

Skin problems associated with the use of personal protective equipment by healthcare workers during COVID-19 pandemic in Türkiye

Gülsün Aydın,¹ Nuray Turan¹ and Nurten Kaya²

¹Department of Fundamentals of Nursing, Faculty of Nursing, Istanbul University, Istanbul, Türkiye. ²Department of Midwifery, Health Sciences Faculty, Istanbul University-Cerrahpaşa, Istanbul, Türkiye. (Correspondence to Gülsün Ö. Aydın: gulsunoz@istanbul.edu.tr; gulsunhemsire@gmail.com).

Abstract

Background: Skin problems associated with the use of personal protective equipment (PPE) have been reported during the COVID-19 pandemic.

Aims: To determine the skin problems experienced by healthcare workers in Türkiye who used PPE during COVID-19 and the effect of these problems on their quality-of-life.

Methods: This cross-sectional study was conducted from 30 November 2020 to 30 May 2021. Data were collected from 404 healthcare workers recruited via social media. Participants completed a skin problem evaluation form and Skindex-16, which measures the effects of skin disease on quality-of-life. The *t* test and ANOVA were used to analyse differences between the means.

Results: Most (85.1%) of the participants were nurses and 38.6% worked in COVID-19 intensive care units. All the participants wore gloves (53.2% wore double gloves), 99.3% wore surgical masks and 56.2% wore protective glasses. They washed their hands on average 31.94 [standard deviation (SD) 27.55] times a day. Skin problems developed were mostly around the forehead, hands, nose, and ears. The mean (SD) Skindex-16 score was 45.42 (26.31). Based on Skindex scores, respondents with chronic skin problems had a significantly lower quality-of-life than those without skin problems, as did those who developed skin problems during the COVID-19 pandemic than those who did not ($P < 0.001$).

Conclusion: Skin problems associated with the use of PPE increased during the COVID-19 pandemic and these affected the quality-of-life of healthcare workers. Further studies should evaluate how to minimize adverse reactions due to PPE use.

Keywords: COVID-19, health workers, personal protective equipment, skin diseases, quality of life, Türkiye.

Citation: Aydın G; Turan N; Kaya N. Skin problems associated with the use of personal protective equipment by healthcare workers during COVID-19 pandemic in Türkiye. *East Mediterr Health J.* 2023;29(4):238–246. <https://doi.org/10.26719/emhj.23.037>

Received: 22/09/21; accepted: 21/11/22

Copyright © Authors 2023; Licensee: World Health Organization. EMHJ is an open access journal. This paper is available under the Creative Commons Attribution Non-Commercial ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo>).

Introduction

COVID-19 has affected Türkiye as well as all other parts of the world. To eliminate the risk of transmission of the disease, it has become mandatory for healthcare workers to wear personal protective equipment (PPE). PPE, such as N95 masks, latex gloves and protective clothing, have to be worn for hours at a time. As a result, many healthcare workers have had adverse skin reactions related to the use of PPE (1). Studies have shown that most healthcare workers (more than 75%) reported having skin-related problems associated with at least one of the pieces of PPE they used (1,2).

In a study conducted during the severe acute respiratory syndrome (SARS) outbreak, 59.6% of healthcare workers who used N-95 masks regularly developed facial acne and 35.8% developed irritant contact dermatitis and facial redness due to dermatitis (3). Masks cause pressure injuries in and around the outer ear due to long-term use. A 2022 study reported that skin-related problems that developed due to PPE use were mostly associated with the use of surgical and N95 masks (97.1%) (4). The equipment

used to protect the eye mucosa also comes into contact with the skin for a long time. A 2020 study reported skin reactions on the noses of healthcare workers who wore glasses for more than 6 hours (5). Wearing overalls and aprons causes heat stress and dehydration, and chemical additives (e.g. antibacterial products) and fibre dyes predispose to irritant contact dermatitis and allergic contact dermatitis (6–8). Skin reactions in the form of itching and rash were observed in 4 (1.6%) of 258 health workers who wore overalls or gowns for an average of 6.2 hours (3).

Across the world, including in Türkiye, the COVID-19 epidemic has seriously affected health workers. International studies emphasize skin problems and other factors related to PPE use (1–4). Skin problems adversely affect the working and social lives of healthcare workers, and causes their quality-of-life to deteriorate. In this context, no study in Türkiye has examined skin problems related to the use of PPE among health workers during the COVID-19 pandemic and the effect they have had on their quality-of-life.

Although healthcare workers use PPE according to national and international guidelines, the measures to protect their skin from adverse effects of PPE may not be sufficient. Since there is no procedure in healthcare institutions to reduce possible skin damage, health workers are limited to individual measures such as the use of hand cream. There is therefore a need to evaluate how skin problems affect the quality-of-life of healthcare workers. This study aimed to determine the skin problems experienced by healthcare workers who cared for COVID-19 patients, the effects of these problems on their quality-of-life, and the measures they took to reduce or prevent such skin problems.

