ORIGINAL ARTICLE

DOI: 10.4274/eamr.galenos.2021.57442
Eur Arch Med Res 2022;38(4):255-260

Do Dermatological Diseases Cause Disability? A Single Tertiary Center Experience

Esra Ağaoğlu[1], Hilal Kaya Erdoğan[2], Ersoy Acer[2], Zeynep Nurhan Saraçoğlu[2]

[1]Kars Harakani State Hospital, Clinic of Dermatology, Kars, Turkey
[2]Eskişehir Osmangazi University Faculty of Medicine, Department of Dermatology, Eskişehir, Turkey

Abstract

Objective: Chronic skin diseases can negatively affect the quality of life. They may cause impairment of work productivity and have a socio-economical burden. In this study, we evaluated patients who applied to our hospital for the determination of disability due to chronic skin diseases.

Methods: We retrospectively evaluated the patients who were given a disability rate by our department between 2008 and 2018. The demographic features of the patients, diagnosis of the skin disease, involved areas of the body and accompanying comorbidities were recorded. Skin diseases were classified and rates of disabilities were determined according to the Ministry of Family, Labor and Social Services and the Ministry of Health's disability assessment scale for adults.

Results: A total of 137 patients were included in the study. Eighty-two (59.8%) of the patients were male and 55 (40.1%) were female. The mean rate of disability due to skin diseases was 11.31±10.91. The mean rate of disability was 12.0 for male patients and 10.2 for female patients. The most common diseases causing disability were inflammatory skin diseases (22.6%), skin manifestations of autoimmune and systemic skin diseases (18.9%), skin tumors (16.7%) and eczema (11.6%). Psoriasis vulgaris is the most common (96.6%) inflammatory skin disease. Of the skin manifestations of autoimmune and systemic skin diseases, Behçet's disease (34.6%) accounted for most patients, while autoimmune bullous diseases had the highest rate of disability. Malignant melanoma had the highest disability rates among skin tumors. Among the eczema group, patients with contact dermatitis (62.5%) had the highest rate of disability. Patients with genetic skin diseases, such as ichthyosis, epidermolysis bullosa and lipoid proteinosis, had the highest rate of disability overall.

Conclusion: Chronic skin diseases may cause disability as well as a decrease in quality of life. Patients with chronic skin disease should be evaluated with their psychological and occupational aspects.

Keywords: Skin disease, disability, quality of life

INTRODUCTION

Skin diseases are very common and can affect individuals of all ages worldwide. Globally, skin conditions are reported as the fourth leading cause of all human diseases. Although many of the skin diseases are not life-threatening, they may result in a significant burden on the quality of life, including psychosocial and economic impacts. The presence of skin diseases in visible areas of the body often leads to decreased self-confidence and social withdrawal. Symptoms such as pruritus, pain and fatigue due to the chronic dermatoses can also decrease the quality of life of the patients (1-4).

Occupational dermatoses also have a significant economic burden to the healthcare providers. Occupational dermatoses cause a decrease in work productivity and loss of work occasionally. Both the physical disability and cost of treatment contribute to the economic burden on society (4,5).

In this study, we evaluated patients who applied to our hospital for assessing disability due to chronic skin diseases.

Address for Correspondence: Esra Ağaoğlu, Kars Harakani State Hospital, Clinic of Dermatology, Kars, Turkey
Phone: +90 505 240 58 13 **E-mail:** esraagaoglu@yahoo.com **ORCID ID:** orcid.org/0000-0001-8985-6224

Received: 07.07.2021
Accepted: 28.11.2021

Cite this article as: Ağaoğlu E, Kaya Erdoğan H, Acer E, Saraçoğlu ZN. Do Dermatological Diseases Cause Disability? A Single Tertiary Center Experience. Eur Arch Med Res 2022;38(4):255-260

METHODS

We included patients with any skin disease who were admitted for the determination of disability due to chronic skin diseases to the health board of our hospital between 2008 and 2018. Patient files were retrospectively evaluated. Demographic features (age and gender) of the patients, the diagnoses of the skin diseases, involved areas of the body, accompanying comorbidities, and disability rates given by our department were recorded.

