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ORIGINAL ARTICLE

Anxiety and depression in patients with psoriatic arthritis regarding sociodemographic and clinical characteristics

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Background	Anxiety and depression are high in patients with psoriatic arthritis (PsA).
Patients and Methods	Studies on the psychological state of patients with PsA are rare in Egypt, so it was necessary to conduct this study.
Results	A total of 40 patients in the rheumatology clinic of Faculty of Medicine of Helwan University were assessed by International Classification of Diseases, version 10 symptom checklist and disease activity score 28, representing 19 depressed and 12 anxious patients. Differences between expected and observed frequencies were significant between anxious and depressed patient groups regarding age, disease duration, presence of deformity, presence of comorbidity, disease activity, and BMI.
Conclusions	Age, disease duration, presence of deformity, presence of comorbidity, disease activity, and BMI are sociodemographic and clinical variables that vary with the presence of anxiety and depression in patients with PsA.

Keywords Anxiety, Depression, Psoriatic arthritis.
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INTRODUCTION

Alexithymia is the inability to identify and express emotions. Alexithymia is a core trait in psychosomatic disorders (Panayiotou and Constantinous, 2017). Body expresses emotions that an alexithymic person cannot verbalize.

Psychosomatic disorders can be classified into three embryonic layers, representing conveniently the level of penetrability of stress in a person (Uzan, 2021):

(1) Ectodermal psychosomatic disorders: affecting skin and nervous system.

(2) Mesodermal psychosomatic disorders: affecting muscloskeletal system and blood vessels.

(3) Endodermal psychosomatic disorders: affecting viscera and endocrinal glands.

Three mechanisms link the mind to the body and affect its functions:

(1) Autonomic nervous system.

(2) Hypothalamic pituitary axis and subsequent hormonal affection.

(3) Hypothalamic corticotrophin-releasing hormone effect on the balance between T helper 1 and T helper 2 cells, orchestrating the immune system.

T helper 1 cell overactivity promotes autoimmunity (Lotti *et al.,* 1875). Whether it affects skin as in psoriasis or joints as in psoriatic arthritis (PsA), autoimmunity is embodiment of an angry immune system. Why does autoimmunity affect the skin in some patients and the joints in other patients or affect the skin in one stage of illness and joints in another stage? This is related to their locus of control as described above. What are the biological mechanisms to explain this selection of organ targeted by autoimmunity and its relation to psychological traits? This is a rich field for interesting research.

In patients with psoriasis (Obradors *et al.,* 2016) and in patients with PsA (Michelsen *et al.*, 2018), reduced health-related quality of life has been reported, and sleep

disturbances (Gezer *et al.,* 2017; Wong *et al.,* 2017; Hawro *et al.,* 2020), fatigue (Gudu *et al.,* 2016; Skoie *et al.,* 2017), anxiety, and depression have been found to be increased (Liang *et al.,* 2019). Disease burden seems to be more severe in patients who experience both psoriatic skin disease and arthritis (Strand *et al.,* 2012). Psoriasis has been reported to precede arthritis in the vast majority of patients with PsA (~85%) and often many years in advance (Gladman *et al.,* 2005). Furthermore, patients with psoriasis with musculoskeletal inflammation may also be undiagnosed by general practitioners and dermatologists (Prey *et al.,* 2010). Patients with PsA have significantly poorer health-related quality of life than the general population (Tezel *et al.,* 2015). Data exploring the health of patients before and after the diagnosis of PsA are lacking. Understanding the effect and burden of the disease in patients with PsA before and after diagnosis is important when aiming to diagnose early and to treat patients with PsA to target (Smolen *et al.,* 2018).

PATIENTS AND METHODS

Participants

Sample selection

A convenience sample of patients with PsA following up in the rheumatology clinic of Badr Hospital of Helwan University was recruited.

Sample size

It was calculated using Epi -Info program, version 6 (Matcham *et al.,* 2013) assuming 95% confidence interval and 80% power of test; accordingly, the following equation was used:

$$n=(z/e) *2 (p) (1-p)$$

n is the sample size; *p*, the expected prevalence; *z*, the critical value 1.96, and *e*, the margin of sample error tolerated 0.05.

The expected prevalence according to Matcham *et al.,* (2013) was 3% (Centers for Disease Control and Prevention: Epi-Info Program, version 6, 1998). Therefore, the sample size was calculated to be 40 participants.

