

Original Article

Occupational dermatoses in healthcare workers: A cross-sectional study

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ABSTRACT

Objectives: The aim is to study the clinical profile of occupational dermatoses and to assess the impact on the quality of life (QOL; Dermatology life quality index /DLQI) of health care worker (HCW).

Materials and Methods: This was a cross sectional study conducted between 2020 to 2022 that included 78 HCW with occupational dermatoses (OD). Patch test was done using Indian standard series, supplemental allergens, and substances as it is wherever clinically indicated.

Results: The majority of HCWs were nursing officers, accounting for 33 (42.3%), followed by doctors, who constituted 30 (38.5%). A significant portion of these professionals, 50 (64%), were engaged in COVID-19 care settings, including both intensive care unit (ICU) and non-ICU environments. Irritant contact dermatitis (ICD) was found in 46 cases (58.97%), while allergic contact dermatitis (ACD) was identified in 8 cases (10.25%). The remaining cases included mask acne, pressure indentations/erythema, frictional blisters, contact urticaria, contact leukoderma, and Koebnerization of psoriasis. Among the 54 patients who underwent patch testing, 16 were found to be sensitive to various allergens such as fragrance mix and chlorocresol. OD had a mild to moderate impact on the quality of life for most of these HCWs.

Conclusion: HCWs are exposed to many irritants and allergens such as gloves, sanitizers, person protective equipment (PPE), disinfectants, chemicals(laboratory). In the present study contact dermatitis (CD), frictional dermatoses (FD) were commonly observed. Gloves, sanitizers, mask were most frequently observed contactants. OD had small to large impact on QOL. The importance of understanding OD should be highlighted among dermatologists and HCWs.

Keywords: Contact dermatitis, COVID-19, Hand eczema, Healthcare workers, Occupational dermatoses, Personal protective equipment

INTRODUCTION

Occupational skin diseases are one of the most serious emerging risks associated with chemical exposure and extensive use. A healthcare worker (HCW) is any person working in a healthcare entity who has the potential for exposure to patients, residents, or consumers of the healthcare entity and/or to infectious materials, including body substances, contaminated medical supplies and equipment, contaminated environmental surfaces, or contaminated air. HCW may be exposed to many contact irritants and allergens. Furthermore, as a result of the COVID-19 pandemic, the use of personal protective equipment (PPE) has gained prominence.^[1] PPE is protective gear designed to protect the HCW by minimizing exposure to a biological agent. Components of PPE are goggles, a face shield, a mask, gloves, coveralls/gowns (with or without aprons), a head cover, and a shoe cover. Certain components of PPE, such as glasses, masks, and protective clothing, as well as

wet work involving rubber chemicals, disinfectants, detergents, drugs, and soaps, may impair skin integrity.^[2] These factors result in a spectrum of dermatoses, including allergic contact dermatitis (ACD), irritant contact dermatitis (ICD), contact urticarial (CU), frictional dermatoses (FDs), pressure injuries (PIs), as well as exacerbations of underlying endogenous diseases, including atopic dermatitis (AD), dyshidrotic eczema, acne, and psoriasis.^[2,3] For some patients, dermatitis can be multifactorial, as endogenous disease may coexist and be exacerbated by exogenous disease.^[4] A paucity of literature exists regarding the epidemiology, clinical profile, quality of life (QOL), and causative agents of occupational dermatoses (OD) in HCWs among the Indian population.

Aims and objective

1. To study the clinical profile of occupational dermatoses among healthcare workers

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- To determine the impact of occupational dermatoses on the QOL (Dermatology Life Quality Index/DLQI) of healthcare workers.

MATERIALS AND METHODS

Design

This was a cross-sectional descriptive study. A comprehensive research summary was generated by the analysis of data. This quantitative research determined the pattern of different OD in HCW and its association with the frequency and duration of exposure to suspected contact allergens.

