Pain Intensity, Depression, and Anxiety Levels Among Patients With Chronic Pain During COVID-19 Pandemic

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Abstract: Limited data are available for real-world impact of the COVID-19 pandemic on chronic pain patients. This study aimed to evaluate pain intensity, depression, and anxiety status in chronic pain patients during the COVID-19 pandemic. A total of 110 patients with chronic pain participated on a voluntary basis in this questionnaire survey. The questionnaire form elicited information on socio-demographic characteristics and prepandemic and pandemic data on analgesic need, access to medication, visual analog scale (VAS) pain, Beck Depression Inventory (BDI), and Beck Anxiety Inventory (BAI) scores. The COVID-19 pandemic resulted in increased levels of depression (74.5%), anxiety (66.4%), increase in analgesic need (60%), and limited access to analgesic drugs (40.0%). In conclusion, our findings revealed significant increase in VAS pain intensity, BDI, and BAI scores during the COVID-19 pandemic compared with prepandemic period among chronic pain patients, particularly for patients with increased need of analgesics during pandemic.

Key Words: COVID-19 pandemic, chronic pain, depression, anxiety, pain intensity, analgesic need

Coronavirus disease 2019 (COVID-19) is a novel coronavirus-induced pneumonia caused by severe acute respiratory syndrome coronavirus (SARS-CoV-2), first recognized on December 30, 2019, in Wuhan, China, and labeled as a global pandemic by the World Health Organization on March 12, 2020 (Team TNCPERE, 2020; World Health Organization, 2020).

Being associated with more than 10 million infected individuals and more than 500,000 deaths in the first half of 2020, the COVID-19 pandemic is challenging the resilience of robust health systems and causing extensive disruptions to daily life in efforts to "flatten the curve" across the world (Li et al., 2020; World Health Organization, 2020). Because of impaired health care accessibility with stoppage in all nonessential social services, including nonurgent health care, and fear of exposure to COVID-19 at medical facilities, patients with chronic diseases are considered at risk of impaired long-term control, delayed recognition of complications or deterioration in clinical status, as well as adverse effects of social distancing and loneliness on mental health (Jordan et al., 2020; Li et al., 2020; Puntillo et al., 2020; Rosenbaum, 2020).

Chronic pain, defined as persistent or recurrent pain lasting more than 3 months or beyond the normal tissue healing (Merskey, 1986), is considered as an increasingly prevalent medical problem and the leading cause of disability globally with significant economic and social burden (Fayaz et al., 2016; Li et al., 2020; Mills et al., 2019). Chronic pain has detrimental impact on quality of life in relation to frequent experience of disability, emotional imbalances, and social isolation, whereas comorbid anxiety and mood disorders are also common among patients with chronic pain causing complex biopsychosocial interactions (Goesling et al., 2013; Hylands-White et al., 2017; Li et al., 2020;

Puntillo et al., 2020). Notably, these features are more exacerbated during the COVID-19 pandemic, whereas there is also a limited access to multimodal therapeutic modalities (*i.e.*, algology interventions, physio-therapy, and psychotherapy) and inability to continue close coordination between patients and physicians, which are all essential for the appropriate management of chronic pain (El-Tallawy et al., 2020; Galea et al., 2020; Javed et al., 2020; Li et al., 2020; Puntillo et al., 2020). Hence, chronic pain patients are considered particularly vulnerable in the context of the COVID-19 pandemic, given the challenges in effective pain management and high risk of adverse health outcomes in relation to limited access to appropriate medical management (El-Tallawy et al., 2020; Galea et al., 2020; Javed et al., 2020; Li et al., 2020; Licciardone and Pandya, 2020; Puntillo et al., 2020). However, limited data are available for real-world impact of the COVID-19 pandemic on chronic pain patients (Al-Hashel and Ismail, 2020; El-Tallawy et al., 2020; Li et al., 2020; Licciardone and Pandya, 2020; Puntillo et al., 2020).

This cross-sectional questionnaire-based survey was therefore designed to evaluate pain intensity, depression, and anxiety levels among patients with chronic pain during the COVID-19 pandemic in relation to sociodemographic characteristics and analgesic drug use.

METHODS

Study Population

Of 116 consecutive patients with chronic pain who were routinely followed up at an algology outpatient clinic at a tertiary care hospital, 110 patients (response rate, 95%) participated on a voluntary basis in this retrospective cohort study conducted between May 2020 and July 2020. Patients aged >18 years who were followed up at algology outpatient clinic with the diagnosis of chronic pain (at least for 3 months) and those with literacy and no suspected or definite diagnosis of COVID-19 were included in the study.

