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والتطبيقية
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**Impact and Severity of Hand Eczema on Quality of Life
among the Patients Attending Dermatology Departments in
Hospitals in Sana'a City, Yemen -2024**

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Dedication

To our priceless country “Yemen.”

To our great second country “Palestine.”

**To our parents who give us all support to get this stage of
science and always pray for our achievement.**

To our doctors and colleagues.

Acknowledgement

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List of Abbreviations

QOL	Quality of Life
HE	Hand Eczema
HECSI	Hand Eczema Severity Index
DLQI	Dermatology Life Quality Index
SD	Standard Deviation
SPSS	Statistical Package for the social sciences

Abstract

Background:

Hand eczema is a chronic, debilitating skin condition that affects a significant portion of the population, leading to both physical discomfort and psychological distress.

Objective:

To determine the impact of hand eczema and severity on quality of life in Sana'a, Yemen.

Methods:

A Research conducted a cross-section descriptive study of Hand eczema patients admitted from 1st Nov 2023 to 30th April 2024 in the conducted at multiple dermatology center of the four major referral and four private Hospitals in Sana'a city, Data Collection utilized structured questionnaires, which included the Dermatology Life Quality Index (DLQI) and the Hand Eczema Severity Index (HECSI)

Results:

The study revealed that 88% of participants were female, with the highest disease prevalence observed in the 21-30 age group (43.4%). Housewives represented the most affected occupational group at 40%, followed by students at 29.8%. A significant proportion of patients reported severe itching and pain that substantially impacted their daily activities, including work performance, social interactions, and personal relationships. Approximately 41% of participants experienced acute symptoms, while over 40% reported elevated levels of embarrassment and self-consciousness due to their condition. No significant correlation between HECSI and DLQI scores. However, a statistically significant association was identified between age and DLQI scores, with patients aged 21-30 years exhibiting the highest mean DLQI scores. Furthermore, a significant correlation was observed between gender and HECSI scores, indicating that female patients were more susceptible to experiencing severe clinical symptoms.

Conclusion:

Hand eczema significantly impairs quality of life for patients in Sana'a, with notable impacts on social and occupational functioning. Effective management strategies are essential to alleviate symptoms and enhance patient well-being.

Keywords: Quality of life (QOL), Hand eczema (HE), Dermatology Life Quality Index (DLQI), Hand Eczema Severity Index (HECSI) , Sana'a, Yemen, chronic skin condition.

Chapter 1: Introduction

1.1 Background

Eczema, also known as dermatitis, is a skin condition that has been recognized for thousands of years. The earliest known descriptions of eczema date back to ancient Egypt around 1500 BCE, where it was mentioned in medical papyri, including the Ebers Papyrus, one of the oldest known medical texts. [1] The ancient Greeks and Romans also documented skin conditions resembling eczema. Hippocrates, the father of medicine, described skin conditions that caused severe itching and scaling, which likely included eczema. [2]

The modern understanding of eczema began to develop in the 19th century, with the term "eczema" being formally introduced by the English dermatologist Robert Willan in the early 1800s. Willan's classification of skin diseases helped differentiate eczema from other skin conditions, such as psoriasis and impetigo. Eczema was initially thought to be caused primarily by external irritants or infections, but over time, it became clear that the condition had a more complex etiology, involving both environmental and genetic factors.[3]

By the 20th century, the development of topical corticosteroids in the 1950s revolutionized the treatment of eczema. Before this, treatments were limited to ointments, coal tar, and herbal remedies, which provided limited relief. The advent of corticosteroids marked a significant advancement in managing the inflammation and itching associated with eczema. Over the following decades, research into the immune system and skin barrier function led to a deeper understanding of the pathogenesis of eczema, particularly the role of genetics and the immune system's overreaction to common environmental triggers. [4]

In recent years, the focus has shifted towards understanding the chronic nature of eczema, particularly atopic dermatitis, and its profound impact on

quality of life. Newer treatments, such as immunomodulators (e.g., tacrolimus) and biologics (e.g., dupilumab), have been developed to target the underlying immune pathways involved in eczema. These advances have improved outcomes for many patients, particularly those with severe forms of the disease, but challenges remain in managing hand eczema (HE), especially in populations exposed to frequent irritants, such as healthcare workers and manual laborers.[5]

Hand eczema is a severe, chronic and debilitating disease characterized by papules, vesicles, edema, erythema, scaling, crusting, fissuring and hyperkeratosis, as well as itching and pain. Subjective symptoms include pain and itching. These lead to sleep disturbances, avoidance of social activities, and other activities that require active hand usage. Symptoms that contribute to unfavorable esthetic changes include redness, vesicles, scaling, and hyperkeratosis. In extreme circumstances, they can lead to embarrassment, social isolation and depression. Normal family life is disrupted, including caretaking of children.[6], [7] Hand eczema may be endogenous or exogenous in origin and most of the cases of hand eczema have a multifactorial etiology. Endogenous causes of hand eczema are atopic dermatitis, discoid eczema, hyperkeratotic eczema and pompholyx. The most common external cause of hand eczema is contact with irritant or mild toxic agents like soaps or detergents. Allergic contact dermatitis of hands is much less common than irritant and occurs only in people who have developed a contact allergy to specific substance such as rubber chemical, nickel or other allergens.[8]

Hand eczema affects about 14.5% of the general population worldwide at some point in their life, according to a 2021 paper.[9] Women and teens seem to be affected most by hand eczema. Women are more likely than men to have hand eczema, and as a result, a lower quality of life due to the symptoms.[10] The average age people develop hand eczema is 12 years old.[11] According to a

2023 study, about 10% of teens age 16 to 19 reported hand eczema, while 1%–4% of preschool and school-age children reported chronic hand eczema.[12]

Hand eczema (HE) is a common skin condition worldwide, with a point prevalence of 3% and a 1-year prevalence of 9.1%.[13] In Saudi Arabia, approximately 22% of health care workers experience HE [14]; however, its prevalence in the general population has never been studied. HE has a huge negative impact on the patients' quality of life. The social and emotional lives are affected in most patients with HE, with 15% of them being excluded from the labor market and 8% changing their jobs. The intensity of its negative effect on the quality of life is found to be similar to or worse than that of hepatitis, vision disturbances, diabetes, and some types of cancer.[15] There are no statistics in Yemen.

1.2 Problem Statement

HE is a significant public health concern, particularly in occupations that involve frequent hand exposure to irritants or allergens. In Yemen, where a large portion of the population engages in manual labor, healthcare, or other hands-on professions, hand eczema may be especially prevalent. Despite this, there is limited research on how hand eczema affects the quality of life of individuals in Sana'a City, Yemen. The condition can lead to physical discomfort, functional impairment, and disruption of work, affecting not only the individual's professional productivity but also their social life and mental health. The severity of hand eczema can vary, but its impact on the quality of life remains profound, often leading to decreased self-esteem, social withdrawal, and emotional distress. This research seeks to fill the gap in understanding the specific ways in which hand eczema affects the lives of patients in Sana'a City by exploring the condition's impact on various aspects of life, including professional, social, and personal domains.

1.3 Justifications of the study

This study is performed due to its high prevalence, chronic course and relation to occupation, it can have severe socioeconomic consequences and a massive impact on patients' quality of life and it's also one of the most important determinants of health is quality of life, and skin diseases are one of the most important factors that influence it. Dermatoses can cause changes in the body's image or cutaneous image of patients. [16] Cutaneous body image dissatisfaction has been associated with increased suicidality in patients with skin diseases [17]. According to the studies performed in Italy [18], Denmark [19], Iran [20]. chronic dermatoses have a major impact on the quality of life in patients but in Yemen we haven't found any study about this problem.

1.4 Hypothesis

- ☐ Hand eczema has a significant positive impact on the quality of life of patients in Sana'a City, Yemen.
- ☐ The severity of hand eczema is positive directly correlated with the degree of functional impairment and disruption of work.
- ☐ Hand eczema positive affects patients' social lives, leading to social withdrawal and reduced participation in social activities.

1.5 Null Hypothesis

- ☐ Hand eczema has a significant negative impact on the quality of life of patients in Sana'a City, Yemen.
- ☐ The severity of hand eczema is negative directly correlated with the degree of functional impairment and disruption of work.
- ☐ Hand eczema negative affects patients' social lives, leading to social withdrawal and reduced participation in social activities.

1.6 Objectives

- **General objective:**

- To determine the impact of hand eczema and severity on the quality of life.

- **Specific objectives:**

- To determine severity on quality of life related to sex age and occupation.
- To determine the impact of hand eczema on functional impairment and disruption of work.
- Describing the impact of hand eczema on social life.
- To Determine:
 - correlation between age and quality of life.
 - correlation between age and hand eczema severity.
 - correlation between hand eczema severity and quality of life.
 - mean difference of quality of life among male and female.
 - mean difference of hand eczema severity among male and female.

1.7 Research Questions

1. What is the impact of hand eczema on the overall quality of life of patients attending dermatology departments in Sana'a City, Yemen?
2. How does the severity of hand eczema affect the functional abilities and work productivity of patients?
3. Is there a significant relationship between hand eczema severity and the patient's sex, age, and occupation in terms of its impact on quality of life?
4. How does hand eczema influence patients' social interactions and social life?

5. What strategies do patients with hand eczema use to cope with its impact on their daily lives, and how effective are these strategies?

Chapter 2: Literature Review

2.1 Etiology of hand eczema

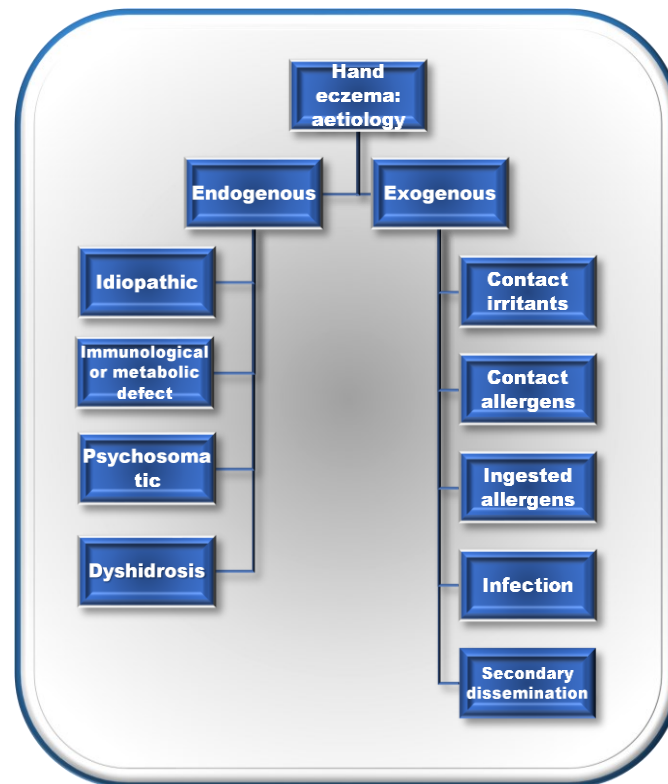


Figure 1 hand eczema: Etiology

2.1.1 Exogenous

Irritant Contact Dermatitis is a localized non- immunological inflammatory response to one or more external agents called irritants. Any agent that produces damage is an irritant. Damage is caused by the agent's chemical, physical, or mechanical properties. A single insult or repeated exposure to a single agent over time may cause the dermatitis, or it may result from the cumulative effect of minor damage caused by simultaneous or sequential exposure to several different agents such as:

Chemical Irritant

A chemical burn is an acute, severe irritant reaction in which the cells have been damaged to a point where there is no return to viability. The corrosive action of chemicals depends on chemical properties as well as body region, previous skin damage, and possibly individual resistance capacity. Many

substances cause chemical burns only when applied under occlusion from, for example, gloves, boots, clothes, face masks, adhesive plasters, rings, or from skin folds (e.g., under breasts and in the axillae).

