



Toll of Hand Eczema on Nurses: A Crossectional Questionnaire Based Study of Awareness, Impact and Quality of Life

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Abstract

Introduction: Hand eczema is a prevalent occupational skin condition among healthcare workers, especially nurses, due to frequent exposure to irritants and prolonged glove use. This condition negatively affects both work efficiency and overall quality of life.

Objectives: This study aimed to assess nursing professionals' awareness, knowledge, and preventive practices regarding hand eczema, and to evaluate its impact on their daily functioning and quality of life.

Materials and Methods: A cross-sectional, hospital-based study was conducted in November 2024, involving 250 nursing professionals over 18 years old. Participants completed a digital questionnaire covering demographics, symptom prevalence, knowledge, preventive behaviors, and the Dermatology Life Quality Index (DLQI). Data were analyzed using SPSS version 23, with results summarized using percentages, means, and medians.

Results: Of the 250 participants, 236 (94.4%) were female and 14 (5.6%) were male. Nurses with over five years of experience demonstrated significantly higher knowledge scores (mean: 80%) compared to those with less experience (mean: 58.75%). Department-wise knowledge levels varied, with experienced nurses (>5 years) in ICU showing the highest knowledge (82%), followed by Operating Room, Emergency Dept., and General Ward (all 80% or 78%). Common symptoms reported included itching (44%), dryness (30.4%), and cracking (10%), with itching and dryness being the most frequent combination (30%). The mean DLQI score was 8.4, indicating a moderate impact on the nurses' quality of life.

Conclusion: Hand eczema profoundly affects nurses' occupational performance and well-being. The study highlights the critical need for emphasizing preventive measures like regular moisturizer use and skin protection. It also underscores the importance of increased institutional support and educational interventions to mitigate hand eczema among healthcare professionals.

Keywords: Hand eczema, Nurses, Occupational dermatoses, Quality of life, DLQI, Awareness

Introduction

Hand eczema (HE) poses a significant occupational health challenge, particularly for nurses due to their demanding profession ¹. This condition is characterized by symptoms such as dryness (xerosis), itching (pruritus), redness (erythema), cracking (fissuring), and sometimes pain or blistering, often following a chronic and relapsing course ².

The development of HE in nurses is multi-factorial. Key contributors include frequent exposure to irritants like hand washing, disinfectants, and the prolonged use of

occlusive gloves, all of which compromise the skin's natural barrier ³. Individual factors, such as a history of atopic conditions like atopic dermatitis, allergic rhinitis, and asthma, also increase susceptibility ⁴. The severity of HE often correlates with the intensity and duration of irritant exposure, alongside an individual's skin barrier resistance ¹.

The impact of HE extends beyond physical discomfort, negatively affecting work performance, increasing absenteeism, and diminishing the overall quality of life for affected nurses ⁵. Nurses frequently report that job-related triggers, such as hand sanitizers and repeated hand washing, worsen their symptoms, leading to a moderate to very high impact on their daily functioning and well-being ⁶. This can manifest as anxiety, frustration, embarrassment, and social isolation due to the visible nature of the condition and its interference with the fine motor skills essential for daily tasks ⁷. Studies from India also highlight the significant impact of hand eczema severity on the quality of life among various occupational groups, underscoring its widespread burden ^{6,7}.

Despite its high prevalence and considerable consequences, there remains a notable gap in awareness and understanding of effective preventive strategies among healthcare workers ⁸. Therefore, a comprehensive assessment of knowledge, the multifaceted impact, and specific work-related consequences of HE is crucial for developing and implementing targeted, effective interventions within this vulnerable occupational group⁸.

Aims and Objectives

- To assess the knowledge and awareness of hand eczema among nursing professionals.
- To identify gaps in preventive and management practices.

- To evaluate the impact of hand eczema on nurses' work performance and overall quality of life.

Materials and Methods

Study Design: Cross-sectional study

Study Setting and Duration: Tertiary care hospital, coastal Karnataka, during November 2024.

Sampling Technique: selected using convenient sampling.

Sample Size: 250.

On the basis of the study conducted by Talamonti et al. Further assuming 10% non-response rate, the final sample size estimated for the study is 250.

Using the formula : $n = \frac{Z^2 \left(1 - \frac{p}{2}\right) p(1-p)}{L^2}$

Informed consent was obtained from all the participants included in the study and institutional ethics committee clearance was obtained.

