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ORIGINAL ARTICLE

Association of Depression in Patients with Fibromyalgia Syndrome

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ABSTRACT

Background: Fibromyalgia syndrome (FMS) is a chronic pain condition, frequently accompanied by psychological distress, including depression.

Objectives: This study assessed association between depression and FMS, including its incidence, severity and its impact on quality of life.

Methods: A cross-sectional investigation comprised 96 individuals diagnosed with fibromyalgia at Mufti Mehmood Memorial Teaching Hospital, Dera Ismail Khan in 2021-22. Two questionnaires were used to assess their symptoms i.e. Widespread Pain Index and Symptom Severity Scale score. Depression was evaluated in patients through Hospital Anxiety and Depression Scale.

Results: We found that a significant proportion ($p<0.05$) had WPI score of more than 7 (48/96; 50%) and 76.04% patients had SSS score ($p<0.05$) of more than 5, confirming the depression in patients with fibromyalgia. Overall results suggested that the FMS affected patients suffered from moderate to severe levels of depression (47.91%) with HADS scores of 11-21 range

Practical implication: The study will enable the patients and psychiatrics to diagnose the underlying causes of depression in patients affected with fibromyalgia.

Conclusion: It was concluded that depression was the common comorbidity in patients with fibromyalgia; however, the exact link between the two conditions is not fully understood. Effective management of depression is crucial in improving the quality of life with fibromyalgia, as depression can exacerbate pain and other symptoms.

Keywords: Cognitive dysfunction; Depression; Fibromyalgia; Pain.

INTRODUCTION

Fibromyalgia syndrome is a chronic pain condition characterized by widespread pain, fatigue, as sleep disturbances, cognitive dysfunction, and mood disturbances. It affects an estimated 2-4% of the population and is more prevalent in women [1]. Depression is often present in patients with fibromyalgia, with some studies suggesting that up to 50% of patients with fibromyalgia also have depression. It has remarkable widespread pain and tenderness in muscles, ligaments and tendons, fatigue, insomnia and cognitive dysfunction [2].

The exact cause of FMS is not known, but it is believed to be caused by a combination of genetic, biological, and environmental factors. Some of the risk factors for fibromyalgia include family predisposition, infection, illnesses, physical or emotional trauma, and autoimmune disorders [3]. Symptoms of fibromyalgia syndrome can vary from person to person but typically include chronic pain that is widespread and affects multiple areas of the body, insomnia, fatigue, cephalalgia and cognitive difficulties like memory and concentration problems. Many people with fibromyalgia syndrome also experience anxiety or depression [4-5].

Depression is common mental health form influencing millions of people globally, characterized by emotional sadness, hopelessness, and apathy. Depression may occur in anyone, regardless of age, gender, or background, and has significant impact on life quality [6]. Some of the risk factors for depression comprise family predisposition, stressful events, chronic medical conditions and abuse [7].

Symptoms of depression can vary from person to person but typically include emotional sadness, apathy, hopelessness, agitation, fatigue, altered appetite, weight changes, difficult concentrating, schizophrenia and suicidal thoughts. It has significant impact in disrupting person's daily life, engage in social activities, and maintain relationships. It can also have physical effects, such as chronic pain, headaches, and digestive issues [8-10].

One possible explanation for the link between depression and fibromyalgia is that chronic pain can lead to changes in the brain that increase the risk of depression. Studies have shown that chronic pain can cause changes in brain chemistry and structure, which can affect mood and increase the risk of developing depression [11]. Another possible explanation is that stress of living with chronic pain develops the depression. Chronic pain can be debilitating and can limit a person's ability to participate in daily activities, leading to feelings of isolation and hopelessness. This stress contributes in developing depression in several people [12]. Studies have shown that people with depression are more likely to develop fibromyalgia than people without depression. Additionally, people with fibromyalgia who also have depression tend to have more severe manifestations and poorer life quality than those without depression [13].

Treatment for depression in patients with fibromyalgia can be challenging because two conditions can have overlapping symptoms. However, treating depression can improve a patient's overall life quality and may also help to alleviate pain and other fibromyalgia symptoms. Treatment options for depression may include medication, psychotherapy, or a combination of both [14-16].

Therefore, this trial explored bi-directional relationship between fibromyalgia syndrome and depression, and potential role of shared psychological mechanisms.