Mechanical Irritant

Constant low-level mechanical trauma to an area of the skin, as encountered in handicraft jobs, may result in the development of the following:

- I. Trademarks localized hardening of skin due to use of trade specific implements.
- II. Friction dermatitis/mechanical dermatitis.
- III. Koebner phenomenon in diseased skin Occupation-specific calluses and hyperkeratoses are not viewed as skin disease, but rather as honorific “trademarks,” as described by Vernois and Purdon in French and Irish workers. [21],[22]

Allergic Contact Dermatitis (ACD)

The clinical signs and symptoms of ACD, which is eczematous in most cases, vary depending on their localization and duration. This is particularly relevant for hand ACD. In most instances, acute eruptions are characterized by erythema and papules, vesicles (often coalescent), or bullae, depending on the intensity of the allergic response.

Infection

the epidermal barrier can be damaged by exogenous proteases from staphylococcus aureus, decreasing the skin’s ability to act as a barrier. This can intensify allergen penetration and cause inflammatory reactions, thus contributing to exacerbations of eczema. [21] Secondary infections with viruses such as herpes simplex or bacteria such as staphylococci. [22] or fungi are commonly found in atopic eczema as well. [23] Therefore, it can not only be

assumed that atopy is a predisposing factor for infection but also that infections can contribute to exacerbation and development of hand eczema.

2.1.2 Endogenous

Idiopathic, immunological, psychosomatic factors as well as dyshidrosis play an important part in the aetiology of hand eczema. Patients with atopy, i.e., patients with hay fever, allergic rhinitis or asthma, are more likely to develop eczema. Atopy accounts for the most common cause of endogenous eczema. Hand eczema is more common in patients with a history of eczema in general. Evidence for psychosomatic influence in the development of eczema has been given before. Anxiety or stress may worsen eczema. [23]

2.2 Pathophysiology

In general, the differences between the various forms of hand eczema are clinical rather than histological, but the considerably thickened horny layer and the presence of numerous sweat glands modify the histological features of eczema on the hands. Atopy, a naturally dry skin, or a superadded contact allergic or irritant dermatitis are all predisposing factors. The common link is now known to be filaggrin gene mutations. Many patients give a convincing account of exacerbations at times of acute anxiety, frustration or grief. The role of hormonal factors is also difficult to assess. Occasionally, there is a history of premenstrual exacerbation or deterioration during pregnancy. Twin studies suggest hereditary factors play a role in the development of hand eczema, with the atopic diathesis as the commonest endogenous cause. Filaggrin gene mutations are linked with an increased susceptibility to chronic irritant contact dermatitis and chronic hand eczema. Contact irritants are the commonest exogenous cause of hand eczema, but contact allergens including chromate, epoxy glues and rubber are also important. Type 1 allergic reactions to certain proteins may also give rise to hand eczema. [23]

2.3 Clinical Picture

Acute eczema is characterised by exudation, crusting and blistering of the skin. Ill demarcated erythema with papules and oedema is common. The same is true for scaling. Vesicles are not umbilicated.

Chronic eczema is a less vesicular and exudative state and is characterised by more scaly, pigmented and thickened skin. In addition, lichenification, a leathery thickened state secondary to repeated scratching, is also found. Lichenification is characterised Hand Eczema by thickening of the epidermis with deepening of the skin lines in either a parallel or a rhomboidal pattern.

Fissures are another feature of chronic eczema, which can be very painful, Itching and pain are the principal symptoms. [24]

2.4 Clinical Variants

Hyperkeratotic palmar eczema:

This common condition is a distinct form of hand eczema characterised by highly irritable, scaly, fissured, hyperkeratotic patches on the palms and palmar surfaces of the fingers.

Pompholyx

A form of eczema of the palms and soles in which oedema fluid accumulates to form visible vesicles or bullae. As a result of the thick epidermis in these sites, the blisters become relatively large before they burst. Pompholyx probably accounts for about 5–20% of all cases of hand eczema.

Apron eczema

Involves the proximal palmar aspect of two or more adjacent fingers and the contiguous palmar skin over the metacarpophalangeal joints, thus resembling an apron.

Chronic acral dermatitis

This distinctive syndrome affects patients in middle age. A chronic, intensely pruritic, hyperkeratotic, papulovesicular eczema of the hands and feet, is associated with grossly elevated IgE levels in subjects with no personal or family history of atopy.

Nummular dermatitis

This is also known as discoid eczema.

Fingertip eczema

This condition presents a characteristic pattern, involving the palmar surface of the tips of some or all of the fingers. The skin is dry, cracked and sometimes breaks down into painful fissures. Two patterns may be distinguished. The first and most common involves most or all of the fingers, mainly those of the dominant hand, and particularly the thumb and forefinger. The second pattern involves preferentially the thumb, forefinger and third finger of one hand. This is usually occupational.

The condition usually involves the dominant hand, but there may be allergy to onions, garlic and other kitchen products held in the nondominant hand when being cut. Workers who eviscerate and clean pig carcasses are at risk of developing vesicular eczema which starts in the finger webs and spreads to the sides of the fingers. This is a mild, self-limiting condition.

Patchy vesiculosquamous eczema

A mixture of irregular, patchy, vesiculosquamous lesions occur on both hands, usually asymmetrically. Nail changes are common if the nail folds are affected.

Recurrent focal palmar peeling

Also known as desquamation enaïres, keratolysis exfoliativa or ringed keratolysis of the palms. During the summer months, small areas of superficial,

white desquamation develop on the sides of the fingers and on the palms or on the feet. They appear abruptly and expand before peeling off.

Ring eczema

This characteristic pattern particularly affects young women, rarely men. The condition usually starts soon after marriage or childbirth. An irritable patch of eczema begins under a ring – usually a broad wedding ring – and typically spreads to involve the adjacent side of the middle finger and the adjacent area of the palm. [25]

2.5 Management

★First line:

Lifestyle modifications Where possible avoid or minimize.

- Avoid dry and excessive sweating.
- Avoid scratching which worsens the condition and may cause cracks lead to secondary bacterial infection.
- Use emollients frequently to help restore normal skin barrier function.
- Avoid the substance(s) causing the irritation or allergy. wear cotton gloves and use barrier cream if not impossible to avoid these irritant substances especially if these substances are encountered at work. [25]

Table 1 Different treatment modalities for hand eczema

Topical therapy :	Systemic therapy
Emollients, dexpanthenol and vitamin E cream barrier strengthening cream Corticosteroids Other topical applications like tar, salicylic acid dithranol PUVA therapy, gel, and bath Retinoid bexarotene gel Topical calcineurine ,inhibitors, (tacrolimus (pimecrolimus ,Topical vitamin D derivatives like calcipotriol and maxa-calcipotriol Antimicrobials Barrier creams-topical ,quatanium-18-bentonite protective foam containing dimethicone. and glycerine Indradermal botulinum toxin Inotophoresis	Phototherapy-PUVA and UV.-B Oral immunosuppressants Cyclosporine Methotrexate Mycophenolate mofetil Azathioprine Retinoids Alitretinoin Acitretin Oral H1 blockers-cetirizine hydroxyzine Oral H2 blockers-ranitidine Gamma-linolenic acid Chelating agents and agents reducing nickel level Disulfiram low nickel diet with disulfiram Trientene and other chelating agents Low nickel dient and disodium chromoglycate Iron therapy with low nickel diet Radiotherapy-Grenz rays, superficial phototherapy Others-IFN-Y, IVIg, infliximab, and Chinese herbs

Previous studies

This part discusses the similar related to studies as follow

Study 1:

In 2020 a prospective study conducted by Mrinal Gupta. The aim of this study was to study the effect of hand eczema on the quality of life. Patients and Methods were thirty consecutive patients (M: F = 11: 19) with hand eczema were examined and disease severity was assessed by hand eczema severity index (HECSI) score; and quality of life by dermatology life quality index (DLQI) questionnaire. The data was evaluated using statistical tests like frequency, chi-square, one-way ANOVA, t-test etc. The study included 11 (36.67%) men aged between 23 and 54 years and 19 (63.33%) women aged between 28 and 49 years. The majority of patients were in the 21–50 years age group (86.67%; n=26). Eight (26.67%) patients had a history of atopy. The most common occupational group among females was housewives (63.15%, n=12) while among the males the most common occupational group was farm workers (54.54%, n=6). The mean±S.D. for DLQI was 5.48±4.19 and for HECSI was 16.34±12.25. There was no statistically significant impact of age, occupation and duration of disease on DLQI or disease severity except gender (p-value being 0.021 for DLQI; 0.029 for HECSI). There was no statistically significant correlation between HECSI score and DLQI. Conclusion was hand eczema is a common problem predominantly seen in females in the middle age groups which can severely impair the quality of life. [26]

Study 2:

In 2018 a study conducted by Rui Pedro Santos et al which aim was to characterize a Portuguese outpatient population with hand eczema; to evaluate the impairment of the disease in quality of life (QoL); to relate the disease severity with QoL. The result of this study was eighty-five patients were included with a female predominance (78.8%). The median DLQI was 9.0. We

found statistically significant differences in the variable HECSI between genders with greater impact in males. A significant positive correlation was found between HECSI and DLQI. DLQI and HECSI were independent of atopy, psoriasis or etiology. Increasing age significantly affects DLQI but not HECSI. [27]

Study 3:

In 2016 a hospital based cross-sectional study conducted by Bharat Bhushan Mahajan et al to find impact of hand eczema severity on quality of life. The result of the study was Out of 69 patients, 63.8% were males and 36.2% females. The commonest age group affected was 21-40 years (55.1% cases). Aggravating factors were reported by 76.8% patients, the commonest trigger being summer season (47.8%) followed by soaps and detergents (21.7%). The mean $\pm$ S.D. for DLQI was 6.22 $\pm$ 5.42 and for HECSI was 18.54 $\pm$ 17.05. There was no statistically significant impact of age, occupation and duration of disease on DLQI or disease severity except gender (p-value being 0.028 for DLQI; 0.035 for HECSI). There was no significant correlation between HECSI score and DLQI. [28]

Study 4:

In 2014 a study conducted in Iran by Reza Ghaderi and Alireza Saadatjoo. The aim of this study was to determine the quality of life in patients with hand eczema. This case-control study was performed on 70 patients with hand eczema and 70 healthy controls. All the patients filled out two questionnaires: Short Form 36 (SF-36) and Dermatology Life Quality index (DLQI). The data were analyzed using the statistical software package for social sciences (SPSS). The mean score of quality of life in dimensions of physical functioning, vitality, and general health in the SF-36 was lower compared to the control group. The mean score in DLQI in patients with hand eczema was 8.68. There was a significant negative correlation between the

scores of different dimensions of QOL obtained in the two questionnaires (SF36 and DLQI). The study demonstrated that the quality of life in patients with hand eczema was lower than that of controls. It seems advisable that psychiatric consultations or psychotherapy be included in the treatment of chronic hand eczema. [29]

Study 5:

In 2013 a study conducted by Charan et al which aim was to assess the impact of hand eczema severity on quality of life. The result of this study was forty-six patients participated of which 22 (47.8%) were males and 24 (52.2%) females. The commonest age group affected among men and women was 50-59 years (31.8%) and 40-49 years (41.7%) respectively. History of atopy was found in 23.9% and 63% had persistent disease. In 28 (60.9%), the trigger was washing soaps and detergents of which 21 (87.5%) were housewives. Of those employed, 27.7% reported loss of work days. The mean HECSI score was 14.46 (S.D = 20.98) and mean DLQI score was 9.54 (S.D = 5.62). Gender, age, occupation and duration of disease did not significantly affect the quality of life or disease severity. Increased episodes of eczema (>4 episodes/year) showed a statistically significant correlation with DLQI (P value = 0.021). There was no significant correlation between HECSI score and DLQI in this study. [30]

Study 6:

In 2013 a cross-sectional study conducted by Safizadeh H. et al to assess the quality of life of patients with hand eczema in an Iranian population. This study was performed on 196 patients with hand eczema through clinical exam and filling specific questionnaires. Hand Eczema Severity Index (HECSI) and Dermatology Life Quality Index (DLQI) were used for studying the disease severity and quality of life, respectively. Mean $\pm$ SD of HECSI and DLQI scores were 57.05 $\pm$ 48.85 and 14.80 $\pm$ 5.79 respectively. In 94% of cases, hand eczema had significant effect on patients' quality of life. Based on DLQI, symptoms,

feelings and personal relationships were the most affected aspects. There was a significant positive relationship between DLQI and HECSI scores ($p < 0.05$). No significant difference was found in the quality of life based on age, sex and the disease duration. [31]

Study 7:

In 2009 a population-based study conducted by C. Moberg et al to investigate HRQoL in relation to hand eczema in the general population. The proportion of individuals reporting problems was significantly larger among those with than without hand eczema in all five dimensions of the EQ-5D. Gender differences were found in some age subgroups. The EQ-5D index was lower for individuals with hand eczema than for those without, and on the same level as for psoriasis and asthma. Beta regression showed that the strongest confounding factors were low back pain, depression and hay fever/asthma. [32]

Study 8:

In 2008 a cross-sectional, multicenter study of hand eczema patients conducted by Tove Agner et al to assess the impact of hand eczema severity on quality of life. Which result was no significant difference was found between males and females with respect to QoL [DLQI median values and 25/75 percentiles for males and females being 7.0 (3–14) and 8.0 (3–13), respectively], although males were more severely affected than females ($P < 0.025$). A significant positive correlation was found for hand eczema severity and age ($P < 0.001$), while no significant correlation was found for QoL and age. QoL was found increasingly reduced when sick leave was getting higher ($P < 0.001$). A statistically significant correlation between QoL (as measured by DLQI) and hand eczema severity as measured by HECSI was found ($P < 0.001$). No significant difference in QoL was found between diagnostic subgroups. [33]

Chapter 3: Methodology

3.1 Study Design

A cross-sectional study was conducted in Sana'a city, Yemen.

3.2 Study Period

A study was conducted from 1st November 2023 –30th April 2024.

3.3 Study Setting

The study was conducted in many hospitals at dermatology department in General Police Hospital, AL-Khamseen, Royal Hospital, AL-Jumhurity hospital, AL-Thawra Hospital and Kuwait hospital in Sanaa city, Yemen:

3.4 Sample type

Non probability convenient sampling from 4 govern and 4 private hospitals, and the 4 govern with 4 privates are random selection

3.5 Study Population

All patients who came to the dermatological clinic of the selected hospitals during study period and diagnosed with hand eczema.

3.6 Sample size and Sampling Method

Any patients who came to the dermatological clinic suffering from hand eczema of the selected hospitals and clinics during study period 6 months and diagnosed with hand eczema

3.7 Study Tools

The study was included previous structured questionnaire the Dermatology Life Quality Index (DLQI) and the Hand Eczema Severity Index (HECSI).

- DLQI is a questionnaire used to assess the impact of skin diseases on quality of life. It consists of 10 questions covering six domains symptoms, daily activities, leisure, work/school, relationships, and treatment burden. Each question is scored from 0 to 3, and the total score ranges from 0 to 30.

Categorizes QOL impairment as:

- ❖ (0–1) (None).
 - ❖ (2–5) (Small).
 - ❖ (6–10) (Moderate).
 - ❖ (11–20) (Very large).
 - ❖ (21–30) (Extremely large).
- HECSI is a tool used to evaluate the severity of hand eczema. It grades five signs erythema, induration, vesicles, fissures, scaling from 0 to 3 across five hand regions, multiplied by the affected area. The total score ranges from 0 to 360.

HECSI Severity Scoring Classification:

- ❖ Clear No symptoms.
- ❖ (1–16) Almost clear Mild symptoms, minimal impact.
- ❖ (17–37) Moderate Visible signs, functional discomfort.
- ❖ (38–116) Severe Extensive lesions, daily life impaired.
- ❖ (> 117) Very severe Debilitating symptoms, high psychosocial burden.

3.8 Study Population

The population for this study included all patient above 8 years old.

3.9 Inclusion Criteria

All patients having hand eczema who came to the selected places during the study period.

3.10 Exclusion criteria included

Any patient who:

- Is less than 8 years of age.
- Didn't give consent to be part of the study.
- Had palmar psoriasis or with other psoriatic skin lesion.

- Had skin scraping for fungus which was positive on potassium hydroxide KOH mount.
- Have a chronic disease which would have an impact on quality of life or having an obvious disability.

3.11 Data collection method

Pretested structured questionnaire was used to collect data from each study subject filled with 13 medical students.

3.12 Study variables

○ Dependent Variables:

Clinical severity, Frequency of flare-ups, Quality of life, Treatment response.

○ Independent Variables:

Occupational exposure, Contact allergens, Irritants, Genetic predisposition, Treatment type.

3.13 Data analysis

The obtained data entered into Microsoft Excel 2007. Then entered and analyzed in IBM Statistical Package for the social sciences (SPSS). The result showed in form of texts and tablets and figures.

3.14 Ethical Consideration

All patient' data is confidential and ethical approval was received from the patient in selected hospitals and from the patient themselves as informer consent and full explanation of the research purpose and conform that the data we have taken was anonymous and the ability to refuse participation or to withdraw at any point of interview.

3.15 Limitation and Difficulties

1-No previous studies are done in Yemen, making it difficult to compare our results to other studies conducted in Yemen.

2- Some doctors may not fully understand or utilize tools for gathering patient information (HESCI).

3-The major limitation is a hospital-based survey conducted in resource-limited settings, so findings which may not be generalizable to other areas.

3.16 Work Plan of The Study

Activity	first Month	second Month	Third Month	fourth Month	fifth Month	sixth Month
First meeting	✓					
Proposal writing	✓	✓				
Discussion of proposal		✓				
Data collection		✓	✓			
Data entry				✓		
Final report writing					✓	✓

Time plan of the study

Chapter 4: Results

4.1 Demographic Characters

4.1.1 Distribution of Cases by Hospital

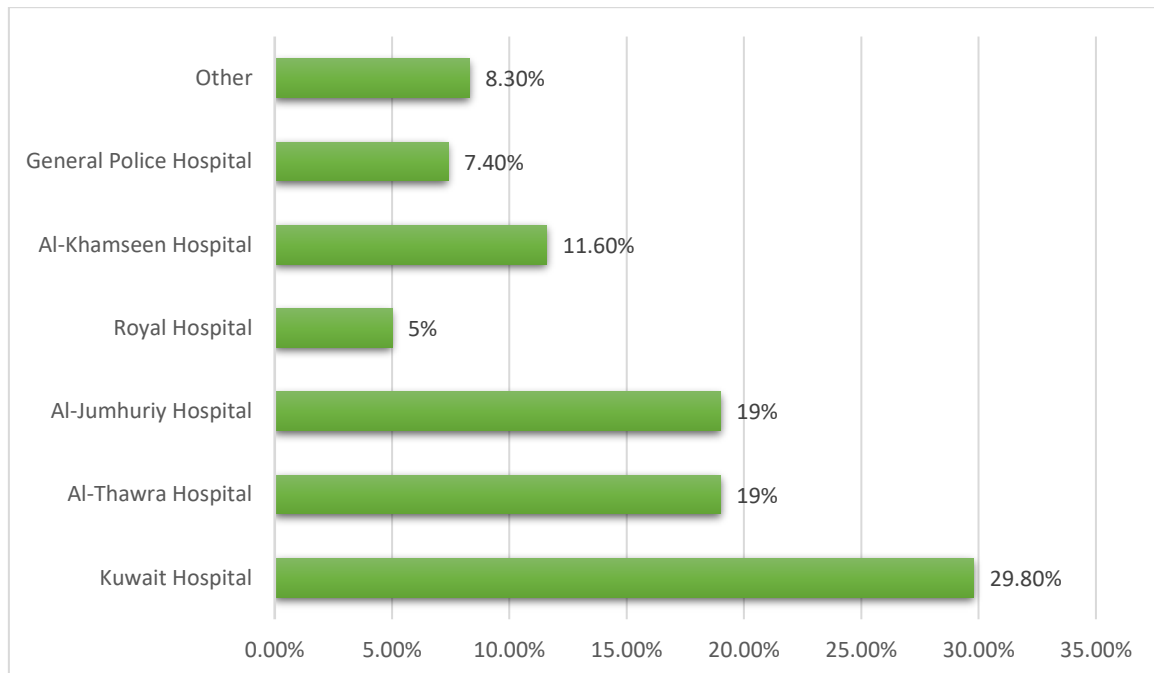


Figure 2: demonstrates distribution of hand eczema by hospital, November 2023-April 2024, in Sana'a, Yemen (N= 121).