The Questionnaire

The questionnaire form elicited information on sociodemographic characteristics (age, sex, educational level) and prepandemic and pandemic data on analgesic need, access to medication, visual analog scale (VAS) pain, Beck Depression Inventory (BDI), and Beck Anxiety Inventory (BAI) scores. Data on prepandemic status were collected based on subjective report of patients by filling the questionnaire forms considering the period before the pandemic. Hence each questionnaire was filled twice by the patients for the current and prepandemic period.

Visual Analog Scale

The pain VAS is a self-administered unidimensional measure of pain intensity, which has been widely used in diverse adult populations. It is a continuous 10-cm scale anchored by 2 verbal descriptors for pain intensity (0, no pain; 10, worst imaginable pain). Participants are asked to make a mark on the line that represented their pain intensity, and pain intensity level was scored by measuring the distance from the "no pain" end to the patient's mark. VAS provides a range of scores from 0 to 10 with higher scores indicating greater pain intensity (McCormack et al., 1988; Hawker et al., 2011).

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Beck Depression Inventory

BDI is a 21-item self-reporting questionnaire for evaluating the level and change in severity of depression for the past 2 weeks based on physical, emotional, cognitive, and motivational symptoms (Beck et al., 1961). Each item is scored on a 4-point scale from 0 (no symptom) to 3 (severe symptoms), whereas the total score achieved by adding the highest ratings for all 21 items ranges from 0 to 63 with higher scores indicating greater symptom severity (Beck et al., 1961). Based on the total score, individuals are categorized to have severe depression (scores 30–63), moderate depression (scores 19–29), mild depression (scores 10–18), and minimal level of depression (scores 0–9) (Beck et al., 1961). The reliability and validity analysis of Turkish version of BDI was performed by Hisli (1989).

Beck Anxiety Inventory

BAI is a 21-item self-reported questionnaire to measure the severity of anxiety during the past week (Beck et al., 1988). Each item is scored from 0 to 3, and based on the total score (ranges, 0–63), individuals are categorized to have severe anxiety (scores 26–63), moderate anxiety (scores 16–25), mild anxiety (scores 8–15), and minimal level of anxiety (scores 0–7) (Beck et al., 1988). The reliability and validity analysis of Turkish version of BAI was performed by Ulusoy et al. (1998).

Study Parameters

VAS pain, BDI, and BAI scores before and during the COVID-19 pandemic were compared, whereas the change in depression and anxiety levels was also evaluated with respect to sociodemographic variables, analgesic need, and access to analgesic drugs.

Statistical Analysis

At least 100 patients were calculated to be included via sample size estimation based on a power of 80% at a type I error of 0.05 and assuming a 50% probability of occurrence, but due to likelihood of missing data, a total of 110 patients were planned to be included in the study with the use of 10% lost to follow-up ratio.

The analyses were performed using NCSS (Number Cruncher Statistical System) 2007 Statistical Software (Utah). Pearson chi-square test and Fisher-Freeman-Halton test were used for the comparison of categorical data, whereas change over time was evaluated by Wilcoxon signed rank test. Data were expressed as mean (SD), median (min-max), and percent (%) where appropriate. $p < 0.05$ was considered statistically significant.

RESULTS

Baseline Characteristics

Overall, most of patients aged older than 40 years (84.5%), and males composed 52.7% of the study population. Primary education was reported by 50.9% of patients. Increase in analgesic need and limited access to analgesics during the COVID-19 pandemic were reported by 60% and 40% of patients, respectively (Table 1).

The most common type of analgesic regimens included nonopioids in 30 patients (27.0%), tramadol + paracetamol in 27 patients (25.0%), and tramadol in 23 patients (21.0%) (Table 1).

The pain was mixed type pain (nociceptive and neuropathic in majority of patients), whereas the malignancy [34.0%] and low back pain [26.0%] were the most common primary diagnoses (Table 1).

VAS Pain, BDI, and BAI Scores Before and After COVID-19 Pandemic

VAS pain scores (median [min-max], 5 [2–10] *vs.* 7 [1–10]; $p = 0.001$) were significantly higher during the COVID-19 pandemic as compared with prepandemic scores (Table 2).

