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The Relationship between Skin Allergen and Anxiety in Iraq

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Abstract: the study collected 80 patients and 30 controls from different hospitals .with a period from 2-1-2024 to 24-1-2024. Where this study aims to assess the Relationship between skin allergy and anxiety disorders and identify prevalence in Iraq. This study was designed according to two groups, control and patients, and the fear scale was evaluated in both groups, and the effect of allergy, and the HAMA scale was used. The results and demographic data were analyzed using the IBM SOFT SPSS statistical analysis program, and the following results were found: Comparative analysis showed that individuals reporting allergies were slightly younger (mean age 34.9 ± 10.7 years compared to 36.9 ± 12.1 years, P < 0.0001), had a slightly lower proportion of females (45.5% compared to 48.9%, P < 0.0001), The distribution of patients by diagnosis is shown in Figure 3. The most common allergies in the patient cohort were prurigo nodosa in 19 patients (23.75%) and eczema in 15 patients (18.75%). The level of anxiety was assessed using the HAMA scale, where the HAMA. (V Patients Control P-value) 1. Male 8.76±2.29 2.88±1.66 <0.001, 2. Female 9.11±1.86 3.11±0.99 <0.001. The regression coefficient for stress (OR 3.1) (CI 1.8-4.2) was found to be significant at the 0.001 level. There was also a strong effect of gender, with women having a 2.4-fold increased risk compared to men (p < 0.001), where the present study arrives at the conclusion that patients suffering from allergies at an early age are more prone to developing anxiety and depression.

Keywords: Skin allergy, Prurigo nodosa, Patients, HAMA Scale, Anxiety.

INTRODUCTION

It is a dermatologic condition that is mostly represented in every health center and advisory clinic around the globe. The disease, otherwise known as atopic dermatitis, represents itchy, inflamed skin, often with pain; eczema used to account for 5-10% of all medical consultations in dermatology, of which occupational dermatoses would account for 25-50%. This statistic greatly multidiplies the effect of eczema on a patient's quality of life in terms of occupation and social life.

Recent studies are showing the complex relationship between the environment and eczema with chronic stress. Environmental factors such as exposure to allergens, irritants, and pollution have been found to induce and/or exacerbate eczema. In addition, psychological stress-whether work-related, personal, or related to the disease itself has been shown to flare up symptoms and perpetuate chronicity. This connection emphasizes the need for a holistic interpretation in involvement concerning eczema whereby external environmental triggers and internal psychological stressors are duly recognized.

Based on this, health centers and advisory clinics are taking up complete management programs for eczema. These programs, besides medical treatment, also emphasize patient education, preventive measures, and psychological support. Thereby, addressing the multifaceted nature of eczema aims at improving the quality of life of the patients conversant with it while alleviating the burden of the disease.

The increasing number of patients who present with the above-mentioned allergies, particularly eczema, to health centers and advice clinics is becoming a matter of growing concern. Eczema has a very complex relationship with environmental and stress-related factors, needing a concerted approach to treatment and management. By understanding and addressing these factors, caregivers are in a better position to support patients in managing their affliction and enhancing their well-being.

A notable area of convergence between psychological factors and disease manifests in the context of psychophysiological disorders, which are characterized by the presence of physical symptoms that are closely associated with psychological factors (Beattie, P.E. & Lewis-Jones, M.S., 2006). Psych dermatological disorders are typically defined as those in which an interaction occurs between the psychological and the cutaneous systems (Kaaz, K. *et al*., 2019). These disorders can be categorised into three subgroups: a) Psychophysiological disorders:

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These include primary skin conditions, such as psoriasis and atopic dermatitis, in which a stressful event or life event influences their course so that these factors are related but not directly related (Zy Lim, V. *et al*., 2016). Secondary psychological disorders are those in which a primary psychological condition leads to skin changes, such as trichotillomania, dermatitis, and parasitism. These are those associated with skin abnormalities that would cause secondary psychological symptoms, such as low self-esteem and depression (Silverberg, J.I. *et al*., 2019).

