Psychiatria Danubina, 2017; Vol. 29, No. 4, pp 401-406 https://doi.org/10.24869/psyd.2017.401 *Review*

ANALYSIS OF THE PREVALENCE OF MENTAL DISORDERS IN PSORIASIS: THE RELEVANCE OF PSYCHIATRIC ASSESSMENT IN DERMATOLOGY

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received: 10.10.2016; revised: 23.2.2017; accepted: 27.4.2017

SUMMARY

Background: *The boundary between Dermatology and Psychiatry has increasing recognition. Psoriasis is a common psychophysiological skin disease with a major impact on patient's quality of life and a paradigmatic example of a pathology in that boundary. Studies are needed to exactly point out the prevalence of specific psychopathology and mental disorders associated with psoriasis. This work intends to analyse the prevalence of psychopathology and psychiatric comorbidities in patients with psoriasis.*

Methods: *A systematic review of the literature was performed following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) and the "5S" model proposed by Haynes. From all the papers retrieved by this search, a total of 34 papers met the inclusion criteria and were then deeply analysed.*

Results: *The most prevalent mental disorders in these patients are sleep disorders (average prevalence: 62.0%), sexual dysfunction (45.6%), personality (35.0%), anxiety (30.4%), adjustment (29.0%), depressive (27.6%) and substance-related and addictive disorders (24.8%). Other mental disorders have been less described, namely somatic symptoms and related disorders, schizophrenia and other psychoses, bipolar disorder and eating disorders.*

Conclusions: *This updated research shows that the prevalence of psychiatric conditions in psoriasis may range from 24% to 90%. The study of the mind-skin connection in psoriasis may improve the knowledge about psoriasis and its psychiatric comorbidities. The link between psoriasis and associated mental disorders is frequently forgotten or not considered in the clinical practice. Psychiatric disorders in patients with psoriasis may be underdiagnosed. These patients would really benefit from psychiatric assessment, with therapeutic relevance.*

Key words: *mental disorders – psychopathology - psychological stress - psoriasis*

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INTRODUCTION

In 1998 the neuro-immuno-cutaneous-endocrine model was suggested to explain the mind and body connection (O′Sullivan et al. 1998). That model explains how many inflammatory dermatoses, such as psoriasis, are triggered or exacerbated by stress factors, including psychological stress and social environment. These conditions are called psychophysiological skin disorders (Yadav et al. 2013). There is an embryological and biochemical relationship between the brain and the skin (Chen & Lyga 2014) which could also explain the high prevalence of psychopathology in patients with chronic skin diseases, such as in psoriasis.

Psoriasis is a chronic inflammatory skin disease with profound negative psychosocial impact, with social stigma, affecting approximately 2% of the population worldwide (Ni & Chiu 2014). It is a psychophysiological skin disorder with several psychiatric comorbidities. Actually, patients with psoriasis exhibit numerous important psychiatric diseases more often than expected (Boehncke & Boehncke 2014). Several papers have pointed out the link between psoriasis and psychological stress as well as its connection with some mental disorders, specially depression and anxiety. However, the clinical practice has shown that these patients may have many other important mental disorders. Though, for many mental disorders and psychopathological aspects found in patients with psoriasis there has been scarce analysis. But the psychiatric morbidity in psoriasis is often a more important indicator of the disability experienced by the patient than the dermatologic aspects of the disorder (Gupta & Gupta 2003).

Based on the information above, this systematic review sets out to analyse the literature about the prevalence of psychiatric comorbidities in psoriasis.

METHODS

This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Liberati et al. 2009).

Inclusion Criteria

All the articles that described the mental disorders and the psychopathological features related to psoriasis as well as the articles which focused the relationship

between psychological stress and psoriasis were included. We considered the articles about prevalence and clinical aspects. Only the studies with humans published in English, French, German, Portuguese and Spanish were selected. The date restrictions were between 1990 and February 2015. All study designs were included.

Search Strategy

The search was performed in February 2015 and it followed the 5S model of evidence based on information services (Haynes 2006). The top level of evidence, systems, was not used because it was not completely developed. Therefore, the first level used in this review was summaries, in UpToDate, using the words "psoriasis" and "psychopathology" and "psoriasis" and "mental disorders". At the next level, synopses, the search was in the Evidence Based Medicine database, with the same words. Afterwards, we used the syntheses level, through the Cochrane Library. Finally, at the studies level, the search was conducted in the Medical Subject Headings (MeSH) of PubMed. The search strategy was the conjunction of the following terms: "Mental Disorders AND Psoriasis", "Stress, Psychological AND Psoriasis" and "Psychopathology AND Psoriasis".