TABLE 1. Baseline Patient Characteristics and Analgesic Use During Pandemic

Age, mean ± SD (min-max), y	51.9 ± 13.2 (20–72)
Age group, *n* (%)	
<29 y	9 (8.2)
30–39 y	8 (7.3)
40–49 y	26 (23.6)
50–59 y	33 (30.0)
≥60 y	34 (30.9)
Sex, *n* (%)	
Male	58 (52.7)
Female	52 (47.3)
Educational status, *n* (%)	
Illiterate	8 (7.3)
Primary education	56 (50.9)
Secondary education	30 (27.3)
Higher education	16 (14.5)
Increased need for analgesics during pandemic, *n* (%)	66 (60.0)
Limited access to analgesic drugs during pandemic, *n* (%)	44 (40.0)

When compared with prepandemic period, median (min-max) BDI (3.0 [0.0–24.0] vs 13.0 [0.0–62.0], $p = 0.001$) and BAI (6.5 [2.0–54.0] *vs.* 13.5 [3.0–60.0], $p = 0.001$) scores significantly increased along with the percentage of patients with moderate-to-severe depression (5.0% *vs.* 37.3%, $p = 0.001$) and anxiety (10.9% *vs.* 42.7%, $p = 0.001$) (Table 2).

Based on BDI scores, the COVID-19 pandemic was associated with no change in depression level in 28 patients (25.5%) and with increased level of depression in 82 patients (74.5%). Based on BAI scores, the COVID-19 pandemic was associated with no change in anxiety level in 37 patients (33.6%) and with increased level of anxiety in 73 patients (66.4%).

Depression Levels According to Sociodemographic Characteristics and Analgesics

No significant difference was noted in the likelihood of having no change or an increase in depression levels during pandemic according to patient age, sex, and educational status or access to analgesic drugs (Table 3).

Among the patients who experienced an increase in the level of depression during pandemic, the percentage of patients with versus without the increase in analgesic was significantly higher (68.3% *vs.* 31.7%, $p = 0.002$) (Table 3).

Anxiety Levels According to Sociodemographic Characteristics and Analgesics

No significant difference was noted in the likelihood of having no change or an increase in anxiety levels during pandemic according to patient age, sex, and educational status or access to analgesic drugs (Table 4).

Among the patients who experienced an increase in the level of anxiety during pandemic, the percentage of patients with versus without the increase in analgesic was significantly higher (67.1% vs 32.9%, $p = 0.032$) (Table 4).

Anxiety and Depression Scores With Respect to Analgesic Need and Access to Medication During Pandemic

In patients with versus without an increase in analgesic need during pandemic, the prepandemic and pandemic scores on anxiety ($p = 0.004$

TABLE 2. VAS Pain, BDI, and BAI Scores Before and During COVID-19 Pandemic

		Prepandemic	During Pandemic	*p*
VAS pain score	Mean (SD)	4.88 (1.86)	6.94 (1.86)	**0.001**
	Median (min-max)	5 (2–10)	7 (1–10)	
BDI score	Mean (SD)	5.0 (6.0)	16.0 (14.8)	**0.001**
	Median (min-max)	3.0 (0.0–24.0)	13.0 (0.0–62.0)	
BDI category, *n* (%)	Minimal level of depression (scores 0–9)	80 (72.7)	36 (32.7)	**0.001**
	Mild depression (scores 10–18)	24 (21.8)	33 (30.0)	
	Moderate depression (scores 19–29)	6 (5.5)	29 (26.4)	
	Severe depression (scores 30–63)	0 (0.0)	12 (10.9)	
BAI score	Mean (SD)	8.4 (6.5)	18.3 (14.8)	**0.001**
	Median (min-max)	6.5 (2.0–54.0)	13.5 (3.0–60.0)	
BAI category, *n* (%)	Minimal level of anxiety (scores 0–7)	57 (51.8)	23 (20.9)	**0.001**
	Mild anxiety (scores 8–15)	41 (37.3)	40 (36.4)	
	Moderate anxiety (scores 16–25)	11 (10.0)	31 (28.2)	
	Severe anxiety (scores 26–63)	1 (0.9)	16 (14.5)	

Wilcoxon signed rank test.
Values in bold indicate statistical significance ($p < 0.05$).

and $p = 0.02$, respectively) and depression ($p = 0.007$ and $p = 0.001$, respectively) as well as the increase in anxiety (by median 7.5 vs 5.5 points, $p = 0.001$) and depression (by median 11.0 vs 5.0 points, $p = 0.001$) scores from prepandemic to pandemic period were significantly higher (Table 5).

