

A cross-sectional study of depression and quality of life in psoriasis

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Introduction

Psoriasis is a chronic inflammatory skin condition that affects 2-4% of the Western population, impacting men and women equally.¹ Physical distress can be caused by severe itching and bleeding of the well-demarcated silver scales.² The disfiguring nature of psoriasis is associated with the experience of stigma, embarrassment, social isolation and depression, which may lead to suicidal ideation and harmful substance use.³ The estimated prevalence of depression in psoriasis varies widely in different studies from 10 to 60%.^{4,5}

Depression and psoriasis are likely to be linked in multiple ways. For example, recent data highlight the role of pro-inflammatory cytokines, such as IL-6 and TNF- α , in the pathophysiology of both disorders.^{6,7} Moreover, stress is a known risk factor for noncompliance with medical treatment which may result in poor control of both psoriasis and depression.⁸

Methods

We conducted a cross-sectional study during November and December 2020 to observe the prevalence of depressive symptoms in patients actively treated for psoriasis in secondary care. Assessments included the Psoriasis Area and Severity Index (PASI), the Patient Health Questionnaire (PHQ-9), a nine item measure of depressive symptoms, and the Dermatology Life Quality Index (DLQI), a ten item measure of the impact of psoriasis on quality of life. Subjects scoring 10 or more on the PHQ-9 were considered to have clinically significant depression and were discussed with the study psychiatrist (DBM).

Statistical analysis

Univariate linear regression was used to identify clinical and demographic predictors of elevated PHQ-9. Data normality was checked using the Kolmogorov-Smirnov test. Data entry was done using Microsoft Excel and the final analysis was done with Statistical Package for Social Sciences (SPSS) software version 21.0. Means were compared with the Student t test, and proportions with chi square or Fisher's Exact Test, as appropriate. p values <0.05 were considered significant.

Results

Our patient sample included 100 (50M; 50F) participants with a mean age of 49.8 (\pm 16.0) years and an average duration of disease of 20.7 (\pm 14.7) years. Details of patient demographics and clinical assessments are summarised in Table 1.

The most common psoriasis presentation was of plaque type (91%). Elevated depressive symptoms (PHQ score \geq 10) were reported by 25 patients (10 men, 15 women) who also experienced significantly worse skin-related quality of life measured by the DLQI (Table 1). As shown in the table, elevated PHQ scores were also associated with underlying psoriatic arthritis (RR= 2.4, p=0.035), genital involvement (RR = 1.5, p=0.05) and pre-existing diagnoses of depression (RR= 5.6, p<0.0001) or anxiety (RR= 3.4, p= 0.003).

Table 2 summarises the univariate linear regression analysis of PHQ score as the dependent variable. Depressive symptoms were found to be negatively correlated with age (r = -0.22, p=0.028) and more strikingly with quality of life (r = -0.56, p<0.0001) but were not

significantly predicted by duration ($r = -0.05$, $p = 0.64$) or severity of illness ($r = 0.17$, $p = 0.09$), or by BMI ($r = -0.08$, $p = 0.41$).

Discussion

We found that depression in patients with psoriasis was strongly associated with impaired quality of life and, to a lesser extent, with, genital involvement and psoriatic arthritis. By contrast, the severity of disease, duration of disease, and type of systemic treatment were not significantly associated with depression. While prior diagnoses of depression or anxiety were, unsurprisingly, associated with depressive symptoms measured in this study, 12 of the 25 patients with significantly elevated PHQ had no prior diagnosis or treatment of depression. This observation underscores the value of screening tools such as PHQ-9 and DLQI to identify unmet need and prompt further assessment and treatment.

Available evidence indicates a role for both pharmacological and psychological interventions for depression in psoriasis; non-medical strategies include stress management, cessation of harmful substance use, and cognitive therapy.

Limitations of this study include its cross-sectional nature and that our patients were all seen in secondary care, and mostly required systemic treatment. We did not control for treatment success/failure. The absence of patients managed solely in primary care may limit generalisability. We acknowledge the risk of Type I error arising from multiple statistical tests and encourage caution in interpretation of our results that just reach significance.

Conclusion

Our results accord with previous studies indicating significant risk of depression in psoriasis patients. Screening for depression should form an important part of clinical assessment. More research will be required to establish the impacts of psychiatric treatment on clinical status, functional capacity, and quality of life in patients with psoriasis.