Methods

Study design and sample

This was a descriptive and cross-sectional study. To collect data without choosing samples, healthcare workers who were available on social media (Facebook, Twitter, LinkedIn and Instagram) were approached. Those who voluntarily consented to participate in the research were included. The inclusion criteria were health workers who administered bedside patient care and treatment services and used PPE. Of 642 healthcare workers approached, 410 met the inclusion criteria and agreed to participate; 6 health workers were excluded from the study because their information was missing. The participants were asked to complete an online Google survey between 30 November 2020 and 30 May 2021.

Instruments

Data were collected using a questionnaire created by the authors to assess skin problems and the Skindex-16.

The questions in the questionnaire were based on relevant literature (6,9). It collected information on age, sex, profession (doctor, nurse, health technician), department, professional experience period (months), work system (day job, shifts, 24 hours), duration of wearing protective equipment, and skin problems and body areas where the skin problems occurred.

Skindex is a dermatology-specific quality-of-life scale (10), which consists of three sub-dimensions (symptoms, emotion and function) and 16 items. The symptom sub-dimension has 4 items on the discomfort experienced from skin problems such as burning, itching, soreness and irritation. The emotion sub-dimension has 7 items that evaluate discomfort, anxiety, helplessness, embarrassment, boredom and depressiveness due to the persistence of the skin problem. The function sub-dimension has 5 items which evaluate whether the skin problem affects daily life, work and leisure time. Each item is scored between 1 and 7. In addition, in item 17, respondents are asked to indicate the most disturbing thing about the skin disorder. Total scores range from 16 to 112; a low score indicates good quality-of-life (10,11). A validated Turkish scale was developed in 2016, with Cronbach alpha coefficients reported as 0.87, 0.91, and 0.91 for symptoms, emotion, and function sub-dimensions,

respectively, and test-retest correlation coefficients reported as 0.90, 0.93 and 0.96 (11). In our study, the Cronbach alpha coefficients of the scale were 0.94, 0.95, 0.95 and 0.97 for symptoms, emotion, function and total, respectively.

Statistical analysis

SPSS, version 20.0 was used for data analysis. A group Kolmogorov–Smirnov goodness of fit test was applied to assess the normality of the obtained data. Descriptive statistics were presented – numbers and percentages, and means and standard deviations (SDs). The independent *t*-test was used to determine the difference between the means of two groups, and one-way ANOVA was used to determine the difference between the means of more than two groups. Pearson correlation analysis was used to determine the relationship between ordinal variables. $P \leq 0.05$ was considered statistically significant.

Ethical considerations

Permission to conduct the study was obtained from the Ministry of Health (2020-1120T19_53_48) and ethical approval was obtained from the Non-Interventional Clinical Research Ethics Committee of Istanbul University-Cerrahpaşa (08/12/2020-160824/74555795-050.01.04). The purpose and duration of the study were explained in the questionnaire and online consent was obtained from those who agreed to participate.

Results

The mean (SD) age of healthcare workers was 29.66 (7.85) years (range 20–59 years). About a quarter (26.2%) of the respondents were males, 45.5% had a bachelor's degree, 62.9% worked in public hospitals, 69.6% worked in shifts, 85.1% were nurses and 38.6% worked in the COVID-19 intensive care unit.

PPE use

All the respondents reported that they wore gloves and 53.2% preferred to wear double gloves. As regards other PPE, 99.3% used surgical masks, 84.2% used N95/FFP2 masks, 64.4% used scrubs (disposable/reusable), 56.2% used protective glasses, 40.1% used gowns and 38.6% used visors. The mean (SD) duration of wearing protective equipment was 10.52 (5.98) hours a day and mean (SD) frequency of handwashing was 31.94 (27.55) times per day (range 1–200) (Table 1).

Skin problems associated with PPE use

More than a quarter (28.5%) of the healthcare workers had chronic skin problems such as eczema, or atypical or allergic dermatitis which had been diagnosed by a physician. Most (72.5%) healthcare workers developed skin problems only during the COVID-19 period (Table 2). The most common skin problems were: skin dryness (68.8%), skin erythema (58.4%), cracked skin (58.2%) and itching (52.0%). To reduce or avoid these skin problems, 43.8% used gel, silicone or a barrier, 86.1% used moisturizer, and 6.7% did not use any product.

Skin problems by body part affected

When the skin problems were classified according to body part affected (Table 3), the problems reported were on the forehead (49.8%), eyes and their surroundings

(24.0%), nose and its surroundings (36.9%), ears and their surroundings (34.4%) and the back of the head (94.3%). The most common problem reported on the hands was dryness (72.3%) and on the chin was acne (32.4%).

Skindex-16 and sub-dimension scores by development of skin problem and remedial measures taken

The total mean (SD) score of healthcare workers on the Skindex-16 scale was 45.42 (26.31); range: 16.00–112.00 (Table 4). The mean (SD) score was 13.50 (7.86) for the symptom sub-dimension, 20.55 (12.73) for the emotion sub-dimension and 11.37 (8.06) for the function sub-dimension. The Skindex and sub-dimension scores were significantly higher for those who had chronic skin problems than those who did not, and for those who had skin problems during the COVID-19 period than those who did not ($P < 0.001$). The Skindex-16 total score and sub-dimension scores of respondents who tried an intervention to reduce or prevent their skin problems were higher than those who did not try any remedy ($P < 0.05$), except for the function sub-dimension ($P = 0.087$).