Participants

This study included all HCWs clinically diagnosed with occupational dermatoses (it is any pathological condition of the skin for which work-related exposure can be shown to be a major direct or contributory factor, such as contact dermatitis [CD], contact urticaria, goggle and mask dermatitis/pressure dermatosis, facial acne, sweat dermatitis) in a tertiary care center in north India. We evaluated 78 HCWs who met the inclusion criteria.

Data collection

The pre-designed proforma was used for the history and examination. All HCWs with occupational dermatoses were included. Informed written consent was taken from all the patients. Demographic parameters and detailed history were recorded. The impact of the occupational dermatoses on QOL was assessed using the DLQI scale. A detailed mucocutaneous examinations were done, and the morphology and distribution of the lesions were recorded. Patch testing was done in 54 patients using the Indian standard series (ISS) and supplemental allergens (manufactured by Systopic Laboratory India) and "as is" product in appropriate dilution as clinically indicated. In suspected glove allergy, the glove was cut into pieces of size 2 cm × 2 cm with the inside and outside parts of the glove applied separately, and Scanpor tape was used to secure the material to the back. In case of suspected CD to sanitizer, sanitizer was put on the fin chamber covered with absorbent paper. Patch test readings were taken at 48 h and 96 h. Interpretation of the patch test was done as per the International CD Research Group criteria.

Statistical analysis

Data were entered into a Microsoft Excel spreadsheet and results analyzed using the Statistical Package for the Social Sciences 27. The presentation of the categorical variables was done in the form of numbers and percentages (%). Quantitative variables such as age and DLQI were expressed as mean and standard deviation. Qualitative data were presented in percentages, proportions, and graphs. Chi-square (χ^2) test was used to compare categorical data. For

statistical significance, $P < 0.05$ was considered statistically significant.

RESULTS

A total of 78 HCWs were included, consisting of doctors, nursing officers, lab technicians, cleaning staff, and nursing orderlies [Table 1]. Most of the participants were female nursing officers, in the age range of 21–30 years, with a male-to-female ratio was 2:3. Most of the HCWs were working in COVID care services. Among them, 30 (38.5%) HCWs were working in the intensive care unit (ICU) and 20 (25.6%) HCWs were working in a non-ICU setting. The remaining 20 (35.9%) HCWs were working in non-COVID healthcare services.

The gloves, sanitizers, and N95 masks were commonly identified as suspected irritants, followed by PPE kits, betadine, and head caps in some HCWs [Supplementary Figure 1]. Most patients had used powdered gloves for more than 8 h ($P < 0.004$). Nineteen HCWs reported using sanitizers more than 5 times a day [Table 2]. As shown in Figures 1 and 2, hands and face were the most frequently affected areas [Figures 3a-d]. The majority of HCWs experienced erythematous papules [Figure 1], scaling, xerosis, and pressure marks, with urticaria and friction blisters also observed [Figures 3c-d].

A total of 54 patients who provided consent underwent patch testing. Among them, 38 patients (70.38%) tested negative, whereas 16 patients (29.62%) tested positive [Supplementary Table]. Among 78 HCWs with OD, irritant CD and FD were observed in 46 (58.97%) and 20 (25.6%), respectively [Table 3]. ACD was seen in 8 (10.24%) HCWs. The remaining patients exhibited contact urticaria, koebnerization of psoriasis on the face, or contact leukoderma [Table 3]. Of the 20 patients with FD, mask acne, pressure

Table 1: Occupation and working area in HCW ($n=78$).

Parameters	No. of patients	Percentage (%)
Occupation		
Nursing officer	33	42.3
Doctor	30	38.5
Cleaning staff	7	9.0
Technician (lab/OT)	4	5.1
Nursing orderly	4	5.1
Total	78	100%
Working area		
Covid		
Non -ICU	20	25.6
ICU	30	38.5
Non-COVID	28	35.9
Total	78	100%

HCW: Healthcare worker, OT: Operation theater, ICU: Intensive care unit.

Table 2: Pattern of usage of suspected agents.