Skin diseases were classified according to the Ministry of Family, Labor and Social Services and Ministry of Health's disability assessment scale for adults. Psoriasis vulgaris (PV) and lichen planus were evaluated in the inflammatory skin disease group; whereas Behçet's disease (BD), connective tissue diseases vasculitis, autoimmune bullous diseases, pyoderma gangrenosum, and chronic graft-versus-host disease were included in the skin manifestations of immune and autoimmune systemic diseases. Hypertrophic scars and hemangiomas were classified as benign skin tumors, whereas malignant melanoma, and squamous cell carcinoma were classified as malignant skin tumors. Contact dermatitis, atopic and seborrheic dermatitis were grouped in the eczema group (6).

The study protocol was approved by the Eskisehir Osmangazi University Faculty of Medicine, Ethics Committee (approval number: 310, date: 25.12.2018).

Statistical Analysis

The SPSS 22.0 software was used for data analysis. Continuous quantitative data were expressed as n, mean, and standard deviation, and qualitative data were expressed as n and median.

RESULTS

A total of 137 patients were included in the study. Eighty-two (59.8%) of the patients were male and 55 (40.1%) were female. The mean age of the patients was 40.75±14.06 (range: 6-71). The mean rate of disability due to the skin diseases was 11.31±10.91. The mean rate of disability was 12% for male patients and 10.2% for female patients. Of the total percentage disability, the most common diseases were inflammatory skin diseases (22.6%), skin manifestations of autoimmune, and systemic skin diseases (18.9%), skin tumors (16.7%), and eczema (11.6%). Thirty (96.6%) of 31 patients with inflammatory skin disease were PV. The most common comorbidities accompanying PV were psoriatic arthritis (20%) and psychiatric disorders (16.6%). Persistent depressive disorder (dysthymia) was recorded as the most common (50.0%) psychiatric disorder in psoriasis patients.

In the immune and autoimmune skin disease groups, BD (34.6%) constituted most patients, while the highest rate of disability was given to the autoimmune bullous diseases. Eye involvement was noted in 5 (55.5%) patients with BD. While 4 (44.4%) patients with BD had oral ulcers, 3 (33.3%) had both oral and genital ulcers. The most common comorbidities accompanying patients with BD were adjustment disorder (44.4%) and Crohn's disease (33.3%). Among the connective tissue diseases, 4 (66.6%) patients were cutaneous lupus erythematosus, while dermatomyositis and antiphospholipid antibody syndrome were recorded, each in one patient. Adjustment disorder was noted in 2 (50.0%) patients with cutaneous lupus erythematosus. Of the autoimmune bullous diseases, all the patients were pemphigus vulgaris. Malignant skin neoplasms (6 patients) had the highest disability rates among skin tumors. Four (66.6%) patients had malignant melanoma and two (33.3%) patients had squamous cell carcinoma. Among the eczema group, patients with contact dermatitis (62.5%) accounted for the majority of the patients (Table 1). Six (60.0%) patients with contact dermatitis had hand involvement.

Patients with genetic skin diseases such as ichthyosis, epidermolysis bullosa (EB) and lipoid proteinosis had the highest rate of disability overall. After those with genetic skin diseases, patients with mycosis fungoides (MF) had the highest rate of disability in the less common disease group (Table 2).

DISCUSSION

Several studies have focused on the clinical outcomes of dermatological diseases, however the economic and psychosocial aspects of the chronic dermatoses are poorly described. The direct costs of skin diseases are defined as medical care or hospitalization, while indirect costs for the society comprise sick leave, loss of productivity at work, impairment and unemployment (7-9). Patients with chronic dermatoses often experience a reduced working capacity due to the physical disability (4).

