Assessment of the psychosocial effects of hand dermatitis among healthcare workers during the COVID-19 pandemic

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Received: 12 February 2021
Accepted: 8 April 2021

Hand hygiene is one of the most crucial measures against coronavirus disease 2019 (COVID-19) transmission; however, frequent handwashing may lead to contact dermatitis causing many problems. Occupational hand dermatitis is a relatively common but challenging issue that imposes a negative effect on the quality of life, work performance, and adherence to hygiene principles. We performed a cross-sectional study to assess the psychosocial impacts of hand dermatitis on healthcare workers (HCWs) using an online Persian version of the Nordic Occupational Skin Questionnaire (NOSQ-2002). Sixty-three from a total of 390 HCWs (21%) reported that hand eczema had adverse effects on their occupation, such as a necessity to use gloves (17.3%) and decreased adherence to hand hygiene (14%). HCWs reported a higher exacerbation of hand dermatitis in winter (40.3%) and fall (24.7%). Hand dermatitis exerted a significant impact on sporting activities, sleep, social life, mood, and sex in 17.7%, 43.3%, 44.3%, 66%, and 11.7% of HCWs, respectively. It seems that hand dermatitis-related impairment of the mentioned activities has increased in HCWs during the COVID-19 pandemic.

Keywords: eczema, COVID-19, healthcare workers, SARS-CoV-2, contact dermatitis

Iran J Dermatol 2021; 24: 127-131

DOI: 10.22034/ijd.2021.272982.1321

INTRODUCTION

The most emerging health issue of recent years is the coronavirus disease 2019 (COVID-19) pandemic. Investigations are ongoing regarding the symptoms and possible treatments of COVID-19 [1-3]. In the field of dermatology, cutaneous manifestations related to the administration of personal protective equipment have been reported, and the plausible underlying mechanisms have been explored [1,2].

Excessive use of protective measures in battling with severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) infection has led to an escalated prevalence of some dermatological conditions like acne, irritant and allergic contact dermatitis, and contact urticaria [4]. Occupational hand dermatitis, mainly irritant, is the most common occupational skin disease leading to impaired quality of life (QoL), work absenteeism, and job loss [5]. In recent studies, the estimated lifetime prevalence of hand dermatitis was 15%, while its point prevalence was up to 4% [6].

Since all people, particularly healthcare providers, frequently wash or disinfect their hands or wear gloves for a long time during this pandemic, it seems that hand dermatitis is a relatively common but challenging problem that imposes a negative impact on the adherence to hand hygiene, QoL, and effective activity at work [1,2,7]. In previous studies, we investigated the prevalence of hand dermatitis and hand contact urticaria in this pandemic [8,9], and now we aimed to assess the psychosocial impacts of hand dermatitis on the daily life and work performance of healthcare workers (HCWs).

PARTICIPANTS AND METHODS

This investigation was designed as a cross-sectional study to assess the psychosocial effects of hand dermatitis on HCWs. The study protocol was approved by the ethics committee of our institute. The survey was conducted using an online self-administered questionnaire based on the Nordic Occupational Skin Questionnaire (NOSQ-2002), which was validated in Persian [10,11]. The questionnaire included questions about the psychosocial impacts (no, mild, moderate, or severe effect) of hand dermatitis on specific activities such as occupation, housework and daily actions, sports, sleep, social activities, social performances, sex life, and mood.

The questionnaire link was dispensed to the HCWs working in distinct hospitals in the first two weeks of May 2020. The SPSS software version 25 was used for statistical analysis. The response rate in the study was 78.7% (408 of 518), and 18 questionnaires were eliminated from the investigation because of some absent data.

RESULTS

In total, 390 HCWs (290 females and 100 males; mean age: 34.57 ± 9.41) were included in the analysis. In the pandemic, the total prevalence of hand dermatitis among HCWs was 76.9%. Hand eczema exacerbation in 40.3%, 24.7%, 13%, and 4% of HCWs was associated with winter, fall, spring, and summer, respectively; while, 44.7% of HCWs with hand dermatitis reported no association with season changes.