S No	Parameters	No	Percentage	P value (χ^2)
Gloves (n=31, 39.74%)				
A	One pair	19	61.29	0.72
	Double pair gloves	12	38.70	
B	Surgical	29	93.54	0.72
	Non-surgical	2	6.46	
C	Powdered gloves	29	93.54	0.61
	Powered and non-powdered	1	3.22	
	Non-powdered gloves	1	3.22	
D	> 8 hours/day	20	64.50	0.004
	< 8hours/day	11	35.50	
Sanitizers (n=21, 29.92%)				
E	Sanitizer with fragrance	7	33.33	0.48
	Without fragrance	14	66.66	
	Total	21	100%	
F	> 5 times/day	16	76	0.48%
	< 5 times/day	5	24	
	Total	21	100%	
Mask use				
A	Single mask	4	20	0.001
	Double mask	16	80	
Types of masks used*				
B	N 95 mask	20	100%	0.073
	surgical mask	14	70	
	K 95 mask	1	5	
	Cloth mask	1	5	
Mask with or without metal fix				
C	With nose metal fix	13	65	0.5
	without nose metal fixation	7	35	
Duration				
D	>8 hours	18	88.5	0.73
	<8 hours	2	11.5	
	Total	20	100%	

*HCW used more than two types of masks, P value was calculated using Pearson's chi-square (χ^2) test. P < 0.05 was considered statistically significant.

indentation at the nasal bridge [Figure 3a and b], post-inflammatory hyperpigmentation, and frictional blisters from N95 masks were most commonly noted [Figure 3c and d]. QOL was assessed using standard questionnaires. Among the 78 HCWs, 28 (35.9%) experienced a small effect, 32 (41%) a moderate effect, and 14 (17.9%) a very large effect on their QOL. Three (3.8%) patients reported a severe impact on their QOL [Figure 4].

Table 3: Clinical profile in health care workers (n = 78).

Final diagnoses (n)	Contactants	No. of patients	Percentage (%)
Irritant contact dermatitis (46)	Gloves/ sanitizer	46	
Allergic contact dermatitis (8)			
PPD	Gloves	2	2.56
Paraben mix	Sanitizer	2	2.56
PPD+Cetrimide	Gloves	1	1.28
Fragrance mix	Sanitizer	1	1.28
Imidazolidinyl urea	Sanitizer	1	1.28
Chlorocresol	Sanitizer	1	1.28
Frictional dermatoses (20)			
Mask acne	Mask (N 95 mask)	13	16.66
Pressure indentation/ pressure dermatitis nasal bridge	Mask (N 95 mask metallic nasal fixators)	3	3.84
Post inflammatory hyperpigmentation	Mask (N 95 mask/surgical mask)	3	3.84
Frictional blisters at cheek	Mask (N 95 mask)	1	1.28
Contact urticaria	PPE kit, gown	2	2.56
Koebnerization of psoriasis over face	Mask (N 95 mask/surgical/ cloth mask)	1	1.28
Contact leukoderma	Gloves	1	1.28
Total		78	100%

PPD: Paraphenylenediamine; PPE: Personal protective equipment

DISCUSSION

HCWs are exposed to numerous irritants and allergens, including gloves, sanitizers, PPE, disinfectants, and laboratory chemicals. This study evaluated 78 HCWs with occupational dermatoses. Most patients (61.5%) were aged between 21 and 30 years, with a male-to-female ratio of 2:3. These findings are consistent with other studies, which also report a higher prevalence of occupational dermatoses among females compared to males.^[5-8] The majority of HCW in the study were nursing officers (42.3%), followed by doctors (38.5%). These findings are consistent with other studies, which have also reported that 23–43% of nursing officers are commonly affected by OD.^[5,7,9] Out of 78 HCWs with OD, 50 (64%) were employed in COVID-19 healthcare settings. This suggests that working in COVID-19 services may have increased the risk of OD, possibly due to heightened use of PPE and frequent hand hygiene practices. In addition, 28 HCWs (36%) working in non-COVID settings also developed skin problems,



Figure 1: (a and b) Erythematous papules on dorsum of hand and wrist. (c) with sharp cut off in patient with contact dermatitis (CD) to gloves. (d) Xerosis, scaling and secondary ichthyosis were seen in patient with CD to gloves. (e and f) Xerosis, scales at palms, web space in patient with CD to sanitizers. Notably these patients had accentuation of scales at web spaces.

indicating that adherence to COVID-19 protocols might still impact skin health even in non-COVID environments.

