



The Relationship between Disease, Work and Sickness Absence among Psoriasis Patients

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(Received 07 Aug 2015; accepted 20 Oct 2015)

Abstract

Background: The aim of this study was to assess the prevalence of absenteeism in patients with psoriasis and determine the factors influencing the incidence of absenteeism in these patients.

Methods: A cross-sectional study from December 2012 to November of 2013 was conducted on 192 psoriasis patients referred to the Dermatology Clinic of Imam Khomeini Hospital, Tehran, Iran. The number day of absence from work due to psoriasis in the last year was asked from the patients; the absence of 7 days has been considered as short-term and more than 7 days as long-term. Logistic regression was used to data analysis.

Results: Sickness absence in 21.4% of patients was positive. The average numbers of days of absence were 10.25 and the duration of absence from work in 48.7% were long-term ≥ 7 days. 51.3% had short-term absence (< 7 days). Among disease factors: moderate to severe disease (SAPASI score > 10), palms and soles involvement, joint problems and radiation therapy and among job factors: hazardous physical and chemical exposures in the workplace, non-office work, disability, exacerbations of disease on work days and problem on employment were associated with high incidence of sickness absence.

Conclusion: Psoriasis with its chronic and recurrent nature especially in higher severities causes disabilities that deeply affect Work performance and can decrease the efficiency. In better management of psoriasis patients, physicians should pay special attention to occupational factors.

Keywords: Sickness absence, Occupational stress, Psoriasis patients, SAPASI

Introduction

Psoriasis is a chronic and debilitating skin disease that results in adverse psychological, social and economic problems in individuals and society that characterized by raised, sensitive painful, disfiguring, itchy and erythematous lesions, appearing on any part of the body (1-4). The disease affects 2-

3% of the worldwide population (5, 6) and given the nature of chronic, recurrent, and incurable enormous costs imposed on communities. In the United States, the annual cost of psoriasis was estimated between 112 to 135 billion dollars in 2013

and indirect cost of work absenteeism due to psoriasis was estimated 23.9 to 35.4 billion dollars (7). Psoriasis negatively affects ability to work because limits physical activity and in parallel with increasing severity of the disease significant disability will develop in the performance of patients. These problems can be more with psoriatic arthritis and joint symptoms (8-11). Due to the importance of work in people's lives, attention to the relationship between the disease and jobs and the interaction between these two issues was essential.

Sickness absence is undesirable consequences of work dysfunction. Sickness absence could impair productivity and led to feelings of frustration and fear of losing job (12). Due to negative impacts on labor productivity, cumbersome costs and interference with production quality, sickness absence from work has attracted more attention in recent years and has become an important issue in societies (13-16). According to the National Psoriasis Association of America, annually 56 million work hours are lost by patients with psoriasis (17). Sickness absence is a complex situation and has a multi-factorial etiology and many of these factors are controllable and preventable (18, 19).

In studies conducted in the absence from work, psoriasis was considered as a subgroup of all skin disorders and to date, the association of psoriasis sickness absence was not been independently investigated. The highest rate of absenteeism has been related to dermatitis (20).

The aim of this study was to assess the prevalence of absenteeism in patients with psoriasis (as a chronic and debilitating disease) and determine the factors influencing the incidence of absenteeism in these patients.

Materials and Methods

Study design and population

A cross-sectional study from December 2012 to November of 2013 was conducted on patients with psoriasis. All samples were selected from patients with psoriasis who had referred to the Dermatology Clinic of Imam Khomeini Hospital in Tehran, Iran. This clinic is under coverage of Skin and Stem Cell Research Center of Tehran

University of Medical Sciences. A trained health staff call phones to those were registered in the computer system of the clinic and after presenting the project, invite them to the participation in the study (Participation in this study was voluntary). Inclusion criteria were considered to have at least one year of employment. Unemployed people, pensioners, and housewives were excluded from the study.

Ethical Approval

Before entering the study, all participants signed a written consent form. In addition, they could exit the study at any time they wanted. This study was approved by the Ethics Committee of Tehran University of Medical Sciences.