Skindex-16 and sub-dimension scores by personal and professional characteristics

Female respondents had higher Skindex-16 and sub-dimension scores than male respondents: 48.52 versus 36.69; $P < 0.05$ (Table 5). Statistically significant differences were found in the Skindex-16 and sub-dimension scores according to work system, especially those who worked 24 hours a day, compared with a day

Table 1 Protective equipment used by healthcare workers, Türkiye

Use of protective equipment	Value (n = 404)
Wears gloves, no. (%)	404 (100)
Layers of gloves worn, no. (%)	
One	166 (41.1)
Two	215 (53.2)
Three	23 (5.7)
Use a surgical mask, no. (%)	401 (99.3)
Use N95/FFP2 mask, no. (%)	340 (84.2)
Wears scrubs (disposable or reusable), no. (%)	260 (64.4)
Wears standard eye protective glasses, no. (%)	227 (56.2)
Wears a gown, no. (%)	162 (40.1)
Uses a face shield or visor, no. (%)	156 (38.6)
Wears caps and overshoes, no. (%)	6 (1.5)
Wears boots, no. (%)	2 (0.5)
Duration of wearing protective equipment – hours a day, mean (SD); range	10.52 (5.98); 0.00–24.00
Handwashing – no. of times a day, mean (SD); range	31.94 (27.55); 1.00–200.00

Table 2 Skin problems of health care professionals associated with the use of personal protective equipment and methods used to solve the problem, Türkiye

Skin problem ^a	No. (%) (n = 404)
Has eczema, atopic or allergic dermatitis and similar chronic skin problems	115 (28.5)
Skin problems experienced during COVID-19^a	
Itching (n=293)	210 (71.7)
Sweating (n=293)	95 (32.4)
Pain (n=293)	49 (16.7)
Dryness (n=293)	278 (94.9)
Cutaneous sense (n=293)	187 (63.8)
Cracked skin (n=293)	235 (80.2)
Erythema (n=293)	236 (80.5)
Temperature rise (n=293)	65 (22.2)
Other (swelling, rash and further watery wounds, bleeding, peeling) (n=293)	6 (2.0)
Methods used to reduce skin problems^b	
Applications used to prevent skin problems	
Cream barrier	28 (6.9)
Glycerine blended cream	1 (0.2)
Moisturizer	348 (86.1)
Not used	27 (6.7)

COVID-19: coronavirus disease 2019.

^a More than one answer could be given.

^b For example, gel, silicone barrier, and similar products

Table 3 Skin problems of healthcare professionals according to body part affected, Türkiye

Skin problems ^b	Forehead	Hands	Chin	Eye and surroundings	Nose and surroundings	Ear and surroundings	Back of head	Other ^a
Equipment marks	201 (49.8)	109 (27.0)	106 (26.2)	97 (24.0)	149 (36.9)	139 (34.4)	381 (94.3)	3 (0.7)
Skin peeling	9 (2.2)	198 (49.0)	31 (7.7)	16 (4.0)	50 (12.4)	52 (12.9)	2 (0.5)	9 (2.2)
Redness	103 (25.5)	245 (60.6)	77 (19.1)	68 (16.8)	128 (31.7)	98 (24.3)	10 (2.5)	5 (1.2)
Dryness	36 (8.9)	292 (72.3)	40 (9.9)	19 (4.7)	41 (10.1)	22 (5.4)	4 (1.0)	3 (0.7)
Cracked	14 (3.5)	273 (67.6)	11 (2.7)	9 (2.2)	13 (3.2)	12 (3.0)	0 (0.0)	8 (2.0)
Erythema	20 (5.0)	109 (27.0)	14 (3.5)	15 (3.7)	15 (3.7)	9 (2.2)	1 (0.2)	11 (2.7)
Papule	14 (3.5)	55 (13.6)	24 (5.9)	4 (1.0)	10 (2.5)	8 (2.0)	2 (0.5)	12 (3.0)
Acne	65 (16.1)	16 (4.0)	131 (32.4)	21 (5.2)	72 (17.8)	4 (1.0)	3 (0.7)	10 (2.5)
Pressure sore	50 (12.4)	22 (5.4)	18 (4.5)	17 (4.2)	52 (12.9)	53 (13.1)	5 (1.2)	15 (3.7)
Pigmentation	29 (7.2)	60 (14.9)	23 (5.7)	7 (1.7)	20 (5.0)	8 (2.0)	1 (0.2)	10 (2.5)
Allergic dermatitis	19 (4.7)	115 (28.5)	19 (4.7)	14 (3.5)	15 (3.7)	8 (2.0)	1 (0.2)	15 (3.7)
Irritant dermatitis	20 (5.0)	78 (19.3)	17 (4.2)	9 (2.2)	17 (4.2)	4 (1.0)	2 (0.5)	12 (3.0)

^a Such as groin, abdomen and buttocks.^b More than one answer could be given.

job ($P < 0.05$). No significant differences were found in Skindex-16 and sub-dimension scores between doctors, nurses and health technicians, except for the symptom sub-dimension where nurses scored significantly lower than doctors ($P = 0.013$) (Table 5).