Process of Data Collection and Analysis

The titles and abstracts obtained from this search were reviewed and selected when they followed the inclusion criteria. After this process, we considered 34 papers. They were then deeply analysed, considering the following topics: mental disorders found in patients with psoriasis and their prevalence; the main clinical features of the psychopathology linked with psoriasis. The results were analysed through Stata statistical software 13.1 (stataCorp LP, Texas).

RESULTS

The search provided 390 papers. The levels from the top of the Haynes pyramid of evidence did not retrieve articles about this topic. This shows that there is no other article which globally analyses the prevalence of all the mental disorders that are linked with psoriasis.

After applying the inclusion criteria, 34 papers from the studies level were included. Table 1 exposes these articles and the characteristics of each study: there are five reviews about some of the psychiatric comorbidities of psoriasis, one systematic review about the prevalence of sexual dysfunction, 12 case-control studies, 14 cross-sectional and 2 cohort studies.

Table 2 compiles the specific type of mental disorder that was described by the papers selected, the main group of the psychiatric disorders according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), to which we can attach the comorbidity mentioned and the respective prevalence.

Patients with psoriasis may have a significant prevalence of adjustment (Biljan et al. 2009, Gaikwad et al. 2006, Kumar et al. 2013, Mattoo et al. 2001), anxiety (Biljan et al. 2009, Crosta et al. 2014, Gaikwad et al. 2007, Han et al. 2011, Karelson et al. 2013, Kimball et al. 2012, Kumar et al. 2011, Mizara et al. 2012, Poot et al. 2011, Rieder & Tausk 2012, Russo et al. 2004, Schmitt et al. 2010, Schneider et al. 2006, Schneider et al. 2013, Sharma et al. 2001), mood (Akay et al. 2002, Biljan et al. 2009, Crosta et al. 2014, Gaikwad et al. 2006, Han et al. 2011, Karelson et al. 2013, Kimball et al. 2012, Kumar et al. 2011, Kumar et al. 2013, Mattoo et al. 2001, Mizara et al. 2012, Moreno-Giménez et al. 2010, Poot et al. 2011, Reich et al. 2010, Rieder & Tausk 2012, Russo et al. 2004, Schmitt & Ford 2010, Schneider et al. 2006, Sharma et al. 2001, Shutty et al. 2013, Yang & Lin 2012), personality (Mazzetti et al. 1994), sleep (Gaikwad et al. 2006, Sharma et al. 2001, Shutty et al. 2013) as well as somatic symptoms and related disorders (Crosta et al. 2014, Gaikwad et al. 2006). They may also exhibit a high frequency of sexual dysfunction (Gaikwad et al. 2006, Goulding et al. 2011, Kurizky & Mota 2012, Meeuwis et al. 2011, Rieder & Tausk 2012, Russo et al. 2004, Sampogna et al. 2007), symptoms of eating disorders (Crosta et al. 2014) and substance-related and addictive disorders (Akay et al. 2002, Biljan et al. 2009, Dediol et al. 2009, Gupta & Gupta 2003, Kirby et al. 2008, Kumar et al. 2013, McAleer et al. 2011, Rieder & Tausk 2012, Russo et al. 2004). Patients with psoriasis have a high prevalence of anxiety symptoms (up to 82.8%), but specific anxiety disorders, such as generalised anxiety disorder (Karelson et al. 2013, Biljan et al. 2009) may be present in an important percentage (up to 33%). Depressive symptoms have been described in a high frequency as well (up to 68%). Among mood disorders, depressive disorders are the most prevalent. On the other hand, borderline personality disorder was found to be an important psychiatric comorbidity in these patients (17.5%), but other personality disorders were described in an important prevalence too. According to the results of this systematic review, there is some evidence of a relationship between schizophrenia and other psychoses and psoriasis (Crosta et al. 2014, Gaikwad et al. 2006, Kumar et al. 2013, Yang & Lin 2012) and the prevalence may reach 35%. Furthermore, sexual dysfunction and sleep disorders have the highest frequency in these patients. Sexual dysfunction may be present in more than 20.9% of the patients with psoriasis and the frequency may reach 71.3%. A decreased sexual desire as well as orgasmic disorder and erectile dysfunction are all prevalent. Sleep disorders are found in more than 56.6% of the psoriasis cases. Regarding the problem of somatic symptoms and related disorders, 39% of the patients with psoriasis have somatization complaints. Finally, from this systematic search we may expect that 68% also have nicotine dependence and up to 32% of patients with psoriasis may have problems with alcohol.