Tools

Participants were asked to complete the sociodemographic and clinical data sheet (age, sex, education, duration of illness, weight, height, presence of comorbid illnesses, and presence of joint deformities − ensured from clinic records as well).

The participants were interviewed by a psychiatrist and diagnosed according to the International Classification of Diseases, version 10 symptom checklist (Janca and Hiller, 1996).

The participants were examined by a rheumatologist, and the severity of illness was assessed according to the disease activity score, version 28 (DAS-28) (Sultany, *et al.*).

Procedures

Study design

A survey design was used in the study. Ethical approval: approval from the ethical committee of the Faculty of Medicine of Helwan University was obtained. Written informed consent was obtained from all participants. Data collection: data collection lasted for 3 months beginning from the January 1, 2020 till sample was completed. Settings: the study was performed at the rheumatology clinic of Helwan University Hospitals.

Statistical Analysis

All analyses were performed on the Statistical Package for the Social Sciences (SPSS, version 20.0; IBM, Armonk, New York, USA) (Nile *et al.,* 2011). Descriptive statistics (means and SDs or frequency and percentages) were calculated for the collected variables. χ^2 and Student *t* test were used.

RESULTS

Description of psychosocial and clinical characteristics is tabulated in Table 1.

There were 20 females, representing 50% of the sample. Age ranged from 36 to 52 years, with a mean±SD of 43±4.86 years. As for education, 15(37.5%) had high education, 12(30%) had school level education, and 13(32.5%) were illiterate.

Among 40 patients with PsA, 12(30%) had anxiety, 19(47.5%) had depression, seven(17.5%) had comorbidities, seven(17.5%) had deformity, 11(27.5%) had axial affection. DAS-28 ranged from 2 to 5.2, with a mean±SD of 3.32±1.037. BMI ranged from 25 to 35, with a mean±SD of 30.1±3.1. Illness duration ranged from 6 to 10, with a mean±SD of 6.425±2.01.

Comparative analysis of dependent variables (anxiety and depression) subgroups (having or not having anxiety or depression) regarding the independent variable scores

Table 2 shows comparisons of expected and observed frequencies regarding nonparametric independent social and clinical variable scores of subgroups of patients with PsA with and without anxiety and depression using the χ^2 test.

There was a statistically significant difference between patients with PsA with and without anxiety subgroups regarding the presence of deformity and comorbidity.

There was a statistically significant difference between patients with PsA with and without depression subgroups regarding the presence of deformity and comorbidity.

Table 3 shows the comparison of means regarding parametric independent social and clinical variable scores

of subgroups of patients with PsA with and without anxiety and depression using Student *t* test.

There was a statistically significant difference between patients with PsA with and without anxiety subgroups regarding PsA duration, BMI, DAS-28 score, and patients' age.

There was a statistically significant difference between patients with PsA with and without depression subgroups regarding PsA duration, BMI, DAS-28 score, and patients' age.

DISCUSSION

In this study, among 40 patients with PsA, 12(30%) had anxiety and 19(47.5%) had depression. This agrees with Masmoudi *et al.,* (2009), who reported the rates of anxiety and depression in patients with PsA to be 30 and 60%, respectively. Several studies on depression and anxiety in PsA concluded the following: McDonough *et al.,* (2014) reported a prevalence of both anxiety and depression in patients with PsA of 36.6 and 22.2%, respectively Freire *et al.,* (2011) reported a prevalence of anxiety of 29.7% and depression of 17.6%. In a study of 611 patients with PsA carried out at the University of Toronto PsA and dermatology clinics, Husted *et al.,* (2011) reported a prevalence of depression/anxiety of 20.7% in PsA.

In this study, there was a statistically significant difference between patients with PsA with and without anxiety subgroups regarding the presence of deformity and comorbidity. This agrees with the study by McDonough *et al.,* (2014), which reported a higher actively inflamed joint count was associated with a higher likelihood of both depression and anxiety.