Data collection

Data collection tool was a questionnaire consists of 6 main sections. Patients had to fill out the questionnaire under the supervision of the trained health staff. The information was collected by questionnaire included the following sections:

A) Socio-demographic characteristics such as gender, age, marital status; **B)** Lifestyle, including smoking (number of years and the number of cigarettes per day), height and weight which were used to calculate BMI and classifying patient in three groups: normal group $BMI < 25$, overweight, $25 \leq BMI < 30$ and obese $BMI \geq 30$ (21); **C)** Information about psoriasis included duration of the disease, type of the disease, area of involvement, joint problems and receiving phototherapy; **D)** Employment profile including: Job title; under which the two groups of patients in office work (White collar) and Non-office work (Blue collar) were classified, work schedule (day and night), the exposure to physical factors in the work environment (cold, vibration, trauma to the skin and nails, repeated friction). The exposure to chemical agents in the workplace especially for organic solvents, 3-chloro ethylene, acids, alkali, and paints considered as the chemical exposure. **E)** Relationship between employment and disease: disease exacerbation at work, decrease symptoms during vacations and leave, creating more job problem because of psoriasis, developing disability to per-

form the duties because of the disease; **F**) The number day of absence from work due to psoriasis in the last year. The absence of 7 days has been considered as short-term and more than 7 days has been considered as long-term.

SAPASI Questionnaire

To determine the severity of psoriasis the Self-administered psoriasis area and severity index (SAPASI) was applied. In numerous of articles the validity and reliability of this index has been confirmed (22-24). SAPASI is simplified form of PASI, which should be filled out by the patient. The involved areas on a patient's body are shown by the shadow on a visual analog scale in this method. The severity of psoriasis based on the score obtained in the questionnaire is determined. The mild disease is the engagement of less than 10 of total body skin and the moderate to severe disease is the score of more than 10 (25).

Statistical analysis

To determine the significance of correlation of the qualitative outcome including sickness absence with psoriasis the chi-square test was used. Finally, to control the confounding factors, binary logistic regression was applied. In all tests, the significance level of 0.05 and 95% CI (confidence interval) were considered. Data were analyzed with SPSS version 16 (Chicago, IL, USA).

Results

For 202 patients with psoriasis the questionnaire was filled out. Ten questionnaires were excluded because of incomplete data and finally 192 questionnaires were analyzed.

The average age of the sample was 36.19 ± 11.86 SD and distribution of people in different age groups were roughly equal. The mean BMI in the samples was 25.92 ± 4.20 SD. Frequency distribution of Socio-demographic, lifestyle, disease Characteristics and other variables are showed in Table 1. 78.07% (n = 146) of all patients had no absences due to psoriasis and history of absent in 21.92% (n = 41) of patients were positive.

Table 1: Frequency distribution of variables in all samples

Variables	Numbers	%
Age		
20-30y	71	37
31-40y	61	31.8
>40y	60	31.3
Sex		
Male	112	58.3
Female	80	41.7
Marital status		
Married	126	65.6
Single	66	34.4
BMI		
< 25,	80	41.7
$25 \leq <30$	83	43.2
≥ 30	29	15.1
Smoking		
Yes	63	32.8
No	129	67.2
Duration of disease		
<10y	100	52.1
10-20y	58	30.2
>20y	34	17.7
Disease type		
plaque	173	90.1
non-plaque	19	9.9
Affected area		
scalp	52	27.1
trunk	71	37
upper limb	66	34.4
lower limb	57	29.7
Palms and soles	134	69.8
Joint problems		
Yes	68	35.4
No	124	64.6
Radiation therapy		
Yes	48	25
No	144	75
Occupational groups		
Office	109	56.8
Non office	83	43.2
Chemical exposure at work		
Yes	30	15.6
No	162	84.4
Physical exposure at work		
Yes	59	30.7
No	133	69.3
Exacerbations at work		
Yes	74	38.5
No	118	61.5
Disability in work		
Yes	90	46.9
No	102	53.1
Problem on the employment		
Yes	44	22.9
No	148	77.1
Severity of disease (SAPASI score)		
Mild (≤ 10)	131	68.2
Moderate to Severe (>10)	61	31.8

The average numbers of days of absence were 10.25 and the duration of absence from work in 48.7% were long-term ≥ 7 days. 51.3% had short-term absence (< 7 days). [5 people that were unable to continue their work were excluded from the calculation of absence].

Chi-square and regression results were showed in tables. Patients with severe to moderately severe disease (score >10) in comparison to the patients with mild severity of disease (score <10), had more sickness absence with P -value = 0.024. The relationship between radiation therapy with P -

value= 0.002, palm and sole involvement with P -value <0.001 and the absence was significant. Other variables such as disease duration and itching had not correlation to the incidence of absenteeism (Table 2). In regression analysis in the final multivariate model, only palm and sole involvement [OR=3.56 (95%CI=1.26 - 6.15), $P<0.001$] remained significant after adjusted for Confounding factors (Table 3). Among the occupational factors, chemical exposure (P -value <0.001) and physical exposure (P -value= 0.005) were significantly correlated with the incidence of absenteeism.