The progress of research has shown that psychological factors (anxiety, stress, lifestyle, etc.) have to be considered when dealing with the development, progression, and aggravation of certain diseases (such as ulcers, diabetes, cardiovascular disease, asthma, and allergy) (Sherry & Silverberg, 2015). Nowadays, one can explain from a psychobiological perspective how the interrelations of psychological factors are manifested at the top of the lesion, which results from the schism of good health. For example, through chemical events, such as stress, which occurs (Mahajan, *et al*., 2020), the psychological aspect could lead to various biochemical changes that, after some time, would lead to organ dysfunctioning and, hence, deteriorate. Psychological factors of importance for the development of allergic diseases are well established (Mahajan, *et al*., 2020; Chatterjee, 2019); however, evidence is quite conflicting at times, and the meaning of the relationship sometimes remains obscure (Golemati, Moutsopoulos & Vlachoyiannopoulos, 2013). Evidence has also been gathered suggesting that possibly those people who possess certain psychopathologies are more likely to be affected by allergies if they have inadequate levels of protection as compared with disorder-free people (Wang, *et al*., 2021). The findings reflect an additional significance of the fact that allergic diseases are much more prevalent among this group of patients presenting with such heightened psychopathologies of a predominantly affective or anxiety-type (28%) than in the normal (2-20%) population. In addition, more allotment to patients with panic disorders than depression occurred, with a high prevalence ratio (CRL=2.93) for anxiety disorders. Stress as an entity and significant events also affect the asthmatic course, as shown by some recent studies (Golemati, Moutsopoulos & Vlachoyiannopoulos, 2013; Farrell, *et al*., 2011). In a similar vein, Farrell, *et al*. (2011) concluded that allergies and asthma may be risk factors for behavioural problems. Mascia, Mullen & Scotti (Oddoux, *et al*., 2022) describe the case of a child with a peanut allergy, which, although a unique case study, provides relevant information about the effects that an allergy to these properties can have on a child's life. The patient exhibited obsessive-compulsive disorder, driven by an incessant fear of exposure to allergens, which led to behaviours such as frequent hand-washing and persistent questioning of maternal safety (Do Bú, *et al*., 2022). The patient's mother adopted a stringent approach, avoiding the consumption of peanut-containing foods, even when sealed or wrapped in plastic. Other authors have identified social challenges, including feelings of social isolation or loneliness, in patients with peanut allergies (Friedman & Morris, 2006).

MATERIAL AND METHOD

The primary objective of the present study was to assess anxiety levels in various dermatological groups and to compare them with those of healthy individuals. The assessment encompassed both state anxiety and trait anxiety, utilizing rigorous measurement techniques. Furthermore, anxiety levels were contrasted between different dermatological diseases. The study also sought to explore potential differences in anxiety levels among dermatological patients with associated psychiatric comorbidity, a history of stressful events, and/or an atopic basis.

The total sample consisted of 110 hospital patients, 30 of whom were non-allergic and 80 allergic. With regard to gender distribution, 60 male patients and 20 female patients participated in the study where. the study collected 80 patients and 30 controls from different hospitals with the period from 2-1-2024 to 24-1-2024. Initially, participants underwent a medical examination. As a general rule, all subjects must undergo mandatory medical examinations. Within the framework of this medical examination, diagnostic tests for allergies were performed, and all participants were evaluated by skin prick testing. In the medical examination phase, as well as other tests required for patient admission approval, allergy tests are of utmost importance for several reasons. First, because they are the most common allergies in the area where the subjects are trained, and second, because of the negative consequences that failure to detect this allergy can have on the performance of these subjects at work. Individuals diagnosed with allergies are typically prescribed

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pharmacotherapy to alleviate symptoms or eliminate the underlying condition. Subsequent to the medical classification, psychological assessments were administered under consistent conditions, ensuring uniformity in the provision of instructions, materials, location, and scheduling for all subjects.

Antihistamines: used to manage allergic reactions and reduce itching (e.g., cetirizine and loratadine).

Treatment Approaches

Topical corticosteroids reduce inflammation and itching in skin conditions such as eczema or dermatitis.