In patients with versus without limited access to pain medication during pandemic, the increase in anxiety (median, 7.0 points; $p = 0.001$) and depression (median, 8.0 vs 8.5 points; $p = 0.001$) scores from prepandemic to pandemic period was significantly higher (Table 5).

Correlation of VAS Scores With BAI and BDI Scores

VAS scores were not correlated with either BAI or BDI scores before the pandemic, whereas VAS scores during the pandemic were positively correlated with both BAI ($r = 0.241$, $p = 0.011$) and BDI ($r = 0.218$, $p = 0.022$) scores (Table 6).

DISCUSSION

Our findings revealed significant increase in VAS pain intensity, BDI, and BAI scores during the COVID-19 pandemic among chronic pain patients. The pandemic was associated with increase in depression

TABLE 3. Depression Levels According to Sociodemographic Characteristics and Analgesic Usage

	BDI-Based Depression Level Before *vs.* During Pandemic		
	No Change (*n* = 28)	Increased Depression (*n* = 82)	*p*
Age, mean ± SD, y	48.17 ± 12.30	53.21 ± 13.31	0.082[a]
Sex, *n* (%)			
Male	17 (60.7)	41 (50.0)	0.327[b]
Female	11 (39.3)	41 (50.0)	
Educational status, *n* (%)			
Illiterate	3 (10.7)	5 (6.1)	0.628[c]
Primary education	12 (42.9)	44 (53.7)	
Secondary education	8 (28.6)	22 (26.8)	
Higher education	5 (17.9)	11 (13.4)	
Increase in analgesic need during pandemic, *n* (%)			
Yes	10 (35.7)	56 (68.3)	**0.002**[b]
No	18 (64.3)	26 (31.7)	
Limited access to analgesics during pandemic, *n* (%)			
Yes	11 (39.3)	33 (40.2)	0.929[b]
No	17 (60.7)	49 (59.8)	

Values in bold indicate statistical significance ($p < 0.05$).
[a]Wilcoxon signed rank test.
[b]Pearson chi-square test.
[c]Fisher-Freeman-Halton test.

TABLE 4. Anxiety Levels According to Sociodemographic Characteristics and Analgesic Usage

	BAI-Based Anxiety Levels Before *vs.* During Pandemic		
	No Change (*n* = 37)	Increased Anxiety (*n* = 73)	*p*
Age, mean ± SD, y	51.16 ± 12.88	52.32 ± 13.41	0.667[a]
Sex, *n* (%)			
Male	22 (59.5)	36 (49.3)	0.314[b]
Female	15 (40.5)	37 (50.7)	
Educational status, *n* (%)			
Illiterate	5 (13.5)	3 (4.1)	0.207[b]
Primary education	20 (54.1)	36 (49.3)	
Secondary education	7 (18.9)	23 (31.5)	
Higher education	5 (13.5)	11 (15.1)	
Increase in analgesic need during pandemic, *n* (%)			
Yes	17 (45.9)	49 (67.1)	**0.032**[b]
No	20 (54.1)	24 (32.9)	
Limited access to analgesics during pandemic, *n* (%)			
Yes	14 (37.8)	30 (41.1)	0.742[b]
No	23 (62.2)	43 (58.9)	

Values in bold indicate statistical significance ($p < 0.05$).
[a]Wilcoxon signed rank test.
[b]Pearson chi-square test.

TABLE 5. Anxiety and Depression Scores With Respect to Analgesic Need and Access to Medication During Pandemic

	Increase in Analgesic Need During Pandemic			Limited Access to Pain Medication During Pandemic		
	Yes	No	*p*	Yes	No	*p*
Anxiety scores						
Prepandemic	8 (2–54)	5 (2–20)	**0.004**[a]	6 (2–54)	7 (2–22)	0.861[a]
During pandemic	14 (4–60)	11 (3–59)	**0.002**[a]	13.5 (5–60)	13.5 (3–60)	0.716[a]
Difference	7.5 (0–48)	5.5 (0–44)	**0.001**[b]	7 (0–48)	7 (0–47)	**0.001**[b]
Depression scores						
Prepandemic	4 (0–24)	0 (0–18)	**0.007**[a]	3.5 (0–20)	3 (0–24)	0.549[a]
During pandemic	16 (0–62)	11 (0–24)	**0.001**[a]	13.5 (0–62)	13 (0–60)	0.905[a]
Difference	11 (0–52)	5 (0–18)	**0.001**[b]	8 (0–52)	8.5 (0–51)	**0.001**[b]