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The participants were explained regarding the objectives as well as the method of study. An assurance to the patient about confidentiality of the patient's data was ensured. All the participants were screened for exclusion criteria. Only the individuals satisfying the inclusion criteria were selected. Only the qualifying participants fulfilling the inclusion criteria were sent the semi structured, digital questionnaire comprising of 30 questions via electronic medium and response was collected.

Procedure: Data were collected using a structured digital questionnaire covering demographic data, awareness, symptoms, preventive practices, and DLQI-based quality of life assessment.

Statistical Analysis: Data were entered in Microsoft Excel and analyzed using SPSS version 23. Mean, median, and percentages were used for descriptive statistics.

Inclusion Criteria

- Nurses above 18 years of age
- Both males and females
- Willing to provide informed consent

Exclusion Criteria

- Known cases of atopic dermatitis
- Currently undergoing treatment for hand eczema
- Using systemic immunosuppressive medications

Results

Demographic Profile

A total of 250 nursing professionals participated in this study. The majority were female (236; 94.4%), and only 14 (5.6%) were male [Table 1]. This gender distribution is consistent with national workforce data reflecting a predominantly female nursing population.

Knowledge and Awareness of Hand Eczema

Assessment of knowledge revealed a clear trend: nurses with more than five years of professional experience scored significantly higher on awareness metrics, with a mean score of 80.00%, compared to 58.75% among those with five years or less of experience [Table 2].

Department-wise Trends in Knowledge

Experienced nurses in high-risk departments like the ICU and Emergency Department demonstrated superior knowledge levels:

In the Intensive Care Unit (ICU), 82% of experienced staff contrasted with 60% of less experienced staff. The Emergency Department saw 80% of experienced personnel compared to 62% of their less experienced counterparts. In the Operating Room, 80% of experienced individuals were noted against 58% of less

experienced ones. Lastly, the General Ward showed 78% for experienced staff versus 55% for less experienced staff.

This gradient indicates that both cumulative clinical exposure and departmental protocols likely play a role in enhanced awareness. It also suggests a potential benefit from department-specific training and reinforcement of preventive practices [Table 3].

Prevalence and Patterns of Symptoms

Among the 250 nurses surveyed, the most commonly reported symptom of hand eczema was itching, affecting 110 individuals (44%). This was followed by dryness (76 participants; 30.4%) and cracking (25 participants; 10%) [Table 4].

The most prevalent symptom combination was itching and dryness, reported by 75 participants (30%). This co-occurrence reflects the typical irritant contact dermatitis pattern observed in clinical practice and supports the notion that repetitive handwashing and lack of moisturization are primary contributors to symptom development [Table 5].

Impact on Quality of Life

The effect of hand eczema on quality of life was measured using the Dermatology Life Quality Index (DLQI). The mean DLQI score was 8.4, placing the impact in the moderate range.

DLQI Score Distribution:

- 0–1 (No impact): Few participants
- 2–5 (Mild impact): Some nurses reported minor inconvenience
- 6–10 (Moderate impact): Majority of participants
- >10 (Severe impact): A notable minority reported serious disruptions

These scores suggest that while most participants were not severely affected, a substantial proportion

experienced meaningful interference in daily activities, confidence levels, and occupational performance. Persistent discomfort, especially visible symptoms like redness or fissuring, contributed to emotional distress and social avoidance in a few cases [Figure 1].

Tables and Graphs

Table 1: Gender Distribution among study Participants

Gender	Participants (n=250)	Percentage (%)
Females	236	94.4%
Males	14	5.6%
Total	250	100.0%

Table 2: Mean Knowledge Score by Experience

Years of Experience	Mean Knowledge Score
>5 years of experience	80.00%
≤5 years of experience	58.75%

Table 3: Department-wise Knowledge Levels

Department	>5 Years (Mean Knowledge Score)	≤5 Years (Mean Knowledge Score)
General Ward	78%	55%
ICU	82%	60%
Emergency Dept.	80%	62%
Operating Room	80%	58%

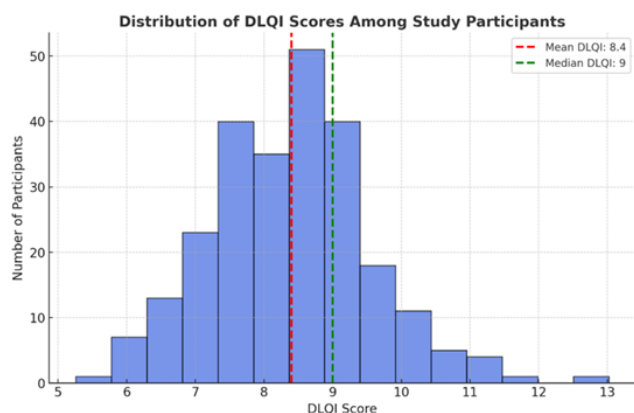
Table 4: Prevalence of Hand Eczema Symptoms among participants