Immunosuppressants: for severe cases (e.g., ciclosporin and dupilumab). -

Anxiety or antidepressant medications: medications such as selective serotonin reuptake inhibitors (e.g., sertraline) or benzodiazepines (for short-term use) can help manage anxiety. -

Anti-itch creams: calamine lotion or creams containing menthol to soothe skin irritation. -

2. Therapy**- **Cognitive behavioral therapy (CBT)**: treats anxiety and helps manage stress, which may reduce skin flare-ups. -

Exposure therapy: for anxiety related to allergens (e.g., fear of allergens or allergic reactions). - **Mindfulness-based stress reduction (MBSR):

Reduces anxiety and improves coping mechanisms for skin conditions. -

Dermatological psychotherapy: Focuses on the psychological aspects of skin disorders.

Statistical Analysis

Qualitative variables are presented with their frequency distribution, whilst quantitative variables are summarized using measures of central tendency and dispersion. The behavior of quantitative variables for each of the categorized independent variables is analyzed using Student's t-test (in comparisons of one variable with two categories) and logistic analysis). In all hypothesis tests, the null hypothesis is rejected with a type I error or an error of less than 0.05. The software package utilized for the analysis was SPSS 11.5.

RESULTS

A total of 110 samples were collected from a number of different hospitals in Al-Najaf City, with the age range of patients and controls ranging from 18 to over 56 years. The most prevalent group in this study was from 36-45 years for 30 patients and eight controls, followed by from 26-35 years. 5 years for 19 patients and seven controls. The body mass index was high in the patient group. In this study, patients and controls were distributed according to gender (males for 60 patients and females for 20 patients). As for the control group, males were 20, and females were 10.

Table 1: General demographic outcomes of patients and control

Variable	Patient, n=80	Control =30	P-value
Age			
18-25	10	5	0.84
26-35	19	7	0.01
36-45	30	8	0.045
46-55	11	6	0.84
56+	10	4	0.774
BMI			
Mean ±sd	30.4±2.8	28.77±1.7	0.888
Comorbidities			
Hypertension	29	7	0.001
Diabetes	21	12	0.0743
Renal failure	10	8	0.79
Other	20	3	0.001
Height	177.3±3.9	178.1±1.88	0.13
Education			
Primary	9	3	0.32
Secondary	20	10	0.55
College	40	15	0.04345
High	11	2	0.09

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Sex			
Male	60	20	0.22
Female	20	10	0.684

