



HAND ECZEMA AND ITS IMPACT ON WELLBEING AND QUALITY OF LIFE OF PATIENTS.

Filka G. Georgieva

Department of Dermatology and Venerology, Faculty of Medicine, Medical University of Varna

ABSTRACT

Hand eczema (HE) is a common skin condition with a chronic course. Both genetics and contact allergens triggers this form of eczema. It often affects people who work in cleaning, catering, hairdressing, healthcare and mechanical jobs where they may come into contact with chemicals or other irritants.

The aim of the study is to assess the impact of hand eczema on quality of life (QoL).

Material and methods: The presented study includes 78 out-patients diagnosed with HE. Demographic data and disease-related characteristics were collected. For the evaluation of QoL Dermatological Life Quality Index (DLQI) questionnaire was applied. Disease severity was assessed by hand eczema severity index (HECSI) score.

Result and discussion: HE is more common in female 67, 94% than in male 32, 06%. The mean age of the patients was 34.14±12.16 years with range from 16 years to 52 years.

The total DLQI score reported by the patients with hand eczema is 10.3±4.19 (median 11.00; IQR 4.00-26.00). Patients' scores were high for all questions ($p < 0,001$) with the exception of Q4 (cloths) and Q10 (treatment). High scores was for Q1 (feelings), Q2 (embarrassment), Q3 (daily work), Q8 (relationship) and Q9 (sexual). The highest scores was for Q7 (job).

Conclusion: All the reported and analyzed results indicate that HE has a negative impact on all the QoL-domains for majority of patients ($p < 0.001$).

Keywords: hand eczema, quality of life, Dermatology Life Quality Index

INTRODUCTION

Hand eczema (HE) or dyshidrosis is a common skin disease with a chronic course. It starts as tiny vesicles deep under the skin, which may coalesce to form tense bullae. In time, these burst to release exudate to the surface, with subsequent formation of erosions. Excessive scaling and keratinisation prevents easy movement of the hands and fingers resulting in painful fissures [1]. More than half of the cases of HE develop into a chronic form with persisting for months or even years. The lifetime prevalence is approximately from 15% to 20% [2, 3]. HE is distributed worldwide and affects both sexes with a prevalence for females [4]. Furthermore HE is the most common work-related

skin disease with distribution from 2, 9% to 32% in different occupational groups [5]. The pathogenesis of this skin condition is not well distinguished.

HE cause domestic, psychological, social and occupational undesirable outcomes [5, 6, 7]. The negative impact on QoL is accelerated by the fact that for one-third of patients the disease starts before 20 years of age [8] and in most of the cases is occupation related [9].

The aim of this work was to determine the impact of HE on QoL of patients.

MATERIALS AND METHODS

The study was conducted among 78 out-patients 53 female (67, 94%) and 25 male (32, 06%); at a mean age 34.14±12.16 years (range 16-52 years) who visited the dermatology unit at "Medea" Medical Center Varna within the period of 6 years. The following inclusion criteria were applied: typical hand lesion with vesicles, keratinization and scaling and complains of itch, pain and impossibility of free movement of fingers and hands. From the study were excluded patients positive for fungi infection, palmar psoriasis, and those who did not give consent for participating. Diagnosis was based on clinical observation and patient's history data.

The severity of hand eczema was assessed by use of the hand eczema severity index (HECSI) score. HECSI comprises scoring of morphological symptoms. Each hand is subdivided into five areas (fingertips, fingers, palms, back of hands, and wrists); the intensity of morphological pattern as erythema, induration/papulation, vesicles, fissuring, scaling and edema are quantified on a scale from 0 (no skin changes) to 3 (severe). Additionally, the affected area of each subdivision receives a numeric value from 0-4 (0: 0%; 1: 1-25%; 2: 26-50%; 3: 51-75%; and 4: 76-100%) according to the extent of the damaged skin. The total sum is calculated, ranging between 0 and a maximum severity score of 360 points [10].

To evaluate the impact of HE on patients' QoL the DLQI was applied. DLQI is the first dermatology specific QoL instrument developed in 1994. DLQI includes ten items (Q1-Q10) concerning symptoms, embarrassment, shopping/daily activities, clothes, and social/leisure [11]. The total score is a sum varying from 0 to 30 points. Zero as the minimum score shows no effect on the quality of life and 30 as the maximum score shows high effect on the

quality of life. High DLQI scores imply low QoL [12].

DLQI is translated to Bulgarian language and validated in Bulgaria by Bulgarian Dermatology Society.

The aim of the study was explained to each of the participants. Patients gave written informed consent for clinical data. All collected information was confidential and anonymous.