As showed in figure 2 a total 121 of cases was conducted during 6 month illustrates the distribution of hand eczema cases across various hospitals in Sana'a, Yemen (N=121). The highest percentage of cases was recorded at Kuwait Hospital (29.8%), followed by Al-Jumhuriy and Al-Thawra Hospitals, each with 19% of cases. Other hospitals included Al-Khamseen Hospital (7.4%), General Police Hospital (5%), and Royal Hospital (5%).

4.1.2 Age Distribution of Patients

Table 2: demonstrates the distribution of cases regarding descriptive analysis of patients age of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

N	Median	Mean	Std. Deviation	Minimum	Maximum
121	25.00	27.01	±9.781	8	60

As showed in table 2 presents the distribution of cases by age. The minimum age was 8 years, the maximum was 60 years, with a median age of 25 years and a mean age of 27.01 (± 9.781) years.

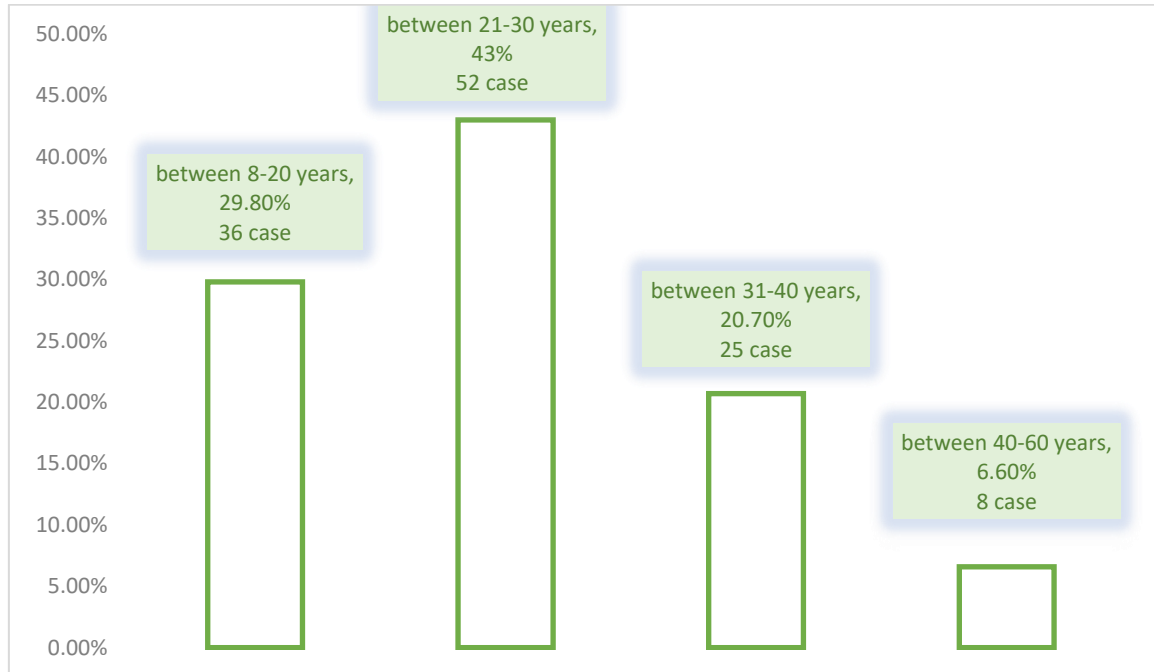


Figure 3: demonstrates distribution of hand eczema by age, November 2023-April 2024, in Sana'a, Yemen (N= 121).

As showed in figure 3 further categorizes the age distribution, showing that 43% of patients were aged between 21 and 30 years, 29.8% were between 8 and 20 years, 20% were between 31 and 40 years, and 6.6% were between 40 and 60 years.

4.1.3 Gender Distribution

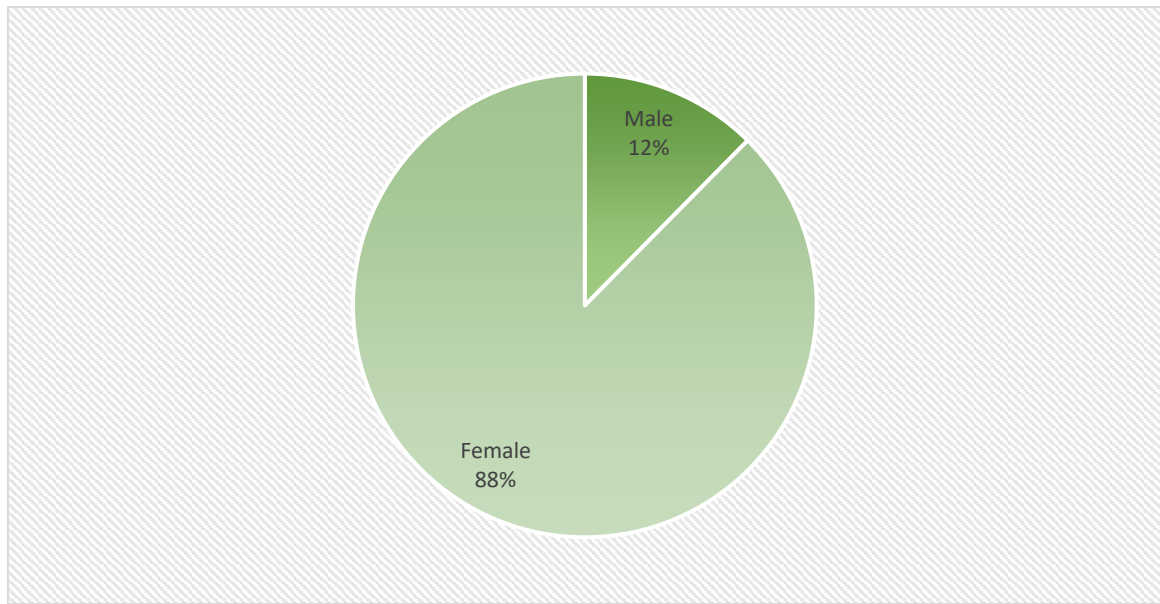


Figure 4: demonstrates distribution of cases regarding gender of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

As showed in figure 4 demonstrates the gender distribution of the study population. The majority of patients were female (88%), with males comprising only 12% of the cases.

4.1.4 Occupational Distribution

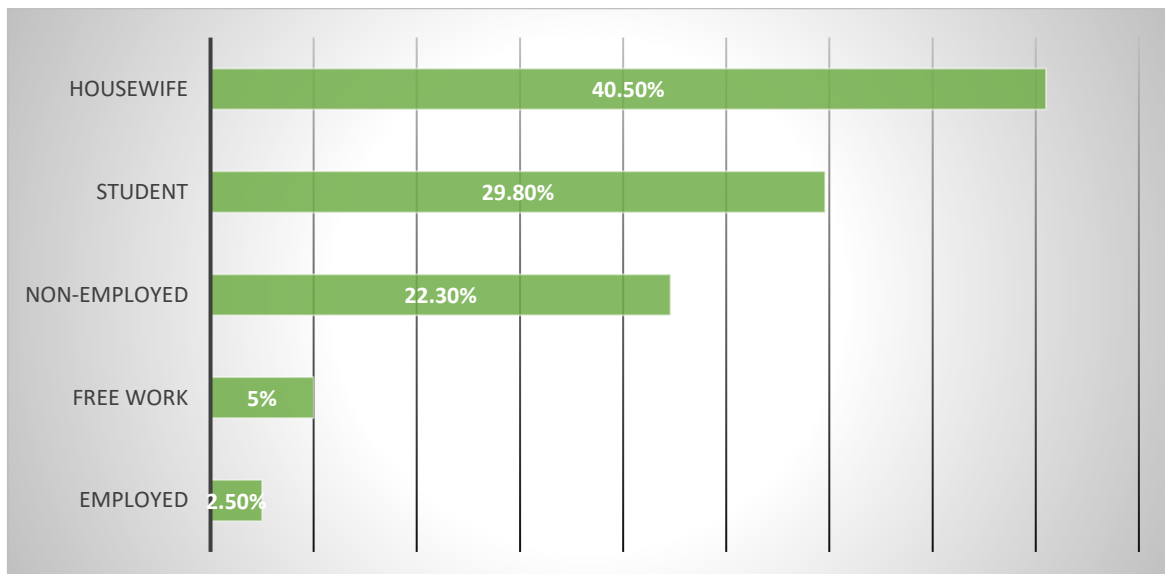


Figure 5: demonstrates distribution of cases regarding occupation of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

As showed in figure 4 presents the occupational distribution of the patients. Among them, 40% were housewives, 29.8% were students, 22.3% were unemployed, 5% were engaged in free work, and 2.5% were employed.

4.1.5 Residential Distribution

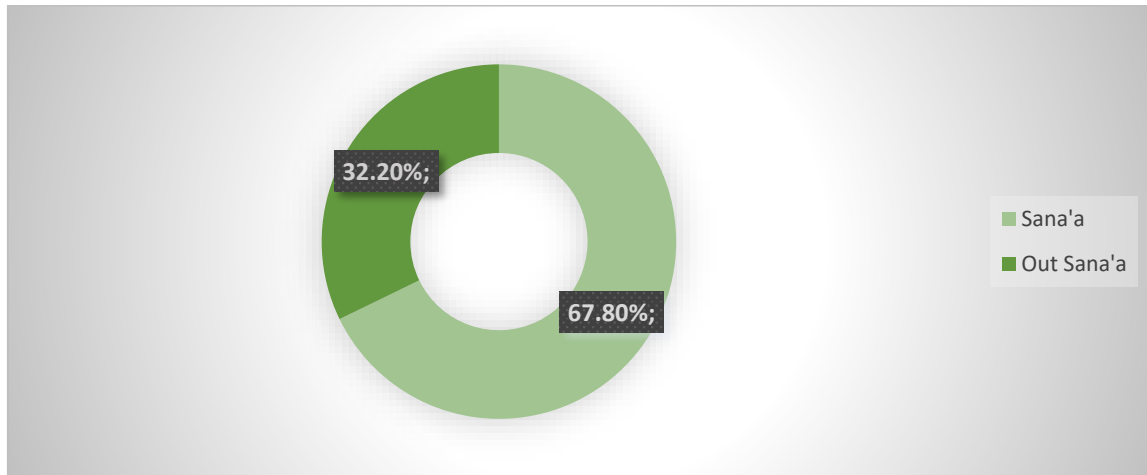


Figure 6: demonstrates distribution of cases regarding residence of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

As showed in figure 6 shows the distribution of patients based on their residence. Approximately two thirds (67.8%) of the patients resided in Sana'a, while the remaining 32.2% lived outside of Sana'a.