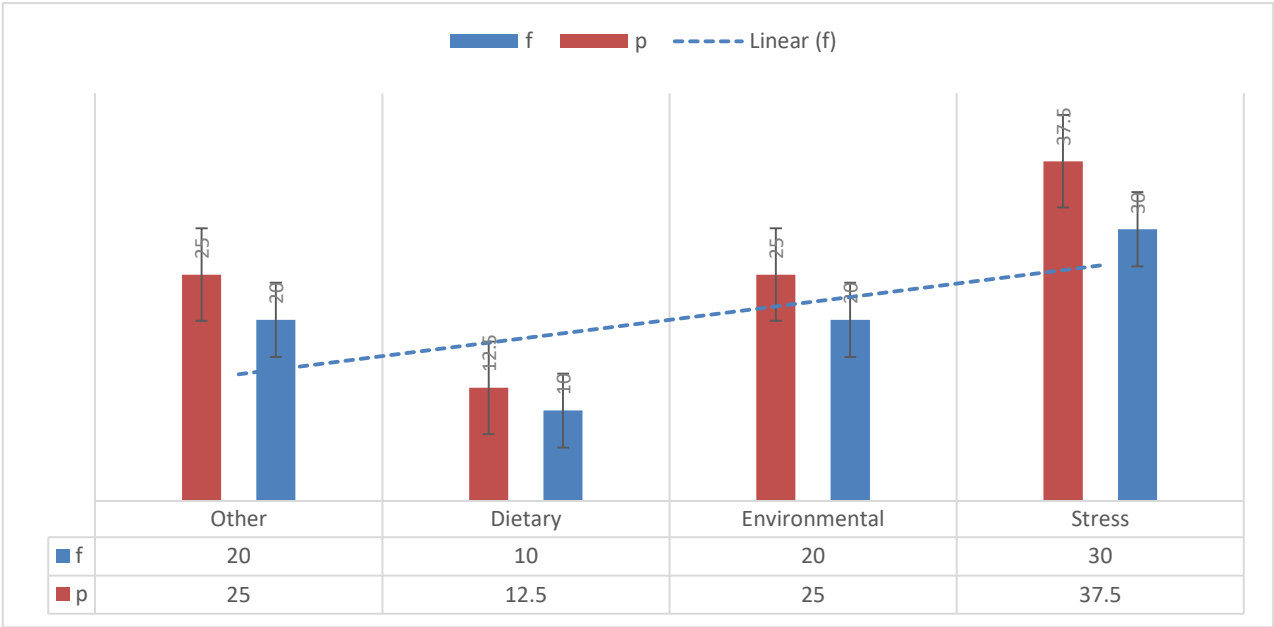

Fig 1: Distribution of patients according to Common Triggers for Skin Allergies

As illustrated in the above figure, patients were distributed according to the most prevalent causes. The most prevalent causes in this study were stress, affecting 30 patients and 37.5%, followed by environmental factors, affecting 20 patients and 25%; other causes, affecting 20 patients and 25%; and dietary influences, affecting 10 patients and 12.5%.

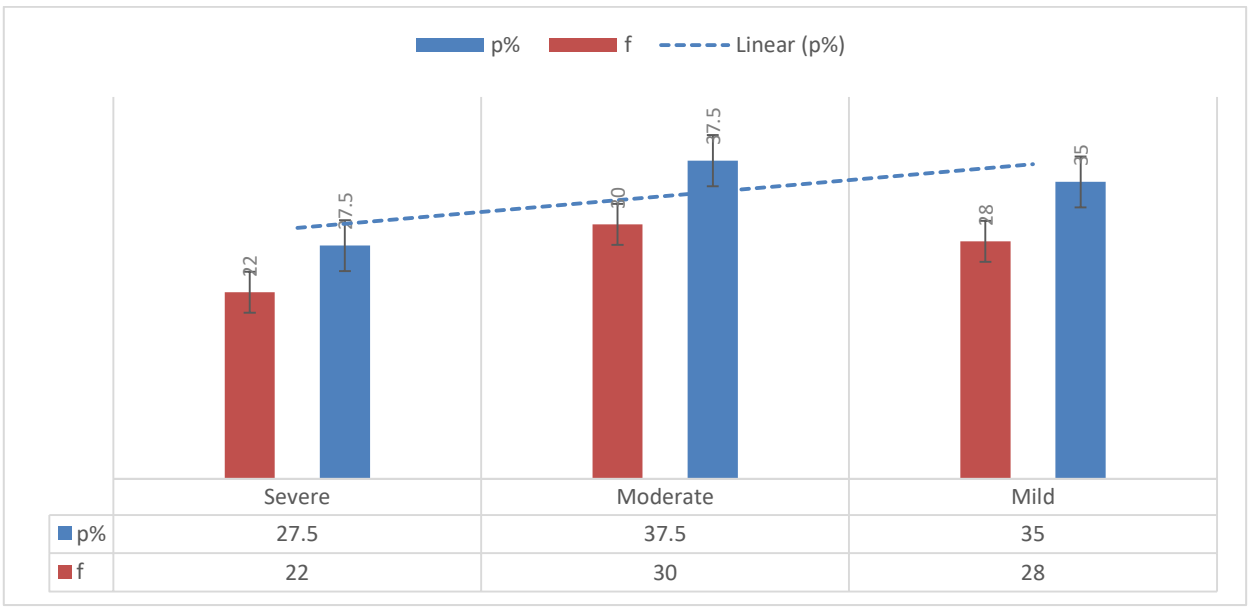

Fig 2: Distribution of patients according to Severity of Skin Allergies in Relation to Anxiety

Table 2: Assessment anxiety of patients according to HAMA (Mean ± SD)