Psoriasis is a common chronic skin disease characterized by itching, scaling and disfiguring skin changes (10). There are many studies have revealed that psoriasis negatively affects both the quality of life and work productivity (11-14). In a study of 369 patients with severe psoriasis, approximately 60% of employed patients declared that they had reduced working capacity, and 34% of the patients who were not working indicated that the reason was psoriasis (11). Chan et al. (12) reported that 38% of the patients with psoriasis have difficulty finding a job, whereas 19% of the patients had impairment at work. Additionally, it was shown that the annual income from employment had decreased in patients with psoriasis compared with the normal population

Table 1. The distribution of the disability rates in the most common disease groups				
Disease groups (the most common)			**Number of patients n (%)**	**Mean rate of disability**
Inflammatory skin diseases	Psoriasis vulgaris		30 (96.7%)	12.5
	Lichen planus		1 (3.3%)	5.0
Skin manifestations of immune and autoimmune systemic diseases	Behçet's disease		9 (34.6%)	15.0
	Connective tissue diseases		6 (23.0%)	13.3
	Vasculitis		5 (21.7%)	8.0
	Autoimmune bullous diseases (Pemphigus)		3 (11.5%)	30.0
	Pyoderma gangrenosum		2 (7.6%)	5.0
	Chronic GVHD		1 (4.3%)	10.0
Skin tumors	Benign skin neoplasms	Hypertrophic scar	12 (52.1%)	5.4
		Hemangioma	5 (21.7%)	8.0
	Malignant skin neoplasms	Malignant melanoma	4 (17.3%)	15.0
		Squamous cell carcinoma	2 (8.6%)	10.0
Eczematous dermatitis	Contact dermatitis		10 (62.5%)	7.0
	Atopic dermatitis		3 (18.7%)	3.3
	Seborrheic dermatitis		3 (18.7%)	1.6
GVHD: Graft-versus-host disease				

Table 2. The distribution of the disability rates in the less common disease groups			
Disease groups (the less common)		**Number of patients n (%)**	**Mean rate of disability**
Genetically transmitted skin diseases	Ichthyosis	3 (37.5%)	40.0
	Keratoderma	2 (25.0%)	17.5
	Epidermolysis bullosa	1 (12.5%)	40.0
	Neurofibromatosis	1 (12.5%)	10.0
	Lipoid proteinosis	1 (12.5%)	30.0
Sebaceous, eccrine and apocrine gland diseases	Acne vulgaris	3 (42.8%)	11.6
	Hidradenitis suppurativa	2 (28.5%)	15.0
	Rosacea	1 (14.2%)	5.0
	Hyperhidrosis	1 (14.2%)	10.0
Pigmentation disorders	Vitiligo	5 (100.0%)	12.0
Skin diseases with psychiatric etiology	Prurigo	2 (100.0%)	2.5
Skin diseases associated with hair follicle	Alopecia universalis	2 (100.0%)	10.0
Skin diseases due to microbial agents	Cutaneous tuberculosis	2 (100.0%)	2.5
Cutaneous leukemia and lymphomas	Mycosis fungoides	2 (100.0%)	25.0
Other skin diseases		13 (9.4%)	5.3

(14). In our study, most patients who applied for assessing disability were diagnosed with PV (21.8%).

It is also well known that psychosocial impacts of psoriasis decrease the quality of life. Patients with psoriasis often suffer from feelings of embarrassment, low self-esteem and fear of stigmatization. Accompanying psoriatic arthritis also increase the impairment and the functional impairment constitutes a significant burden on patients' lives. Patients with psoriatic arthritis often experience chronic pain, fatigue and functional limitations, which may predispose to psychiatric disorders (15). Many studies are revealed that patients with psoriasis are more susceptible to psychiatric disorders such as depression, anxiety and adjustment disorders (4,10,16,17). In our study, we detected psoriatic arthritis (20%) and psychiatric disorders (16.6%) as the most common comorbidities in psoriasis patients. Additionally, persistent depressive disorder (dysthymia) was the most frequent psychiatric disorder in our psoriasis patients.

In our study, BD constituted most patients in the immune and autoimmune skin disease groups. BD is a chronic, inflammatory disorder characterized by mucocutaneous ulcers and the multisystemic involvement of ocular, musculoskeletal, vascular, gastrointestinal, and central nervous systems. In BD, recurrent painful mucocutaneous ulcers, and arthritis limit the daily life, however ocular, vascular, and neurological involvements increase morbidity and mortality (18). Epidemiological studies have shown that Turkey has the highest prevalence rate of BD in the world (19,20). Sut et al. (20) evaluated the direct and indirect costs of the BD and reported that indirect costs accounted for 32% of the total cost. Additionally, lost workdays were noted in 51 (43%) of the patients and those with ocular, vascular, neurological involvement had the highest rate of workday loss. Mumcu et al. (21) had reported that the impairment of daily activities was observed more prominently in patients with musculoskeletal involvement, while ocular involvement was associated with decreased working hours. In our study, ocular disease was the most common systemic involvement in BD who applied for assessing disability.