In the present study, gloves were identified as the most common contactant, affecting 39.74% of HCWs, followed by sanitizers at 26.92% and masks at 25.64% [Supplementary Figure 1]. Mushtaq *et al.* similarly found gloves to be the most common contactant, affecting 47.52% of participants, followed by sanitizers at 38.61%, masks at 20.79%, and full-body suits at 6.93%.^[10] These findings align with previous studies, which have identified PPE, sanitizers, and goggles, with gloves also frequently implicated as common contactants.^[11-13] However, alcohol-based disinfectants, soap, frequent hand hygiene measures, and gloves were commonly identified as contactants associated with OD among HCW.^[5,14] This variation in observations could be attributed to the increased use of sanitizers, gloves, and masks, reflecting changes in attitudes and practices among HCW in response to the post-COVID pandemic environment.

Hands ($n = 52$, 66%) were the most commonly affected site, followed by the face ($n = 21$, 26%). Among them, the dorsum of the hand (41%) was involved in glove-related dermatoses [Figure 1a-d] compared to palms (33%) and web space (41%), as in CD to sanitizer [Figure 1e and f]. However, hands (22–84%) were reported to be the most commonly affected sites in most of the studies in HCW.^[10,15,16] The preferential involvement of web space and palmar creases could be because of the accumulation of irritants and allergens.^[17]

Among the 31 HCWs with glove-related dermatoses, most of them had used powdered double gloves for more than 8 hour/day ($P < 0.004$) [Table 2]. These observations were similar to the previous study.^[18] whereas 88% patients had sanitizer-related dermatoses. They had used sanitizer more than 5 times/day ($P < 0.48\%$). Interestingly, these patients had a history of frequent hand washing. This could have contributed to an increase in hand eczema. These findings were consistent with a recent study by Solanki *et al.*, which