V	Patients	Control	P-value
Male	8.76±2.29	2.88±1.66	<0.001
Female	9.11±1.86	3.11±0.99	<0.001

In Table 2, the degree of anxiety was assessed according to the HAMA scale, where The HAMA scale is a test or questionnaire that has been extensively utilized within the fields of psychology

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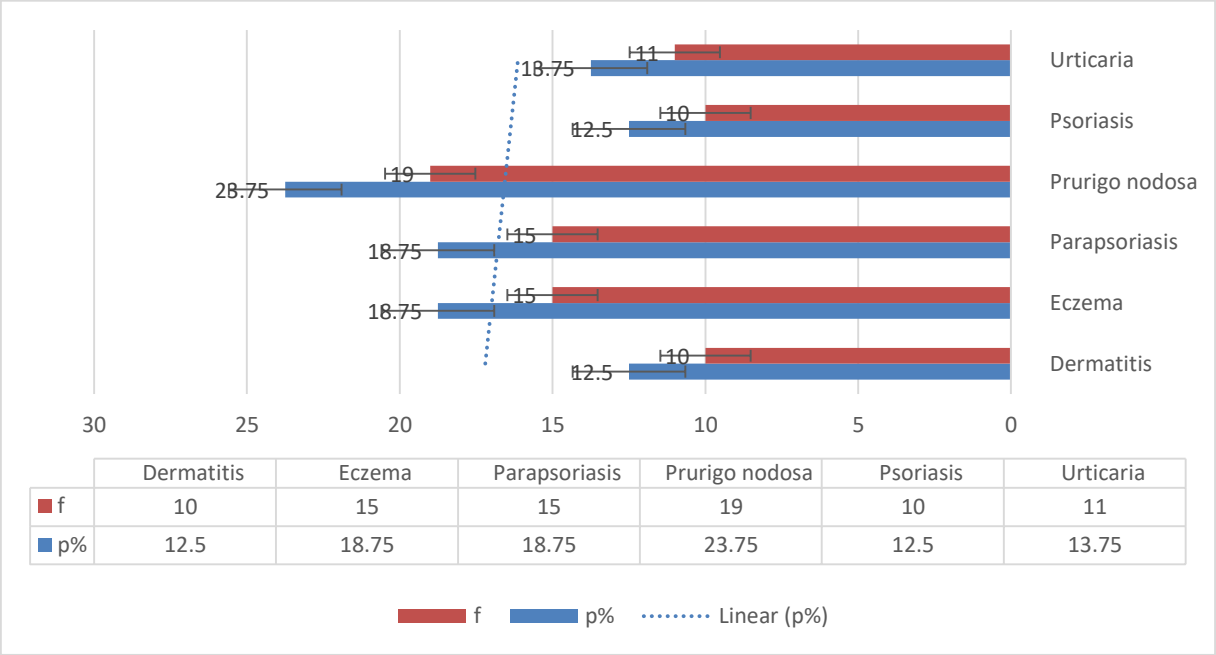
and psychiatry. Although it is not a diagnostic instrument, it serves to determine the severity of the condition and also facilitates monitoring of the response to treatment. The scale comprises 14 items or questions that are to be answered on a scale from 0 to 5 (0 indicates absence, and 5 indicates seriousness or disruption).

Patients with a total score of less than 17 are classified as having mild anxiety, those with a score between 18 and 24 as having moderate anxiety, and those with a score of 25 or more as having severe or very severe anxiety.



	Dermatitis	Eczema	Parapsoriasis	Prurigo nodosa	Psoriasis	Urticaria
f	10	15	15	19	10	11
p%	12.5	18.75	18.75	23.75	12.5	13.75

Figure 3: Distribution of patients according to Diagnosis

As illustrated in Figure 3, the distribution of patients according to diagnosis is presented. The most prevalent allergies among the patient cohort were prurigo nodosa, affecting 19 patients (23.75%), and eczema, affecting 15 patients (18.75%).