Table 1. Types of studies and samples assessed about the prevalence of psychiatric disorders in patients with psoriasis

Publication year	Author	Study design	Number of patients with psoriasis studied	Controls
2014	Crosta ML	Case-control	100	100
2013	Karelson M	Case-control	57	57
2013	Kumar V	Case-control	30	30
2013	Schneider G	Cross-sectional	49	-
2013	Shutty B	Case-control	35	44
2012	Kimball AB	Cohort	7 404	37 020
2012	Kurizky PS	Systematic review	-	-
2012	Mizara A	Case-control	55	53
2012	Rieder E	Review	-	-
2012	Yang YW	Cross-sectional	46 50*	46 350
2011	Goulding JM	Cross-sectional	92	130
2011	Han C	Case-control	7 791	31 884
2011	Kumar S	Case-control	50	50
2011	McAleer MA	Cross-sectional	135	-
2011	Meeuwis KA	Cross-sectional	487	-
2011	Poo F	Case-control	37	47
2010	Moreno-Giménez JC	Review	-	-
2010	Reich A	Cross-sectional	102	-
2010	Schmitt J	Case-control	3 147	3 147
2009	Biljan D	Cross-sectional	70	-
2009	Dediol I	Review	-	-
2008	Kirby B	Cross-sectional	95	-
2008	Nasreen S	Cross-sectional	89	-
2007	Sampogna F	Cohort	936	-
2006	Gaikwad R	Cross-sectional	43	-
2006	Schneider G	Case-control	91	91
2005	Hagforsen E	Case-control	60	154
2004	Russo PA	Review	-	-
2003	Gupta MA	Review	-	-
2002	Akay A	Case-control	50	40
2001	Mattoo SK	Cross-sectional	103	-
2001	Sharma N	Cross-sectional	30	-
1997	Bharath S	Cross-sectional	30?	-
1994	Mazzetti M	Cross-sectional	80	-

*this number does not represent the number of patients with psoriasis but the number of patients with a psychiatric diagnosis (in this case, schizophrenia) who were studied to define the risk for psoriasis

Table 3 presents the main psychiatric diagnoses and the respective average prevalence and standard deviation among the different studies. After assessing all the results from the papers selected, it could be concluded that sleep disorders are the main comorbidity of these patients, followed by sexual dysfunction, personality disorders and then anxiety, adjustment and depressive disorders. We did not find any paper about the exact prevalence of any specific diagnosis (according to the DSM-5) of eating disorders in psoriasis. Nevertheless, in spite of this fact, some symptoms of eating disorders, namely body dissatisfaction and interpersonal distrust, are exhibited by psoriasis patients and are statistically relevant, as observed by Crosta et al. 2014. The authors also highlighted previous studies which pointed out binge eating disorder as an important eating disorder in psoriasis.

Other specific psychopathological aspects were also described, namely alexithymia (Gupta & Gupta 2003, Schneider et al. 2006) in psoriasis with early-onset, hypochondriasis (Kotrulja et al. 2010, Schneider et al. 2006) in psoriasis of late-onset (Kotrulja et al. 2010), early maladaptive schemas (Mizara et al. 2012) and suicidal ideation (Gupta & Gupta 2003, Moreno-Giménez et al. 2010, Rieder & Tausk 2012, Russo et al. 2004). The range of prevalence of suicidal ideation in psoriasis is between 2.4% and 9.7% and it commonly happens in the context of depressive mood and anhedonia.

Table 2. Psychiatric diagnoses in patients with psoriasis and their prevalence

Psychiatric diagnosis			Prevalence
Anxiety disorders	Not specified/All forms considered		3.3%-82.8% [a]
	Generalised anxiety		9.6%-33% [a]
	Social anxiety		9.9% [b]
Mood disorders	Depressive disorder	Not specified/All forms considered	4%-68% [a]
		Dysthymia	4% [b]
	Bipolar disorder		1.1% [b]
Personality disorders	Not specified/All forms considered		35% [b]
	Group C	All considered	12.5% [b]
	Borderline		17.5% [b]
	Schizotypal		6.25% [b]
Schizophrenia and other psychoses	Not specified/All forms considered		2.3%-35% [a]
	Paranoid schizophrenia		3.3% [b]
Sexual dysfunction	Not specified/All forms considered		20.9%-71.3% [a]
	Orgasmic dysfunction		31.6%-71.3% [a]
	Erectile dysfunction		58% [b]
Sleep disorders			56.6%-67.4% [a]
Somatic symptoms and related disorders	Not specified/All forms considered		4.6% [b]
	Somatization		39% [b]
Substance-related and addictive disorders	Problems with alcohol not specified		17%-32% [a]
	Alcohol abuse		18%-32% [a]
	Alcohol dependence		6.6%-18% [a]
	Nicotine dependence		68% [b]
Trauma- and Stressor-Related Disorders	Adjustment disorder		13.3%-62% [a]
	Posttraumatic stress disorder		17.8% [b]
TOTAL			24%-90% [a]