Discussion

Skin problems associated with PPE use were common during the COVID-19 pandemic. One of the most important factors affecting skin health is the average working time with PPE. One study reported that wearing PPE for 4 hours or more a day caused skin problem (12), while another study found that wearing PPE for 6 hours or more was one of the most important factors for increased skin problems (5). Another factor is the frequency of handwashing: washing hands more than 10 times a day is 2.17 times more likely to cause skin problems than wearing gloves for a long time (5). In addition, symptoms such as redness, itching and rash are seen in those who wear PPE for 10 hours or more (13). According to the results of our study, the frequency of wearing PPE, the frequency of handwashing and the mean duration of wearing PPE were high compared with other studies (5,13). The long working hours of health workers in Türkiye, the limited number of nurses and the high number of patients may have caused these.

Skin problems may differ from person to person. Symptoms such as itching, redness, sweating, equipment marks and pain are among the most common problems (5). A 2020 study showed that 68.9% of N95 mask users had a scar on the nasal bone, 27.9% had itching on the face, 16.4% had redness, while 55.8% had dry hands and 31.2% had itching from the use of latex gloves (14). A study of nurses working with COVID-19 patients found that nurses most commonly experienced excessive sweating, headaches and difficulty breathing (15). The symptoms associated with wearing PPE during the pandemic found in our study are similar to those reported in the literature (5,14,15). The preferred method for the prevention of skin problems was the use of a moisturizer. When skin problems developed, gel, silicone and barriers were commonly used to reduce skin problems.

Skin problems affect different parts of the body. The most common sites where skin problems develop because of the use of PPE are around the forehead, nose, ears and eyes (5,14). Redness, cracks, dryness and dermatitis are common on the hands. Scar tissue and pressure injury may occur on the nasal bone due to the use of the N95 mask (15). Our results concur with these findings.

Problems that develop on the skin surface tend to reduce the quality of life of the individual. According to the results of our study, the high Skindex-16 and sub-dimensions scores of our participants with chronic skin problems support the finding that their quality-of-life was low. In the COVID-19 pandemic, the prevalence of skin damage among healthcare workers increased to 97% as a result of the use of hand antiseptics, frequent handwashing, and the wearing of gloves for a long time

Table 4 Skindex-16 and sub-dimension scores of healthcare workers according to skin problem and remedial measures taken, Türkiye

Variable	No. (%) (n = 404)	Mean (SD)			
		Symptoms	Emotion	Function	Total
Chronic skin problem					
Yes	115 (28.5)	18.41 (7.60)	28.98 (12.90)	15.37 (9.16)	62.77 (26.89)
No	289 (71.5)	11.55 (7.08)	17.19 (11.00)	9.78 (6.98)	38.52 (22.68)
P		< 0.001	< 0.001	< 0.001	< 0.001
COVID-19 period skin problem					
Yes	293 (72.5)	15.87 (7.53)	23.75 (12.67)	12.71 (8.39)	52.33 (25.90)
No	111 (27.5)	7.23 (4.60)	12.09 (8.21)	7.84 (5.77)	27.16 (17.06)
P		< 0.001	< 0.001	< 0.001	< 0.001
Attempt to reduce skin problems					
Yes	177 (43.8)	15.09 (7.67)	22.85 (12.73)	12.44 (8.32)	50.38 (26.12)
No	227 (56.2)	12.26 (7.80)	18.76 (12.46)	10.53 (7.76)	41.55 (25.85)
P		< 0.001	0.001	0.019	0.001
Attempt to prevent skin problems					
Yes	377 (93.3)	13.85 (7.87)	21.05 (12.82)	11.54 (8.10)	46.44 (26.39)
No	27 (6.7)	8.67 (6.02)	13.52 (8.87)	9.00 (7.15)	31.19 (20.83)
P		0.001	0.003	0.087	0.003
Skindex-16; (range) ^a	NA	13.50 (7.86); (4.00–28.00)	20.55 (12.73); (7.00–49.00)	11.37 (8.06); (5.00–35.00)	45.42 (26.31); (16.00–112.00)

COVID-19: coronavirus disease 2019; NA: not applicable.

^a Potential range for Skindex-16 total and sub-dimensions: 4.00–28.00 for symptom; 7.00–49.00 for emotion; 5.00–35.00 for function; 16.00–112.00 for Skindex-16 total.

(16). In addition to the existing skin problems of health care workers, the proportion who experienced skin problems directly from PPE use during the pandemic was high. Acute skin problems also affect the emotional and functional well-being of people (17). In our study, healthcare workers who had acute skin problems in the COVID-19 pandemic had higher scores for Skindex-16 and its sub-dimensions, indicating a lower quality-of-life.

