0.64 (p=0.02)	1.37±0.64 (p<0.01)	1.39±0.73 (p<0.01)	0.88±0.64

Results are given as mean ± standard deviation. p-values present the differences comparing the control group (Group C)

When the results were assessed regarding the marital status of the participants, no significant correlation with SCL-90-R scores was observed. P values for GSI were 0.97 in Group P and 0.78 in Group C.

It is observed that there is no significant correlation in terms of an employment situation. There was no difference in any of the groups except somatization scores. Somatization was significantly higher in patients who do not work in a job. the p-value for Group P was 0.24.

As we did not find a significant correlation between SCL-90-R scores and the duration of pain complaint (p=0.419, CC = - 0.05), we observed moderate correlation between severity of pain and SCL-90-R scores (p<0.001, CC=0.324).

To determine the frequency of individuals who have psychological problems, we used the mean results and the standard deviations of the results of Group C. According to this method, we classified participants as ‘no psychological disorder’ if their GSI scores are in the range of standard

Table 5. SCL-90-R scores regarding genders. p-values present the difference of scores between males and females in the groups

	Group P Female (n = 203)	Group P Male (n = 60)	Group C Female (n = 36)	Group C Male (n = 14)
Global severity index	1.12 (p < 0.001)	0.81	0.77 (p = 0.07)	0.53
Somatization	1.59 (p < 0.001)	1.04	0.89 (p = 0.02)	0.44
Compulsivity	1.25 (p < 0.001)	0.89	1.07 (p = 0.27)	0.80
Interpersonal sensitivity	1.22 (p < 0.001)	0.90	0.89 (p = 0.27)	0.68
Depression	1.17 (p < 0.001)	0.73	0.93 (p = 0.19)	0.65
Anxiety	1.02 (p < 0.001)	0.65	0.65 (p = 0.04)	0.37
Anger-hostility	0.78 (p = 0.09)	0.60	0.68 (p = 0.93)	0.60
Phobic anxiety	0.85 (p < 0.001)	0.50	0.22 (p = 0.39)	0.37
Paranoid ideation	1.03 (p = 0.12)	0.88	1.02 (p = 0.62)	0.92
Psychoticism	0.70 (p = 0.78)	0.63	0.41 (p = 0.74)	0.27
Additional scales	1.44 (p = 0.22)	0.82	1.00 (p = 0.64)	0.57

Table 6. Classification of the participants regarding psychological symptom severity

	Normal range (GSI < 1.13)	Moderate symptoms (GSI: .13-1.55)	Severe symptoms (GSI > 1.55)
Group C (n = 50)	42 (84.0%)	5 (10.0%)	3 (6.0%)
Group P (n =263)	159 (60.5%)	65 (24.7%)	39 (14.8%)
Subgroup H (n = 78)	34 (43.6%)	23 (29.5%)	21 (26.9%)
Subgroup D (n = 88)	57 (64.8%)	18 (20.5%)	13 (14.8%)
Subgroup B (n = 57)	39 (68.4%)	14 (24.6%)	4 (7.0%)
Subgroup N-U(n=23)	17 (73.9%)	5 (21.7%)	1 (4.3%)
Subgroup L (n = 17)	12 (70.6%)	5 (29.4%)	0 (0%)

4. Discussion

In this study, our primary aim was to create a general idea on the psychological aspect of chronic pain patients for physicians who play role in the treatment of these patients. Our results showed a significant correlation between chronic

deviations. We described individuals as ‘moderate disorder’ if their GSI scores are more than 1 SD but not more than 2 SDs higher than the mean GSI score of the control group. We described the participants who have GSI scores more than 2 SDs over the mean scores of the control group as ‘severe disorder’, and we suggest that these people should be referred to a psychiatrist. The mean GSI score of Group C was 0.71 ± 0.42. Thus, we described individuals as a moderate disorder if their GSI score is between 1.13 and 1.55 and as ‘severe disorder’ if their GSI score is more than 1.54. The classification of patients regarding their SCL-90-R scores is presented in Table 6. We observed that the frequency of individuals with moderate or severe psychological problems was significantly higher in Group P. Regarding the subgroups of chronic pain patients, the frequency of moderate or severe psychological symptoms was significantly higher in Subgroup H (p = 0.007).

pain and psychological problems. This correlation has been observed in several previous studies (20,21,22,23,24). We observed increased SCL-90-R results in patients with chronic pain. These results were statistically significant in almost all subscales of the questionnaire except compulsivity, hostility, and paranoid ideation. (Tables 3, 4) (Fig. 3).

Our secondary aim was to evaluate different types of chronic pain regarding psychological mood. For this purpose, we divided the patients into five subgroups regarding ‘where the pain complaint is’. We did not create subgroups regarding the exact or possible diagnosis of pain for preventing the development of tens of subgroups. For instance, we did not create subgroups for migraine, tension-type headache, cluster headache, hemicrania continua, or occipital neuralgia. We counted all types of headaches in the ‘headache subgroup’. We also did not create subgroups regarding the mechanism of pain for example neuropathic, somatic, or visceral. This method of pain classification may be a limitation of the study, but if we had created so many subgroups, statistical analysis would be complex and due to the smaller number of patients

in subgroups, results would not be meaningful.