[a] range; [b] single value

Table 3. Psychiatric disorders in patients with psoriasis – ordered prevalence

Psychiatric disorder	Average prevalence	Standard deviation
Sleep disorders	62.0%	5.4%
Sexual dysfunction	45.6%	15.8%
Personality disorders	35.0%	-
Anxiety disorders	30.4%	20.5%
Adjustment disorder	29.0%	19.6%
Depressive disorder	27.6%	18.8%
Substance-related disorders	24.8%	15.7%
Somatic symptoms/related disorders	21.8%	17.2%
Posttraumatic stress disorder	17.8%	-
Schizophrenia and other psychoses	11.0%	15.7%
Bipolar disorder	1.1%	-
TOTAL	54.0%	22.5%

DISCUSSION

Chronic skin diseases, such as psoriasis, have a high impact on the patients' health related quality of life, with high levels of psychological morbidity. Skin disorders, highly visible, can devastate self-esteem and cause feelings of shame, with impact on mental health and social life. Besides, some skin diseases, such as psoriasis, are also worsened by stressful life events.

The results of this systematic review point out that the prevalence of psychiatric disorders in psoriasis may range from 24% to 90%. Therefore, mental disorders are an important part of the problem of psoriasis.

Most of the studies have been focused on depression and anxiety as well as on how the psychological impact of psoriasis and social disability can worsen the skin disease. Apart from these two important psychiatric comorbidities of psoriasis (depression and anxiety),

there is often a considerable psychiatric background. From this systematic review we may say that sleep disorders are the main psychiatric comorbidity of psoriasis and the etiology could be multifactorial.

Moreover, these patients may also have substance-related, personality and eating disorders. Patients with psoriasis often exhibit destructive mechanisms of coping, such as drinking alcohol, smoking and overeating (Basavaraj et al. 2011).

Considering the high prevalence of metabolic syndrome in psoriasis, it would be important to know how far it is related to an underlying eating disorder. In this case, eating disorders should be explored in the dermatologic practice and their approach should be the first step to deal with the problem of overweight in patients with psoriasis.

Some studies suggest that there is a link between psoriasis and psychoses too (Crosta et al. 2014, Gaikwad et al. 2006, Kumar et al. 2013, Yang & Lin 2012). However, the literature in this field is scarce and sometimes it lacks rigorous analysis. Actually, the definition of the kind of psychosis is not always clear both in the clinical practice and in the papers published. This fact is especially evident in the case of psychoses/schizophrenia but it also happens with many other mental disorders. An imprecise description of the psychiatric diagnosis may difficult a rigorous analysis about the prevalence and its connection with psoriasis.

CONCLUSION

The boundary between Psychiatry and Dermatology is a ripe field of research, with clinical relevance. In psoriasis, the skin changes are the “tip of the iceberg”, which means that these patients should be analysed in a deeper way.

Future research should include more studies about the prevalence of the least studied comorbidities, such as the prevalence of eating disorders or psychoses in psoriasis. The aim would be to confirm what kind of psychoses and how strong they are connected with psoriasis as well as in which conditions they may happen. The problem of eating disorders in psoriasis and their theoretical relationship with the high prevalence of metabolic syndrome and cardiovascular disease in psoriasis deserves further research and, perhaps, new treatment strategies. Moreover, it would be interesting to explore the clinical differences, in psychopathology, that have been suggested between psoriasis of early and late onset in order to stablish whether or not they require different approach. Finally, the high prevalence of psychiatric comorbidities in psoriasis suggests that these patients benefit from a psychodermatologic approach in dermatologic practice. They would benefit from a psychiatric assessment, determining the scores of anxiety or depression, the impact of the skin disease on quality of life as well as the kind of psychopathology and mental disorders the patient has. After this assessment, a better treatment strategy, a truly biopsychosocial treatment, could be suggested.

Acknowledgements: None.

Conflict of interest: None to declare.

Contribution of individual authors:

Bárbara Roque Ferreira: design of the study, literature searches and analyses, statistical analyses, interpretation of data, first draft, approval of the final version;

José Luís Pio-Abreu: design of the study, literature analyses, statistical analyses, interpretation of data, approval of the final version;

José Pedro Reis: design of the study, literature analyses, interpretation of data, approval of the final version;

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