Some preventive measures are recommended to protect skin health, such as moisturizing the skin after each contact with water, moisturizing the areas under the PPE, protecting the skin with a barrier film, and removing masks, visors and glasses for 15 minutes after every 2 hours of use (18–22). However, following these recommendations was not effective in increasing the quality-of-life of healthcare workers with skin problems (16). Studies show that the quality-of-life of operating room nurses who develop eczema on their hands is low, and that working environments such as intensive care and operating rooms put skin health at risk (23–25). In our study, the quality-of-life of the healthcare workers associated with skin health was low despite the use protective measures.

The skin health of healthcare workers is not only affected by the use of protective equipment. Age, sex, occupation, working style, among others, are also associated with the skin problems (15,16). Although some studies suggest that sex is not associated with the quality-of-life related to skin health (26,27), others have shown more emotional and physical symptoms among females

(28), which is in line with our findings. In a study that investigated the relationship between antiseptic use and the quality-of-life related to skin health of doctors and nurses, no statistical differences were seen for working years and age (16), which concurs with our findings.

Our study has some limitations. It was conducted only among healthcare workers through social media. To gather information about all the variables, a self-report scale was used which may be open to bias. We could not verify the reported adverse reactions to PPE and could not assess the severity, pattern or exact cause of these adverse reactions. We only studied the associated quality-of-life related to skin health. We did not assess the quality of the PPE and whether they were disposable or reusable.

In conclusion, our study shows that the occurrence of physical health problems and skin damage due to PPE use healthcare workers was high. Health authorities should always procure high-quality and sufficient quantities of PPE and discourage prolonged use.

Guidelines should be established based on evidence, for the prevention, diagnosis and treatment of skin problems due to the use of PPE by healthcare workers. COVID-19 remains a public health problem around the world and healthcare workers will have to continue using PPE. High-evidence studies such as randomized controlled trials could be conducted to evaluate PPE and how to minimize adverse reactions to its use.

Funding: None.

Competing interests: None declared.

Table 5 Skindex-16 and sub-dimension scores of healthcare workers according to personal and professional characteristics, Türkiye

Respondent characteristics	No. (%) (n = 404)	Mean (SD)			
		Symptom	Emotion	Function	Total
Sex					
Male	106 (26.2)	10.68 (7.11)	16.10 (10.83)	9.91 (7.21)	36.69 (23.44)
Female	298 (73.8)	14.50 (7.88)	22.13 (12.99)	11.89 (8.28)	48.52 (26.61)
P		< 0.001	< 0.001	0.029	< 0.001
Educational background					
Medical vocational high school	58 (14.4)	12.74 (7.14)	19.14 (11.32)	10.64 (8.10)	42.52 (23.94)
Associate degree	58 (14.4)	11.62 (8.41)	18.79 (14.01)	11.50 (9.43)	41.91 (30.50)
Bachelor degree	184 (45.5)	14.19 (7.50)	22.07 (12.52)	11.92 (7.71)	48.18 (24.98)
Postgraduate degree	104 (25.7)	13.75 (8.44)	19.63 (12.95)	10.72 (7.84)	44.10 (27.20)
P		0.146	0.172	0.566	0.259
Employer institution					
Public	254 (62.9)	14.36 (7.97)	21.50 (12.61)	11.78 (7.96)	47.65 (26.13)
Private	150 (37.1)	12.05 (7.48)	18.93 (12.80)	10.67 (8.19)	41.65 (26.26)
P		0.004	0.051	0.182	0.027
Work system					
Day job (a)	121 (30.0)	11.77 (7.45)	18.10 (11.31)	10.17 (7.33)	40.04 (23.46)
24 hours (b)	2 (0.5)	16.50 (12.02)	28.50 (28.99)	21.50 (19.09)	66.50 (60.10)
Shift system (c)	281 (69.6)	14.22 (7.92)	21.55 (13.09)	11.81 (8.22)	47.58 (26.96)
P		0.014 (a<c)	0.030 (a<c)	0.035 (–)	0.016 (a<c)
Profession					
Nurse (a)	344 (85.1)	13.96 (7.68)	20.96 (12.50)	11.47 (7.89)	46.40 (25.56)
Doctor (b)	41 (10.1)	10.29 (8.50)	17.29 (14.11)	10.10 (8.90)	37.68 (29.89)
Health technician (c)	19 (4.7)	12.05 (8.30)	20.11 (13.28)	12.26 (9.27)	44.42 (30.12)
P		0.013 (b<a)	0.216	0.216	0.216
Department					
COVID-19 polyclinic	16 (4.0)	12.19 (9.72)	17.75 (13.06)	10.69 (9.05)	40.63 (29.69)
COVID-19 clinic	52 (12.9)	14.19 (8.18)	21.15 (13.95)	11.60 (8.56)	46.94 (28.82)
COVID-19 intensive care	156 (38.6)	13.44 (7.70)	20.29 (12.48)	11.53 (7.88)	45.26 (25.80)
Internal and surgical unit	91 (22.5)	13.21 (7.32)	20.22 (12.45)	11.09 (8.30)	44.52 (25.84)
Family doctor	19 (4.7)	14.32 (10.33)	20.37 (13.01)	9.68 (7.75)	44.37 (27.00)
Contact tracing	11 (2.7)	11.73 (9.00)	19.09 (14.51)	11.91 (9.09)	42.73 (31.93)
Emergency room	31 (7.7)	14.94 (8.61)	25.10 (14.43)	12.23 (8.83)	52.26 (29.06)
Coronary or general intensive care	28 (6.9)	12.79 (5.87)	19.21 (9.50)	11.36 (6.12)	43.36 (18.45)
P		0.886	0.610	0.981	0.865
	Mean (SD)	r (P)	r (P)	r (P)	r (P)
Age, in years	29.66 (7.85)	–0.118 (0.017)	–0.094 (0.059)	–0.011 (0.825)	–0.084 (0.091)
Professional experience period, in months	91.76 (152.60)	–0.093 (0.061)	–0.058 (0.244)	0.007 (0.885)	–0.054 (0.281)
Experience in current department, in months	42.61 (57.84)	–0.012 (0.817)	0.011 (0.827)	0.074 (0.135)	0.025 (0.622)
Protective equipment usage time, in hours/day	10.52 (5.98)	0.073 (0.143)	0.076 (0.125)	0.065 (0.195)	0.079 (0.115)