Treatment Approach We insert in another file Table 3- We insert in another file

Treatment Approach	f	Effectiveness for Both Conditions
Medication	40	70%
Therapy	20	50%
Lifestyle Changes	10	60%
Combination Therapy	10	40%

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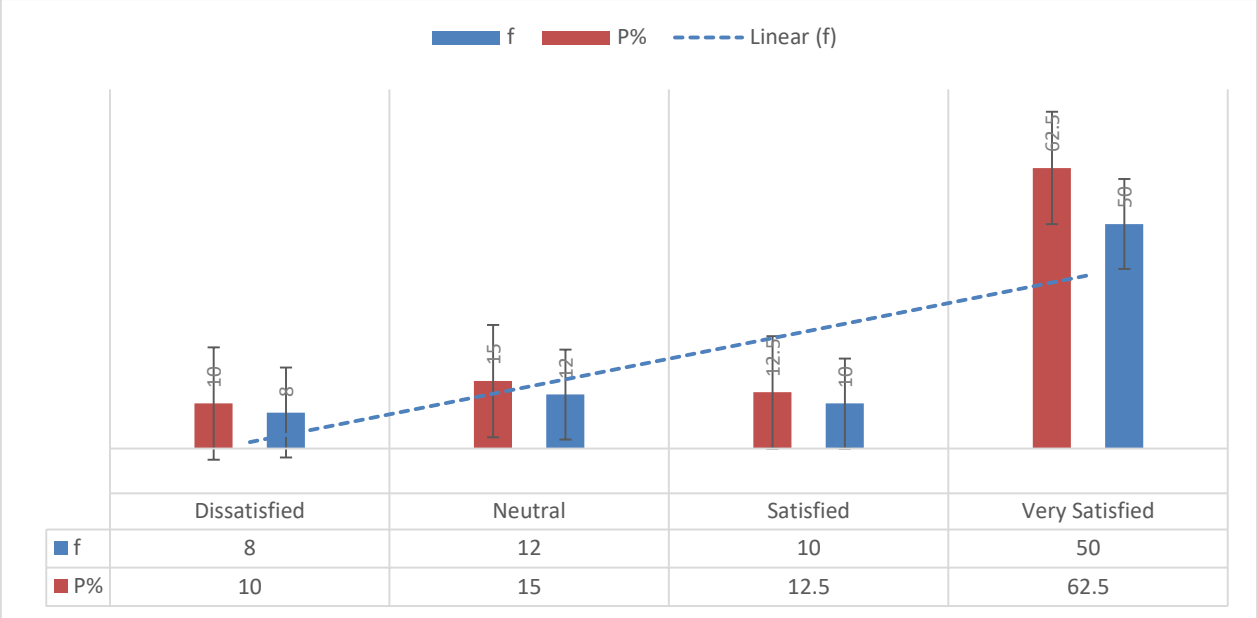

Figure 4: Final results to evaluate related with Patient Satisfaction with Treatment

Table 4: Logistic regression analysis to analyze risk factors for this study

	OR	CI	P-value
Sex			
Male	1.9	1.2-3.3	0.097
Female	2.4	1.44-4.4	<0.001
Severity			
Moderate	1.6	1.34-2.77	0.0435
Severe	1.55	1.4-2.0	0.022
Reasons			
Stress	3.1	1.8-4.2	<0.001
Dietary	1.9	1.55-2.9	0.067
Environmental	2.23	1.53-3.2	0.05
Hypertension	1.234	0.9-1.88	0.075

The table above presents the logistic regression of the risk factor for this study, with the following factors identified as the most significant,

The regression coefficient for stress (OR 3.1) (CI 1.8-4.2) was found to be significant at the 0.001 level. Furthermore, a strong effect was identified on the basis of gender, with females demonstrating a 2.4-fold increased risk relative to males ($p < 0.001$). Additionally, the severity of the condition was found to be a significant predictor, with moderate severity resulting in an odds ratio of 1.6 (95% CI 1.34-2.77; $p = 0.0435$).

