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Research Article

PREVALENCE OF ECZEMA AND ASSOCIATED RISK FACTORS AMONG SAUDI POPULATION: A CROSS- SECTIONAL STUDY

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Abstract:

Objective: To determine the Prevalence and risk factors of eczema patients among the population in the Kingdom of Saudi Arabia.

Methods: This research will employ a cross-sectional study design. This design is suitable for investigating the prevalence of eczema and identifying associated risk factors within the Saudi population.

Results: The study included 612 participants. The most frequent gender among them was Female (n= 444, 72.5%) followed by Male (n= 168, 27.5%). The most frequent age among study participants was 18-28 years old (n= 322, 52.6%) followed by 29-39 years old (n= 138, 22.5%). Participants were asked if they have eczema now. There 82 had eczema (13.4%), and 530 participants didn't have eczema (86.6%). Nature of the weather in the area where the participants live among the study with most of them having dry weather (n= 337, 55.1%) followed by humid weather (n= 275, 44.9%).

Conclusion: Study results showed that most of the study participants are Female according to their gender. The most common of the participants were don't have eczema. Most of them live in dry weather. In addition, most of study participants had good social connections.

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INTRODUCTION:

Endogenous dermatitis, such as atopic dermatitis (AD), and exogenous dermatitis, such as allergic and irritating contact dermatitis, are all included under the umbrella term of "eczema." AD is often referred to as "eczema" by the general population and those who are not dermatologists. Atopic dermatitis (AD) is only one kind of eczema; the term also refers to contact dermatitis, nummular eczema, and seborrheic dermatitis, all of which have symptoms like itching and erythema but are otherwise distinct. The most common kind of eczema is atopic dermatitis (AD). The most noticeable symptom of AD is a persistent rash that flares up and goes away repeatedly throughout childhood. There is a lack of IgE reactivity to environmental allergens in many persons with atopic eczema. In spite of this, "atopic eczema" and "atopic dermatitis" are still often used to represent ill-defined inflammatory skin disorders characterized by surface changes, a propensity for flexures, and a familial or personal history of allergic rhinitis or asthma [2]. Individuals with eczema may have impaired physical and mental development as a result of the itching that often accompanies the condition [3]. Between two and twenty percent globally suffer from eczema, making it the most common form of pediatric inflammatory skin disease and a major source of morbidity and economic burden [4,5]. Although eczema has been on the rise in recent years, its prevalence varies widely across nations [2,6,7]. It is unclear what factors contribute to the wide variation in eczema incidence. A person's risk of developing eczema depends on their genetics, their environment, and their culture [3,6,8,9].

A total of 3,302 individuals, ages 5 to 7, of various racial and cultural backgrounds were surveyed in Southern California. Non-Hispanic individuals were more likely to be diagnosed with eczema, with the prevalence being 16.9% overall [6]. Ten thousand eight hundred and fifty-one Swedish youngsters participated in a cross-sectional research by Bornehag et al. A survey of parents revealed that one in every 18 children had experienced eczema during the preceding year [10]. An increased risk of eczema was shown to be associated with having a family history of eczema and/or asthma, according to results from a prospective multicenter cohort research done in Italy. However, neither breastfeeding nor smoking were shown to increase the incidence of eczema [11].

The prevalence of eczema has reached epidemic proportions. By keeping an eye on this disease's global prevalence and risk factors, we can better understand how to alleviate its effects on people and cut down on the money needed to treat it. Public health should

prioritize the identification and elimination of environmental and lifestyle variables that put people at risk for developing eczema [2].

The research problem addressed in this study revolves around the prevalence of eczema and its associated risk factors within the Saudi population. While eczema is a well-documented skin condition worldwide, there is a paucity of comprehensive data regarding its prevalence and the factors contributing to its occurrence in Saudi Arabia. This knowledge gap hinders healthcare professionals' ability to provide targeted care and interventions to the local population. Therefore, the primary research problem is to determine the extent of eczema in Saudi Arabia and understand the specific factors that may be driving its occurrence. Without this critical information, healthcare systems are limited in their capacity to address the needs of individuals suffering from eczema in the region.