4.2 Dermatology Life Quality Index (DLQI)

Table 3: demonstrates distribution of cases regarding dermatology life quality index items of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

Variables		Frequency	Percent %
Suffered from itchy, painful or stinging in the hand during the last week	None	3	2.5%
	little	25	20.7%
	A lot	43	35.5%
	Very Much	50	41.3%
	Total	121	100.0%
	None	19	15.7%

The disease made the level of embarrassment or self-consciousness, during the last week	little	30	24.8%
	A lot	52	43.0%
	Very Much	20	16.5%
	Total	121	100.0%
The disease interfered with shopping and looking for the home, during the last week	None	24	19.8%
	little	46	38.0%
	A lot	37	30.6%
	Very Much	14	11.6%
	Total	121	100.0%
The disease affected clothes that wears in the last week	None	41	33.9%
	little	31	25.6%
	A lot	39	32.2%
	Very Much	10	8.3%
	Total	121	100.0%
During the past week, to what extent did the skin on your hands affected any recreational activities	None	41	33.9%
	little	43	35.5%
	A lot	27	22.3%
	Very Much	10	8.3%
	Total	121	100.0%
During the past week, the skin on your hands prevents you from working or studying? If the answer is no, how many problems did the skin on your hands cause at work or school during the past week?	None	46	38.0%
	little	31	25.6%
	A lot	30	24.8%
	Very Much	14	11.6%
	Total	121	100.0%
	None	53	43.8%
	little	33	27.3%

Over the past week, to what extent has your hand caused problems with your partner or any of your close friends	A lot	26	21.5%
	Very Much	9	7.4%
	Total	121	100.0%
During the past week, to what extent did the skin on your hands prevent you from exercise	None	63	52.1%
	little	34	28.1%
	A lot	16	13.2%
	Very Much	8	6.6%
	Total	121	100.0%
During the past week, how much trouble did you face in treating your skin, for example because it made your house messy or because it took time	None	45	37.2%
	little	37	30.6%
	A lot	28	23.1%
	Very Much	11	9.1%
	Total	121	100.0%

As showed in table (3) shows that during the last week around 41% of patients suffered very much from itchy, painful or stinging in the hand, 24% of them the level of embarrassment or self-consciousness was little, 30% of them the disease interfered a lot with shopping and looking for the home, only 8% of them the extent of their skin on their hands affected recreational activities very much, 38% of them the skin on their hands did not prevent them from working or studying, 27% of them the extent that their hands caused problems with their partner or any of their close friends was little, 6.6% of them the extent of the skin on their hands prevented them from exercise was very much and 23% of them had a lot of troubles faced them in treating their skin, for example because it made your house messy or because it took time.

Table (3) shows that a significant proportion of patients (41.3%) reported experiencing "very much" itchy, painful, or stinging sensations during the last week, with an additional 35.5% reporting these symptoms "a lot." This

indicates that the majority of patients (76.8%) experience moderate to severe discomfort due to hand eczema.

Nearly half of the patients (43%) felt "a lot" of embarrassment or self-consciousness due to their condition, and 16.5% felt this "very much." This suggests that hand eczema has a considerable psychological impact on a large portion of the affected population.

More than 40% of patients reported that their condition "a lot" or "very much" interfered with shopping and household activities, highlighting the functional limitations imposed by hand eczema.

32.2% of patients indicated that their hand eczema "a lot" affected their clothing choices, reflecting the visibility and social discomfort associated with the condition.

Recreational activities were "a lot" or "very much" affected in 30.6% of patients, which may contribute to reduced quality of life.

A total of 36.4% of patients reported that their condition "a lot" or "very much" impacted their ability to work or study, indicating a potential effect on productivity.

Hand eczema caused "a lot" or "very much" trouble in relationships with partners or close friends in 28.9% of patients, suggesting a social impact of the disease.

For 19.8% of patients, hand eczema "a lot" or "very much" hindered their ability to exercise, which could have broader implications for their overall health.

A significant number of patients (32.2%) faced "a lot" or "very much" difficulty in managing their skin treatment, reflecting the challenges in daily management of the condition.

Table 4: demonstrates distribution of cases regarding descriptive analysis of dermatology life quality index items of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

Variables	N	Median	Mean	Standard Deviation	Mini.	Max.
Suffered from itchy, painful or stinging in the hand during the last week	121	2.00	2.16	0.837	0	3
The level of embarrassment or self-consciousness	121	2.00	1.60	0.944	0	3
Interfere with shopping and looking for the home	121	1.00	1.34	0.927	0	3
Affect clothes that wears in the last week	121	1.00	1.15	0.989	0	3
To what extent did the skin on your hands affect any recreational activities	121	1.00	1.05	0.947	0	3
Did the skin on your hands prevent you from working or studying	121	1.00	1.10	1.044	0	3
What extent has your hand caused problems with your partner or any of your close friends	121	1.00	0.93	0.976	0	3
What extent did the skin on your hands suffer from exercise?	121	0.00	0.74	0.927	0	3
How much trouble did you face in treating your skin	121	1.00	1.04	0.987	0	3
<i>Total DLQ index</i>	121	11.00	11.11	5.618	1	27

As showed in table 4 provides a descriptive analysis of the DLQI items. The total DLQI score ranged from 1 to 27, with a mean of 11.11 (± 5.618) and a median of 11.

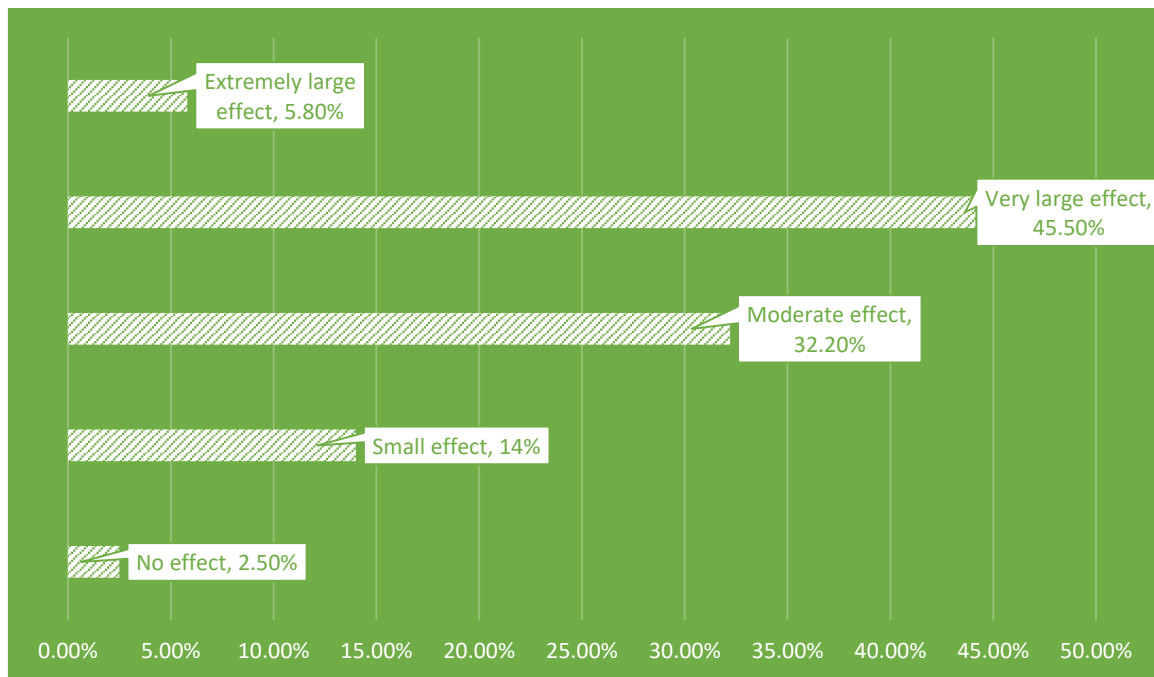


Figure 7: demonstrates distribution of cases regarding DLQI classification of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

As showed in figure 7 demonstrates the DLQI classification among the patients. The hand eczema had a "very large" impact on 45% of patients, a "moderate" impact on 32%, a "small" impact on 14%, an "extremely large" impact on 5.8%, and "no impact" on 2.5% of the patients.

4.3 Hand Eczema Severity Index (HECSI)

Table 5: demonstrates distribution of cases regarding descriptive analysis of intensity of symptoms regarding anatomical positions of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

Variables		N	Mean	Std. Deviation	Minimum	Maximum
Fingertips	Erythema	121	1.32	0.977	0	3
	Infiltration	121	0.13	0.482	0	2
	Vesicle	121	0.11	0.444	0	2
	Fissure	121	0.92	0.891	0	3
	Scale	121	0.69	0.904	0	3
	Edema	121	0.12	0.600	0	3
	Sum	121	3.29	2.985	0	16
Finger except tips	Erythema	121	1.17	0.960	0	3
	Infiltration	121	0.15	0.494	0	2
	Vesicle	121	0.17	0.553	0	3
	Fissure	121	0.98	0.953	0	3
	Scale	121	0.72	0.915	0	3
	Edema	121	0.02	0.182	0	2
	Sum	121	3.19	2.888	0	14
Palm of hand	Erythema	121	0.92	0.891	0	3
	Infiltration	121	0.19	0.582	0	3
	Vesicle	121	0.14	0.505	0	3
	Fissure	121	0.78	0.979	0	3
	Edema	121	0.58	0.892	0	3
	Scale	121	0.07	0.369	0	3
	Sum	121	2.68	2.956	0	17
Back of hand	Erythema	121	0.80	0.954	0	3
	Infiltration	121	0.26	0.652	0	3
	Vesicle	121	0.14	0.488	0	3
	Fissure	121	0.57	0.845	0	3

	Scale	121	0.49	0.848	0	3
	Edema	121	0.04	0.238	0	2
	Sum	121	2.30	2.968	0	15
wrist	Erythema	121	0.19	0.596	0	3
	Infiltration	121	0.12	0.526	0	3
	Vesicle	121	0.07	0.391	0	3
	Fissure	121	0.13	0.515	0	3
	Scale	121	0.12	0.503	0	3
	Edema	121	0.04	0.238	0	2
	Sum	121	0.68	2.149	0	12
Total Intensity Sum		121	12.13	8.549	0	58

As showed in table (5) shows that the mean score of total intensity sum was 12.13($\pm$ 8.549), the minimum score was 0 and the maximum score was 58

Interpretation of Hand Eczema Severity Index (HECSI) Components

The table (5) presents descriptive statistics for the severity of various symptoms of hand eczema across different anatomical regions. Below is a focused interpretation:

Fingertips:

- **Erythema:** The mean score for erythema was 1.32 (SD = 0.977), indicating mild to moderate redness in most patients, with scores ranging from 0 to 3.
- **Fissure:** Fissuring had a mean score of 0.92 (SD = 0.891), suggesting that a considerable number of patients experienced mild to moderate fissuring.
- **Total Intensity Sum:** The overall mean sum of symptom intensities for the fingertips was 3.29 (SD = 2.985), with a range from 0 to 16, reflecting the cumulative burden of symptoms in this region.