Values in bold indicate statistical significance (*p* < 0.05).
[a]Mann-Whitney *U*-test.
[b]Wilcoxon signed rank test.

and anxiety levels compared with prepandemic period in at least two thirds of patients, similarly in age, sex, and educational status subgroups. Overall, increase in analgesic need during pandemic was reported by 60% of patients, whereas limited access to analgesic drugs was reported by 40.0% of patients. Prepandemic levels of depression and anxiety were associated with the likelihood of an increase in analgesic need during the pandemic, whereas both depression and anxiety scores increased more remarkably during pandemic in patients with an increase in analgesic need, and VAS scores were positively correlated with BAI and BDI scores only during the pandemic.

The COVID-19 pandemic, perceived as a major stressful event globally, has been reported to be associated with moderate-to-severe stress (41%), depressive symptoms (20% to 41%), and mild-to-severe anxiety (25% to 35%) in recent studies in general population (Huang and Zhao, 2020; Mazza et al., 2020; Rodríguez-Rey et al., 2020). Similarly, the stress-related psychosocial impact of the pandemic has also been documented in recent studies among patients with chronic diseases (Dubey et al., 2020; Huang and Zhao, 2020; Galea et al., 2020), whereas in a global survey from 47 countries, worsening of the mental health was reported in 80% of patients with chronic diseases during COVID-19 outbreak (Chudasama et al., 2020).

Indeed, chronic pain patients are considered more likely to have severe psychological distress, depressive symptoms, and higher anxiety in comparison to normal population (Romano and Turner, 1985; Von Korff et al., 1988; Elbinoune et al., 2016; Al-Hashel and Ismail, 2020), whereas anxiety has been reported as the most prevalent psychological

factor stimulated by pain-related physical and emotional experience (Casten et al., 1995; Elbinoune et al., 2016). Accordingly, the risk factors for pain morbidity and mortality and the potential for worsened chronic pain symptoms are considered to be amplified among chronic pain patients during the COVID-19 pandemic due to limited access to multimodal therapeutic modalities (*i.e.*, pain management, physiotherapy, psychotherapy) and the concomitant psychosocial emotional stressors from the pandemic and socioeconomic circumstances (Abdallah and Geha, 2017; Javed et al., 2020; Puntillo et al., 2020).

In this regard, high prevalence of anxiety (79.1%) and depression (67.3%) in our chronic pain patients during the pandemic period seems to be related to higher levels of perceived stress due to combined effect of worsening of pain intensity and stressors from the ongoing pandemic. Similarly, past studies in chronic pain patients reported high prevalence of anxiety and depression in chronic neck pain patients (68.4% and 55.7%, respectively) (Von Korff et al., 1988) and in chronic low back pain patients (55% and 48.6%, respectively; Sagheer et al., 2013). The authors also noted the correlation of anxiety and depression scores with pain intensity (Sagheer et al., 2013).

In the current study, the likelihood of having increase in depression and anxiety levels during the pandemic was significantly higher among patients with versus without increase in analgesic need. Besides, the prepandemic levels of depression and anxiety were associated with the likelihood of an increase in analgesic need during pandemic, whereas VAS scores were positively correlated with BAI and BDI scores only during the pandemic. Accordingly, given that increased need for analgesics during pandemic was reported by 60.0% of our patients, our findings indicate the likelihood of mental health consequences of the COVID-19 pandemic and the increase in pain intensity/analgesic need to act as synergistic risk factors for increased anxiety and depression scores among chronic pain patients.

Likewise, in past study with migraine patients, authors reported the presence of anxiety and/or depression in 79.5% of patients along with increase in migraine frequency and severity by more than half of migraineurs during pandemic in comparison to prepandemic period, as accompanied by overuse of analgesics and acute migraine treatments (Al-Hashel and Ismail, 2020). Authors also emphasized the likelihood of migraine attacks themselves to act as a stressor, creating a vicious circle that increases both migraine severity and frequency (Al-Hashel and Ismail, 2020; Sauro and Becker, 2009).