Aggravation of hand dermatitis in 246 of 300 (82%) HCWs was related to contact with specific materials. The most important materials thought to be correlated with hand eczema worsening in daily life were detergents and other household cleaning and laundry products (79.7%), soap, liquid soap, shampoo, and other personal hygiene products (68.3%), excessive water contact (49%), and protective gloves (45.7%). Most HCWs reported hand eczema alleviation when they are away from work (sometimes and always in 28% and 41.7% of HCWs, respectively); however, 24.7% of HCWs announced absence from the job did not affect the symptoms of hand dermatitis.

Sixty-three HCWs (21%) described unfavorable effects of hand eczema on their job, like a necessity to use gloves (17.3%) and decreased adherence to hand hygiene (14%). A mild, moderate, and severe impact of hand eczema on the occupation was observed in 69.8%, 23.8%, and 6.3% of HCWs with impaired work activity, respectively (Table 1). Hand dermatitis causes substantial influence on sporting activities, sleep, social life, mood, and sex in 17.7%, 43.3%, 44.3%, 66%, and 11.7% of the participants, respectively (Figure 1).

Eighteen HCWs in the study experienced

Table 1. The effects of hand eczema on daily life and occupation in the COVID-19 pandemic

	HCWs with hand dermatitis
Seasonal exacerbation of hand eczema	
Spring	39 (13%)
Summer	12 (4%)
Fall	74 (24.7%)
Winter	121 (40.3%)
No difference	134 (44.7%)
Hand eczema aggravation due to contact with certain materials or chemicals	
Yes	246 (82%)
No	54 (18%)
Hand eczema exacerbation by	
Soap, liquid soap, shampoo, and other personal hygiene products	205 (68.3%)
Detergents and other household cleaning and laundry products	239 (79.7%)
Handling of food	76 (25.3%)
Work with wet hands and frequent hand washing	147 (49%)
Protective gloves	137 (45.7%)
Machine maintenance (e.g., cars); handling oils	9 (3%)
Construction work, painting, wall-papering, renovation, and decoration	5 (1.7%)
Gardening, handling plants, soil, vegetables, berries, fruits, etc.	38 (12.7%)
Infections (colds, flu, or fever)	6 (2%)
Mood and stress	55 (18.3%)
Menstrual periods or other hormonal factors	4 (1.3%)
Others	14 (4.7%)
Hand eczema improvement by time off from work	
No	74 (24.7%)
Yes, sometimes	84 (28%)
Yes, usually	125 (41.7%)
Don't know	13 (4.3%)
Non-relevant	4 (1.3%)
Work disturbance	
Yes	63 (21%)
No	237 (79%)

Table 1. Continued

	HCWs with hand dermatitis
Hand eczema-related work disturbances	
Obliged to use gloves	52 (17.3%)
Changing work tasks	6 (2%)
Changing job	0
Difficulties in getting a job	0
Negative coworkers' attitudes	3 (1%)
Income reduction	0
Work absenteeism	2 (0.7%)
Lost a job	0
Retirement	0
Decreased hand hygiene	42 (14%)
Work disturbance grade	
Mild	44 (69.8%)
Moderate	15 (23.8%)
Severe	4 (6.3%)
Psychological impact on sports	
No specific sporting activity	75 (25%)
No effect	172 (57.3%)
Low	41 (13.7%)
Moderate	6 (2%)
Severe	6 (2%)
Psychological impact on sleep	
No effect	170 (56.7%)
Low	105 (35%)
Moderate	21 (7%)
Severe	4 (1.3%)
Psychological impact on social activity	
No effect	167 (55.7%)
Low	91 (30.3%)
Moderate	39 (13%)
Severe	3 (1%)
Psychological impact on mood	
No effect	102 (34%)
Low	102 (34%)
Moderate	66 (22%)
Severe	30 (10%)
Psychological impact on sex	
Non-relevant	115 (38.3%)
No effect	150 (50%)
Low	23 (7.7%)
Moderate	5 (1.7%)
Severe	7 (2.3%)

HCWs: healthcare workers

COVID-19 affliction, and the most common symptoms were myalgia (72.2%), headache (66.7%), and fever (61.1%). Furthermore, twelve of these HCWs (70.6%) received treatment.