r: Pearson correlation coefficient; SD: standard deviation.

Problèmes cutanés associés à l'utilisation d'équipements de protection individuelle par les agents de santé pendant la pandémie de COVID-19 en Türkiye

Résumé

Contexte : Des problèmes cutanés associés à l'utilisation d'équipements de protection individuelle (EPI) ont été signalés pendant la pandémie de COVID-19.

Objectifs : Déterminer les problèmes cutanés rencontrés par les agents de santé en Türkiye qui ont utilisé un EPI pendant la COVID-19 et l'effet de ces problèmes sur leur qualité de vie.

Méthodes : La présente étude transversale a été réalisée du 30 novembre 2020 au 30 mai 2021. Des données ont été recueillies auprès de 404 agents de santé recrutés à travers les médias sociaux. Les participants ont rempli un formulaire d'évaluation des problèmes cutanés et le Skindex-16 qui mesure les effets des maladies cutanées sur la qualité de vie. Le test t et l'ANOVA ont été utilisés pour analyser les différences entre les moyennes.

Résultats : La plupart (85,1 %) des participants faisaient partie des personnels infirmiers et 38,6 % d'entre eux travaillaient dans des unités de soins intensifs COVID-19. Tous les participants portaient des gants (53,2 % portaient une double paire de gants), 99,3 % utilisaient des masques chirurgicaux et 56,2 % recouraient aux lunettes de protection. Ils se sont lavés les mains en moyenne 31,94 [écart type (ET) 27,55] fois par jour. Les problèmes cutanés développés se situaient principalement autour du front, des mains, du nez et des oreilles. Le score moyen (ET) au Skindex-16 était de 45,42 (26,31). D'après les scores obtenus au Skindex, les personnes interrogées souffrant de problèmes cutanés chroniques avaient une qualité de vie significativement inférieure à celle des personnes sans problèmes cutanés, tout comme celles ayant développé des problèmes cutanés pendant la pandémie de COVID-19 par rapport à celles qui n'en avaient pas développé ($p < 0,001$).

Conclusion : Les problèmes cutanés liés à l'utilisation des EPI ont augmenté pendant la pandémie de COVID-19 et ont affecté la qualité de vie des agents de la santé. Des études supplémentaires devraient permettre d'évaluer la manière de minimiser les réactions indésirables liées à l'utilisation des EPI.

إصابة العاملين في مجال الرعاية الصحية بمشاكل جلدية بسبب استخدام معدات الوقاية الشخصية أثناء جائحة كوفيد-19 في تركيا

جولسون أيدن، نوراي طوران، نورتن كايا

الخلاصة

الخلفية: أبلغ عن مشاكل جلدية ناجمة عن استخدام معدات الوقاية الشخصية أثناء جائحة كوفيد-19.

الأهداف: هدفت هذه الدراسة إلى تحديد المشاكل الجلدية التي يعانيها العاملون في مجال الرعاية الصحية في تركيا، الذين استخدموا معدات الوقاية الشخصية أثناء جائحة كوفيد-19، وتأثير هذه المشاكل في جودة حياتهم.

طرق البحث: أجريت هذه الدراسة المقطعية في المدة ما بين 30 نوفمبر / تشرين الثاني 2020 و 30 مايو / أيار 2021. وجمعت البيانات من 404 من العاملين في مجال الرعاية الصحية الذين اختيروا للمشاركة عبر وسائل التواصل الاجتماعي. وأكمل المشاركون إستمارة تقييم المشاكل الجلدية ومقياس "Skindex-16" الذي يقيس آثار الأمراض الجلدية على جودة الحياة. واستخدم اختبار t وتحليل التباين (ANOVA) لتحليل الفرق بين المتوسطات.