Additionally, the research problem extends to the broader public health domain. Eczema is a chronic condition with a significant impact on the quality of life of affected individuals. It is essential to identify the risk factors that make certain segments of the Saudi population more vulnerable to eczema. By doing so, public health officials and policymakers can develop evidence-based strategies to reduce the incidence of eczema and its associated burdens on healthcare systems and individuals. This research problem thus extends to questions related to health disparities and social determinants that may contribute to the prevalence of eczema within Saudi Arabia.

Lastly, the research problem is important from an international comparative perspective. Understanding the prevalence and risk factors of eczema in Saudi Arabia not only serves the local population but also contributes to the global body of knowledge on this skin condition. It allows for cross-cultural comparisons, which can be instrumental in deciphering the universal and culturally specific factors that influence eczema's occurrence. Therefore, the research problem carries significance beyond Saudi Arabia, contributing to the broader field of dermatology and public health research.

METHODS:**Study design**

This research will employ a cross-sectional study design. This design is suitable for investigating the prevalence of eczema and identifying associated risk factors within the Saudi population.

Study approach

The study will be conducted in multiple healthcare facilities and clinics across various regions in Saudi Arabia to ensure representation from both urban and rural areas.

Study population

The target population for this study comprises individuals of all age groups residing in Saudi Arabia.

Study sample

A random sample of n participants will be drawn from the target population. The sample size will be determined using statistical calculations to ensure adequate power and representation.

A multi-stage random sampling method will be employed, with the initial selection of regions, followed by a random selection of healthcare facilities, and finally, a random selection of participants from each facility.

Study tool

The study will utilize standardized questionnaires to gather information on demographics, medical history, and potential risk factors. Clinical assessments will be conducted using standardized dermatological evaluation protocols.

Data collection

Data will be collected through structured interviews and clinical assessments. Participants will be asked about their medical history, family history, and various potential risk factors associated with eczema. Clinical

assessments will include a dermatological examination to confirm the presence of eczema.

Data analysis

Data will be analyzed using appropriate statistical techniques. Descriptive statistics will be used to summarize demographic information, prevalence, and risk factor distribution. Inferential statistics, such as logistic regression, will be employed to identify significant associations between risk factors and eczema. All analyses will be performed using statistical software (SPSS).

Ethical considerations

The research will adhere to ethical guidelines, including obtaining informed consent from participants. An institutional review board (IRB) approval will be obtained from the relevant authorities to ensure the ethical conduct of the study. Privacy and confidentiality of participants' information will be maintained throughout the study, and participants will have the right to withdraw their participation at any time without consequences.

RESULTS:

The study included 612 participants. The most frequent gender among them was Female ($n= 444$, 72.5%) followed by Male ($n= 168$, 27.5%). Figure 1 shows the gender distribution among study participants. The most frequent age among study participants was 18-28 years old ($n= 322$, 52.6%) followed by 29-39 years old ($n= 138$, 22.5%). Figure 2 shows the age distribution among study participants.