Symptom	Participants (n=250)	Percentage (%)
Itching	110	44%
Dryness	76	30.4%
Cracking	25	10%

Table 5: The specific combination of symptoms observed among participants

Symptom Combination	Prevalence (%)
Itching & Dryness (only these two symptoms present)	30%
Cracking & Itching (only these two symptoms present)	5%
Cracking & Dryness (only these two symptoms present)	8%
All Symptoms (Itching & Dryness & Cracking)	7%

Figure 1: Distribution of DLQI Score among study participants



Discussion

This cross-sectional study provides valuable insights into the awareness, impact, and quality of life concerning hand eczema (HE) among nursing professionals. Our findings align with and further elucidate trends observed in global and national literature.

The demographic distribution, with a significant female predominance (94.4% female), is consistent with the global nursing workforce demographics, which are predominantly female⁹. This highlights the importance of addressing occupational health issues that disproportionately affect women in this profession.

Regarding knowledge, our study revealed a clear association between years of experience and higher knowledge scores, with nurses possessing over five years of experience demonstrating significantly better understanding (mean 80%) compared to their less experienced counterparts (mean 58.75%). This suggests that practical exposure and prolonged engagement in the profession contribute to enhanced awareness and knowledge about occupational dermatoses. Similar findings have been reported, indicating that experience and ongoing education play a crucial role in improving healthcare workers' understanding of preventive practices for occupational skin diseases¹⁰. The department-wise variations in knowledge, though generally higher for experienced staff across all departments, underscore the need for targeted educational interventions, especially for newer nurses in all settings, including specialized units like the ICU and Emergency Department, where exposure risks may be high.

The prevalence of symptoms in our study—itching (44%), dryness (30.4%), and cracking (10%)—mirrors those commonly reported in other studies of HE among healthcare workers. Dryness and itching are consistently identified as primary symptoms due to frequent hand hygiene and barrier disruption¹¹. The most frequent combination of itching and dryness (30%) further emphasizes the irritant nature of occupational exposures for nurses. Studies from India have also noted similar patterns of symptoms among healthcare professionals, affirming the universality of these manifestations of HE¹².

The mean Dermatology Life Quality Index (DLQI) score of 8.4 in our study indicates a moderate impact on the quality of life of affected nurses. This is comparable to

DLQI scores reported in other international studies on occupational HE in nurses, which often range from moderate to high, underscoring the significant burden of this condition^{13,14}. The qualitative reports of persistent symptoms affecting confidence, work efficiency, and emotional well-being are consistent with literature highlighting the psychological and professional toll of visible and uncomfortable skin conditions. Hand eczema can lead to embarrassment, anxiety, and even impact career progression, as nurses may feel limited in their duties or social interactions due to their skin condition [15, 16]. This aligns with observations from Indian studies that link severity of hand eczema to significant impairment in quality of life, affecting daily activities and psychological well-being^{14, 15}.

In conclusion, our findings reiterate that hand eczema is a substantial occupational health concern for nurses, influencing not only their physical health but also their professional performance and overall quality of life. The identified knowledge gaps, particularly among less experienced staff, highlight the critical need for robust educational programs and reinforced preventive measures to mitigate the prevalence and impact of this condition.

Conclusion

This study clearly shows that hand eczema is a big problem for nurses at work. It's more than just an annoyance; it truly affects how nurses feel and how well they can do their jobs. Because hand eczema is common and often sticks around, we really need to do something specific to help.

Our findings highlight that we need a few things to tackle hand eczema. First, people need to be more aware of what hand eczema is and what causes it. Second, we need to put preventive measures in place early. Most

importantly, hospitals and healthcare organizations must provide strong support. They need to make nurses' skin health a priority because healthy hands are key to giving good, safe patient care.

Because of this, the study highly recommends giving nurses regular training on skin health. We also need to make sure that protective products, like good creams and gloves, are always available and easy to get. By doing these things, we can greatly reduce the burden of hand eczema, which will make nurses feel better, be happier at work, and ultimately improve the care they give to patients.

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