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Cross-Sectional Study on Prevalence of Psychological Comorbidity in Patients with Psoriasis

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1. Abstract

This study investigates the prevalence of psychological comorbidity in patients with moderate to severe psoriasis vulgaris. Furthermore, the relation between the type of disorder and the degree of psoriasis severity has been analysed. In 10 German study sites 137 female (61 = 44.5%) and male (76=55.5%) patients that had been diagnosed with moderate or severe psoriasis by a qualified dermatologist were surveyed. The most frequent observed comorbidities were moderate to severe depressive syndromes (23.4%), followed by alcohol syndromes (5.8%) and panic disorders (4.6%). Analysis of relations between the type and severity of disorder and the degree of psoriasis severity showed no significant correlations. The present data confirm the psychosocial stress of patient with psoriasis regardless of the degree of severity.

2. Introduction

Psoriasis is a common chronic inflammatory disease based on a polygenetic disposition and can cause clinical relevant changes in the skin, joints, entheses and the bones near joints in individually varying patterns [1-3]. Additionally, various comorbidities can be observed that correlate with the severity of the disease and cause a shortened life expectancy [4, 5]. Comorbidity in this context will be defined as two or more diagnostically distinguished medical conditions existing simultaneously but without a direct causal link. While there is a broad consensus on psoriasis therapies reflected in national and international guidelines, recommendations for identification of individual risks for comorbidities and their management are inconsistent [6, 7]. However, practice-orientated criteria for assessment based on empirical data resulting in recommendations for clinical practice have already been published [8, 9]. Experts of German medical societies have discussed and consented on potential parameters for the identification of individual risks and the current status of the comorbidity patterns “cardiovascular diseases", "metabolic syndrome" and "psychosocial stress and psychiatric illnesses". In this process it became clear, that there is insufficient data for the complex "psychosocial stress and psychiatric illnesses" with regard to psoriasis, mostly limited to retrospective analyses of only selected disorders [10]. Psychological stress, i.e. anticipatory anxiety concerning the prognosis of severe psoriasis, and mental disorders requiring special treatment, i.e. depression or addiction, are quite common concomitant disorders in patients with chronic skin diseases [11-15]. This comprises the insecurity regarding potential limitations in lifestyle as well as changes in self-perception [16]. Also, a whole range of stress factors can occur, socially, financially and job-related, which compromise the quality of life of the patients and their families [17].

The development of these psycho-pathological reaction patterns cannot be seen as direct psychological reaction to a single stress event but is conditioned by many factors such as severity and acuity of the inflammation, the form of therapy, how the therapy has been

explained and agreed by the patient, individual coping strategies and capacities as well as a vulnerability regarding mental illness [11]. Symptom patterns like pain, tiredness and fatigue cause a serious and long-lasting impairment of quality of life not only for the patient but also for his social environment. In this context it becomes clear that opportunities for counselling and psychological and social support for the patients concerned are necessary and reasonable. Approximately a quarter up to one third of all patients with psoriasis develop psychiatric illnesses in the course of the disease that require professional care and can additionally affect the adherence to treatment [18, 19]. Very common and well documented are depressive and anxiety disorders as well as addictions [20]. Therefore, a reliable identification of the symptoms that allow an early recognition of psychological syndromes is very important. This study collected data about the most common psychological disorders in patients diagnosed with moderate to severe psoriasis vulgaris for at least one year using a validated questionnaire in order to acquire knowledge about their prevalence. Furthermore, the relation between the type of disorder and the degree of psoriasis severity was investigated.

3. Patients and methods

Sample size

In 10 German study sites 137 female (61 = 44.5%) and male (76 = 55.5%) patients diagnosed with moderate or severe psoriasis by a qualified dermatologist were surveyed. The patients had an average age of 47.91 (±14.6) and an average duration of the disease of 21.4 years (min=1, max=60).