The statistical analysis was performed with SPSS v.21.0 for Windows. Hypotheses were tested using χ^2 -criteria (for the descriptive profile data). Logistic regression analysis has been used to examine the independent effects of the explanatory variables on DLQI. Construct validity was tested by factor analysis. Reliability of the instrument was assessed by average inter-item correlation and Cronbach's alpha. Results with $p < 0.001$ were interpreted as statistically significant.

RESULTS

The results of socio-demographic characteristics of the patients' sample including occupation and possible trigger factors are illustrated in table 1.

HE is more common in female 67, 94% than in male

32, 06%. The mean age of the patients was 34.14 ± 12.16 years with range from 16 years to 52 years. The employed were affected in 79, 49% while students (6, 41%), unemployed (8, 97%) and retired (5, 13%) at times less. In most cases the duration of disease was between 2 and 6 months (30, 77%)

According to the results achieved in recent study the DLQI score for HE was 10.3 ± 4.19 (median 11.00; IQR 4.00-26.00). Therefore HE affects the QoL of the patients moderate to strongly. Patients who scored between 2 and 5 were only 6, 41%, while 48, 72% of the samples had a score between 6 and 10. Furthermore, 26, 92% of the patients scores between 11 and 20 (Table 2). Scores for the DLQI are given in Tables 3. The patients with HE scores significantly high for all items ($p < 0.001$) except for Q4 (cloths) and Q10 (treatment). Among patients with HE, high score was for Q1 (feelings), Q2 (embarrassment), Q3 (daily work), Q8 (relationship) and Q9 (sexual). The highest scores was for Q7 (job).

Scores for the six domains were compared also (Table 4). DLQI scores were significantly high for all domains except for domain 6 (treatment) (Figure 1).

Table 1. Socio-Demographic characteristics

Characteristic	Patients
Gender n (%)	
Male	25 (32, 06%)
Female	53 (67, 94%)
Occupation n (%)	
Student	5(6, 41%)
Employed n=62	62(79, 49%)
cleaning –wet work, detergents	10(16, 12%)
catering –gloves, detergents	17(27, 41%)
hairdressing –detergents, chemicals	2(3, 22%)
healthcare – gloves, soap, detergents	4(6, 45%)
mechanical jobs- dirt, chemicals	4(6, 45%)
builder-dirt, chemicals	6(9, 67%)
mother with toddler-wet work, detergents	5(8, 06%)
housekeeper/hostess-wet work, detergents	14(22, 58%)
other	6(9, 67%)
Unemployed	7(8, 97%)
Retired	4(5, 13%)
Age	
Mean/Range	34.14 ± 12.16 / 16-52
Disease Duration n (%)	
Less than a month	18(23, 08%)
2-6 months	24(30, 77%)
7-12 months	19(24, 36%)
1-5 year	17(21, 79%)
HECSI Score	
Mean (Min-Max)	62.04 ± 24.89 (8-320)
Median	56 (24-73)

Table 2. Distribution according to DLQI- score

Range of score	Frequency	%
0-1 no influence	0	0
2-5 mild	5	6,41
6-10 moderate	38	48,72
11-20 high	21	26,92
21-30 very high	14	17,95
total	78	100

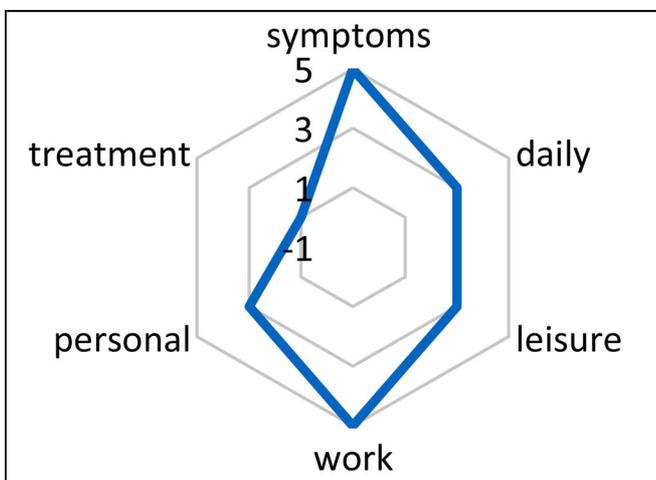
Table 3. Scores of the answers of the 10 Questions

Question	median	range	p-value
Q1 feelings	2.00	2.00-3.00	<0.001
Q2 embarrassment	2.00	2.00-3.00	<0.002
Q3 daily work, at home, garden	1.00	1.00-2.00	<0.001
Q4 choosing cloths	0.00	0.00-1.00	<0.002
Q5 free time, leisure	1.00	0.00-1.00	<0.001
Q6 sport	0.00	0.00-0.00	0.122
Q7 job	3.00	2.00-3.00	<0.002
Q8 relationship	0.00	0.00-0.00	0.146
Q9 sex	1.00	0.00-2.00	<0.003
Q10 treatment	1.00	0.00-1.00	<0.001