Finger Excluding Tips:

- **Erythema:** The mean erythema score was 1.17 (SD = 0.960), slightly lower than the fingertips, but still indicative of mild to moderate redness.

- **Fissure:** Fissuring was more prominent on this part of the hand, with a mean score of 0.98 (SD = 0.953).
- **Total Intensity Sum:** The mean total intensity score was 3.19 (SD = 2.888), similar to the fingertips, indicating that this area also bears a significant symptom burden.

Palm of Hand:

- **Erythema:** The palm showed a mean erythema score of 0.92 (SD = 0.891), indicating mild redness, which is slightly less severe compared to the fingers.
- **Fissure:** Fissuring had a mean score of 0.78 (SD = 0.979), again indicating mild involvement.
- **Edema:** Edema was more noticeable in this region, with a mean score of 0.58 (SD = 0.892), suggesting some patients experienced swelling.
- **Total Intensity Sum:** The overall mean sum for the palm was 2.68 (SD = 2.956), slightly lower than the fingers, reflecting a somewhat lesser, but still notable, symptom burden.

Back of Hand:

- **Erythema:** The back of the hand had a mean erythema score of 0.80 (SD = 0.954), indicating mild redness.
- **Infiltration:** Infiltration was slightly more pronounced here with a mean score of 0.26 (SD = 0.652).
- **Total Intensity Sum:** The mean sum of symptoms was 2.30 (SD = 2.968), suggesting a moderate symptom burden in this area.

Wrist:

- **Erythema:** The wrist area had a mean erythema score of 0.19 (SD = 0.596), indicating minimal redness.
- **Overall Symptom Intensity:** The wrist had the lowest overall symptom burden with a mean total intensity sum of 0.68 (SD = 2.149), reflecting minimal involvement compared to other regions.

Total Intensity Sum Across All Regions:

The overall mean total intensity sum across all regions was 12.13 (SD = 8.549), with scores ranging from 0 to 58. This indicates a variable but generally

moderate severity of hand eczema across the study population, with some patients experiencing significant symptom intensity.

The data reveals variability in the severity of hand eczema across different anatomical regions, with the fingertips and fingers (excluding tips) showing the highest severity scores, particularly for erythema and fissuring. The palms and the backs of the hands also exhibit notable symptom burdens, while the wrists are least affected. The overall intensity sum suggests that while some patients experience mild symptoms, others are affected more severely, underscoring the heterogeneous nature of hand eczema severity in the population studied.

Table 6: demonstrates distribution of cases regarding descriptive analysis of extension of affected area regarding anatomical positions of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

Extension of affected area	N	Mean	Std. Deviation	Minimum	Maximum
Finger except tips	120	1.88	1.553	0	4
Fingertips	120	2.34	1.569	0	4
Palm of hand	120	1.57	1.488	0	4
Back of hand	120	1.13	1.402	0	4
Wrist	120	0.26	0.825	0	4

As showed in table 6 provides descriptive statistics on the extension of the affected area. The fingertips had the highest mean score of 2.34 (± 1.569), followed by the fingers (excluding tips) with a mean score of 1.88 (± 1.553).

Table 7: demonstrates distribution of cases regarding hand eczema severity index of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

HECSI	N	Mean	Std. Deviation	Minimum	Maximum
Fingertips	121	10.08	10.710	0	64
Finger except tips	121	8.40	9.849	0	56
Palm of hand	121	6.99	10.148	0	68
Back of hand	121	5.87	9.123	0	45
Wrist	121	1.83	7.251	0	48
Total HECSI	121	33.18	31.068	0	228

As showed in table 7 summarizes the distribution of cases by the Hand Eczema Severity Index (HECSI). The total HECSI score had a mean of 33.18 (± 31.068), ranging from 0 to 228.

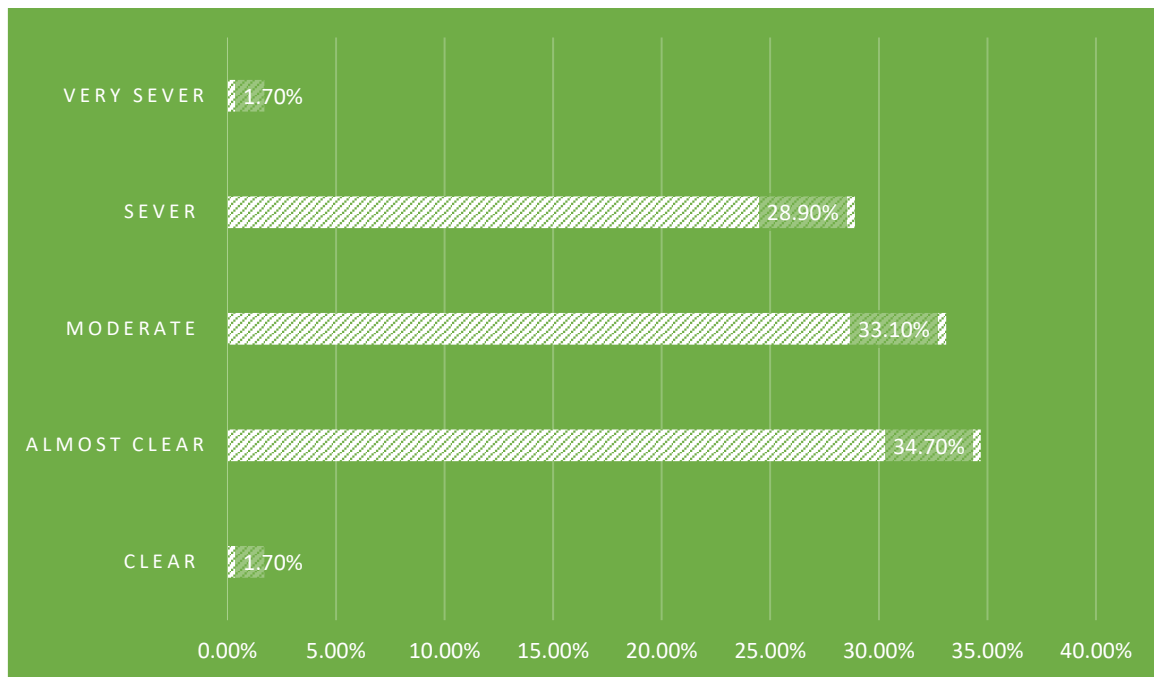


Figure 8: demonstrates distribution of cases regarding hand eczema severity index categories of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

As showed in figure 8 categorizes patients according to their HECSI scores. Approximately 1.7% of patients were categorized as clear, 34.7% categorized as almost clear, 33% categorized as moderate, 28.9% categorized as sever and 1.7% categorized as very sever.

4.4 Correlation Between HECSI and DLQI

Table 8: demonstrates Pearson correlation test for correlation between hand eczema severity index and dermatological life quality index of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

Variables	N	Pearson correlation	Sig (2-tailed)
DLQI*HECSI	121	0.048	0.601

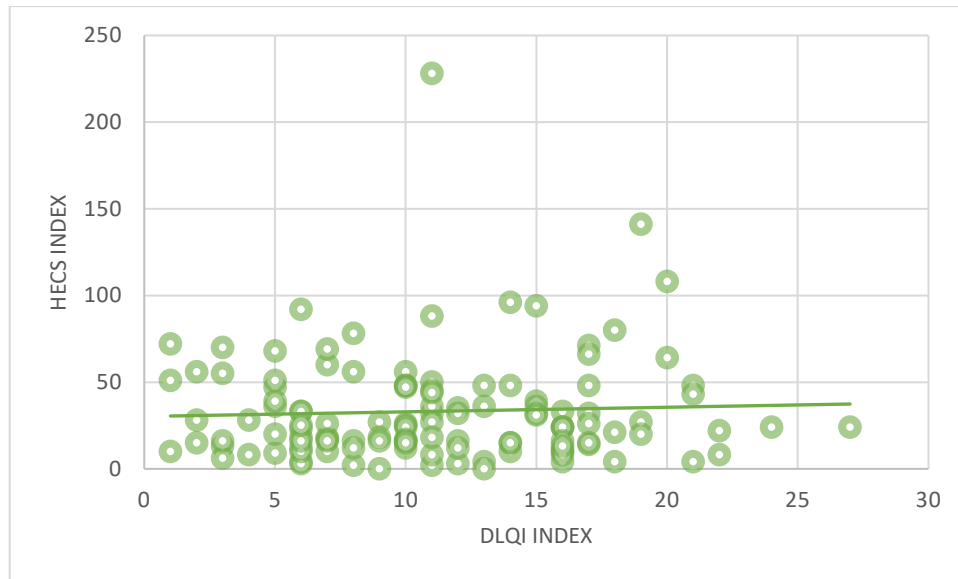


Figure 9: demonstrates Scatter Plot test for correlation between hand eczema severity index and dermatological life quality index of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

As showed in table 8 and figure 9 display the Pearson correlation and Scatter Plot, respectively, for the correlation between HECSI and DLQI. The results indicate no statistically significant correlation (Pearson correlation = 0.048, $p = 0.601$) between the severity of hand eczema and the impact on the quality of life.

4.5 Correlation Between Age Groups and DLQI

Table 9: demonstrates One-Way ANOVA test for correlation between age groups and dermatological life quality index of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

Age groups	N	Mean	Std. Deviation	Minimum	Maximum	p. value
Between 8-20 years	36	28.61	21.757	2	88	0.045
Between 21-30 years	52	36.88	28.351	3	141	
Between 31-40 years	25	33.72	46.890	0	228	
Between 40-60 years	8	28.00	23.330	6	78	
Total	121	33.18	31.068	0	228	

As showed in table 9 presents the results of a One-Way ANOVA test examining the relationship between age groups and DLQI scores. A significant correlation was found between age groups and DLQI ($p = 0.045$).