DISCUSSION

Occupational hand dermatitis, especially in severe cases, has a profound effect on the QoL and performance of employees [7]. In the COVID-19 pandemic, the prevalence of hand dermatitis has increased significantly due to escalated use of personal protective equipment as well as frequent hand washing; therefore, this condition has become one of the most important dermatological concerns [2,9].

Five percent of patients with occupational hand eczema experienced unfavorable consequences of the disease like prolonged work absenteeism, obligation to alter the job, and financial loss. Besides, hand eczema causes a significantly decreased QoL due to skin and psychosocial health impairment [5]. The hands represent a crucial aspect of self-presentation in social circles and play an important role in daily life. Therefore, hand contact dermatitis can give rise to anxiety, depression, and social exclusion [12].

Böhm *et al.* reported a higher prevalence of sickness absence and burnout level in individuals with occupational hand dermatitis. Their study concluded an association between some subscales of burnout measures and work absenteeism [5]. In patients with contact dermatitis, QoL impairment leads to distress and feeling ashamed (36%), a hindrance to occupational activities (35%), sleep impairment (32%), and impedance of sporting activities (13%) [12].

Luk *et al.* described that hand eczema in more than 20% of HCWs causes impairment in occupational performance, mood, sleep, and social activities; however, it had a moderate to severe impact on sporting activities and sex life in less than 20% of healthcare providers [7]. In our study, a higher proportion of HCWs reported impaired daily life activities and social performance as well as dysfunctional mood; this might be due to the escalated COVID-19-related hygiene precautions for HCWs, which potentially led to exacerbations in the severity and effects of hand eczema. Moreover, hand eczema in conjunction with pandemic-related anxiety and stress might lead to greater impairment of mentioned activities.

Boehm *et al.* reported 20% and 14% of patients with hand dermatitis had positive anxiety and depression scores, respectively. The more severe cases of hand eczema experienced greater impairment of QoL [5]. Before the pandemic, Hamnerius *et al.* described that HCWs had significant contact with wet materials,

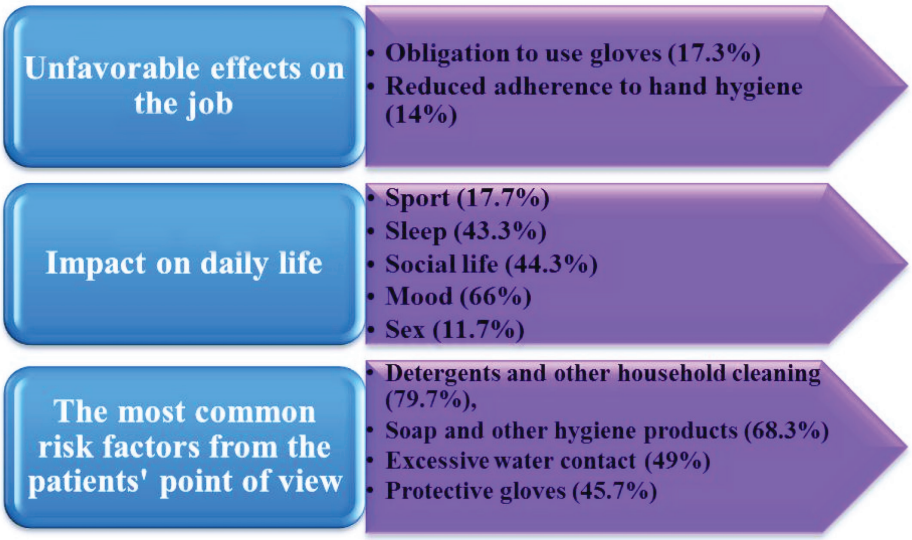

Figure 1. Data summaries of hand eczema-related effects on healthcare workers' occupation and daily life.

such as handwashing with soap (> 20 times per day in 30% of HCWs) and hand disinfection (> 50 times per day in 45% of HCWs). Hand eczema is associated with the frequency of handwashing and hand disinfection. Hand dermatitis in HCWs has been correlated with perceived stress [13]. In our investigation, HCWs perceived exposure to detergents, soap, and other personal hygiene products as well as excessive water contact as the most common risk factors for hand dermatitis.