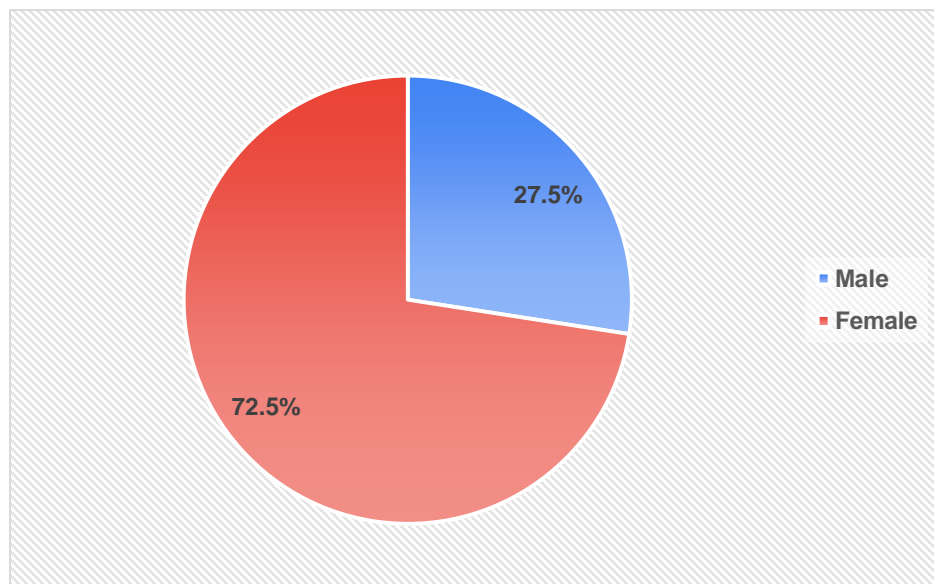


Figure 1: Gender distribution among study participants

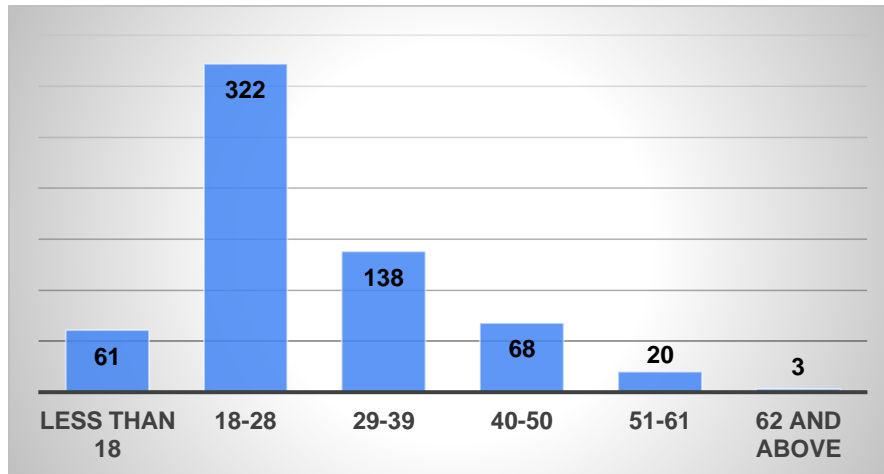


Figure 2: Age distribution among study participants

Participants were asked if they have eczema now. There 82 had eczema (13.4%), and 530 participants didn't have eczema (86.6%). Figure 3 shows the percentage of how to have eczema from the participants.

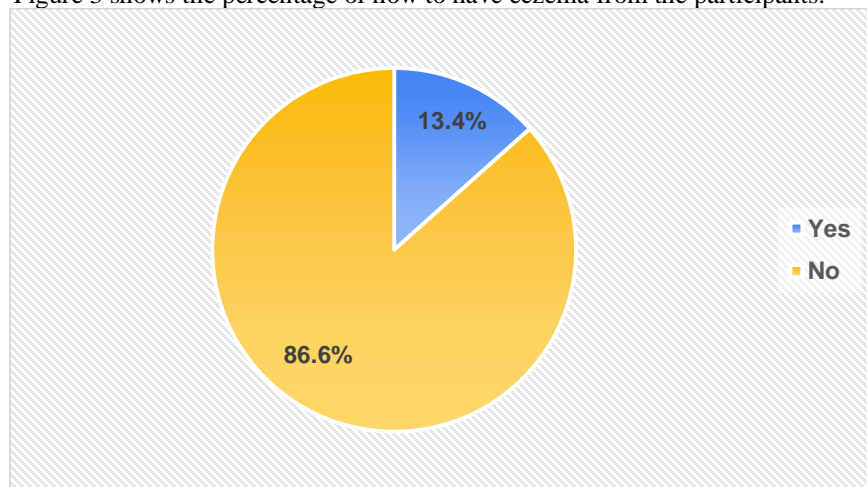


Figure 3: Eczema distribution among study participants

Nature of the weather in the area where the participants live among the study with most of them having dry weather (n= 337, 55.1%) followed by humid weather (n= 275, 44.9%). Figure 4 shows the nature of weather among the study participants.