References

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Table 1: Patient demographics and associations with elevated PHQ-9

Demographics	PHQ <10 (n=75)	PHQ ≥10 (n=25)	Total	p value	Statistical test*
Demographics					
Age(years) Mean ± SD	50.8 ± 17.0	47.1 ± 12.4	49.9 ± 16.0	0.32	t = 1.00
Duration of disease (years) Mean ± SD	21.4 ± 14.6	18.7 ± 15.2	20.7 ± 14.7	0.43	t = 0.79
Gender					
Female (%)	35 (46.7)	15 (60.0)	50 (100)	0.25	chi square = 1.33
Male (%)	40 (53.3)	10 (40.0)	50 (100)		
Ethnicity					
Maori (%)	7 (9.33)	4 (16.0)	11 (100)	0.49	chi square = 1.42
NZ European (%)	54 (72.0)	15 (60.0)	69 (100)		
Others (%)	14 (18.7)	6 (24.0)	20 (100)		
Psoriasis subtype					
Guttate (%)	1 (1.33)	1 (4.00)	2 (100)	0.58	chi square = 1.10
Palmoplantar (%)	6 (8.00)	1 (4.00)	7 (100)		
Plaque (%)	68 (90.7)	23 (92.0)	91 (100)		
Disease Life Quality Index (DLQI)					
Mean ± SD	5.51 ± 5.17	12.6 ± 8.92	7.27 ± 6.98	<0.0001	t = 4.87
Psoriasis Assessment Severity Index (PASI)					
Mean ± SD	6.78 ± 7.29	8.7 ± 9	7.26 ± 7.75	0.29	t = 1.07
Psoriasis distribution					
Face (%)	35 (73.3)	15 (60.0)	50 (100)	0.25	chi square = 1.33
Scalp (%)	55 (75.3)	18 (72.0)	73 (100)	0.90	chi square = 0.02
Trunk (%)	56 (74.7)	19 (76.0)	75 (100)	0.89	chi square = 0.018
Genitalia (%)	34 (45.3)	17 (68.0)	51 (100)	0.05	chi square = 3.85
Arms (%)	63 (84.0)	21 (84.0)	84 (100)	1	Fisher Exact
Legs (%)	59 (78.7)	20 (80.0)	79 (100)	0.89	chi square = 0.02
Feet (%)	40 (53.3)	17 (68.0)	57 (100)	0.20	chi square = 1.65
Hands (%)	42 (56.0)	17 (68.0)	59 (100)	0.29	chi square = 1.12
Treatment					
Methotrexate (%)	24 (32.0)	11 (44.0)	35 (100)	0.28	chi square = 1.19
Acitretin (%)	11 (14.7)	2 (8.00)	13 (100)	0.51	Fisher Exact
Biologic (%)	18 (24.0)	7 (28.0)	25 (100)	0.69	chi square = 0.16
Other systemic (%)	3 (4.00)	1 (4.00)	4 (100)	1	Fisher Exact

Co-morbidities					
Hypertension (%)	23 (30.7)	11 (44.0)	34 (100)	0.22	chi square = 1.49
Diabetes mellitus (%)	13 (17.3)	3 (12.0)	16 (100)	0.75	Fisher Exact
Gout (%)	10 (13.3)	6 (24.0)	16 (100)	0.21	chi square = 1.59
Hyperlipidaemia (%)	22 (29.3)	8 (32.0)	30 (100)	0.80	chi square = 0.64
Psoriatic arthritis (%)	10 (13.3)	8 (32.0)	18 (100)	0.035	chi square = 4.43
Depression (%)	7 (9.33)	13 (52.0)	20 (100)	<0.0001	chi square = 21.3
Anxiety (%)	8 (10.7)	9 (36.0)	17 (100)	0.003	chi square = 8.53
Obstructive sleep apnoea (%)	7 (9.33)	3 (12.0)	10 (100)	0.71	Fisher Exact
Lifestyle habits					
Alcohol (any) (%)	8 (10.7)	6 (24.0)	14 (100)	0.96	chi square = 2.77
Excess alcohol (%)	5 (6.67)	4 (16.0)	9 (100)	0.22	Fisher Exact
Smoking (%)	10 (13.3)	3 (12.0)	13 (100)	1	Fisher Exact
Vaping (%)	6 (8.00)	3 (12.0)	9 (100)	0.69	Fisher Exact
Cannabis (%)	7 (9.33)	5 (20.0)	12 (100)	0.16	chi square = 2.02
Exercise (>150min/week) (%)	21 (28)	7 (28.0)	28 (100)	1	chi square = 0
Body mass index(kg/m²)					
<25 (%)	13 (17.3)	8 (32.0)	21 (100)	0.16	Fisher Exact
25-29.9 (%)	17 (22.7)	2 (8.00)	19 (100)		
30-39.9 (%)	29 (38.7)	12 (48.0)	41 (100)		
>=40 (%)	16 (21.3)	3 (12.0)	19 (100)		

*All t tests have df = 98; all chi square tests have df = 1

Table 2: Univariate linear regression to predict PHQ-9

Variable	Pearson's r (df = 98)	p value
Age (years)	-0.22	0.03
Duration of disease(years)	-0.05	0.64
Disease Life Quality Index (DLQI)	0.56	<0.00001
Psoriasis Assessment Severity Index (PASI)	0.17	0.09
Body Mass Index (kg/m ²)	-0.08	0.41