Autoimmune bullous dermatoses are a group of disorders that affect the skin and mucous membranes. It is well documented that this group of diseases generally causes great impairment on quality of life. Painful mucocutaneous blisters and erosions lead to productivity loss of the patients (22,23). Brodszky et al. (24) emphasized that pemphigus patients generally experience a temporary or permanent decrease in working ability. In another study, Heelan et al. (22) reported that approximately 50% of the patients with autoimmune bullous dermatoses were unemployed. In our study, in the immune and autoimmune skin disease group, patients with pemphigus had a higher rate of disability compared with the other diseases.

Recent studies have shown that the annual incidence of malign skin tumors, including malignant melanoma and non-melanoma skin cancers continue to increase. Given the loss of productivity, sick leave and early retirement due to skin cancers, it remains a significant economic burden to society (25,26). Most of the cases of melanoma are diagnosed at a younger age compared to with non-melanoma skin cancers and as the survival rates are increasing due to the early detection. This may lead to an increase in some challenges, such as work disability, changing jobs and psychosocial problems in younger population (27,28). In our study, malignant skin tumors had higher disability rates compared to the benign skin neoplasms. Additionally, patients with malignant melanoma had higher disability rates than patients with squamous cell carcinoma.

The personal and social outcomes of occupational contact dermatitis are work-related disability, reduced quality of life, increased healthcare costs and sometimes job change. Hand eczema constitutes approximately 80% of the occupational contact dermatitis (29). In a study by Meding et al. (30), they found that construction workers had a higher risk of disability pension due to eczema. In the long term follow up study of occupational hand eczema patients, it was reported that 34% of the patients had changed their occupation, whereas 25% of the patients had experienced unemployment or early retirement (31). Although the occupations of the patients could not be evaluated in our study, hand eczema was found the most common (60%) involvement in eczematous dermatitis patients who applied for a disability rate.

As many of the genodermatose persist throughout life, they have a substantial physical and socio-economical burden both on patient and on their families. It is well documented that genetic skin diseases such as EB and ichthyosis negatively affect the quality of life (32-35). Tabolli et al. (32) showed that the physical disability in EB causes more impairment than other dermatological diseases. Additionally, it has been shown that absenteeism in the workplace and daily time for skin care has a significant burden on the ichthyosis patients' lives (33). Our study also showed that patients with EB and ichthyosis had the highest rate of disability.

MF is the most common form of cutaneous T-cell lymphomas. Even for patients in early stages, the disease may directly affect the quality of life. Patients with MF often experience limitations in daily activities, disturbed body perception, sleep disturbances and psychosocial stress (36-38). In a study by Demierre et al. (37), they reported that 94% of the patients with cutaneous T-cell lymphoma were worried about their disease and 55% of the patients declared that the disease interferes with their job capability, which resulted in missed work days. The chronic course of the disease constitute also a substantial financial burden for both patients and societies. Although we had a small number of patients with MF in our study, the disability rates of the patients were found to be high.

Study Limitations

To the best of our knowledge, this is the first study evaluating the disability related to dermatological diseases in our country. The limitations of our study are being a retrospective design and the small number of patients who had been admitted for assessing disability rate to our hospital.

CONCLUSION

Our study demonstrates that chronic skin diseases may cause disability and have a socio-economical burden. Since the psychological comorbidities often accompany skin diseases, the burden of the skin diseases may increase indirectly. Therefore, chronic skin diseases should be evaluated for their economic and psychological consequences and their physical outcomes.

Ethics

Ethics Committee Approval: The study protocol was approved by the Eskisehir Osmangazi University Faculty of Medicine, Ethics Committee (approval number: 310, date: 25.12.2018).

Informed Consent: Retrospective study.

Peer-review: Externally and internally peer-reviewed.