النتائج: كان معظم المشاركين (85.1 %) من طاقم التمريض، وكان 38.6 % منهم يعملون في وحدات الرعاية المركزة الخاصة بكوفيد-19. ويرتدي جميع المشاركين قفازات (يرتدي 53.2 % قفازات مزدوجة)، ويرتدي 99.3 % كمادات جراحية، ويرتدي 56.2 % نظارات واقية. ويغسلون أيديهم بمعدل 31.94 مرة في اليوم [الانحراف المعياري 27.55]. وظهرت المشاكل الجلدية في الغالب على الجبهة واليدين والأنف والأذنين. وكان متوسط الدرجات على مقياس Skindex-16 (الانحراف المعياري) 45.42 (26.31). واستناداً إلى درجات مقياس Skindex، كان المشاركون الذين يعانون مشاكل جلدية مزمنة يتمتعون بجودة حياة أقل كثيراً من أولئك الذين لا يعانون مشاكل جلدية، وكذلك كان المشاركون الذين أصيبوا بمشاكل جلدية أثناء جائحة كوفيد-19 يتمتعون بجودة حياة أقل كثيراً من أولئك الذين لم يُصابوا بتلك المشاكل (القيمة الاحتمالية > 0.001).

الاستنتاجات: ازدادت المشاكل الجلدية الناجمة عن استخدام معدات الوقاية الشخصية أثناء جائحة كوفيد-19، وهو ما أثر في جودة حياة العاملين في مجال الرعاية الصحية. وهناك حاجة إلى مزيد من الدراسات لتقييم كيفية الحد من التفاعلات الضارة الناجمة عن استخدام معدات الوقاية الشخصية.