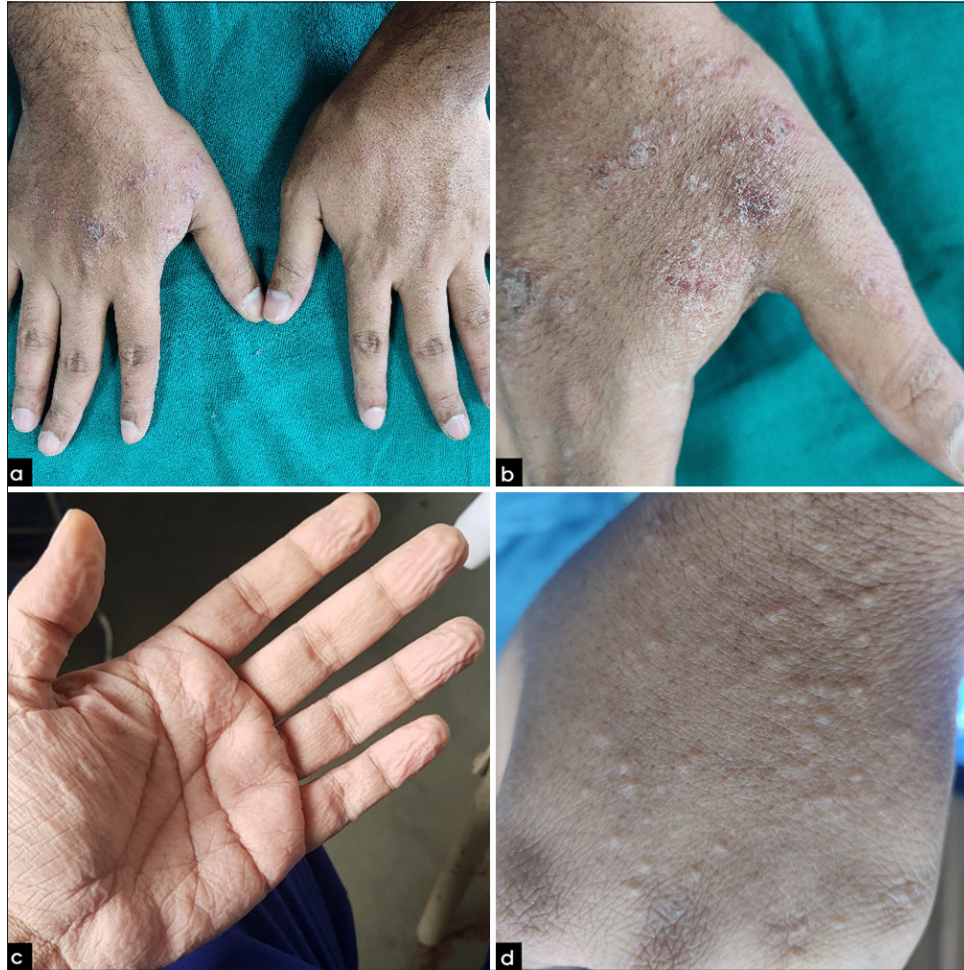


Figure 2: (a and b) Multiple erythematous, discrete to coalescing papules were present on the bilateral dorsum of hands in the case of suspected contact dermatitis to gloves. (c) Washer's hand due to constant use of gloves in the COVID-19 intensive care unit. (d) Multiple itchy skin-colored discrete papules distributed mainly on the dorsum of hand in suspected glove allergy.

observed that using hand sanitizer more than 8 times/day was a significant causative factor in hand-related dermatitis.^[16]

We observed a distinctive pattern in patients with hand eczema related to CD from gloves and sanitizers. Specifically, patients with CD from gloves typically exhibited erythematous papules and plaques on the dorsum of the hands, often with a sharp cutoff at the wrist. These findings are consistent with previous studies, which have reported similar presentations in patients with CD due to gloves.^[9,17] Patients with CD from sanitizers commonly exhibited xerosis and scaly lesions on the palms and in the web spaces of the hands. These findings are consistent with observations reported in previous studies.^[19] These clinical findings reinforce the results of previous studies.

The face was affected in 21 (26%) HCW. Among them, 20 experienced mask-related dermatoses. The most common issues were mask acne (15 cases, 19.23%), followed by PIs (11.54%), erosion, post-inflammatory hyperpigmentation

(10.26%), and pressure erosion at the nasal bridge, particularly in those using N95 masks with metallic nasal bridges. One patient developed severe frictional blisters, erosion, and pressure marks at the site of contact with the N95 mask, significantly impacting their QOL [Figure 3]. This led to taking leave from work. Most of the patients ($n = 18$, 88%) had used a mask more than 8 hours/day, while two patients ($n = 2$, 12%) had used a mask less than 8 hours/day [Table 2]. Most of the workers (13, 65%) used N95 masks with metallic nasal bridges, which could explain the nasal bridge erythema observed in five HCWs. According to Lan *et al.*, HCWs using masks for more than 6 hours faced a significant risk of skin damage.^[20] However, we did not observe a statistically significant difference concerning the number of hours of mask use, though it did contribute significantly to the development of mask-related dermatoses. Notably, patients using double masks (80%) – comprising N95 and surgical masks – were at a higher risk of developing mask-related dermatoses compared



Figure 3: (a) Pressure erythema, indentation due to N95 mask with metallic nose bridge. (b) Mask acne on the cheek in patient with N95 mask use. (c) Pressure indentation, blisters in patients with N95 mask use for more than 8 hours/day. (d) After a 7-day leave from work, the patient experienced significant improvement, with the resolution of erythema, erosion, and blisters.