MATERIAL AND METHODS

Study design: A cross-sectional investigation was done on 96 individuals diagnosed with fibromyalgia at Mufti Mehmood Memorial Teaching Hospital, Dera Ismail Khan, Pakistan, in 2021-22.

Sample size: The study comprised 96 participants.

Development of instrument: The study used two questionnaires to assess their symptoms. The questionnaire utilized was the 2010 Fibromyalgia Diagnostic Criteria, created by the American College of Rheumatology, which consists of two sections, namely the WPI and SSS score, consisting of 19 questions, and took approximately 5 to 10 minutes to complete. The scale measures the severity of depression, ranging from mild to moderate, and severe.

Reliability and validity: Depression was assessed in subjects via Hospital Anxiety and Depression Scale (HADS). HADS contained self-completed instrument having 14 multiple-choice questions alienated in two sub-scales, one for state anxiety (7 questions) and other for state depression (7 questions). HADS scores ranged from 0-21 points, with scores less than 7 indicating the absence of

significant clinical manifestations of depression. Scores between 8 and 10 (mild), between 11 and 14 (moderate), and between 15 and 21 (severe anxiety).

Inclusion and exclusion criteria: The inclusion criteria pertained to patients aged 18 to 60 years, diagnosed with FMS, and both genders were included. The exclusion criteria consisted of patients above 60 years and those with conditions other than depression.

Ethical approval: Informed written consent was obtained from the study patients and ethical approval was acquired from the board of ethics.

Statistical analysis: After collecting the data, it was entered into a worksheet using MS Excel (2007). The data was then imported into SPSS version 24.0. Descriptive statistics was done via Mean + Standard deviation and possible correlation was done at ANOVA and Chi-Square tests, with 5% significance.

RESULTS

Our study determined the association of depression in patients with fibromyalgia syndrome and comprised 96 individuals diagnosed with fibromyalgia. Overall demographic characteristics of the individuals revealed their mean age of 51.60+12.34 years. Statistically significant connection between marital status and fibromyalgia syndrome, as the p-value was less than 0.05. The majority of patients (77.08%) were married, with a smaller percentage that are unmarried (13.54%) or divorced (9.37%). Also significant correlation between education level and fibromyalgia syndrome, whereby the majority of patients (69.79%) were educated, while 30.20% were uneducated. The majority of patients (59.37%) were females, while 40.62% were males. Body mass index was significantly associated with fibromyalgia and most patients (66.66%) were overweight, while 21.87% had a normal BMI and 11.45% were underweight. Employment status was significantly also associated and the majority of patients (78.12%) were not working. There was significant association with genetic predisposition and a quarter of patients (26.04%) had genetic predisposition to fibromyalgia syndrome, while the majority (73.95%) did not (Table 1).

Overall findings of our research suggested that the duration of fibromyalgia, use of antidepressants, fatigue, and cognitive dysfunction were strongly associated with the diagnosis of fibromyalgia syndrome, while insomnia and mood disturbance were not significantly. It was found that 76.04% of patients had duration of fibromyalgia of less than 6 months ($p<0.05$), while 23.95% had more than 6 months. 22.91% of patients were using antidepressants, while 77.08% were not ($p<0.05$). The results showed that 59.37% of patients complained of insomnia, while 40.62% did not. 81.25% of patients ($p<0.05$) complained of fatigue, while 18.75% did not. Overall 19.79% of patients complained of cognitive dysfunction, while 80.20% did not ($p<0.05$). 60.41% of patients had mood disturbance, while 39.58% did not (Table 2).

WPI scores of individuals was also considered and our findings discovered that most of them bear WPI score of >7 (48/96; 50%), followed by 5-7 scores (27/96; 28.12%) and <5 scores were (21/96; 21.87%) (Figure 1).

Symptom Severity Scale (SSS) scoring of study patients revealed that 76.04% patients had SSS score of more than 5 and 23.95% had less than 5 SSS score (Figure 2). Table 3 presented the results of the scoring range and interpretation of HADS for patients with fibromyalgia syndrome. HADS depression subscale ranges from 0 to 21, and this table shows four scoring ranges based on the total depression score: 0-7, 8-10, 11-14, and 15-21, indicating normal score, mild depression, moderate depression, and severe depression, respectively. Overall findings revealed a significant proportion of patients ($p<0.05$) with fibromyalgia experienced moderate to severe levels of depression (47.91%) with HADS of 11-21 range, followed by severe depression (21.87%), mild depression (16.66%) and normal were only 13.54% (Table 3) and their comparative status were also represented graphically (Figure 3).