Questionnaires

Patient Health Questionnaire (PHQ-D) is a screening instrument which in combination with a doctors consultation allows a relatively quick and valid diagnosis of psychological disorders [21]. The complete version allows the diagnosis of somatoform disorders (13 items), depressive disorders (9 items), anxiety disorders (22 items), eating disorders (8 items), alcohol abuse (6 items), and also has a module for psychosocial stressors (10 items). 10 more items collect data about functional capability, medical therapy and menstruation. Depending on the module, answers can be given in 2, 3 or 4 grades. The evaluation follows the diagnostic criteria of the DSM-IV that means a certain number of symptoms have to be diagnosed in each section. The evaluation algorithms are described in the manual. Alternatively, the questionnaire can be evaluated with templates. The continuous scales appeared to be reliable (depressive disorders: α =0.88; anxiety disorders: α =0.89; somatoform disorders: α =0.79). The degree of severity for "psychosocial stressors" can be determined by summation of the values for 10 items. The numerical values are 0 ("not bothered", 1 ("bothered a little") and 2 ("bothered a lot"). The total value for "Stress" can therefore vary between 0 and 20. The cut-off value for moderate to severe depressive syndromes, somatoform syndromes and anxiety syndromes is >10. For the modules eating disorders, alcohol abuse and psychosocial stressors there are no cut-off values. The higher the value the more affected is the patient. The Dermatology Quality of Life Index (DLQI) collects data about the quality of life in patients with dermatological diseases [22]. The aim of this questionnaire is to measure how much the patients skin problem has affected his life over the last 7 days. The questionnaire has 10 items with 4 categories of answers: "not at all", "a little", "a lot" and "very much". With α=0.4 the internal consistency is considered too low. However, the DLQI is widely used and referred to as an instrument of choice in the German S-3 guideline for psoriasis [23, 24]. Within a European consensus, a DLQI≤10 defines the degree of severity for impairment of quality of life as mild, DLQI>10 as moderate to severe [25]. The Psoriasis Area and Severity Index (PASI) is recommended by the German S-3 guideline for the assessment of the severity of lesions and the area affected [23]. Within a European consensus, a PASI≤10 defines the degree of severity for psoriasis as mild, PASI>10 as moderate to severe [25].

Statistical analysis

Additional to the description of frequencies the odd ratios were determined. Then, a multivariate analysis was carried out to assess the influence of the main parameter on the degree of severity. The statistics programme SPSS® Statistics V18.0 (IBM Company) has been used for all calculations. The level of significance was determined at $\alpha = 0.05$.

4. Results

Prevalences

23.4 % of the patients had moderate to severe depressive symptoms (Table 1). Women were significantly more frequently affected ($\chi^2(3)=15.16$; $p<0.05$), and showed also more frequently severe depressive symptoms (7.5%) than men (2.2%). Moderate to severe somatoform symptoms were present in 6.6% of the patients (Table 2). Comparing gender, women showed a higher prevalence than men (w=4.9%, m=1.7%), although the differences are not statistically significant. Only 4,6% of the population showed panic disorders (Table 3). Women (3.8%) were significantly more frequently affected ($\chi^2(1)=4.06$; $p<0.05$) than men (0.8%). A binge eating disorder could be found in one female patient (Table 4). In contrast, there was a high prevalence of alcohol abuse (5.8%) but with no significant differences between gender (m=5.1%, w=0.7%) (Table 5). 16.2 % of the patient reported difficulties in pursuing their jobs, organising their household and socialising with other people; no differences in gender were observed here (Table 6). Particularly notable was the fact that 90.2% of the patients where identified to be burdened by their psoriasis dependent on its severity (m=52.6%, w=37.6%) (Table 7). Quality of life was considerably impaired by their psoriasis in 55% of the patients. Women (29.9%) were significantly more frequently affected ($\chi^2(1)=6.13$; $p<0.05$) than men (25.6%) (Table 8).

Table 1: Frequency of depressive syndromes in the sample (N=137)

	Total		**Men**		**Women**	
	n	**%**	**n**	**%**	**n**	**%**
PHQ-9 score <5	75	54.7	52	38.8	23	17.2
mild (PHQ-9 score 5-9)	27	19.7	10	7.5	17	12.7
Moderate (PHQ-9 score 10-14)	19	13.9	10	7.5	9	6.7
Severe (PHQ-9 score 15-27)	13	9.5	3	2.2	10	7.5

Table 2: Frequency of somatoform syndromes in the sample (N=121)

	Total		**Men**		**Women**	
	n	**%**	**n**	**%**	**n**	**%**
PHQ-15 score <5	85	70.2	54	44.6	31	25.6
Mild (score 5-9)	28	23.1	12	9.9	16	13.2
Moderate (score 10-14)	7	5.8	2	1.7	5	4.1
Severe (score 15-30)	1	0.8	0	0	1	0.8

Table 3: Frequency of panic disorder in the sample (N=131)

	Total		**Men**		**Women**	
	n	**%**	**n**	**%**	**n**	**%**
No panic disorder	125	95.4	73	55.7	52	39.7
Panic disorder	6	4.6	1	0.8	5	3.8