Hence, our findings emphasize the significant contribution of increase in pain intensity and the analgesic need to aggravation of depressive symptoms and anxiety level among chronic pain patients during the COVID-19 pandemic. This seems notable, given that under normal conditions, high levels of depression and anxiety was reported to longitudinally predict worse pain and pain-related disability among chronic

TABLE 6. Correlation of VAS Scores With BAI and BDI Scores Before and During the Pandemic

		VAS Scores			
		Prepandemic		During Pandemic	
		r	*p*	*r*	*p*
Anxiety (BAI scores)	Prepandemic	0.115	0.233		
	During pandemic			0.241	**0.011**
Depression (BDI scores)	Prepandemic	0.039	0.688		
	During pandemic			0.218	**0.022**

Spearman's correlation analysis; *r* = correlation coefficient.
Values in bold indicate statistical significance (*p* < 0.05).

pain patients with no significant role of pain or pain-related disability in predicting depression/anxiety (Lerman et al., 2015).

Although there are inconsistent findings on the role of sociodemographic variables in the risk of developing depressive or anxious symptoms by patients with chronic pain (Elbinoune et al., 2016), older age, female sex, and low educational level are considered to be associated with depressive comorbidity (Miller and Cano, 2009), whereas women are considered to be predisposed to higher anxiety levels (Jones et al., 2003). In a past study among migraine patients during the COVID-19 pandemic, female sex, limited access to medications, lack of communication with treating physician, and noncompliance to treatment were reported to be associated with increased risk for worsening of migraine symptoms, higher rate of anxiety and/or depression, and overuse of analgesics with no significant impact of age, occupation, educational level, or marital status on pain or psychological status (Al-Hashel and Ismail, 2020). Our findings revealed no significant impact of age, sex, or educational level on changes observed in anxiety or depression level among chronic pain patients during the pandemic, whereas the increase in analgesic need during pandemic was the only factor associated with increased risk of depression and anxiety.

The higher rate of anxiety and depression in patients with increase in analgesic need during pandemic period as well as the further increase in depression and anxiety scores with limited access to pain medication in the present study support the profound effect of COVID-19 on chronic pain patients with consideration of treatment delay or discontinuation to have negative consequences such as increases in pain, disability, and depression, as well as worsening mental health and addiction disorders (El-Tallawy et al., 2020).

The significant burden caused by the COVID-19 pandemic on health care systems worldwide caused redistribution of health care resources toward intensive care units and other COVID-19–dedicated sites, and thus many chronic pain services become stopped or interrupted, leaving chronic pain patient populations to be isolated with consequent social and psychological impact (Javed et al., 2020; Puntillo et al., 2020). The negative impact of COVID-19 crisis on individuals living with long-term painful conditions is an important public health problem in terms of limitations in provision of uninterrupted pain management despite the amplification of other sources of stressors and pain ultimately worsening chronic pain (Javed et al., 2020; Karos et al., 2020).

Hence, our findings emphasize the crucial role of developing appropriate digital (telemedicine platforms, online health communities) and nondigital (phone calls) solutions as a good opportunity to avoid "missed care" among chronic pain patients and to provide them continued access to multidisciplinary care (algology interventions, physiotherapy, psychotherapy) for both the general problems as well as specific problems in the COVID-19 era (Li et al., 2020; Puntillo et al., 2020; El-Tallawy et al., 2020).

Certain limitations to this study should be considered. First, the retrospective nature of data collection and the potential recall bias of respondents who were asked to retrospectively rate their symptoms from before the pandemic seem to be a major limitation of the current study. Second, potential lack of generalizability seems another important limitation due to relatively small sample size. Third, lack of data on subdiagnoses underlying chronic pain is another limitation that otherwise would extend the knowledge achieved in the current study. Nevertheless, despite these certain limitations, given the restricted amount of data available on this subject area, our findings seem to represent a valuable contribution to the literature.

CONCLUSIONS

In conclusion, our findings revealed significant increase in VAS pain intensity, BDI, and BAI scores during the COVID-19 pandemic as compared with prepandemic period among chronic pain patients. The increase in depression and anxiety levels was evident in at least two thirds of patients, similarly in age, sex, and educational status subgroups, while with higher likelihood in patients who experienced increase in analgesic need during pandemic. Hence, our findings indicate the synergistic role of the COVID-19 pandemic and the increase in analgesic need in aggravation of anxiety and depressive symptoms among chronic pain patients. Accordingly, developing appropriate solutions for providing continued access to multidisciplinary care in chronic pain patients during the COVID-19 pandemic seems crucial given the association of not only circumstances related to pandemic but also emerging increase in pain intensity and analgesic need with higher likelihood of anxiety and depression.

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