There was a statistically significant difference between patients with PsA with and without depression subgroups regarding the presence of deformity and comorbidity in this study. Moreover, there was a statistically significant difference between patients with PsA with and without anxiety subgroups regarding PsA duration, BMI, DAS-28 score, and patients' age. This agrees with the study by Freire *et al.,* (2011), which demonstrated that it is worth pointing out that although statistically significant differences were seen, regarding the activity of PsA according to the DAS-28, in patients with anxious disorders in comparison with those who did not present these disorders, the differences between the scores were minimal; hence, these statistical differences were considered to lack clinical relevance (Freire *et al.,* 2011).

Table 1: Psychosocial and clinical characteristics:

Nonparametric variables	*n* (%)	
Sex		
Males	20(50)	
Females	20(50)	
Education		
High	15(37.5)	
School	12(30)	
Illiterate	13(32.5)	
Presence of anxiety	12(30)	
Presence of depression	19(32.5)	
Presence of deformity	7(17.5)	
Presence of comorbidity	7(17.5)	
Parametric variables	**Mean (SD)**	**Range**
Age (years)	43±4.86	36–52
Duration of psoriatic arthritis (years)	6.425±2.01	6–10
BMI	30.1±3.1	25–35
DAS-28	3.32±1.037	2–5.2

DAS-28, disease activity score 28.

There are 20 females, which represented 50% of the sample. Age ranged from 36 to 52 years, mean±SD of 43±4.86. As for education: 15(37.5%) have high education, 12(30%) have school education and 13(32.5%) are illiterate. Among 40 psoriatic arthritis patients, 12(30%) have anxiety, 19(47.5%) have depression, seven(17.5%) have comorbidities, seven(17.5%) have deformity, 11(27.5%) have axial affection. Disease activity severity on DAS-28 range is 2–5.2, mean±SD is 3.32±1.037. BMI range is 25–35, mean±SD is 30.1±3.1. Illness duration range is 6–10, mean±SD is 6.425±2.01.

Table 2: Comparing expected and observed frequencies between patients with psoriatic arthritis with and without anxiety and depression subgroups using χ^2 test regarding nonparametric independent social and clinical variables:

Independent variables	Anxiety	Significance	Depression	Significance
Sex	2.619	0.257	2.727	0.394
Education	0.786	0.867	5.727	0.422
Axial affection	1.904	0.450	2.182	0.67
Deformity	14.571	0.001	14.456	0.003
Comorbidities	16.904	0.001	16.9	0.003

Comparisons of expected and observed frequencies as regards nonparametric independent social and clinical variables scores of subgroups of psoriatic arthritis patients with and without anxiety and depression using χ^2 test. There is a statistically significant difference between psoriatic arthritis patients with and without anxiety subgroups as regard presence of deformity and comorbidity. There is a statistically significant difference between psoriatic arthritis patients with and without depression subgroups as regard presence of deformity and comorbidity.

Table 3: Psychosocial and clinical characteristics:

Independent variables	Anxiety	Significance	Depression	Significance
Disease duration	23.82	0.000	25.381	0.000
BMI	64.872	0.000	66.433	0.000
DAS-28	24.506	0.000	26.067	0.000
Age	59.741	0.000	61.302	0.000

DAS-28, disease activity score 28.

Comparisons of means as regards parametric independent social and clinical variables scores of subgroups of psoriatic arthritis patients with and without anxiety and depression using Student *t* test. There is a statistically significant difference between psoriatic arthritis patients with and without anxiety subgroups as regard psoriatic arthritis duration, BMI, DAS-28 score, and patients' age. There is a statistically significant difference between psoriatic arthritis patients with and without depression subgroups as regard psoriatic arthritis duration, BMI, DAS-28 score, and patients' age.

In this study, there was a statistically significant difference between patients with PsA with and without depression subgroups regarding PsA duration, BMI, DAS-28 score, and patients' age. No studies analyzed these factors in relation to mental health of patients with PsA.

Early diagnosis and treatment of PsA is crucial, as it may prevent potentially devastating physical and psychosocial consequences of the disease. Thus, understanding the health status of patients before the diagnosis of PsA is important (Freire *et al.,* 2011). A Danish study comparing patients with PsA to the general population reported that patients with PsA before diagnosis had higher health care costs, lower income, higher unemployment rates, higher risk for disability pension, and more comorbidities (Ritchlin *et al.,* 2014). It is no luxury to provide mental health care to patients with PsA.

CONCLUSION

BMI, presence of comorbidities, level of education are related to the presence of anxiety and depression in patients with rheumatoid arthritis.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

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