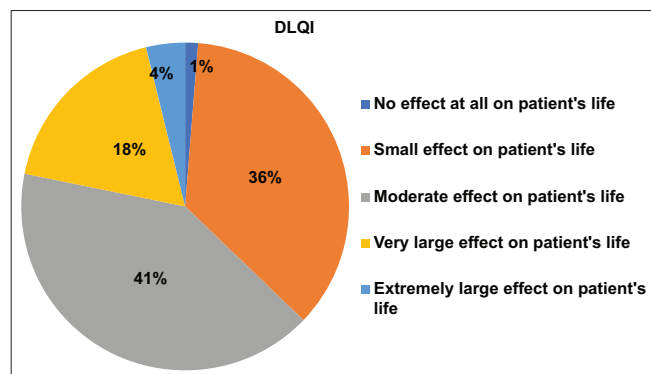


Figure 4: The graph shows the effect of occupational dermatoses on the quality of life of healthcare workers. DLQI: Dermatology life quality index.

to those using a single mask (20%). This difference was statistically significant ($P < 0.001$).

As per a previous study, mechanical pressure of the mask due to prolonged use and perspiration can all lead to various types of cutaneous lesions, such as indentations of the face, acne mechanica, skin tears, post-inflammatory hyperpigmentation, ulceration, crusting, erythema, and infection.^[21,22] These findings were comparable to recent studies, with acne observed in 11-37% of cases.^[11,16] Similarly, blisters, erosions, pressure injuries (PI), and ulcers were reported in HCW

using masks, protective goggles due to constant pressure.^[11,19] Three patients had presented with PIH. Among them, one patient also had differential pigmentary changes, i.e., skin covered under the mask was lighter compared to the rest of the face. Foo *et al.* noticed pigmentation in 8 patients with mask use, over the nasal bridge, cheeks, and chin.^[12] In recent studies, among HCWs managing COVID-19 patients N95 mask-related pressure sores were experienced on the nasal bridge.^[20,23] Similarly, we observed PI at the nasal bridge, which could be due to the use of an N95 mask with a metallic nasal bridge for more than 8 hours/day.

In the present study, most of the HCW 46 (58.97 %) had ICD; among them, ICD to gloves and sanitizer were present in 26 (33.33%) and 20 (25.64%) patients, respectively. FD was observed in 20 (25.64%) patients. Eight (10.25%) patients had ACD. These observations were similar to a study conducted by Singh *et al.*, where the most common dermatoses were ICD (39.5%), followed by friction dermatitis (25.5%).^[11] According to a study conducted by Franca *et al.*, ICD was present in 34 (54.84%) and ACD in 6 (9.65%) cases; these observations were consistent with the present study findings.^[5] In the present study, CD was most commonly due to increased sanitizer, glove use, along with increased frequent hand washing. Hence, ICD was the most commonly observed OD in HCW, followed by FD and ACD.

One patient developed contact leukoderma from latex gloves. A similar case was reported by Lahouel *et al.*, where contact leukoderma occurred in a patient with ACD to thiuram.^[24] In two patients, contact urticaria was observed following exposure to PPE kits during COVID-19 duties. Similar findings were reported in a study where two patients developed wheals after being exposed to PPE.^[25] One patient experienced koebnerization of psoriasis. Exacerbations of endogenous dermatoses, including AD, psoriasis, and acne, have been reported previously.^[16,19,26]

Patch testing was conducted in 54 patients, with 16 of them ($n = 16$, 29.62%) testing positive. Eight ($n = 8$, 14.81%) patients had possible to probable relevance. The majority of them ($n = 7$) tested positive for thiomersal [Supplementary Table] and [Figure 3a-d]. This positivity is likely related to past exposure to thiomersal, which is used in various vaccine preparations and dental amalgams. Schnuch *et al.* observed that sensitization to thiomersal is significantly more common among HCWs due to its presence in these preparations.^[27,28] Three female patients tested positive for nickel. The incidence of contact allergy to nickel among HCWs has increased from 9.4% to 26.2% over the past decade.^[29] In our study, nickel allergy in one case was likely due to past exposure to artificial jewelry. In addition, one patient tested positive for Fragrance Mix. Contact allergy to fragrance Mix has been reported in 8-12% of HCWs investigated for eczema.^[30] Fragrance mix was also present in alcohol-based sanitizers.^[17] According to Hamnerius *et al.*, CD due to fragrances was more common