References

1. Montero-Vilchez T, Cuenca-Barrales S, Martinez-Lopez A, Molina-Leyva A, Arias-Santiago S. Skin adverse events related to personal protective equipment: a systematic review and meta-analysis. *J Eur Acad Dermatol Venereol*. 2021;31(1):112–8. <https://doi.org/10.1111/jdv.17436>
2. Marraha F, Faker IA, Charif F. Skin reactions to personal protective equipment among first-line COVID-19 healthcare workers: a survey in Northern Morocco. *Ann Work Expo Health*. 2021;65(8):998–1003. <https://doi.org/10.1093/annweh/wxab018>
3. Foo CCI, Goon ATJ, Leow Y-H, Goh C-L. Adverse skin reactions to personal protective equipment against severe acute respiratory syndrome: a descriptive study in Singapore. *Contact Dermatitis*. 2006;55(5):291–4. <https://doi.org/10.1111/j.1600-0536.2006.00953.x>
4. Kısacık ÖG, Özyürek P. Skin-related problems associated with the use of personal protective equipment among health care workers during the COVID-19 pandemic: an online survey study. *J Tissue Viability*. 2022;31(1):112–8. <https://doi.org/10.1016/j.jtv.2022.01.003>
5. Lan J, Song Z, Miao X, Li H, Li Y, Dong L, et al. Skin damage among healthcare workers managing coronavirus disease-2019. *J Am Acad Dermatol*. 2020;82(5):1215–6. <https://doi.org/10.1016/j.jaad.2020.03.014>
6. Den Boon S, Vallenas C, Ferri M, Norris SL. Incorporating health workers' perspectives into a WHO guideline on personal protective equipment developed during an Ebola virus disease outbreak. *F1000Res*. 2018;7:45. <https://doi.org/10.12688/f1000research.12922.2>
7. Fowler JF. Formaldehyde as a textile allergen. *Curr Probl Dermatol* 2003;31:156–65. <https://doi.org/10.1159/000072245>
8. Yan Y, Chen H, Chen L, Cheng B, Diao P, Dong L, et al. Consensus of Chinese experts on protection of skin and mucous membrane barrier for health-care workers fighting against coronavirus disease 2019. *Dermatol Ther*. 2020:e13310. <https://doi.org/10.1111/dth.13310>
9. Bhojru B, Lecamwasam K, Wilkinson M, Latheef F, Stocks SJ, Agius R, et al. A review of non-glove personal protective equipment-related occupational dermatoses reported to EPIDERM between 1993 and 2013. *Contact Dermatitis*. 2019;80:217–21. <https://doi.org/10.1111/cod.13177>
10. Chren MM, Lasek RJ, Quinn LM, Mostow EN, Zyzanski SJ. Skindex, a quality-of-life measure for patients with skin disease: reliability, validity, and responsiveness. *J Invest Dermatol*. 1996;107:707–13. <https://doi.org/10.1111/1523-1747.ep12365600>
11. Aksu AEK, Saraçoğlu ZN, Sabuncu İ, Chren MM, Tozun M. Skindeks-16'nin Türkçe uyarlamasının geçerliliği ve güvenirliği [Validity and reliability of the Turkish version of the Skindex-16]. *Turk Arch Dermatol Venereol*. 2016;50(3):109–13. <https://doi.org/10.4274/turkderm.32848>
12. Jiang Q, Song S, Zhou J, Liu Y, Chen A, Bai Y, et al. The prevalence, characteristics, and prevention status of skin injury caused by personal protective equipment among medical staff in fighting COVID-19: a multicenter, cross-sectional study. *Adv Wound Care*. 2020;9(7):357–64. <https://doi.org/10.1089/wound.2020.1212>
13. Abiakam N, Worsley P, Jayabal H, Mitchell K, Jones M, Fletcher J, et al. Personal protective equipment related skin reactions in healthcare professionals during COVID-19. *Int Wound J*. 2021;18(3):312–22. <https://doi.org/10.1111/iwj.13534>
14. Hu K, Fan J, Li X, Gou X, Li X, Zhou X, et al. The adverse skin reactions of health care workers using personal protective equipment for COVID-19. *Medicine*. 2020;99(24):1–5. <https://doi.org/10.1097/MD.00000000000020603>
15. Jose S, Cyriac MC, Dhandapani M. Health problems and skin damages caused by personal protective equipment: experience of frontline nurses caring for critical COVID-19 patients in intensive care units Indian. *J Crit Care Med*. 2021;25(2):134–9. <https://doi.org/10.5005/jp-journals-10071-23713>
16. Chernyshov PV, John SM, Tomas-Aragones L, Gonçalo M, Svensson A, Bewley A. Quality of life measurement in occupational skin diseases position paper of the European Academy of Dermatology and Venereology task forces on quality of life and patient oriented outcomes and occupational skin disease. *J Eur Acad Dermatol Venereol*. 2020;34(9):1924–31 <https://doi.org/10.1111/jdv.16742>
17. Yıldız A, Karadağ A, Yıldız A, Çakar V. Determination of the effect of prophylactic dressing on the prevention of skin injuries associated with personal protective equipments in health care workers during COVID-19 pandemic. *J Tissue Viability*. 2021;30(1):21–7. <https://doi.org/10.1016/j.jtv.2020.10.005>
18. Berke C, Bryant D, Kent D, Pontieri-Lewis V. Guidelines for maintaining skin health when utilizing protective masks for prolonged time intervals. *J Wound Ostomy Continence Nurs*. 2020;47(4):317–8. <https://doi.org/10.1097/WON.0000000000000677>
19. Kelechi TJ, Brunette G, Lee LW. Personal protective equipment-related equipment dermatitis: a view from here. *J Wound Ostomy Continence Nurs*. 2020; 47(4):324–5. <https://doi.org/10.1097/WON.0000000000000673>
20. Padula WV, Cuddigan J, Ruotsi L, Black JM, Brienza D, Capasso V, et al. Best-practices for preventing skin injury beneath personal protective equipment during the COVID-19 pandemic: a position paper from the National Pressure Injury Advisory Panel (NPIAP). *J Clin Nurs*. 2021;00:1–8. <https://doi.org/10.1111/jocn.15682>
21. Parnham A, Copson D, Loban T. Moisture-associated skin damage: causes and an overview of assessment, classification and management. *Br J Nurs*. 2020;29(12):30–7. <https://doi.org/10.12968/bjon.2020.29.12.S30>
22. Visscher MO, White CC, Jones JM, Cahill T, Jones DC, Pan BS. Face masks for non-invasive ventilation: fit, excess skin hydration, and pressure ulcers. *Respir Care*. 2015;60(11):1536–47. <https://doi.org/10.4187/respcare.04036>

23. Apfelbacher CJ, Soder S, Diepgen TL, Weisshaar E. The impact of measures for secondary individual prevention of work-related skin diseases in health care workers: 1-year follow-up study. *Contact Dermatitis*. 2009;60:144–9. <https://doi.org/10.1111/j.1600-0536.2008.01505.x>
24. Gupta SB, Gupta A, Shah B, Kothari P, Darall S, Boghara D, et al. Hand eczema in nurses, nursing auxiliaries and cleaners: a cross-sectional study from a tertiary hospital in western India. *Contact Dermatitis*. 2018;79:20–5. <https://doi.org/10.1111/cod.13009>
25. Hachem JP, De Paepe K, Sterckx G, Kaufman L, Rogiers V, Roseeuw D. Evaluation of biophysical and clinical parameters of skin barrier function among hospital workers. *Contact Dermatitis*. 2002;46:220–3. <https://doi.org/10.1034/j.1600-0536.2002.460406.x>
26. 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;67:184–92. <https://doi.org/10.1111/j.1600-0536.2012.02062.x>
27. Lau MY, Matheson MC, Burgess JA, Dharmage SC, Nixon R. Disease severity and quality of life in a follow-up study of patients with occupational contact dermatitis. *Contact Dermatitis*. 2011;65:138–45. <https://doi.org/10.1111/j.1600-0536.2011.01896.x>
28. Matteredne U, Apfelbacher CJ, Soder S, Diepgen TL, Weisshaar E. Health related quality of life in health care workers with work-related skin diseases. *Contact Dermatitis*. 2009;61:145–51. <https://doi.org/10.1111/j.1600-0536.2009.01592.x>