Clin Rheumatol (2012) 31:73–77
DOI 10.1007/s10067-011-1785-3

ORIGINAL ARTICLE

Depression among the Moroccan systemic sclerosis

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Received: 18 December 2010 / Revised: 15 May 2011 / Accepted: 18 May 2011 / Published online: 1 June 2011

Abstract To determine the prevalence and predictors factors of depression in Moroccan patients with systemic sclerosis (SSc), we conducted a cross-sectional study of 59 Moroccan patients with systemic sclerosis. Patients were assessed by using the Patient Health Questionnaire depression scale "PHQ-9" and through extensive clinical histories and medical examinations. The Arabic version of HAQ and SF-36 was used to assess functional disability and health status, respectively. Forty-six patients (77.4%) presented symptoms of depression. Thirty six (61%) have a major depressive syndrome and 10 (16.4%) have a minor depressive syndrome. The PHQ-9 score was significantly higher in the patient with prolonged disease duration, severe joint pain, higher disease severity, and important acute-phase reactants. Also, depression had a negative impact on physical and mental scores. Systemic scleroderma is associated with a high prevalence of depression. Screening for depression among patients with SSc is recommended and it should be assessed for routinely.

Keywords Depression · Systemic sclerosis

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Introduction

Systemic sclerosis (SSc) is a chronic multisystemic disorder of connective tissue characterized by thickening and fibrosis of the skin and by the involvement of internal organs [1]. SSc affects mainly women in the prime of their life and is associated with significant morbidity and increased mortality [2]. Patients with SSc report high levels of pain, to be fatigue, disability, and substantially impaired overall physical function, and they report more body image distress than even patients hospitalized with burn injuries [3].

High rates of depression are common among patients with chronic medical conditions and are typically several times higher than in the general population. A recent systematic review of symptoms of depression in patients with SSc found that between 36% and 65% of patients with SSc have clinically significant symptoms of depression [4]. The reported rates of depressive symptoms from the eight studies reviewed were consistently higher than rates in other patient groups when the same assessment instruments and cutoff scores were used [4].

Different measures have been used to assess psychological distress in SSc, including the Beck Depression Inventory (BDI), the Zung Self-Rating Depression Scale, the Center for Epidemiologic Studies Depression Scale (CES-D), the Montgomery–Asberg Depression Rating Scale, the Hospital Anxiety and Depression Scale, the Delusions Symptoms State Inventory/States of Anxiety and Depression scale, the General Health Questionnaire, and the Psychosocial Adjustment to Illness Scale [5].

Among these tools, only the CES-D [6] and recently the Patient Health Questionnaire depression scale "PHQ-9" [5] have been validated for use among patients with SSc. Therefore, the Patient Health Questionnaire depression scale (PHQ-9) is a reliable and valid measure of depressive

symptoms among patients with SSc that can be potentially used for both research and clinical purposes as a measure of severity of depressive symptoms [5].

The objective of the present study was to assess the prevalence of depression in Moroccan patients with SSc, using the PHQ-9, and to identify important demographic, socioeconomic, and disease-related correlates of depressive symptoms.

Patients and methods

We conducted a cross-sectional study of 59 patients with SSc. Patients were consecutively collected in consultation or were hospitalized in our department of rheumatology at El Ayachi Hospital, University Hospital of Rabat–Sale, Morocco, between September 2009 and October 2010.

All patients had the diagnosis of SSc according to the ACR criteria for diffuse scleroderma. Leroy and Medsger criteria are used for the diagnosis of the limited scleroderma [7]. They were all over 18 years old and all signed the consent form for the study.

We collected sociodemographic data: age, sex, race, marital status (single, married, or living in family), and education (0, 1–9, or ≥10 years at school). SSc-related variables are: disease duration (determined as the time from onset of non-Raynaud's symptoms based on a clinical history obtained by study physicians), number of tender and swollen joints (recorded by study physicians using a 28-joint count), severity of the disease (was rated by the study physicians on a 0–10 numerical rating scale, which has been shown to be a valid measure of severity in SSc [8]), and severity of pain (evaluated by visual analogic scale), presence of gastrointestinal symptoms (determined by patient report from a checklist that included weight loss, anorexia, dysphagia, reflux, nausea/vomiting, constipation, and diarrhea), skin involvement (evaluated by the modified Rodnan skin score ranging from 0 to 51) [9], and respiratory problems. Shortness of breath was assessed by the patient on a 0–10 numerical rating scale [10]. The HAQ–Disability Index adapted to SSc (S-HAQ) was used to assess functional disability [scores range from 0 (no disability) to 3 (severe disability)] [10].