Authorship Contributions

Concept: E.A., H.K.E., E.Ac., Z.N.S., Design: E.A., H.K.E., E.Ac., Z.N.S., Data Collection or Processing: E.A., H.K.E., E.Ac., Analysis or Interpretation: E.A., H.K.E., E.A., Literature Search: E.A., H.K.E., E.Ac., Writing: E.A., H.K.E., E.Ac., Z.N.S.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

REFERENCES

1. Hay RJ, Fuller LC. The assessment of dermatological needs in resource-poor regions. Int J Dermatol 2011;50:552-7.
2. Hay RJ, Johns NE, Williams HC, Bolliger IW, Dellavalle RP, Margolis DJ, et al. The global burden of skin disease in 2010: an analysis of the prevalence and impact of skin conditions. J Invest Dermatol 2014;134:1527-34.
3. Yosipovitch G, Goon A, Wee J, Chan YH, Goh CL. The prevalence and clinical characteristics of pruritus among patients with extensive psoriasis. Br J Dermatol 2000;143:969-73.
4. Hong J, Koo B, Koo J. The psychosocial and occupational impact of chronic skin disease. Dermatol Ther 2008;21:54-9.
5. Amado A, Taylor JS. Women's occupational dermatologic issues. Dermatol Clin 2006;24:259-69, vii.
6. Resmî Gazete Özürlülük Ölçütü, Sınıflandırması ve Özürlülere Verilecek Sağlık Kurulu Raporları Hakkında Yönetmelik, ek-2 . T.C. Resmi Gazete, sayı: 30692. 20.02.2019.
7. Ibler KS, Jemec GB. Permanent disability pension due to skin diseases in Denmark 2003-2008. Acta Dermatovenerol Croat 2011;19:161-4.
8. Basra MK, Shahrukh M. Burden of skin diseases. Expert Rev Pharmacoecon Outcomes Res 2009;9:271-83.
9. Lim YL, Goon A. Occupational skin diseases in Singapore 2003-2004: an epidemiologic update. Contact Dermatitis 2007;56:157-9.
10. Feldman S, Behnam SM, Behnam SE, Koo JY. Involving the patient: impact of inflammatory skin disease and patient-focused care. J Am Acad Dermatol 2005;53(Suppl 1):S78-85.
11. Finlay AY, Coles EC. The effect of severe psoriasis on the quality of life of 369 patients. Br J Dermatol 1995;132:236-44.
12. Chan B, Hales B, Shear N, Ho V, Lynde C, Poulin Y, et al. Work-related lost productivity and its economic impact on Canadian patients with moderate to severe psoriasis. J Cutan Med Surg 2009;13:192-7.
13. Kimball AB, Yu AP, Signorovitch J, Xie J, Tsaneva M, Gupta SR, et al. The effects of adalimumab treatment and psoriasis severity on self-reported work productivity and activity impairment for patients with moderate to severe psoriasis. J Am Acad Dermatol 2012;66:e67-76.
14. Thomsen SF, Skov L, Dodge R, Hedegaard MS, Kjellberg J. Socioeconomic costs and health inequalities from psoriasis: a cohort study. Dermatology 2019;235:372-9.
15. Gudu T, Gossec L. Quality of life in psoriatic arthritis. Expert Rev Clin Immunol 2018;14:405-17.
16. Seyhan M, Aki T, Karincaoglu Y, Ozcan H. Psychiatric morbidity in dermatology patients: Frequency and results of consultations. Indian J Dermatol 2006;51:18-22.
17. Erdogan HK, Altinoz AE, Acer E, Saracoglu ZN, Bilgin M. Evaluation of anxiety sensitivity in patients with psoriasis. Dermatol Sin 2019;37:28-32.
18. Hatemi G, Merkel PA, Hamuryudan V, Boers M, Direskeneli H, Aydin SZ, et al. Outcome measures used in clinical trials for Behçet syndrome: a systematic review. J Rheumatol 2014;41:599-612.
19. Idil A, Gürler A, Boyvat A, Caliskan D, Ozdemir O, Isik A, et al. The prevalence of Behçet's disease above the age of 10 years. The results of a pilot study conducted at the Park Primary Health Care Center in Ankara, Turkey. Ophthalmic Epidemiol 2002;9:325-31.
20. Sut N, Seyahi E, Yurdakul S, Senocak M, Yazici H. A cost analysis of Behcet's syndrome in Turkey. Rheumatology (Oxford) 2007;46:678-82.
21. Mumcu G, Lehimci F, Fidan Ö, Gük H, Alpar U, Ünal AU, et al. The assessment of work productivity and activity impairment in Behçet's disease. Turk J Med Sci 2017;47:535-41.
22. Heelan K, Hitzig SL, Knowles S, Drucker AM, Mittmann N, Walsh S, et al. Loss of work productivity and quality of life in patients with autoimmune bullous dermatoses. J Cutan Med Surg 2015;19:546-54.
23. Penha MÁ, Farat JG, Miot HA, Barraviera SR. Quality of life index in autoimmune bullous dermatosis patients. An Bras Dermatol 2015;90:190-4.
24. Brodszky V, Tamási B, Hajdu K, Péntek M, Szegedi A, Sárdy M, et al. Disease burden of patients with pemphigus from a societal perspective. Expert Rev Pharmacoecon Outcomes Res 2021;21:77-86.
25. Lens MB, Dawes M. Global perspectives of contemporary epidemiological trends of cutaneous malignant melanoma. Br J Dermatol 2004;150:179-85.
26. Guy GP, Ekwueme DU. Years of potential life lost and indirect costs of melanoma and non-melanoma skin cancer: a systematic review of the literature. Pharmacoeconomics 2011;29:863-74.
27. Holterhues C, Cornish D, van de Poll-Franse LV, Krekels G, Koedijk F, Kuijpers D, et al. Impact of melanoma on patients' lives among 562 survivors: a Dutch population-based study. Arch Dermatol 2011;147:177-85.
28. Holterhues C, Hollestein LM, Nijsten T, Koomen ER, Nusselder W, de Vries E. Burden of disease due to cutaneous melanoma has increased in the Netherlands since 1991. Br J Dermatol 2013;169:389-97.