The main limitations of our investigation were the small sample size of HCWs and the impracticality of the evaluation of hand dermatitis by professional examination due to the pandemic-related recommendations to prevent COVID-19 transmission.

CONCLUSION

Our results showed that hand dermatitis significantly impaired some daily activities in HCWs during the COVID-19 pandemic. Since hand eczema may influence the adherence to hand hygiene protocols, educational interventions along with early treatment of the disease make it possible for all individuals to follow these protocols during this pandemic. According to the mentioned risk factors for hand dermatitis, it is recommended to apply less irritating agents such as alcohol-based disinfectants instead of frequent handwashing with soap and water; however, the use of soap remains necessary in obvious contaminations. It should be stressed that these recommendations are more important in individuals with a history of atopy or concomitant dermatological diseases [1].

Conflict of interest: None declared.

REFERENCES

1. Beiu C, Mihai M, Popa L, et al. Frequent hand washing for COVID-19 prevention can cause hand dermatitis: management tips. Cureus. 2020;12(4).
2. Lin P, Zhu S, Huang Y, et al. Adverse skin reactions among healthcare workers during the coronavirus disease 2019 outbreak: a survey in Wuhan and its surrounding regions. Br J Dermatol. 2020; 183(1):190-192.
3. Seirafianpour F, Sodagar S, Pour Mohammad A, et al. Cutaneous manifestations and considerations in COVID-19 pandemic: A systematic review. Dermatol Ther. 2020;33(6):e13986.
4. Darlenski R, Tsankov N. Covid-19 pandemic and the skin-What should dermatologists know? Clin Dermatol. 2020;38(6):785-787.
5. Böhm D, Stock Gissendanner S, Finkeldey F, et al. Severe occupational hand eczema, job stress and cumulative sickness absence. Occup Med. 2014;64(7):509-15.
6. Thyssen JP, Johansen JD, Linneberg A, et al. The epidemiology of hand eczema in the general population–prevalence and main findings. Contact Derm. 2010;62(2):75-87.
7. Luk NMT, Lee HCS, Luk CKD, et al. Hand eczema among Hong Kong nurses: a self-report questionnaire survey conducted in a regional hospital. Contact Derm. 2011;65(6):329-35.

8. Pourani MR, Nasiri S, Abdollahimajd F. Prevalence of hand contact urticaria and related risk factors among healthcare workers during the COVID-19 pandemic: a self-reported assessment. Dermatol Ther. 2020;33(6):e14367.
9. Pourani MR, Shahidi Dadras M, Moravvej H, et al. Self-reported hand eczema: assessment of prevalence and risk factors in health care versus non-health care workers during the COVID-19 pandemic. Dermatitis. 2020;32(1):e19-e21.
10. Flyvholm M-A, Susitaival P, Meding B, et al. Nordic occupational skin Questionnaire – NOSQ–2002. Nordic questionnaire for surveying work-related skin diseases on hands and forearms and relevant exposures. TemaNord Copenhagen, Nordic Council of Ministers. 2002;518:1–186.
11. Sadeghian F, Delvarian Zadeh M, et al. The prevalence of hand dermatitis, and some of the factors in the nursing and midwifery personnel. Daneshvar Bimonthly. 2006;14(67):25-32.
12. Cashman MW, Reutemann PA, Ehrlich A. Contact dermatitis in the United States: epidemiology, economic impact, and workplace prevention. Dermatol Clin. 2012;30(1):87-98.
13. Hamnerius N, Svedman C, Bergendorff O, et al. Wet work exposure and hand eczema among healthcare workers: a cross-sectional study. Br J Dermatol. 2018;178(2):452-61.