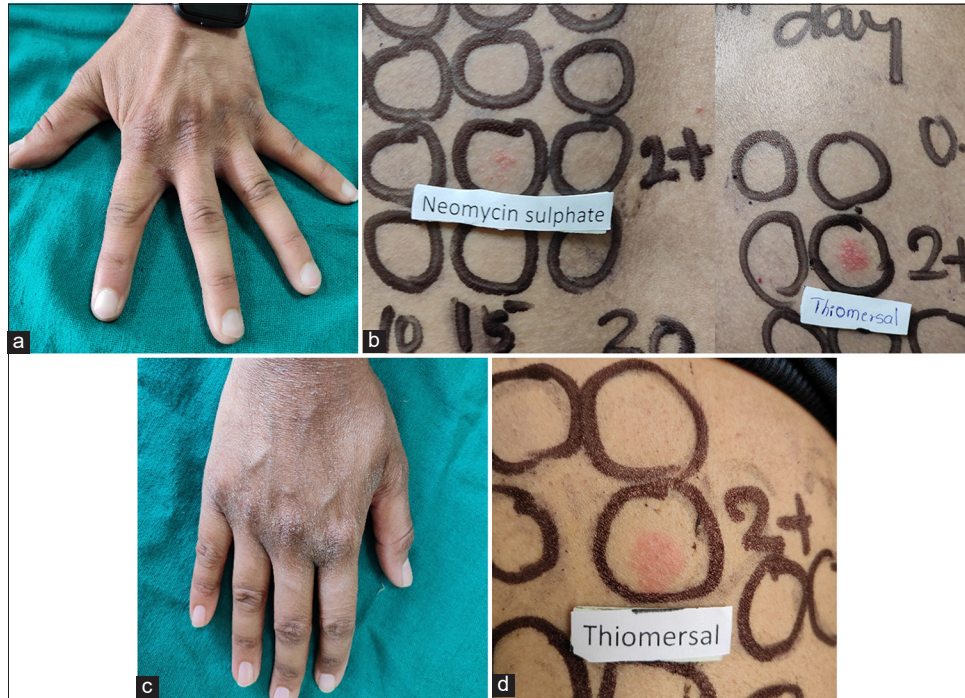


Figure 5: (a and b) There was thickening and increased rugosity present at the knuckle region of hand. There is the presence of erythema and scaling at the web spaces of both hands in a suspected case of contact dermatitis (CD) to gloves. (b) On patch testing, the patient was sensitive to thiomersal and neomycin sulfate on day 5. (c) Similarly, there was thickening of the knuckle region along with mild erythema, wrinkling, and secondary ichthyosis at the dorsum of hand in a case of CD to the gloves. (d) The same patient on patch testing showed a positive response for thiomersal.



Figure 6: (a and b) Erythema and fissures were present at the dorsum of hand and wrist area in a patient with contact dermatitis (CD) to gloves. The same patient tested positive for para-phenylenediamine, (c and d) Healthcare worker with CD to sanitizer had multiple fissures, wrinkling, and xerosis at the dorsum of the hand with accentuation of scaling at web spaces. Patient tested positive for chlorocresol.

among HCWs with contact allergy to rubber additives used in gloves [Figure 5].^[30] Three patients tested positive for para-phenylenediamine (PPD) [Figure 6a and b]. All of them had hand eczema, with powdered gloves suspected as the causative agent, despite no prior history of hair dye application. Isopropylphenyl p-phenylenediamine (IPPD), a related compound, is used as an antioxidant in the manufacturing process of rubber.^[17,31] IPPD can cross-react with PPD.^[32] Estlander *et al.* also found that IPPD was positive in patients with suspected glove allergy.^[33] This could be a possible reason for the positive reaction to PPD in the present study.