Table 2: Chi-square test results for disease risk factors of sickness absence in patients

Variables	With Sickness absence n (%)	Without Sickness absence n (%)	P-value
Severity of disease (SAPASI score)			
Mild (≤ 10)	22 (53.7)	109 (72.2)	*0.024
Moderate to Sever (>10)	19 (46.3)	42 (27.8)	
Duration of illness			
<10 y	19 (46.3)	81 (53.6)	0.69
10-20y	14 (34.1)	44 (29.1)	
>20 y	8 (19.5)	26 (17.2)	
Severity of itch			
Low	29 (70.7)	108 (71.4)	0.92
High	12 (29.3)	43 (28.5)	
Palms and soles involvement			
Yes	22 (53.7)	36 (23.8)	**0<0.001
No	19 (46.3)	115 (76.2)	
Joint problems			
Yes	21 (51.2)	47 (31.1)	***0.017
No	20 (48.8)	104 (68.9)	
Radiation therapy			
Yes	18 (43.9)	30 (19.9)	****0.002
No	23 (56.1)	121 (80.1)	

Table 3: Logistic regression results for disease risk factors of sickness absence in patients

Variables	Odds ratio	95%CI	P-value
Severity of disease (SAPASI score)			
Mild (≤ 10)	1		
Moderate to Sever (>10)	1.76	0.82-3.78	0.56
Joint problems			
No	1		
Yes	1.62	0.76-3.46	0.21
Palms and soles involvement			
No	1		
Yes	3.56	1.67-7.58	0<0.001
Radiation therapy			
No	1		
Yes	2.79	1.26-6.15	0.37

Absenteeism in patients with psoriasis who were exposed to chemical and physical factors than to the patients who are not exposed to these factors was significant. Patients with occupational disability due to the disease (with a p-value <0.001) and patients who had trouble for following their earlier work had more absence (*P*-value <0.001) (Table 4).

In regression analysis in the final multivariate model, chemical exposure [OR=2.65 (95%CI=1.01-7.08), *P*<0.001] and creating problem on work task [OR=6.08 (95%CI=2.46 - 15.07), *P*<0.001] remained significant after adjusted for Confounding factors (Table 5).

Table 4: Chi-square test results for job risk factors of sickness absence in psoriasis patients

Variables	With Sickness absence n (%)	Without Sickness absence n (%)	<i>P</i> -value
Occupational groups			
Office	17 (41.5)	92 (60.9)	
Non office	24 (58.5)	59 (39.1)	*0.026
Work schedule			
Day work	34 (82.9)	140 (92.7)	0.057
Shift work	7 (17.1)	11 (7.3)	
Chemical exposure at work			
Yes	13 (31.7)	17 (11.3)	*<0.001
No	28 (68.3)	134 (88.7)	
Physical exposure at work			
Yes	20 (48.8)	39 (25.8)	*0.005
No	21 (51.2)	112 (74.2)	
Exacerbations at work			
Yes	24 (58.5)	50 (33.1)	*0.003
No	17 (41.5)	101 (66.9)	
Disability in work			
Yes	29 (70.7)	61 (40.4)	*<0.001
No	12 (29.3)	90 (59.6)	
Problem on the employment			
Yes	24 (58.5)	20 (13.2)	*<0.001
No	17 (41.5)	131 (86.8)	

Table 5: Logistic regression results for job risk factors of sickness absence in psoriasis patients

Variables	Odds ratio	95%CI	<i>P</i> -value
Occupational groups			
Office	1		
Non office	1.10	0.44-2.77	0.82
Work schedule			
Day work	1		
Shift work	1.49	0.44-5.03	0.52
Chemical exposure at work			
No	1		
Yes	2.65	1.01-7.08	*0.05
Physical exposure at work			
No	1		
Yes	1.53	0.58-4.03	0.38
Exacerbations at work			
No	1		
Yes	1.90	0.84-4.32	0.12
Disability in work			
No	1		
Yes	1.54	0.61-3.88	0.36
Problem on the employment			
No	1		
Yes	6.08	2.46-15.07	*<0.001

Discussion

This study was accomplished to assess the impact of the disease on sickness absence (as a result of work dysfunction). The main purpose of this study was to determine factors associated with the development of sickness absence due to psoriasis and occupational.