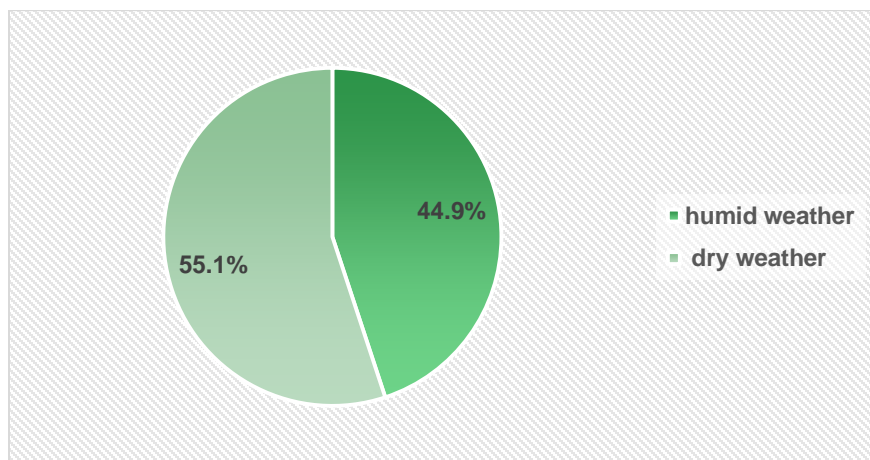


Figure 4: Nature of the weather distribution among study participants

Participants were asked to assess their factors and reasons for eczema. Their responses and results are presented in Table 1.

<i>Table 1: Identify factors and reasons for eczema among study participants</i>		
survey item	Yes	No
Do you have any allergy to any substance?	152 24.8%	460 75.2%
Do you have chest pain?	64 10.5%	548 89.5%
Do you have nasal allergies?	133 21.7%	479 78.3%
Do you have persistent respiratory infections?	68 11.1%	544 88.9%
Is there a family history of eczema?	191 31.2%	421 68.8%
Do you have constant itching?	102 16.7%	510 83.3%
Do you have psoriasis?	26 4.2%	586 95.8%
Do you have other skin diseases?	87 14.2%	525 85.8%
Have you ever had an itchy rash that came and went for at least six months?	103 16.8%	509 83.2%
Have you had this itchy rash at any time in the past 12 months?	94 15.4%	518 84.6%
Do you have carpets in your home?	546 89.2%	66 10.8%
Does anyone smoke in your house?	256 41.8%	356 58.2%
Are there currently flowering plants in your home?	230 37.6%	382 62.4%
Are there currently pets in your home?	150 24.5%	462 75.5%
Is there mold or moisture in your home?	40 6.5%	572 93.5%
Do you use air conditioner?	546 89.2%	66 10.8%
Do you have dry skin?	273 44.6%	339 55.4%

DISCUSSION:

Patients with atopic dermatitis (AD) have a severely reduced QoL despite the condition being nonfatal. The worldwide burden of illness research found that among all skin disorders, AD had the largest disability-adjusted life-year (DALY) burden. Its DALY load is 0.36 percent of the overall DALY burden of all 359 illnesses and injuries included in the research [11], placing it among the top 15 among all nonfatal conditions. The impact of AD is much greater than that of other skin conditions. In terms of the disability adjusted life year (DALY) rate, AD is more than twice as burdensome as psoriasis and urticaria combined [11].