Table 4: Frequency of eating disorder in the sample (N=133)

	Total		**Men**		**Women**	
	n	**%**	**n**	**%**	**n**	**%**
score ≤2	132	99.2	75	56.4	57	42.9
score >3	1	0.8	0	0	1	0.8

Table 5: Frequency of alcohol syndrome in the sample (N=137)

	Total		**Men**		**Women**	
	n	%	n	%	n	%
Score=0	129	94.2	69	50.4	60	43.8
Score >1	8	5.8	7	5.1	1	0.7

Table 6: Frequency of functional limitation due to a mental disorder in the sample (N=123)

	Total		**Men**		**Women**	
	n	%	n	%	n	%
Not difficult at all	75	61.0	50	40.7	25	20.3
Somewhat difficult	28	22.8	13	10.6	15	12.2
Very difficult	17	13.8	7	5.7	10	8.1
Extremely difficult	3	2.4	1	0.8	2	1.6

Table 7: Frequency of severity of psoriasis in the sample (N=133)

	Total		**Men**		**Women**	
	n	%	n	%	n	%
PASI Score<10	13	9.8	4	3.0	9	6.8
Score ≥10	120	90.2	70	52.6	50	37.6

Table 8: Dematological quality of life in the sample (N=137)

	Total		**Men**		**Women**	
	n	%	n	%	n	%
DLQI Score<10	61	44.5	4	29.9	20	14.6
DLQI ≥10	76	55.5	70	25.6	41	29.9

Context analyses

Regarding regression analysis, the present data do not show that the degree of severity of the psoriasis is significantly associated with psychological wellbeing (R^2corr=0.06, p=0.382) (Table 9). Significant correlations between the various psychological disorders were the highest between somatoform disorder and depression (r=0.57, p<0.001) as well as between somatoform disorder and panic disorder (r=0.52, p<0.001). The impairment in quality of life was the highest by depression (r=0.49, p<0.001). (Table 10) shows the odd ratios of the individual psychological disorders.

Table 9: Context analyses between severity of psoriasis and survey instrument of mental disorders (N=137)

	PASI	alcohol syndrome	eating disorder	panic disorder	de-pression	quality of life	somato-formic disorder	Regression β
PASI	1	0.09	0.15	-0.05	-0.01	0.06	0.14	
alcohol syndrome		1	0.01	0.02	-0.01	0.05	0.02	0.05
eating disorder			1	0.14	0.06	0.16	0.23*	0.16
panic disorder				1	0.79	0.15	0.52**	-0.09
depression					1	0.49**	0.57**	-0.05
quality of life						1	0.28**	0.01
somatoform disorder							1	0.17

*. Significant correlation on niveau of 0.05 (two-sided).

**. Significant correlation on niveau of 0.01 (two-sided).

Table 10: Odds ratios for several mental disorders

	PASI <10	**PASI>10**	**total**
Panic Disorder	0.38 (0.33-0.44)	1.24 (1.17-1.31)	0.31 (0.24-0.37)
Depression	0.75 (0.66-0.86)	1.04 (1.02-1.06)	0.73 (0.63-0.84)
Somatoform syndrome	0.99 (0.81-1.22)	1.00 (0.97-1.03)	0.99 (0.78-1.25)
Alcohol Syndrome	–	0.88 (0.87-0.88)	-

Psychosocial stressors

The mean value of the observed stress values was 5.34 with a standard deviation of 4.29 (range 0-20). Woman showed significantly higher values (M=7.14, SD=4.34) than men (M=3.94, SD=3.71) for (t(106)=4.36, p<0.001). The stress values correlated with the degree of severity of psoriasis (data not shown).