The Arabic version of the Short-Form 36 Health Survey Questionnaire (SF-36) was used to evaluate health status. The scores of the eight domains of SF-36 were summarized into a physical component summary score and a mental component summary score.

Depression assessment Symptoms of depression were assessed with the PHQ-9. The PHQ-9 is a nine-item measure of depression severity with a user-friendly response format, short administration time, and easy scoring.

This item rates the frequency of symptoms over the past 2 weeks [11]. This is calculated by assigning scores of 0, 1, 2, and 3 to the response categories of "not at all," "several days," "more than half the days," and "nearly every day," respectively. PHQ-9 total score for the nine items ranges from 0 to 27. Scores of 5, 10, 15, and 20 represent cut points for mild, moderate, moderately severe, and severe depression, respectively.

Major depression was diagnosed if five or more of the nine depressive symptom criteria were present at least "more than half the days" in the past 2 weeks, and one of the symptoms is depressed mood or anhedonia. Other grades of depression are diagnosed if two, three, or four depressive symptoms were present at least "more than half the days" in the past 2 weeks, and one of the symptoms is depressed mood or anhedonia. Criteria number 9 ("thoughts that you would be better off dead or of hurting yourself in some way") counts if present, regardless of duration [12].

An item was also added to the end of the diagnostic portion of the PHQ-9, asking patients who checked off any problems on the questionnaire: "How *difficult* have these problems made it for you to do your work, take care of things at home, or get along with other people?."

Statistical analysis

The statistical package for the social sciences (SPSS) version 13.0 was used for the analysis. Data for patients were expressed as mean and standard deviations or as frequencies and percentages. Comparison between males and females was done using the *T* test. Correlations between depression scores and disease variables were assessed using the Pearson's coefficient. A $p \leq 0.05$ was considered significant.

Results

Fifty-nine patients with SSc were recruited. Patient demographics and disease variables are shown in Tables 1 and 2,

Table 1 Patient demographic datas

	Mean±SD or *N* (%)	Min–max
Age (years)	49.5±13	26–68
Female sex	86 (50.74)	
Race, White	96 (56.64)	
Years at school		
0	47 (27.73)	
1–9	30 (17.7)	
≥10	23 (13.57)	
Marital status		
Married	24 (40.67)	
Living in family	16 (27.11)	
Single	19 (32.2)	

Table 2 Patient disease characteristics

	Mean±SD or *N* (%)	Min–max
Disease duration (years)	9±4.5	4–18
VAS pain (0–10)	7.32±1.8	1–8
VAS disease severity (0–10)	4.85±1.41	2–8.5
S-HAQ	1.14±0.48	0.56–1.91
Tender joint (0–28)	9.41±4.06	0–21
Swollen joint (0–28)	7.85±3.33	0–13
ESR (mm)	40.5±13.2	16–48
CRP (mg/l)	17.7±0.61	11–48
SF-36 scores		
Physical score	46.16±12.5	33–100
Mental score	66.13±38.01	25–100
Diffuse SSc	96 (56.64)	
Limited SSc	4 (2.36)	
Rodnan score ≥15	27(45.76)	
Number of gastrointestinal symptoms	9.6	
Breathing problems	4.8	
Specific antibodies		
Antinuclear antibody	23 (38.38)	
Antitopoisomerase antibody	19 (32.20)	

VAS visual analogical scale, *S-HAQ* scleroderma health assessment questionnaire, *ESR* erythrocyte sedimentation rate, *CRP* C-reactive protein, *SF-36* short form

respectively. There were 51 (86%) female and 57 (96% of patients) were White race. The mean age of the sample was 49.5 years. Twenty-three percent of patients completed some postsecondary education, and 67.78% were married or living in family.

The mean duration of SSc was 9±4.5 years. Approximately 96% of patients had diffuse SSc and 4% had a limited form. The mean physician-rated global severity score was 4.85±1.41; 45.76% of patients have a severe skin involvement with Rodnan score ≥15. The mean number of tender joints was 9.41.

In this study, 46 patients (77.4%) presented symptoms of depression, 36 (61%) have a major depressive syndrome, 10 (16.4%) have a minor depressive syndrome, and 13 (22%) have no depression symptoms. The mean score of PHQ-9 was 11.42±7.24 (from 0 to 22). PHQ-9 scores are shown in Fig. 1. Comparing males and females, there were no differences in depression scores (p=0.237).

In our study, there were significant correlations between scores of depressions and prolonged disease duration, severe joint pain, important disease severity, and important biological inflammation. Also, depression had a negative impact on physical and mental scores of SF-36 (Table 3). In linear regression, depression was correlated to disease duration (β=0.234; p=0.013) and mental score of SF-36 (β=0.289; p=0.026).