As demonstrated in Table 5, an evaluation of patients' quality of life following treatment in this study is provided according to anxiety (HAMA). The mean and standard deviation (SD) for each variable are as follows:

- Medication: 4.62, 0.88
- Therapy: 3.748, 1.21
- Lifestyle Changes: 3.66, 1.79
- Combination Therapy: 4.66, 0.78

Table 5: Evaluation of patients' quality of life after using the treatment in this study according to anxiety (HAMA)

Variable	Mean	SD
Medication	4.62	0.88
Therapy	3.748	1.21
Lifestyle Changes	3.66	1.79
Combination Therapy	4.66	0.78

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DISCUSSION

The study in Al-Najaf City, Iraq, investigated the relationship between skin allergies and anxiety disorders. Tables 1 through 5 contain a detailed analysis of the demographic, clinical, and psychological characteristics of the participants, wherein The patient group (n=80) had a mean age of 34.9 ± 10.7 years, slightly younger than the control group (n=30) with a mean age of 36.9 ± 12.1 years ($p < 0.0001$), and In the patient group, the percentage of females was less as compared to the control group (45.5% vs. 48.9%) ($p < 0.0001$) addition to Most common allergies in the patients were prurigo nodosa (23.75%) and eczema (18.75%). Anxiety levels were assessed through the HAMA scale. For male patients, the mean anxiety score was 8.76 ± 2.29, while female patients had a mean score of 9.11 ± 1.86, both significantly higher than the control subjects ($p < 0.001$) and The regression coefficient for stress (OR 3.1, CI 1.8-4.2) was significant at the 0.001 level, confirming a strong association of stress with anxiety in allergic patients where The risk of anxiety was 2.4 times higher in females compared to males ($p < 0.001$).

Stress, gender, and severity of the condition were considered important predictors of anxiety patients in Moderate severity as indicated by odds ratio of 1.6 (95% CI 1.34-2.77; $p = 0.0435$). Moreover, post-treatment quality of life was assessed, indicating that combination therapy had a maximum mean satisfaction score (4.66 ± 0.78) where. This finding is the same with other studies by proof that skin allergy traits disturb with psychological disorders, especially anxiety, and depression where. The research indicated that patients suffering from allergies and younger at the slightly lower age group, which conformed to previous research that finding that of early-ons*et al*lergies most likely accords with psychological distress (Silverberg, *et al*., 2019). The higher incidence of anxiety among females in this study has also been attested to by research work suggesting that they have a predisposition to anxiety disorders attributable to hormonal and psychosocial factors (Goodwin, *et al*., 2006). The very aspect evident in this study between stress and anxiety in allergic patients is proved by studies that have identified stress as a major trigger, or it becomes the aggravating factor causing an upturn in manifestations both in skin conditions and in anxiety disorders (Retamales Rojas, 1994). The use of the HAMA scale in this study is similar to other research utilizing standardized measures for anxiety assessment among dermatological patients (Zy Lim, *et al*., 2016). Positive outcomes in terms of quality of life created by combination therapy is parallel to findings from the studies that recognized the need of integrated treatment accessing both the physical and the psychological components of skin diseases (Kaaz, *et al*., 2019). Studies recorded that 21.2 percent of patients at dermatology presented a psychiatric history, which is less than one-third of the prevalence of other studies. This might be due to the patient histories depending and lacking proper psychiatric examinations (Eichenfield, *et al*., 2014).

In comparison with diseases of other organs, dermatological diseases manifest symptoms such as redness, itching, pain, and burning and can cause psychological distress. Patients with vitiligo, psoriasis, and acne often suffer from varying degrees of depression, anxiety, and even suicidal tendencies (Goodwin, Castro & Kovacs, 2006). Furthermore, the presence of negative emotional states can trigger physiological changes in the skin, thereby exacerbating symptoms, affecting the patient's prognosis, and thus establishing a vicious cycle (Gould, *et al*., 2003). Chronic skin diseases, including inflammatory and neoplastic skin diseases, have the potential to lead to both physical and psychological problems. Of particular interest is the finding that skin diseases and psychological problems have been shown to reduce health-related quality of life (HR-QOL) (Gregory, *et al*., 2007), which includes adverse effects on physical functioning, physical sensations (such as pain or itching), psychological (such as depression and anxiety), and social functioning. In this survey, 80 patient participants reported allergic reactions and 30 control participants. It is noteworthy that the subjective judgement of many interviewees may be susceptible to misinterpretation, leading to erroneous attribution of adverse food reactions not attributable to immunological causes such as allergic reactions.