5. Discussion

The study population showed a considerable impairment in subjectively perceived quality of life as well as a psychosocial burden in form of functional limitations caused by the primary disease. More than half of the study population (55%) reported a significant impaired quality of life, 16.2% restrictions in everyday life as coping with the job, organising the household and socialising. A survey in 2005 about the psychosocial impact of psoriasis presented higher values regarding the burden of the disease in everyday life than this study: 27% "slightly", 45% "problematic" and 25% "very high". The main reason for this discrepancy may be the considerably higher study population (n=3753). For the authors, the value of this present study lies in the choice of the evaluation tools. The study of Schmid-Ott et al. used the Psoriasis Disability Index [26, 27] while this study represents the issues "quality of life" and "functional restrictions" using DLQI and PHQ-D [26, 28]. Most frequently, moderate to severe depressive syndromes (23.4%), followed by alcohol syndromes (5.8%) and panic disorders (4.6%) could be identified in our sample. Although somatoform syndromes were observed with 6.6%, their relevance must be challenged since the presence of an objective somatoform disease as psoriasis is actually an exclusion diagnosis for somatoform disorders. In the German overall population, depressive symptoms can be found in 8,1% of adults (m=6.1%, w=10.2%) [29], therefore considerably less than in this psoriatic population. Interestingly, a recent published US study about the prevalence of severe depression (PHQ-9 ≥ 15 points) in psoriatic patients presents the figure of 16.5%, and therefore even higher than the present study (9.5%) [30]. Addictions (alcohol abuse and alcohol addiction) are to be found or reported in 4.8% of German overall population, slightly less than within psoriatic patients (5.8%) in this study [31]. However, Hayes et al. mention a prevalence of up to 20% in psoriatic patients. Panic disorders are also more frequent in psoriatic patients with 4.6% compared to 2% in the general population [20]. Context analyses did not show any significant correlation between the degree of severity (PASI) and psychological disorders. This strongly contrasts another study with a bigger sample size, which showed a considerable burden caused by psoriasis in form of impairment up to psychosocial stigmatisation, depending on the degree of severity though definitely present already in mild forms [27].

Altogether it can be stated that the data of the present study from a defined German cohort corroborate the raised prevalence of psychosocial burden and psychological disorders in patients with moderate to severe psoriasis. The authors see the particular significance of their data mainly in the choice of the evaluation tools - validated questionnaires, clearly defined inclusion criteria and the integration of all relevant psychological disease patterns. However, the study population is too small to make generalising statements. Nevertheless, it becomes obvious that a professional and holistic

care of psoriatic patients has urgently to involve validated tools in order to identify patients at risk with psychological comorbidities that enables the dermatologist to recommend further diagnostics and to refer the patient to the respective experts if necessary. In the future, the success of treatment for psoriatic patients will not only be measured by the somatic outcome of the pharmacological or physical therapy but also by the reduction of individual comorbidities including psychological disorders and their underlying risks [32, 33]. The necessary individualisation of choice and duration of therapy can only be based on representative longitudinal surveys including subgroups and specific sociocultural backgrounds. The data also make clear that investigations of causes and consequences of psychological comorbidities in psoriatic patients including health-related behaviour and the utilisation of the health care system have to be carried out. In the opinion of the authors, the here presented evaluation methods may be appropriate tools for this task, because they are validated, easy to use in daily practice, easy understand for the patients and they allow a simple analysis. By the definition of cut-off levels, it is possible to identify patients that potentially might have to be referred to psychological cancelling.

6. Acknowledgement

The Subjects gave their written informed consent and the study protocol was approved by ethics committee of Medical Faculty of Martin Luther University Halle-Wittenberg (vote No 2012-124).

7. Conflict of Interest

J.W. has received fees for lecturing and/or consulting, and/or received funding for scientific projects and clinical studies from Abbvie, Almirall, Amgen, Biogen-Idec, Boehringer-Ingelheim, Celgene, Celltrion, Galderma, GSK, Hexal, Janssen-Cilag, Leo, Lilly, MSD, Mylan, Novartis, Pfizer, Sanofi, UCB, and Viatris. A.H. and R.D.K. declare no conflict of interest.

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9. Author contributions

JW provided oversight for the project, defined the scope, directed the work and wrote together with RDK the manuscript. JW and AH planed and performed clinical study together with the study sites. RDK performed statistic data analysis. The authors thank all the staff of all study sites for their support: Department of Dermatology and Venereology of the Martin Luther University Halle-Wittenberg; Dermatological practice Dr. Erika Zahn, Berlin; Dermatological practice Dr. Irmela Hetschko, Halle; Dermatological practice Jens Thieme, Artern; Dermatological practice Dr. Andreas Timmel, Bergen; Dermatological practice Dr. Anke Hermann, Greifswald; Clinic for Dermatology at Dorothea-von-Erxleben-Clinic Quedlinburg; Dermatological practice Dr. Martin Miehe, Berlin; Dermatological practice Dr. Thomas Stavermann, Berlin; Clinic for Dermatology and Allergology, Charité, Berlin. Furthermore, the authors wish to thank Ms Andrea Stennett for English writing support.

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