Table 4. Distribution of six domains

Domain	median	range	p-value
Symptoms and feelings	5.00	3.00-6.00	< 0,001
Daily activities	3.00	2.00-5.00	<0,001
Leisure	3.00	2.00-4.00	<0,001
Work/School	5.00	4.00-6.00	<0,001
Personal relationship	3.00	3.00-5.00	<0,001
Treatment	1.00	0.00-2.00	<0,001

Fig.1. The distribution of patterns score according DLQI- domains



DISCUSSION

Many studies have investigated the prevalence and risk factors of HE in the general population. Safizadeh et al. (2013) in a cross-sectional study on 196 patients found prevalence of females (74, 5%), mean age of 32.38±10.73 years ranged 17-80 years and disease duration, in most of the cases (45.5%) more than one year [5]. Charan et al. (2013) pointed out distribution of 52. 2% and prevalence in 50-59 age group for females (31, 8%) and 40-49 age group for males (41, 7%) [13]. Our results are similar in terms of distribution according the gender. According to the age they are more close to those of Safizadeh [5]. The duration of the disease is shorter in comparison with those pointed out by the other authors. The explanation of these short disease duration could be that HE seriously impede the ability to work which requires relatively urgent treatment.

Thyssen and coauthors (2010) in a study based on the review of the literature performed between 1964 and 2007 pointed out prevalence of HE around 4%, the 1-year prevalence nearly 10%, and the lifetime prevalence to 15% [6]. The authors underlined that a high incidence rate was associated with female sex, contact allergy, atopic dermatitis, and wet work [6]. Meding and Swanbeck (1990) investigated the connection between occupational exposure and the incidence of HE. They reported the highest 1-year prevalence of HE in cleaners (21.3%), followed by nursing and medical workers (15.9%) or service workers (15.4%) [14]. In other study on 12 750 patients was found that exposure to water, detergents, chemicals, or dirt resulted in a higher prevalence of HE than among subjects who reported no exposures [15]. At the same time Josefson and co authors (2006) in a study of 731 women do not find any correlation between occupation and HE [16]. In our study we found that HE was more common in employ patients (79, 49%) with a high prevalence in jobs connected with frequent hand wash, and contact with detergents or chemicals (90, 32%).

The focus of the recent study is the impact of HE on the QoL of patients. Without no doubt the results show that HE has significant effect on the QoL of patients. According to DLQI questionnaire score, mean DLQI score received in these work (10.3±4.19) pointed out that HE affects the QoL of patients as 48, 72 % are influenced moderate, 26, 92% strong and 17, 95 % very strong. The similar studies were performed by other authors as well [5, 13]. The use of a standardized instrument like DLQI in different cultures allows international comparisons. The results of our study can be compared with previous reported studies. Hald et

al. (2011) conducted a study involving 799 patients with HE. The authors reported deterioration of QoL in 87, 2% of the included patients with median DLQI- 5, 5 [17]. Cvetkovski et al. (2006) pointed out that scores for patients with occupational HE is 7.8 for severe cases and 5.5 for mild and moderate type [18]. At the same time results of Safizadeh et al (2013) show much higher influence of HE on QoL with mean DLQI score 14.80±5.79 [5]. The results in the recent study correlates mostly with the export of Van Coevorden (2006) and Boehm et al. (2012) data which are respectively: 9.7±6.6 [19] and 11.1±6.5 [20].

In this study the relationship between patients' QoL and disease-related (duration and stage) factors was not investigated. The correlation between gender and age and QoL was not been established.

CONCLUSION

HE is a common dermatological disease with a chronic course. Although many studies have investigated the prevalence and risk factors of HE in the general population there are still a lot of open questions about its pathogenesis and treatment.

The present study is focused on influence of HE on QoL of patients and slightly investigate some epidemiological aspects of these common skin condition.

QoL is a patient outcome measure, which gives essential information to the physician regarding patient's physical, mental and social functioning. HE affects negatively the QoL of the patients. Therefore, a study of their self-reported health status alongside with the clinical investigation is a necessary precondition for successful therapeutic results.