In this study, 21.4% of patients with psoriasis had absenteeism due to illness, and the average number of days absent was 10.25 days. In a study on construction workers, the average days of dermatosis (all type of disorder) sickness absence was 53 days (26). In our study, 48.7% of patients had long-term absence (≥ 7 days), which is noticeable. Dermatitis was responsible for long periods of absence with average of 10 days (20). The period of absence caused by occupational dermatologic disorders was long and often more than two weeks (26).

Attention to this issue is very important because the consequences of short and long-term period of absences are different. The long-term sickness absence leads to increased social and economic costs and in addition to the negative impact on the professional and personal lives, increasing the risk of long-term disability (27-29).

Disease severity (based on SAPASI score) was the most important factor associated with psoriasis and showed a significant relationship with the occurrence of absenteeism; moderate to severe disease were accompanied with a greater incidence of absenteeism. More severe disease (high SAPASI or PASI score) indicate extensive skin involvement. These patients need care that is more complex and perhaps more phototherapy sessions, frequent medical visits and even more hospitalizations and as a result, lead to an increase in loss of workdays and increased burden of psoriasis disease on society.

Palm and sole involvement and joint problem cause more absence in patients with psoriasis. Psoriatic arthropathy can affect mobility and the pain can increase sickness absence (30).

This research is the first study to investigate occupational factors in patients with psoriasis but has

some limitations. Because of the cross-sectional nature of the study, identifying the causal relationship between risk factors and sickness absence was not possible and a large number of patients because of unwillingness to participate in the study as well as exclusion criteria were excluded from the study. The absence was asked from patients with a question; therefore, there is possibility of recall bias.

Conclusion

Psoriasis with its chronic and recurrence nature especially in higher severities causes disabilities that deeply affect Work performance and can decrease the efficiency. The most important adverse occupational consequence was increased absenteeism in these patients, which increases the burden of disease and increase undesirable effect on patient and society. The results of this study can demonstrate the importance of taking into account the occupational factors in the management of psoriasis patients by physicians. Further studies in this area were recommended.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

Acknowledgements

This study was conducted with support from the Deputy for Research, Tehran University of Medical Sciences. The authors declare that there is no conflict of interests.

References

1. Prins M, Krabbe PF, Swinkels QO, de Boo T, van de Kerkhof PC, van der Valk PG (2005). The Effect of Treatment on Quality of Life in