29. Belsito DV. Occupational contact dermatitis: etiology, prevalence, and resultant impairment/disability. J Am Acad Dermatol 2005;53:303-13.

30. Meding B, Wrangsjö K, Burdorf A, Järvholm B. Disability pensions due to skin diseases: a cohort study in Swedish construction workers. Acta Derm Venereol 2016;96:232-6.

31. Mälkönen T, Alanko K, Jolanki R, Luukkonen R, Aalto-Korte K, Lauerma A, et al. Long-term follow-up study of occupational hand eczema. Br J Dermatol 2010;163:999-1006.

32. Tabolli S, Sampogna F, Di Pietro C, Paradisi A, Uras C, Zotti P, et al. Quality of life in patients with epidermolysis bullosa. Br J Dermatol 2009;161:869-77.

33. Dreyfus I, Pauwels C, Bourrat E, Bursztejn AC, Maruani A, Chiaverini C, et al. Burden of inherited ichthyosis: a French national survey. Acta Derm Venereol 2015;95:326-8.

34. Margari F, Lecce PA, Santamato W, Ventura P, Sportelli N, Annicchiarico G, et al. Psychiatric symptoms and quality of life in patients affected by epidermolysis bullosa. J Clin Psychol Med Settings 2010;17:333-9.

35. Angelis A, Tordrup D, Kanavos P. Socio-economic burden of rare diseases: a systematic review of cost of illness evidence. Health Policy 2015;119:964-79.

36. Herbosa CM, Semenov YR, Rosenberg AR, Mehta-Shah N, Musiek AC. Clinical severity measures and quality-of-life burden in patients with mycosis fungoides and Sézary syndrome: comparison of generic and dermatology-specific instruments. J Eur Acad Dermatol Venereol 2020;34:995-1003.

37. Demierre MF, Gan S, Jones J, Miller DR. Significant impact of cutaneous T-cell lymphoma on patients' quality of life: results of a 2005 National Cutaneous Lymphoma Foundation Survey. Cancer 2006;107:2504-11.

38. Engin B, Keçici AS, Uzun AÖ, Yalçın M. Psychiatric comorbidity, depression, and anxiety levels and quality of life of the patients with mycosis fungoides. Dermatol Ther 2020;33:e13922.