REFERENCES:

1. James WD, Berger TG, Elston DM. Andrew's Diseases of the Skin: Clinical Dermatology. 12th Ed., Elsevier. May 2015.
2. Lodén M, Wirén K, Smerud K, Meland N, Hønnås H, Mørk G, et al. Treatment with a barrier-strengthening moisturizer prevents relapse of hand eczema. An open, randomized, prospective, parallel group study. *Acta Derm Venereol*. 2010 Nov;90(6):602–606. [[PubMed](#)]
3. Bryld LE, Agner T, Kyvik KO, Brondsted L, Hindsberger C, Menne T. Hand eczema in twins: a questionnaire investigation. *Br J Dermatol*. 2000 Feb;142(2):298-305. [[PubMed](#)]
4. Veien NK, Hattel T, Laurberg G. Hand eczema: causes, course, and prognosis I. *Contact Dermatitis*. 2008 Jun;58(6):330-334. [[PubMed](#)]
5. Safizadeh H, Shamsi-Meymandy Sh, Narsi L, Shamsi-Meymandy M. Quality of life among patients with hand eczema in Iran. *Russ Open Med J*. 2013; 2(3):1-4. [[CrossRef](#)]
6. Thyssen JP, Johansen JD, Linneberg A, Menne T. The epidemiology of hand eczema in the general population—prevalence and main findings. *Contact Dermatitis*. 2010 Feb;62(2):75-87. [[PubMed](#)] [[CrossRef](#)]
7. Coenraads PJ. Hand eczema is common and multifactorial. *J Invest Dermatol*. 2007 Jul;127(7):1568-70. [[PubMed](#)] [[CrossRef](#)]
8. Meding B, Jarvholm B. Incidence of hand eczema—a population-based retrospective study. *J Invest Dermatol*. 2004 Apr;122(4):873–877. [[PubMed](#)] [[CrossRef](#)]
9. Meding B, Wrangsjö K. Scope of the Problem: Epidemiology of Hand Eczema. In Textbook of Hand Eczema. Editors: Alikhan A, Lachapelle JM, Maibach H. Springer Berlin Heidelberg. 2014; Chapter 7; pp.75-85. [[CrossRef](#)]
10. Held E, Skoet R, Johansen JD, Agner T. The hand eczema severity index (HECSI): A scoring system for clinical assessment of hand eczema. A study of inter- and intraobserver reliability. *Br J Dermatol*. 2005 Feb;152(2):302–307. [[PubMed](#)] [[CrossRef](#)]
11. Finlay AY, Khan GK. Dermatology Life Quality Index (DLQI) – A simple practical measure for routine clinical use. *Clin Exp Dermatol*. 1994 May;19(3):210–216. [[PubMed](#)] [[CrossRef](#)]
12. Hongbo Y, Thomas CL, Harrison MA, Salek MS, Finlay AY. Translating the Science of Quality of Life into

Practice: What Do Dermatology Life Quality Index Scores Mean? *J Invest Dermatol.* 2005 Oct;125(4):659-664. [[PubMed](#)] [[CrossRef](#)]

13. Charan UP, Peter CD, Pulimood SA. Impact of hand eczema severity on quality of life. *Indian Dermatol Online J.* 2013; 4(2):102-105. [[CrossRef](#)]

14. Meding B, Swanbeck G. Consequences of having hand eczema. *Contact Dermatitis.* 1990 Jul;23(1):6-14. [[PubMed](#)] [[CrossRef](#)]

15. Meding B, Swanbeck G. Occupational hand eczema in an industrial city. *Contact Dermatitis.* 1990 Jan; 22(1):13-23. [[PubMed](#)] [[CrossRef](#)]

16. Josefson A, Farm G, Stymne B, Meding B. Nickel allergy and hand eczema—a 20-year follow up. *Contact Dermatitis.* 2006 Nov;55(5):286-290. [[PubMed](#)] [[CrossRef](#)]

17. Hald M, Agner T, Blands J, Johansen JD. Quality of Life in a Population of Patients with Hand Eczema: A Six-month Follow-up Study. *Acta Derm Venereol.* 2011 Jun;91(4):484-486. [[PubMed](#)] [[CrossRef](#)]

18. Cvetkovski RS, Zachariae R, Jensen H, Olsen J, Johansen JD, Agner T. Quality of life and depression in a population of occupational hand eczema patients. *Contact Dermatitis.*

2006; 54: 106-111. [[PubMed](#)] [[CrossRef](#)]

19. van Coevorden AM, van Sonderen E, Bouma J, Coenraads PJ. Assessment of severity of hand eczema: discrepancies between patient- and physician-rated scores. *Br J Dermatol.* 2006 Dec;155(6):1217-1222. [[PubMed](#)]

20. Boehm D, Schmid-Ott G, Finkeldey F, John SM, Dwinger C, Werfel T, et al. Anxiety, depression and impaired health-related quality of life in patients with occupational hand eczema. *Contact Dermatitis.* 2012 Oct;67(4):184-192. [[PubMed](#)],

Please cite this article as: Georgieva F. Hand eczema and its impact on wellbeing and quality of life of patients. *J of IMAB.* 2017 Jan-Mar;23(1):1490-1494. DOI: <https://doi.org/10.5272/jimab.2017231.1490>

Received: 01/11/2016; Published online: 15/03/2017



Address for correspondence:

Filka Georgieva
74b, Tzar Assen str., 9002 Varna Bulgaria
Tel.: +359 888 513565
E-mail: filka@abv.bg,