Our subgroup analysis showed that GSIs of every subgroup were significantly higher than the control group. We also observed that patients with headaches have the worst symptoms amongst all subgroups. In previous studies, it is shown that patients with headaches have worsened psychological moods. Anxiety and mood disorders are the most relevant psychiatric comorbidities associated with migraine, influencing disease prevalence, prognosis, treatment, and clinical outcomes (25, 26). Peres et al. reported that in headache patients, the odds ratio for anxiety is 7.0 and for depression is 3.4 (25). In a comprehensive research study that includes 6624 patients with headaches, it is reported that the prevalence of depression, anxiety, and depression plus anxiety is 5.6%, 14.3%, and 3.8% respectively (27). In the same study regarding the types of headaches, patients with medication overuse headache have the worst psychological mood.

We observed that patients complaining of more than one region of their body had also high SCL-90-R scores in this study. This result was consistent with previous studies. In their study that consists of 1016 patients, Dworkin et al. reported that patients with two or more pain complaints are much likely to be depressed than patients with a single pain complaint (28).

Mean GSI scores of females were higher than males in Group P and C but as the difference was not statistically significant in Group C ($p = 0.07$), it was significant in Group P ($p < 0.001$) (Table 5). In Table 5, for some subscales of SCL-90-R, it is shown that there was statistical significance in Group P between the mean GSI scores of males and females as there was no significance in the control group. Regarding these results, we suggest that females are more vulnerable to the negative effects of chronic pain on psychological symptoms.

When we assess our study group, we can say that our patients are composed of individuals with low socio-cultural levels. Based on our results, almost half of our patients were illiterate, and only 15% of them were graduated from high school or university. Additionally, 71% of our study group was not working in a job. While we were selecting the participants for the control group, to prevent bias, we excluded the individuals who are relatives of people in Group P, and the ones who live in the same house with someone suffering chronic pain. It is known that relatives of chronic pain patients have also worse psychological moods. In a study including 270 participants, Hancı et al. showed that SCL-90-R scores of relatives of chronic pain patients were significantly higher than the control group (20).

When we assess the correlation between age and psychological symptom severity, we did not observe a significant relation in Group C and observed a weak negative

correlation at GSI and some subscales in Group P.

We did not detect a relationship between the duration of pain and SCL-90-R results, but this should not cause a misunderstanding as 'duration of pain is not associated with worsened psychological mood'. We did not compare the results of acute or subacute patients with chronic patients. Considering that our patient population consists of chronic pain patients who suffer pain for at least 1 year and psychological symptoms had already been established and became solid. The mean duration of pain of our study group (7.6 years) was longer than we expected.

For evaluation of pain severity, we preferred VRS rather than visual analog scale (VAS) or numerical rating scale (NRS) because as mentioned above, our patient group was composed of individuals with lower education level and regarding our clinical experience, trying to use VAS or NRS for the measurement of pain would be challenging, very time-consuming and may cause conflicting results. Jensen et al. suggested that a four-point VRS or the faces pain scale (FPS) would be the most appropriate in populations who might struggle with the 0-to-10 NRS (31). Herr et al. showed that VRS is the most sensitive and reliable tool among 5 single dimension pain assessment tools in both younger and elder patients (30).

Similar to several previous studies, we observed a moderate correlation between the intensity of pain and GSI (31, 32). We observed that patients with headaches tend to express their level of pain more intensely. Regarding the 4-point VRS, the mean result of headache patients was 3.30 and more than half of the individuals in Subgroup H declared their pain as '4 points'.

We did not find a correlation between the occupational status and the severity of symptoms neither in Group P nor in Group C. For the evaluation of occupational status, we asked only one question: Do you work in a daily job? We did not evaluate what job the participant has, or he/she is satisfied with the job. Poppel et al. reported that low job satisfaction is associated with the occurrence of low back pain episodes (33).

Patients with cancer pain are not included in the study for the protection of the study homogeneity. Since the clinical course and characteristics of cancer disease are different from non-cancer chronic pain symptoms, we did not include cancer patients in the study. The psychological mood of cancer patients was evaluated in many studies. More than half of patients with cancer suffer pain, and indeed, pain is an important issue in cancer management. In a study including 104 lung cancer patients, Lee et al. reported 50% of patients had a psychiatric diagnosis and the most prevalent psychiatric disorder was depressive disorder (25.0%) (34).

American Psychiatric Association (APA) published 'Diagnostic and Statistical Manual of Mental Disorders'

(DSM-V) in 2013. (35). This manual is the most crucial tool of professionals in psychiatry for diagnosing psychiatric diseases. We emphasize that SCL-90-R is only a screening tool for the evaluation of psychological symptoms, and it solely has limited diagnostic value.

Patients with chronic pain tend to have psychiatric symptoms but one big mistake would be blaming patients because of their psychological mood or easily labeling their medical situation as 'psychogenic pain'. Pain physicians should not forget this fact while evaluating patients with chronic pain. Pain physicians should not hesitate to consult the patients who show psychological signs and symptoms to the psychiatrists. Regarding the results of this study, we suggest that cooperation between pain physicians and psychiatry physicians has the potential to improve the success of the pain treatment.

Conflict of interest

The authors declare no conflicts of interest regarding this study. Only the authors are responsible for the content and writing of this manuscript.

Acknowledgments

Approval of the institutional ethical committee was obtained before the study.

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