- Psoriasis Patients. *Acta Derm Venereol*, 85(4): 304-10.
- De Korte J, Sprangers MA, Mombers FM, Bos JD (2004). Quality of life in patients with psoriasis: a systematic literature review. *J Investig Dermatol Symp Proc*, 9(2):140-7.
 - Zachariae H, Zachariae R, Blomqvist K et al. (2002). Quality of life and prevalence of arthritis reported by 5,795 members of the Nordic Psoriasis Associations. Data from the Nordic Quality of Life Study. *Acta Derm Venereol*, 82(2): 108-13.
 - Markham T, Watson A, Rogers S (2002). Adverse effects with long-term cyclosporin for severe psoriasis. *Clin Exp Dermatol*, 27(2): 111-4.
 - Stern RS, Nijsten T, Feldman SR, Margolis DJ, Rolstad T (2004). Psoriasis is common, carries a substantial burden even when not extensive and is associated with widespread treatment dissatisfaction. *J Investig Dermatol Symp Proc*, 9(2): 136- 139.
 - Yang Y, Koh D, Khoo L, Nyunt SZ, Ng V, Goh CL (2005). The psoriasis disability index in Chinese patients: contribution of clinical and psychological variables. *Int J Dermatol*, 44(11): 925-929.
 - Beyer V, Wolverton SE (2010). Recent Trends in Systemic Psoriasis Treatment. *Costs Arch Dermatol*, 146(1): 46-54.
 - Fleischer AB Jr, Feldman SR, Rapp SR, et al (1996). Disease severity measures in a population of psoriasis patients: the symptoms of psoriasis correlate with self-administered psoriasis area severity index scores. *J Invest Dermatol*, 107 (1) 26- 29.
 - Rapp SR, Feldman SR, Exum ML, Fleischer AB Jr, Reboussin DM (1999). Psoriasis causes as much disability as other major medical diseases. *J Am Acad Dermatol*, 41(3): 401- 407.
 - Wu Y, Mills D, Bala M (2009). Impact of psoriasis on patients' work and productivity: a retrospective, matched case-control analysis. *Am J Clin Dermatol*, 10(6): 407-10.
 - Ayala F, Sampogna F, Romano GV, et al (2014). The impact of psoriasis on work-related problems: a multicenter cross-sectional survey. *J Eur Acad Dermatol Venereol*, 28(12): 1623-32.
 - Zenz C (1994). *Occupational medicine*. Dickerson OB, Horvath E P. 4th ed. New York: Sanders. pp:637-648.
 - Lund T, Christensen KB, Vaez M, Labriola M, Josephson M, Villadsen E, et al (2009). Differences in sickness absence in Sweden and Denmark: the cross national HAKNAK study. *Eur J Public Health*, 19(3):343-349.
 - Errico AD, Costa G (2012). Socio-demographic and work-related risk factors for medium- and long- term sickness absence among Italian workers. *Eur J Public Health*, 22(5):683-8.
 - Kremer A M, Steenbeek R (2010). Avoidable Sickness Absence in a Dutch Working Population. *J Occup Rehabil*, 20(1):81-9.
 - Ferrie JE, Vahtera J, Kivimäki M et al. (2009). Diagnosis-specific sickness absence and all-cause mortality in the GAZEL study. *J Epidemiol Community Health*, 63(1):50-5.
 - Anonymous Psoriasis is a serious disease deserving global attention. A report by the international federation of psoriasis association (IFPA). Pdf Available from: www.ifpaso.org/getfile.ashx?cId=279366&cc=3&refid=18
 - Niedhammer I, Chastang JF, David S, Kelleher C (2008). The contribution of occupational factors to social inequalities in health: findings from the national French SUMER survey. *Soc Sci Med*, 67(11):1870-81.
 - Virtanen P, Siukola A, Luukkaala T, et al (2008). Sick leaves in four factories—do characteristics of employees and work conditions explain differences in sickness absence between workplaces? *Scand J Work Environ Health*, 34(4):260-266.
 - Puttick L (1990). Sickness absence due to skin disorders in the coal mining industry. *J Soc Occup Med* 40(1): 23-8.
 - Ferreira RC, Griep RH, Fonseca Mde J, Rotenberg L (2012). A multifactorial approach to sickness absenteeism among nursing staff. *Saúde Pública*, 46(2):259-68.
 - Sampogna F, Sera F, Mazzotti E, Pasquini P, Picardi A, Abeni D (2003) . Performance of the Self- administered Psoriasis Area and Severity Index in Evaluating Clinical and Socio-demographic Subgroups of Patients with Psoriasis. *Arch Dermatol*, 139(3): 353-358.

23. Feldman SR, Fleischer AB Jr, Reboussin DM, Rapp SR, Exum ML, Clark AR et al (1996). The self-administered psoriasis area and severity index is valid and reliable. *J Invest Dermatol*, 106(1): 183-6.
24. Fleischer AB Jr, Feldman SR, Dekle CL (1999). The SAPASI is valid and responsive to psoriasis disease severity changes in a multi-center clinical trial. *J Dermatol*, 26(4): 210-5.
25. Mease PJ, Gladman DD, Ritchlin CT, et al. (2005). Adalimumab for the Treatment of Patients With Moderately to Severely Active Psoriatic Arthritis. *Arthritis Rheum*, 52(10):3279-89.
26. Goh CL (1986). Sickness absence due to occupational dermatoses in a prefabrication construction factory. *Contact Dermatitis*, 15(1):28-31.
27. Floderus B, Goransson S, Alexanderson K, Aronsson G (2005). Self-estimated life situation in patient on long-term sick leave. *J Rehabil Med*, 37(5):291-9.
28. Labriola M, Lund T (2007). Self-reported sickness absence as a risk marker of future disability pension. Prospective findings from the DWECS/DREAM study 1990-2004. *Int J Med Sci*, 4(3):153-8.
29. Lund T, Kivimaki M, Labriola M, et al. (2008). Using administrative sickness absence data as a Marker of future disability pension: the prospective DREAM study of Danish private sector employees. *Occup Environ Med*, 65(1): 28-31.
30. Palmer KT (2013). Dermatological disorder In: *Fitness for work, the medical aspects*. Ed Brown I, Hobson J. 5th ed, Oxford, pp 458.