4.6 Correlation Between Age Groups and HECSI

Table 10: demonstrates One-Way ANOVA test for correlation between age groups and hand eczema severity index of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

Age groups	N	Mean	Std. Deviation	Minimum	Maximum	p. value
Between 8-20 years	36	28.61	21.757	2	88	0.346
Between 21-30 years	52	36.88	28.351	3	141	
Between 31-40 years	25	33.72	46.890	0	228	
Between 40-60 years	8	28.00	23.330	6	78	
Total	121	33.18	31.068	0	228	

As showed in table 10 the results of a One-Way ANOVA test for the correlation between age groups and HECSI scores. No significant correlation was found between age groups and the severity of hand eczema ($p = 0.346$).

4.7 Correlation Between Gender Groups and HECSI

Table (11) demonstrates One-Way ANOVA test for correlation between gender and hand eczema severity index of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

Sex/ HECSI	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum	p. value
Male	15	29.27	22.581	5.831	8	96	.606
Female	106	33.74	32.135	3.121	0	228	
Total	121	33.18	31.068	2.824	0	228	

As showed in table (11) that there was no significant statistically correlation between HECSI and gender by One-Way ANOVA test.

4.8 Correlation Between Gender Groups and DLQI

Table (12) demonstrates One-Way ANOVA test for correlation between gender and dermatological life quality index of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

Sex/ DLQI	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum	p. value
Male	15	9.80	6.026	1.556	1	21	.383
Female	106	11.29	5.563	.540	1	27	
Total	121	11.11	5.618	.511	1	27	

As showed in table (12) that there was no significant statistically correlation between DLQI and gender by One-Way ANOVA test.

4.9 Correlation Between Geographic Characters and HECSI

Table 13: demonstrates Chi Square test for correlation between independent variables and hand eczema severity index of patients of hand eczema, November 2023-April 2024, in Sana'a, Yemen (N= 121).

Variables		HECSI CATEGORIES					P. value
		clear	almost clear	moderate	sever	very sever	
		Row N %	Row N %	Row N %	Row N %	Row N %	
Sex	Male	0.0%	40.0%	40.0%	20.0%	0.0%	0.039
	Female	1.9%	34.0%	32.1%	30.2%	1.9%	
Residence	Sana'a	1.2%	37.8%	32.9%	26.8%	1.2%	0.797
	Out Sana'a	2.6%	28.2%	33.3%	33.3%	2.6%	

Occupation	Student	0.0%	41.7%	41.7%	16.7%	0.0%	0.875
	Housewife	2.0%	32.7%	24.5%	36.7%	4.1%	
	Free work	0.0%	33.3%	33.3%	33.3%	0.0%	
	Employed	0.0%	33.3%	33.3%	33.3%	0.0%	
	Non-employed	3.7%	29.6%	37.0%	29.6%	0.0%	
Age Categories	Between 8-20 years	0.0%	38.9%	36.1%	25.0%	0.0%	0.225
	Between 21-30 years	0.0%	30.8%	30.8%	36.5%	1.9%	
	Between 31-40 years	8.0%	28.0%	40.0%	20.0%	4.0%	
	Between 40-60 years	0.0%	62.5%	12.5%	25.0%	0.0%	
Hospital Name	Kuwait Hospital	2.8%	25.0%	33.3%	38.9%	0.0%	0.191
	Al-Thawra Hospital	0.0%	30.4%	39.1%	30.4%	0.0%	
	Al-Jumhuriy Hospital	0.0%	65.2%	17.4%	17.4%	0.0%	
	Royal Hospital	0.0%	33.3%	50.0%	16.7%	0.0%	
	Al-Khamseen Hospital	7.1%	14.3%	50.0%	21.4%	7.1%	
	General Police Hospital	0.0%	44.4%	22.2%	22.2%	11.1%	
	Other	0.0%	30.0%	30.0%	40.0%	0.0%	

The table "13" analyzes the distribution of hand eczema severity across various demographic and clinical variables, with a focus on HECSI (Hand Eczema Severity Index) categories.

Sex was the only variable showing a statistically significant difference ($p = 0.039$). Female patients had a wider distribution of severity, with 34%

categorized as “almost clear,” 32.1% as “moderate,” and 30.2% as “severe.” In contrast, male patients were mostly in the “almost clear” (40%) and “moderate” (40%) categories, with 20% classified as “severe.” This suggests that female patients experience a broader range of eczema severity compared to males.

For **residence**, there was no significant difference ($p = 0.797$). Both patients from Sana’a and those outside the city showed similar severity distributions, with most categorized as “almost clear” or “moderate.” This implies that residence does not significantly impact eczema severity.

Occupation also did not show a significant association with severity ($p = 0.875$). However, housewives tended to have more severe cases, with 36.7% classified as “severe,” compared to students and non-employed individuals, who were more evenly distributed across the “almost clear” and “moderate” categories.

Age categories showed no significant differences ($p = 0.225$). However, younger patients (8-20 years) were mostly “almost clear” or “moderate,” while the 21-30 age group had a higher proportion of “severe” cases. The 31-40 age group showed the most varied distribution, with 8% classified as “clear.”

Lastly, **hospital affiliation** did not significantly influence severity ($p = 0.191$). While there were variations in severity distributions across different hospitals, these were not statistically significant.

In summary, **sex** was the only variable with a significant impact on hand eczema severity, with females experiencing a broader range of severity. Other factors, such as residence, occupation, age, and hospital affiliation, did not show significant differences in severity distribution.

Chapter 5: Discussion

Hand eczema an important disease can affect the quality of life this study provides an in-depth examination of hand eczema in a patient population, focusing on demographic, occupational, and psychological factors, and assessing the impact on quality of life and disease severity. The findings from our study are compared with regional and global literature to better understand the epidemiology of hand eczema and its implications. This discussion aims to contextualize our results within broader research, highlight differences and similarities with other studies, and suggest areas for future investigation and intervention, the age distribution in our study shows a median age of 25 years and a mean age of 27.01 years, with a substantial proportion of patients being between 21 and 30 years old (43%) and a notable number between 8 and 20 years (29.8%). These findings are consistent with studies from other regions. For example, a study conducted in Saudi Arabia also reported a high prevalence of hand eczema among younger populations, with most patients being between 20 and 30 years old [34]. Similarly, research in Europe has noted a high incidence of hand eczema in younger adults, attributed to both occupational exposures and the onset of symptoms during early adulthood [35].

In contrast, a study from Japan highlighted a broader age range for hand eczema, with significant prevalence in both younger and older adults, suggesting that the condition may affect a wider demographic spectrum, the higher proportion of younger patients in our study might be related to specific environmental or lifestyle factors prevalent in our region, or it may reflect a younger demographic seeking dermatological care more frequently [36].

Gender distribution in our study reveals a predominance of females (88%) with males constituting only 12% of the cases. This is consistent with global trends where hand eczema is more prevalent in women. Research from the United States and Europe frequently reports a higher incidence of hand eczema in females, which is often attributed to occupational exposure to

irritants and allergens, as well as hormonal factors [37],[38]. A study in Sweden also noted a higher prevalence of hand eczema in women, particularly among those with frequent hand contact in their daily activities [39].

Our study finds that 40% of patients are housewives, 29.8% are students, and 22.3% are unemployed. This occupational distribution aligns with other regional studies. For example, research from Egypt and Saudi Arabia has similarly identified a high prevalence of hand eczema among housewives due to frequent hand washing and exposure to cleaning agents [40],[41]. The significant proportion of students in our study may reflect the impact of environmental exposures and stressors related to academic pressures.

Interestingly, a study conducted in Australia reported a high prevalence of hand eczema among healthcare workers and individuals in occupations with frequent hand contact, such as hairdressers and cleaners. [42] This underscores the role of occupational exposures as a key risk factor for hand eczema, which may vary depending on the specific nature of occupational tasks and exposures.

Approximately 67.8% of our patients reside in Sana'a, with the remainder living outside the city. This urban-rural distribution reflects findings from other studies that have reported higher prevalence rates of skin conditions, including eczema, in urban populations. A study conducted in Yemen observed that urban residents had a higher prevalence of skin disorders compared to rural inhabitants, likely due to factors such as pollution and environmental stressors. [43]

However, our study did not find significant differences in eczema severity based on residence, which diverges from some regional studies where urban living was associated with increased eczema severity [44]. This discrepancy may be due to variations in environmental exposures or healthcare access between urban and rural areas in different regions.

The DLQI results indicate that a significant proportion of patients experience moderate to severe discomfort, with 41.3% reporting "very much" itchy, painful, or stinging sensations, and 35.5% reporting these symptoms "a lot." This is consistent with findings from a study in the United Kingdom, where hand eczema was shown to significantly impact patients' quality of life, with many reporting similar levels of discomfort and functional impairment [45].

The psychological impact of hand eczema is also notable in our study, with 43% of patients feeling "a lot" of embarrassment and 16.5% feeling "very much" embarrassed. This aligns with studies from Germany and the Netherlands, where hand eczema was found to have a considerable psychological burden on patients, affecting their self-esteem and social interactions [46],[47]. The impact on daily activities, including shopping and household chores, further underscores the functional limitations imposed by the condition, reflecting findings from global studies that highlight the broad implications of hand eczema on daily life [48].

The HECSI results reveal variable severity across different anatomical regions, with the highest scores observed in the fingertips and fingers (excluding tips). This is consistent with findings from other studies that have identified the fingertips as a common site of severe hand eczema due to frequent exposure and trauma [49]. A study conducted in France reported similar patterns, with the fingertips and fingers exhibiting the highest severity scores [50].

The lack of significant correlation between HECSI and DLQI scores in our study suggests that severity does not always correlate with the impact on quality of life. This finding is supported by research from Canada, which also found no significant correlation between clinical severity and quality of life scores for hand eczema [51]. This may indicate that individual perceptions of

severity and quality of life are influenced by factors beyond clinical symptoms, such as psychological distress and coping mechanisms.

Our study found no significant correlation between age groups and HECSI scores, though there was a significant correlation between age groups and DLQI scores. This suggests that while clinical severity may not vary significantly with age, the impact on quality of life does. Similar findings have been reported in studies from Italy, where younger patients reported a greater impact on their quality of life despite similar clinical severity [52].

Gender differences in severity were notable, with females experiencing a broader range of severity compared to males. This observation aligns with findings from Australia and the United Kingdom, where female patients often report higher variability in eczema severity [53],[54]. The reasons for this discrepancy may include gender-specific exposures and differences in skin sensitivity.

Our study did not find a significant association between occupation and eczema severity, which contrasts with findings from studies that have identified occupational exposures as significant risk factors for severe hand eczema [55],[56]. This discrepancy may be attributed to variations in occupational exposures across different regions and the specific nature of jobs held by our study population.

Similarly, residence did not show a significant impact on eczema severity, diverging from studies that have linked urban living with increased eczema prevalence and severity [57]. This suggests that while urban factors may contribute to higher prevalence, they do not necessarily influence the severity of the condition in a uniform manner.