Table 1: Demographic data

S. No	Demographic value	Patients data n(%)	p-value
1	Age (Mean+SD) years	51.60+12.34	-
2	Marital Status n(%) Married Unmarried Divorced	 74 (77.08) 13 (13.54) 9 (9.37)	 0.0001*
3	Education level n(%) Educated Uneducated	 67 (69.79) 29 (30.20)	 0.00001*
4	Gender n(%) Male Female	 39 (40.62) 57 (59.37)	 0.000042*
5	Body mass index n(%) Underweight Normal Overweight	 11 (11.45) 21 (21.87) 64 (66.66)	 0.00001*
6	Employment status n(%) Working Not working	 21 (21.87) 75 (78.12)	 0.00001*
7	Genetic predisposition n(%) Yes No	 25 (26.04) 71 (73.95)	 0.00001*

*indicated that the value is significant at $p<0.05$

Table 2: Patients characteristics related to Fibromyalgia

S. No	Characteristics	Patients score	Chi-square value	p-value
1	Duration of Fibromyalgia n(%) <6 months >6 months	 73 (76.04) 23 (23.95)	 16.8427	 0.000041*
2	Use of Antidepressants n(%) Yes No	 22 (22.91) 74 (77.08)	 18.3069	 0.000019*
3	Complaint of insomnia n(%) Yes No	 57 (59.37) 39 (40.62)	 1.898	 0.1682
4	Fatigue Yes No	 78 (81.25) 18 (18.75)	 24.8439	 0.00001*
5	Cognitive dysfunction n(%) Yes No	 19 (19.79) 77 (80.20)	 23.1055	 0.00001*
6	Mood disturbance n(%) Yes No	 58 (60.41) 38 (39.58)	 2.3883	 0.12222

*indicated that the value is significant at $p<0.05$

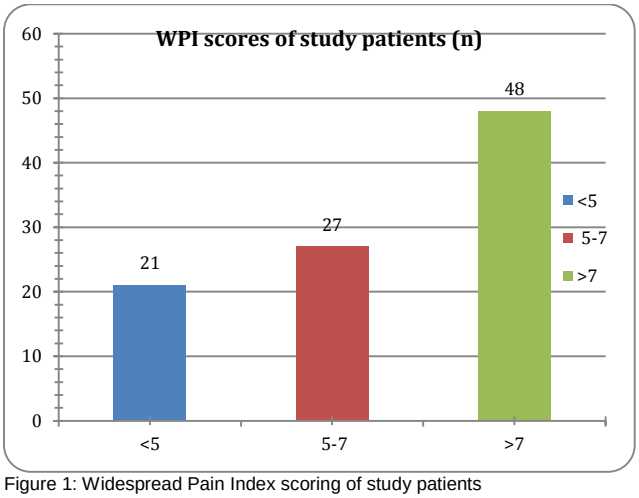

Figure 1: Widespread Pain Index scoring of study patients

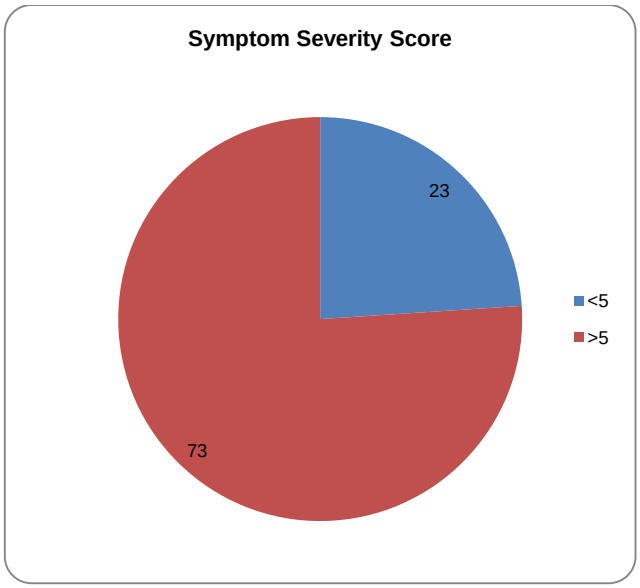

Figure 2: Symptom Severity Scale scoring of study patients

Table 3: Hospital Anxiety and Depression Scale of the study population

S. No	Scoring Range	Interpretation	Number of patients (n)	Frequency (%)	p-value
1	0-7	Normal	13	13.54	0.000 01*
2	8-10	Mild depression	16	16.66	
3	11-14	Moderate depression	46	47.91	
4	15-21	Severe depression	21	21.87	