A further limitation of this survey is that the age of participants was limited to those over 18 years old, despite the fact that the prevalence of allergies is often higher in young adolescents. Research findings indicate that allergic diseases are prevalent among Iraqi adolescents. A survey of 5,010 participants found that the prevalence rates of allergic rhinitis, asthma, and Alzheimer's disease were 16.4%, 10.5%, and 16.7%, respectively. A further survey of university

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students revealed that 22% of students suffered from allergic diseases, including 4.3% with allergic rhinitis, 3.4% with Alzheimer's disease, and 7.6% with food allergies (Hart, *et al*., 1995; Pourpak, *et al*., 2004). The potential causes of the sustained high prevalence of allergies remain a subject of research, with a particular focus on the role of the skin barrier in the sensitization process. A comparative analysis revealed that individuals who reported allergies were marginally younger (mean age of 34.9 ± 10.7 years compared to 36.9 ± 12.1 years, $P < 0.0001$), exhibited a slightly lower proportion of females (45.5% compared to 48.9%, $P < 0.0001$), and demonstrated a higher prevalence of smoking history (34.5% compared to 28.5%, $P < 0.0001$).

In comparison with individuals who did not report allergies, those who did reported a 2- to 4-fold increased likelihood of developing skin conditions. Furthermore, individuals who reported allergies exhibited a heightened sensitivity to air, water, and soil pollution, stress, and noise in comparison to those who did not report allergies. The study participants who reported allergies generally believed that pollution and stress had changed their lifestyle and had an impact on their health and well-being.

As demonstrated in the study by Retamales Rojas, the most significant psychological risk for patients with allergies is the onset of anxiety. Clinical observations in dermatological practice have revealed a correlation between acute or chronic stressors, psychiatric disorders, conflict and hostility situations, and certain skin diseases. Furthermore, the beneficial effects of psych dermatology, psychotherapy, hypnosis, and relaxation techniques have been documented. However, the question remains whether the psychological syndrome is primary or secondary to the skin condition. [Rojas, R. R, 1994] A multitude of studies have indicated that psychiatric comorbidity reaches up to a third in dermatology patients, with depression, anxiety, obsessive-compulsive disorders, and delusional disorders being the most common types of psychiatric disorders4,5. In our study, only 21.2% of dermatology patients reported a psychiatric history. However, it should be noted that these data were obtained through patient histories, without a psychiatric assessment, so that this percentage can be underestimated. [Eichenfield, L. F, 2004] Another area of study is psychoneuroimmunology, which emerged 30 years ago and proposes links between mental and emotional disorders and the immune system. Thus, depression and anxiety can increase the production of pro-inflammatory cytokines such as interleukin (IL) 6. Furthermore, it has been demonstrated that symptoms of depression can lead to a decrease in the number of LTCD8, thereby contributing to the high rates of recurrence of genital herpes. Stress or anxiety can exert an influence on an individual in two distinct ways: firstly, through direct alteration of the immune system (neuroendocrine changes), and secondly, through the medium of adverse behaviours. State anxiety is defined as an emotional reaction that occurs when an individual perceives a dangerous or threatening situation or stimulus, regardless of the actual danger. This emotional reaction is characterized by a sense of apprehension or alarm and can manifest in various symptoms, including insomnia, anxiety, and feelings of insecurity, all of which are associated with the specific situation that has prompted the reaction.

CONCLUSION

The link between skin allergies and anxiety disorders, particularly in younger patients and women, is once again considered valid by the current study. This reinforces the argument for the need for a holistic treatment strategy addressing both the dermatological and psychological aspects of these disorders. In future research, formal psychiatric assessments should be included to determine the prevalence and impact of psychiatric comorbidity amongst dermatological patients.

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