The findings of this study highlight the significant impact of hand eczema on patients' quality of life and underscore the need for comprehensive

management strategies that address both clinical and psychological aspects of the condition. Healthcare providers should focus on developing targeted interventions to alleviate the psychological burden and functional limitations associated with hand eczema.

Educational programs aimed at high-risk groups, such as housewives and students, could help in preventing and managing hand eczema. Additionally, improving access to dermatological care and psychological support may enhance patient outcomes.

Future research should explore longitudinal studies to better understand the progression of hand eczema and its impact on quality of life over time. Investigating the role of specific occupational and environmental factors in eczema severity could provide valuable insights for preventive strategies and tailored interventions.

This study offers valuable insights into the demographic distribution, occupational and psychological impact, and severity of hand eczema among patients. The results are consistent with some regional and global studies but also reveal notable differences that highlight the need for further research. Addressing the multifaceted aspects of hand eczema, including psychological and functional impacts, is crucial for improving patient care and outcomes. Future research should continue to explore these areas to develop more effective prevention and management strategies.

5.1 Conclusions

1. **Demographic Profile** The study reveals that hand eczema predominantly affects younger individuals, with a median age of 25 years and a mean age of 27.01 years. A significant proportion of patients are between 21 and 30 years old.
2. **Gender Disparity:** There is a notable gender disparity, with females comprising 88% of the study population, indicating a higher prevalence of hand eczema among women compared to men.
3. **Occupational and Residential Factors:** Households, students, and the unemployed constitute the majority of the patient population, with two-thirds of patients residing in Sana'a. However, residence and occupation do not significantly impact eczema severity.
4. **Quality of Life Impact:** Hand eczema significantly affects patients' quality of life, with high levels of discomfort, embarrassment, and interference with daily activities reported. The Dermatology Life Quality Index (DLQI) scores indicate a moderate to severe impact on patients' lives.
5. **Severity of Symptoms:** The severity of hand eczema varies across different anatomical regions, with the highest intensity observed in the fingertips and fingers (excluding tips). However, there is no significant correlation between the severity of hand eczema (HECSI) and the impact on quality of life (DLQI).
6. **Age and Severity:** Age groups show a significant correlation with DLQI scores but not with HECSI scores, suggesting that while clinical severity may be consistent across ages, the impact on quality of life varies.
7. **Gender and Severity Distribution:** Females experience a broader range of eczema severity compared to males. Other demographic factors such as

residence, occupation, and age do not show significant differences in severity distribution.

5.2 Recommendations

1. ***Enhanced Prevention Strategies:*** Implement targeted preventive measures for high-risk groups such as housewives and students, including educational programs on avoiding triggers and managing symptoms.
2. **Psychological Support:** Provide psychological support and counseling for patients to address the emotional and social impacts of hand eczema, given the significant effect on quality of life.
3. **Further Research:** Conduct longitudinal and in other centers studies to explore the progression of hand eczema, its impact on different demographics, and the effectiveness of various management strategies.
4. **Policy and Awareness:** Develop public health policies and awareness campaigns to improve understanding and management of hand eczema, particularly in urban and high-risk occupational settings.
5. **Access to Care:** Improve access to dermatological care and treatment options, especially in underserved areas, to ensure early diagnosis and effective management of hand eczema.

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Appendixes

ملخص الدراسة

• الخلفية:

الإكزيما اليدوية هي حالة جلدية مزمنة ومؤلمة تؤثر على نسبة كبيرة من السكان، مما يؤدي إلى شعور جسدي بعدم الراحة وضغوط نفسية. تركز هذه الدراسة على انتشار الإكزيما اليدوية وتأثيرها على جودة حياة المرضى في صنعاء، اليمن.

• الهدف من الدراسة:

تأثير شدة الإكزيما اليدوية على جودة الحياة العامة.

• منهجية الدراسة:

أجري البحث كدراسة مقطعية شملت مرضى الإكزيما اليدوية الذين تم تشخيصهم في الفترة من 1 نوفمبر 2023 إلى 30 أبريل 2024 في عيادات الجلدية تضمنت أربعة مستشفيات حكومية وأربعة مستشفيات خاصة في مدينة صنعاء. تم جمع البيانات باستخدام استبيانات منظمة شملت كلا من :

○ مؤشر جودة الحياة في الأمراض الجلدية (DLQI)

○ مؤشر شدة الإكزيما اليدوية (HECSI)

• النتائج:

كشفت الدراسة أن 88% من المشاركين كانوا من الإناث، مع أعلى معدل انتشار بين الفئة العمرية 21-30 عاماً (43.4%). وكانت ربوات المنازل الأكثر تأثراً بنسبة 40% يليهم الطلاب بنسبة 29.8%. وأظهرت نسبة كبيرة من المرضى معاناة من حكة شديدة وآلام أثرت بشكل ملحوظ على أنشطتهم اليومية مثل العمل والتفاعلات الاجتماعية والعلاقات الشخصية. حيث عانى حوالي 41% من أعراض حادة، بينما أفاد أكثر من 40% بمستويات عالية من الإحراج والوعي الذاتي.

ولم يتبين وجود ارتباط ذو دلالة إحصائية بين درجات (HECSI) و (DLQI) ومع ذلك تم تحديد علاقة ذات دلالة إحصائية بين العمر ودرجات (DLQI)، حيث سجل المرضى في الفئة العمرية

21-30 عاماً أعلى متوسط لدرجات (DLQI). كما لوحظ وجود ارتباط معنوي بين الجنس ودرجات (HECSI) مما يشير إلى أن المريضات الإناث أكثر عرضة للمعاناة من أعراض سريرية شديدة.

• الخلاصة:

تؤثر الإكزيما اليدوية بشكل كبير على جودة حياة المرضى في صنعاء، مع تأثيرات ملحوظة على الوظائف الاجتماعية والمهنية. تعتبر استراتيجيات الإدارة الفعالة للمرضى والمرض ضرورية لتخفيف الأعراض وتعزيز رفاهية المرضى.



جامعة 21 سبتمبر للعلوم الطبية والتطبيقية
كلية الطب والعلوم الصحية
دراسة قسم طب المجتمع

رقم (.....) تاريخ / / 2024

عزيزي المشارك:

نحن طلاب طب وجراحه عامة في جامعة 21 سبتمبر للعلوم الطبية والتطبيقية (الدفعة 3) نقوم بدراسة حول تأثير أكزيما اليد وشدتها على نوعية الحياة بين المرضى في محافظة صنعاء ؛ اليمن . نحن نقدر كثيراً مشاركتكم في هذا الجهد.

إن مشاركتك طوعية، ولك الحق في عدم قبول ملء هذا الاستبيان دون إبداء أي سبب، وأي معلومات ستقدمها سنظل سرية للغاية. سيتم استخدام المعلومات فقط لأغراض البحث. إذا كان لديك أي أسئلة حول الدراسة، فنحن نرحب بطرحها على الباحثين.

تعليمات:

أرجو منك عزيزي قراءة الأسئلة ثم وضع (✓) أمام إجابتك المناسبة .

(DERMATOLOGY LIFE QUALITY INDEX (DLQI

Hospital No:

Date:

Score:

Name:

Age:

Sex:

Occupation:

Residence:

Diagnosis:

الهدف من هذا الاستبيان هو قياس مدى تأثير مشكلة بشرتك على حياتك خلال الأسبوع الماضي.
يجب وضع علامة (/) في خانة واحدة أمام كل سؤال.

☐ كثير جداً ☐ الكثير ☐ قليلاً ☐ مطلقاً	١- خلال الأسبوع الماضي، هل عانيت من حكة أو ألم أو تقرح في يدك؟
☐ كثير جداً ☐ الكثير ☐ قليلاً ☐ مطلقاً	٢- خلال الأسبوع الماضي، ما مدى إحراجك بسبب بشرة يدك ؟
☐ كثير جداً ☐ الكثير ☐ قليلاً ☐ مطلقاً	٣- خلال الأسبوع الماضي، هل منعتك أو أثرت عليك بشرة يدك للذهاب للتسوق أو الاعتناء بمنزلك ؟
☐ كثير جداً ☐ الكثير ☐ قليلاً ☐ مطلقاً	٤- خلال الأسبوع الماضي، ما مدى تأثير الملابس التي ترتديها على بشرة يدك ؟
☐ كثير جداً ☐ الكثير ☐ قليلاً ☐ مطلقاً	٥- خلال الأسبوع الماضي، ما مدى تأثير بشرة يدك على أي أنشطة ترفيهية ؟
☐ كثير جداً ☐ الكثير ☐ قليلاً ☐ مطلقاً	٦- خلال الأسبوع الماضي، هل منعتك بشرة يدك من العمل أو الدراسة؟ إذا كانت الإجابة (لا)، فكم كانت بشرة يدك سبب لمشكلة في العمل أو الدراسة خلال الأسبوع الماضي ؟
☐ كثير جداً ☐ الكثير ☐ قليلاً ☐ مطلقاً	٧- خلال الأسبوع الماضي، إلى أي مدى تسببت بشرة يدك في مشاكل مع شريكك أو أي من أصدقائك المقربين أو أقاربك؟
☐ كثير جداً ☐ الكثير ☐ قليلاً ☐ مطلقاً	٨- خلال الأسبوع الماضي، إلى أي مدى منعتك بشرة يدك من ممارسة أي رياضة ؟
☐ كثير جداً ☐ الكثير ☐ قليلاً ☐ مطلقاً	٩- خلال الأسبوع الماضي، ما حجم المشكلة التي واجهتها في علاج بشرتك على سبيل المثال، بسبب جعل منزلك فوضوياً، أو بسبب استغراق الوقت؟

يجب التحقق من أنك أجبت على كل سؤال

Hand Eczema Severity Index (HECSI)

(Hand Eczema Severity Index (HECSI))

Hand Eczema Severity Index (HECSI)	HECSI= CLEAR (0=All values)
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INTENSITY

0 = No Skin Changes 1= Mild Disease 2= Moderate Disease 3= Severe Disease

	Finger tips	Finger except tips	Palm of hand	Back of hand	Wrist
E) Erythema					
(I) Infiltration Papulation					
(V) Vlesicle					
(F) Fissure					
(S) Scale					
(O) Edema					
SUM : (E+I+V+F+S+O)					

EXTENT OF AFFECTED AREA (Ea)

0=No involvement (0 %) 1=1 - 25 % 2 = 26 - 50 % 3 = 51 - 75 % 4 = 76 - 100 m%

EXTENT (EX)					
Total : SUM x Ex					

FINAL HECSI SCORE: (Add all **5** total scores to obtain final HECSI score)

(CALCULATION)

INITIALS & DATE :

(VERIFICATION)

INITIALS & DATE :

PGA Photonumeric scale



*Thank
you*