Two of our patients tested positive for a paraben mix in patch testing, and both had CD related to sanitizers. Paraben mix is commonly used as a preservative in various products, including antiseptic solutions, lignocaine preparations, and topical therapeutic agents.^[17] Sensitivity to parabens in our study is likely related to sanitizer use. In addition, imidazolidinyl urea tested positive in one patient who was suspected of having hand eczema due to gloves or antiseptic hand rubs. Formaldehyde and formaldehyde-releasing preservatives, which are widely used in products such as disposable gowns and PPE, were also identified in the context of this study.^[34] One patient exhibited ACD to chlorocresol [Figure 6c and d]. This sensitivity is significant because chlorocresol is commonly used as an antiseptic agent in various creams, lotions, and soaps. Typically, individuals

with ACD to chlorocresol have a history of using topical medications that contain this preservative.^[35]

Two patients tested positive for triclosan and cetrimide, who had CD on powdered gloves. These are used as antibacterial agents and preservatives, especially in shampoos, soaps, and deodorants. Its primary use is probably in disinfectant hand cleaners for HCW and for household use.^[36] Few reports of cetrimide allergy were seen after exposure to an antiseptic solution containing cetrimide.^[37,38] We identified two cases of ACD to neomycin sulfate on day 5 of patch testing [Figure 5b]. This reaction might be attributed to previous exposure to neomycin sulfate, a widely used topical antibiotic. Prystowsky *et al.* have reported that the prevalence of neomycin patch test sensitivity in the general population is approximately 1%.^[39]

Among the 78 HCWs with OD, 28 (35.9%) experienced a small effect on their QOL, 32 (41%) experienced a moderate effect, and 14 (17.9%) faced a very large effect [Figure 3]. For 35% of HCWs, their skin condition had a small impact on their QOL, while the remainder experienced moderate-to-severe impacts. Three patients (3.8%) had their QOL very severely affected, to the extent that they took leave from work. Only one patient reported that their current skin condition did not affect their QOL. Occupational dermatitis is known to significantly impact health-related QOL and contribute to work loss.^[40] We observed that most HCWs with OD experienced a small to moderate impact on their QOL, which aligns with the findings reported by Daye *et al.*^[9]

Limitations

Worldwide, thiurams, diphenylguanidine, and carbamates are recognized as the most common rubber contact allergens.^[30,33,41] We were unable to test allergens such as diphenylguanidine and carba mix due to the non-availability of these antigens. In addition, we could not test all 78 patients because some did not provide consent.

CONCLUSION

Occupational dermatoses among HCW have been on the rise, largely due to increased use of gloves, sanitizers, PPE, and frequent hand hygiene practices in both COVID-19 and non-COVID settings. HCWs working in COVID-19 environments, particularly those in the ICU, are at a higher risk of developing occupational dermatoses. Gloves were the most common contactants, followed by sanitizers and masks. The use of double masks and prolonged use of gloves were significantly associated with occupational dermatoses. Patients with CD from sanitizers commonly presented with scaling and xerosis on the palms and in the web spaces of the hands. In contrast, those with CD from gloves often exhibited erythematous papules, plaques on the dorsum of the hands, and a sharp cutoff at the wrist. The DLQI was significantly impacted in patients with occupational dermatoses. To address these issues, patch

testing should be promoted for patients with PPE-related facial dermatoses to identify hidden allergens. Extensive chemical analyses of gloves, masks, and sanitizers should be conducted to detect any concealed allergens. HCWs with ACD should be counseled on avoiding allergens, and regular training programs on awareness and preventive measures should be emphasized to improve the QOL for HCWs.

Ethical approval: The research/study was approved by the Institutional Review Board at IEC/MAMC/DELHI, approval number F.1/IEC/MAMC/(82/10/2020/No.43, dated 2nd October 2020.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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