

Depressive Disorder in Patients with Degenerative Connective Tissue Diseases

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ABSTRACT

Objective: To look for presence of depression in patients managed with various connective tissue disease at medicine/rheumatology department of our hospital.

Study Design: Comparative cross-sectional study.

Place and Duration of Study: Department of Medicine and Rheumatology, Pak Emirates Military Hospital, Rawalpindi Pakistan, from Aug 2021 to May 2022.

Methodology: All the patients who were diagnosed with any degenerative connective tissue disorder by consultant medical specialist or rheumatologist were included in the study. Depressive symptoms were assessed by using the Beck Depression inventory. Factors like age, gender, presence of chronic pain and duration of illness were associated with presence of significant depression among the study participants.

Results: Out of 425 patients who were managed for connective tissue diseases in our hospital during the study period, 102(24.0%) were male while 323(76.0%) were female. Mean age of the study participants was 34.95 ± 7.626 years. 283(66.5%) did not have significant depressive symptoms while 182(33.5%) had significant depressive symptoms. Longer duration of connective tissue disease and presence of significant chronic pain had statistically significant relationship with presence of depressive symptoms in our study participants (p -value<0.001).

Conclusion: Significant depressive symptoms were observed in considerable number of patients suffering from connective tissue diseases. Patients with longer duration of illness and those with significant chronic pain were more at risk of having depressive symptoms as compared to others.

Keywords: Beck Depression Inventory, Connective Tissue Disorders, Depression, Pain.

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INTRODUCTION

Mental health problems have many dimensions and there has been an alarming increase in these problems in last two decades.¹ Recent data suggest that it's not only psychiatry units where depression and anxiety are diagnosed frequently but almost all clinical settings have been dealing with these problems.² Medical comorbidities are common with depression and temporal relationship of depression and medical problems is area of interest for clinicians along with increased mortality in these patients.³

Connective tissue disorder cover variety of conditions involving not only joints but almost all major systems of human body. Pain and disability of various extent has also been reported by most of the patients suffering from these disorders.⁴ Various biological, psychological and social factors predispose patients of connective tissue disorders towards mental health problems including depression, anxiety, sleep disorders, sexual dysfunction, adjustment disorder,

self-harm or even illicit substance use.^{5,6}

Studies have been done in past to look for mental health problems in patients suffering from different types of connective tissue disorders. A polish study was published in 2021 regarding mental and sexual health problems in women suffering from connective tissue diseases. It was concluded that sexual dysfunction was present in more than half of the women included in the study and higher levels of anxiety and depression were associated with poorer overall sexual functioning.⁷ Jiang *et al.*, in 2018 studied prevalence of anxiety among different type of connective tissue disorders and found out that patients with connective tissue diseases had more anxiety than patients with RA, especially in patients with lupus.⁸ Khan *et al.*, published a study on Indian population regarding depression, anxiety, stress, and quality of life in rheumatoid arthritis patients and compared all those parameters from healthy individuals. They revealed that all these mental health parameters were found significantly more in patients of RA as compared to healthy adults.⁹ This emphasize the role of multidisciplinary approach in management of these patients with chronic degenerative disorders.

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Recent advances in availability of investigations to diagnose immune based diseases have led to increase in diagnosis of these illnesses in our part of the world. Connective tissue disorders are usually managed by medical or rheumatology teams of tertiary care hospitals but still a lot of aspects of these illnesses remain unaddressed due to lack of holistic approach of treating team. A local study published by Kiani *et al.*, concluded that sometime depression or seizure activity may be only initial presentations of connective tissue diseases.¹⁰ Limited local data has been available regarding statistics of depressive illness in patients suffering from different types of connective tissue disorders. We therefore designed this study with the rationale look for presence of depression in patients managed with various connective tissue disease at medicine/rheumatology department of our hospital.

METHODOLOGY

This comparative cross-sectional study was planned and conducted at Department of Medicine and Rheumatology, Pak Emirates Military Hospital, Rawalpindi Pakistan, between August 2021 to May 2022. Sample size was calculated by using the WHO sample size calculation by using the population prevalence proportion of depression in connective tissue disorders as 20%.¹¹ Non probability consecutive sampling was used to gather the sample.

Inclusion Criteria: Patients of both the genders between the age of 18 and 60 years who were managed for any type of connective tissue disorder were included in the study.

Exclusion Criteria: Patients with unclear diagnosis or still in pathway of diagnosis. Patients already diagnosed with any mental health problems prior to onset of connective tissue disorder or those taking over the counter any psychotropic medications were excluded. Those with history of illicit substance use or alcohol in last 6 months were also excluded. Patients in acute crisis phase of any connective tissue disorder or those with any other uncontrolled physical illness were also made part of exclusion criteria.

Ethical approval was taken from the ethical committee of hospital via letter no A/28/EC/390/2022. Patients managed for connective tissue disorders and could read and understand Beck Depressive Inventory (BDI) were included after written informed consent. Connective tissue diseases were diagnosed by consultant medical specialist or rheumatologist on basis of relevant clinical and

laboratory findings.¹² Presence of depressive symptoms was assessed by using the Beck Depressive Inventory (BDI). It is a 21 item questionnaire especially designed for the purpose. Validated Urdu version with cut off score of 17 for presence of significant depressive symptoms was used in our study.¹³ Research team got training to administer and score the questionnaire from mental health department of our hospital. Visual analogue scale score was used to ask patients for chronic pain of relevant areas involved in their specific disease. Score of 6 or more was used to class pain as significant.¹⁴

Statistical analysis was done by Statistical Package for Social Sciences versio 24.0. Frequency and percentage were calculated for the qualitative variables whereas mean and standard deviation was calculated for the quantitative variables. Chi-square test was used to look for the relationship of age, gender, presence of chronic pain and duration of illness with presence of significant depression among patients of connective tissue disorders. The *p*-value less than or equal to 0.05 was considered significant.