*indicated that the value is significant at p<0.05

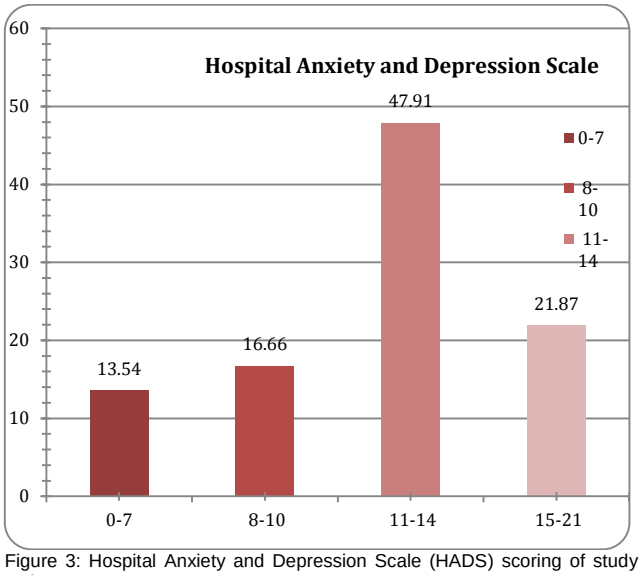

Figure 3: Hospital Anxiety and Depression Scale (HADS) scoring of study patients

DISCUSSION

We found that marital status, education, gender, BMI, and employment significantly affected fibromyalgia patients with anxiety and depression. The clinical manifestation reveled that significant portion of the population were characterized by insomnia, fatigue, altered cognitive behavior and mood disturbances. In conjunction with the symptom severity scale, the WPI was used to diagnose fibromyalgia. A diagnosis of fibromyalgia was confirmed with a WPI of 7 and an SS scale of 5. In our study, a significant proportion had WPI score of more than 7 (48/96; 50%) and 76.04% patients had SSS score of more than 5, confirming the depression in patients with fibromyalgia. Overall results suggested that the patients suffered from moderate to severe levels of depression (47.91%) with HADS of 11-21 range.

A similar nature study reported that individuals with fibromyalgia had a frequency of anxiety of 50% and 86%, respectively, and a mean trait anxiety score of 59.38. There was correlation between trait and state anxiety. Anxiety and depression were widespread manifestations among fibromyalgia patients [17]. It was also reported that fibromyalgia was a cognitive disorder of cortical integration of chronic pain, with an amplification of excruciating and sensory nociception, a decrease in the pain threshold, and the persistence of a stimulus that maintained process in chronicity. Fibromyalgia belonged to a group of chronic hypersensitivity syndromes of central origin that manifested in broad variety of ways [2, 18].

Our findings were strongly corroborated by a study indicating that depression (62.8%), anxiety (33.1%), and stress (45.55%). There was a statistically significant positive correlation between DASS total and subscales of depression as well as organic and psychological beliefs. Patients' pain beliefs and perceptions were found to be elevated, as was the prevalence of psychiatric symptoms. Patients' perceptions of pain increase, so do their levels of depression, anxiety, and tension [19-21].

The life-altering effects of this condition can be devastating on their own. Patients with FMS are more likely to experience severe depressions and bipolar disorders, resulting in a diminished quality of life [22].

The condition's high susceptibility to protracted stress appears to be one of the causes of this association. The clinician must interpret the suffering of patients with FMS appropriately and with respect [23].

CONCLUSION

To conclude, the association between depression and fibromyalgia syndrome is well-established, with depression being a common comorbidity in patients with fibromyalgia. While the exact link between the two conditions is not fully understood, several possible explanations exist, including changes in brain chemistry and structure, stress, and a bidirectional relationship between these circumstances. Effective management of depression is crucial in improving patients life quality in fibromyalgia, as depression can exacerbate pain and other symptoms. Healthcare professionals must consider the comorbidity of depression in management of FMS, and treatment options for depression may include medication, psychotherapy, or a combination of both. Overall, a comprehensive approach to managing both fibromyalgia and depression is essential for patients' well-being and quality of life.

Conflict of Interest: None.

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