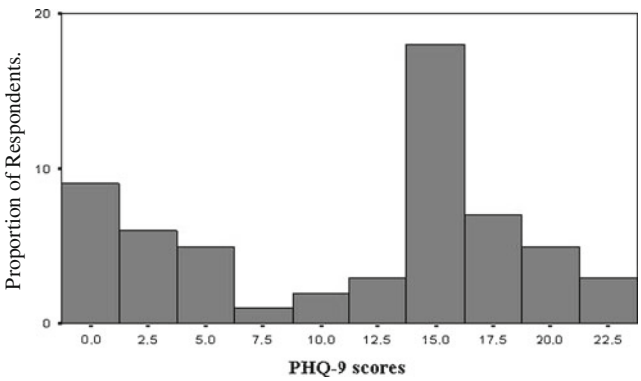

Fig. 1 Distribution of PHQ-9 scores (N=59)

Table 3 Clinical correlates of depressive symptoms as measured by the PHQ-9 depression scale

	r	*p* value
Disease duration (years)	0.301	0.001
VAS disease severity (0–10)	0.204	0.02
VAS joint pain (0–10)	0.363	0.019
Tender joint (0–28)	0.488	0.021
Swollen joints (0–28)	0.106	0.297
S-HAQ	0.198	0.348
ESR (mm)	0.349	0.004
CRP (mg/l)	0.277	0.006
Rodnan score	0.260	0.079
PSC	0.399	0.001
MSC	0.481	<0.001

Discussion

This study showed very high prevalence of depression (77.4%) in a population receiving outpatient care in Morocco for systemic sclerosis. Sixty-one percent of our patients have major depression, higher than the rate of depression in the general population in Morocco which is 26.5% [13]. Our findings are in agreement with many other studies showing high prevalence of depression between 46% and 50% of outpatients with systemic sclerosis [14–16]. In the literature, depression seems common among patients with connective tissue disease: 13–20% in patients with rheumatoid arthritis and 20–25% in those with systemic lupus erythematosus [17, 18]. These studies used validated instruments for detecting depression (BDI) but not validated in scleroderma. The PHQ-9 has the advantage to be more quickly and easily administered and scored, besides being validated in evaluation of depression in scleroderma. This study is the second using the PHQ-9 scale to evaluate depression in patients with SSc, after that of Milette et al., which has validated the PHQ-9 scale to assess depression in scleroderma [5]. Depression was more prevalent among patients with severe joint pain, prolonger disease duration, and higher disease severity, such as the case in Brett's study [19].

This study is the first in Africa and Arabic people to assess the prevalence of symptoms of depression among patients with SSc and its sociodemographic and disease-related correlates using a valid scale of depression. Neither sociodemographic factors (age, sex, and race) nor skin score and diffused/limited status were significantly related to symptoms of depression. These findings are in agreement with Canadian studies [4, 19]. In Brett's study [19], high school education or less and patients who were not married had significantly higher scores, reflecting more depressive symptoms, while in our study, education level and marital status have no influence on the depression. This can be explained by the fact that the rate of illiteracy is raised in Morocco, and, the family solidarity is rather important that not married people always live in family [20].

Surprisingly, there were no correlations between number of gastrointestinal symptoms, breathing difficulties, and depression. This is inconsistent with several other studies of patients with SSc that have reported associations of gastrointestinal involvement [21] or dyspnea [22] with depressive symptoms. This would be explained by the difference of the methods of exploration. In our study, the evaluation of gastrointestinal and breathing disorders was based on the clinical examination and the use of a visual analog scale (VAS). While in the other studies, gastrointestinal and breathing disorders were evaluated by using different instruments such as the Gastrointestinal Quality of Life Index [21] or Mahler's baseline dyspnea index (BDI) [22]. There were significant correlations between high scores of depression and acute-phase reactants (ESR and CRP), once those biologic parameters are known to be factors of activity and severity of SSc.

At last, depression had a negative impact on physical and mental scores. Indeed, Brett et al. [23] have concluded in their study that depressive symptoms were robust predictors of fatigue and poor quality of life.

Routine screening for depression followed by confirmation of the diagnosis by a psychiatrist is mandatory, and treatment should be given if appropriate. Antidepressants have been found effective in patients with depression associated with chronic disease [24].

Conclusion

Our study revealed that depression is extremely common in Moroccan patients with systemic sclerosis. In our data, severe joint pain is the most correlated factor to depressive symptoms. Prolonged disease duration and disease severity are also incriminated. More than that, depression had a negative impact on physical and mental health. These data indicate clearly that patients with systemic sclerosis should be routinely evaluated for depression. When these disorders are found, early treatment and specific social support interventions should be considered [25]. Successfully treating these disorders may improve mood, although this has not yet been demonstrated.

Disclosures None.

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