RESULTS

Out of 425 patients who were managed for connective tissue diseases in our hospital during the study period, 102(24%) were male while 323(76%) were female. Table-I summarized the general characteristics of study participants. Mean age of the study participants was 34.95±7.626 years. 283(66.5%) did not had significant depressive symptoms while 182(33.5%) had significant depressive symptoms. Rheumatoid arthritis 215(50.5%) was most commonly encountered connective tissue disorder followed by ankylosing spondylitis 100(23.5%). 313(73.6%) patients did not report significant chronic pain while 112(36.3%) patients reported significant chronic pain. Table-II summarized the results of statistical analysis. It was revealed that longer duration of connective tissue disease (*p*-value<0.001) and presence of significant chronic pain (*p*-value<0.001) had statistically significant relationship with presence of depressive symptoms in our study participants while age (*p*-value-0.094) and gender (*p*-value-0.456) had no such relationship with presence of depressive symptoms in patients of connective tissue disorders recruited in this study.

DISCUSSION

Depression emerged as significant comorbidity with connective tissue disorders especially in those with longer duration of illness or significant chronic pain. Pathway may be common biologically or

psycho-social aspects of degenerative debilitating illness may have results in depression. Any long standing illness with significant physical morbidity may lead to psychiatric morbidity. Different types of medications used in acute crisis or for disease modification may also result in mental health problems in patients suffering from connective tissue disorders. Depression remain the commonest comorbid mental health diagnosis in all chronic physical health condition including metabolic, infective, immune mediated or neoplastic diseases. We tried to look for same in patients with connective tissue disorders in our part of the world and conducted this study with an aim to look for presence of depression in patients managed with various connective tissue disease at medicine/rheumatology department of our hospital. Narupan *et al.*, in 2022 evaluated patients of SLE in urban Thailand for depressive symptoms and various factors which may be associated with their presentation.¹⁵ They revealed that more than 40% of their patients had depressive symptoms and severe pain, fatigue and lack of social support were the risk factors associated with presence of depression in these patients. Our results supported their findings as more than 30% of our patients with different types of connective tissue disorders had significant depressive symptoms and chronic pain and longer duration of illness were associated with presence of depression. Kennedy *et al.*, in 2022 published a systematic review regarding psychological burden associated with a set of connective tissue disorders called as Ehlers-Danlos syndromes. They concluded that mood disorders were most common mental health diagnosis in these patients followed by anxiety and neuro-developmental disorders.¹⁶ We did not study presence of other mental health disorders but depression was a common finding in our study participants.

A Polish study published in 2021 assessed mental health of patients suffering from connective tissue diseases and correlated factors.¹⁷ They revealed that depression and anxiety was common in patients suffering from connective tissue disorders and presence of pain was associated with more depression and anxiety and lesser feeling of wellbeing. Our results supported their findings as significant depressive symptoms were observed in considerable number of patients suffering from connective tissue diseases. Patients with longer duration of illness and those with significant chronic pain were more at risk of having depressive symptoms as compared to

others. Grygiel-Górniak *et al.*, in 2019 studied this phenomenon in more detail and tried to correlate depressive symptoms with cytokine secretion in patients suffering from connective tissue disorders.¹⁸ They came up with the findings that depression was common in these patients and may be linked to cytokine release but further research is warranted in this regard. Ours was a cross-sectional study revealing that longer duration of illness and poor pain control was associated with more depressive symptoms among the study participants.

Table-I: Characteristics of Study Participants (n=425)

Parameters	Values
Age (years)	
Mean + SD	34.95±7.626 years
Range (min-max)	18 - 60 years
Gender	
Male	102(24.0%)
Female	323(76.0%)
Presence of depressive symptoms	
No	283(66.5%)
Yes	142(33.5%)
Type of connective tissue disorder	
Rheumatoid arthritis	215(50.5%)
Ankylosing spondylitis	100(23.5%)
Systemic Lupus erythematosus	50(11.7%)
Systemic sclerosis	25(5.8%)
Dermatomyositis	20(4.7%)
Sjogren Syndrome	12(2.8%)
Others	3(0.7%)
Chronic pain	
No	313(73.6%)
Yes	112(36.3%)

Table-II: Association of various Factors with presence of Depression among Patients suffering from Connective Tissue Disorders (n=425)

Factors	No Depressive Symptoms	Significant Depressive Symptoms	p-value
Age			
18-30years	172(60.7%)	98(69.1%)	0.094
>30 years	111(39.3%)	44(30.9%)	
Presence of chronic pain			
No	235(83.1%)	78(54.9%)	<0.001
Yes	48(16.9%)	64(45.1%)	
Gender			
Male	71(25.1%)	31(21.8%)	0.456
Female	212(64.9%)	111(78.2%)	
Duration of illness			
<3 years	252(65.7%)	88(61.9%)	<0.001
>3 years	31(34.3%)	54(38.1%)	

LIMITATIONS OF STUDY

This study design could not ascertain that depression was consequence of connective tissue disease. Temporal relationship between the two could not be established.

Moreover, self-reported questioners like BDI can be over or underreported by the patients. Complete control of all the confounding factors was also not possible. Studies with better design and incorporating mental health professionals diagnosing depression by clinical criteria may generate better results.

CONCLUSION

Significant depressive symptoms were observed in considerable number of patients suffering from connective tissue diseases. Patients with longer duration of illness and those with significant chronic pain were more at risk of having depressive symptoms as compared to others.

Conflict of Interest: None.

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Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

FJA & MZHR: Data acquisition, data analysis, critical review, approval of the final version to be published.

AB & SFUH: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

FZ & MOU: Conception, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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