Atopic dermatitis (AD) is a chronic illness characterized by painful outbreaks of inflamed, dry, and itchy skin on a recurrent basis [12]. Patients with AD often also suffer from another kind of allergy illness, including asthma or hay fever. Although there is currently no known cure for AD, medications and self-care techniques have been shown to dramatically reduce itching and help prevent future outbreaks [13]. Flares are a common problem for people with moderate to severe AD, and they may have a significant impact on a person's ability to function in their daily life [14]. It was shown in a cross-sectional survey [15] that half of the dermatological patients in Iran also had mental comorbidities. A third of people in an international research said AD had an impact on their academic or professional lives, and fourteen percent of adults said it had slowed their career advancement [14]. In the late 20th century [16], the incidence of AD began to rise, eventually reaching 10-20% among young people. It was previously believed that AD only afflicted children, however recent studies have shown that 3-5% of the general population is affected by AD as well [17].

The burden of AD may be estimated using scientific evidence, which can aid policymakers in making better treatment choices. Public health strategies, intervention prioritization, and resource allocation should all benefit from a deeper understanding of the AD burden [18]. Since AD does not often result in death, it is often overlooked in favor of more severe conditions. Nonetheless, several research [19-21] have emphasized that the humanistic load and psychosocial impacts of AD are severe and should not be underestimated.

Adults and teenagers alike bear the DALY burden of the widely widespread chronic inflammatory skin condition AD [11]. But until recently, AD was thought to be little more than a skin condition [22]. There have been several attempts to measure various facets of

atopic dermatitis impact. Our goal was to synthesize the research on AD burden for both adults and adolescents from a variety of angles, including the human, economic, and clinical. With so many studies assessing each burden aspect, we were also able to categorize the effect by criteria such as severity.

AD currently has no treatment options [23-25]. Results demonstrate a strong link between illness severity and HRQoL and lost productivity; keeping patients with low disease severity under control might alleviate most of the strain. This research should be seen as a first step in alleviating the effects of AD because it provides a snapshot of the full scope and contributing elements of AD burden. Researching particular policy initiatives that might enhance the prognosis of people with AD should be the next step in reducing the AD burden. To verify its applicability within the healthcare system structure and from a cultural viewpoint, this study should be evaluated at the local level.

Although there is a great deal of research on AD, the majority of this information originates from higher-income nations, therefore the burden of AD in low- and middle-income countries may be underestimated. However, this may be attributable to a lack of data and underreporting of AD in low- and middle-income countries, as reported in the global burden of illness research [11].

The research revealed that itching was the most often reported symptom of AD patients, with some instances reporting that it affected 100% of patients. This symptom was followed by depression and anxiety, highlighting the significance of psychological illness impact on patients with AD. This was further confirmed by the humanistic burden data, where psychological illness ranked first in terms of frequency of mentions in the literature. It is not surprising that sleep disruption ranks second among the humanistic load, just behind mental illness, given its association with nocturnal waking owing to itch [64]. The majority of people with AD do have sleep disruption, which may or may not be a problem for those who only experience it sometimes. However, the effect is magnified when the confounding factor is a chronic condition. Lack of sleep may have far-reaching consequences, such as the increased use of sleeping medicines, and is a common cause of distraction and fatigue [26-30].

Presenteeism may be substantially greater than absenteeism, which may be a result of sleep disturbances causing workers to be drowsy and unable to focus on their work. For the whole population

without regard to severity, lost production amounted to nearly a third of the year, and for the most severe cases, it surpassed half the year. Using HRQoL as a dependent variable, we found that the utility loss varied considerably among severity groups. This was validated using a multiple regression model in which severity, age, and sex all served as independent factors.

A recent literature examining the burden of sickness due to AD in adults [31-35] is consistent with our findings about the humanistic load. It also notes that AD patients have a far higher burden of anxiety, depression, sleep difficulties, and general impairment than controls do. Literature results of substantial declines in QoL and increased burden of absence from school or work owing to AD [36].

In 2013, Drucker et al. calculated a total yearly cost per patient in the United States of America of between \$3302 to \$4463, which is quite close to our estimate of \$4411. However, our prediction is not limited to the USA alone. Since low and medium income nations tend to have lower unit costs due to their comparatively low gross domestic product, it is likely that underreporting of the burden in these regions accounts for the closeness in these estimates [37-40].

CONCLUSION:

Study results showed that most of the study participants are Female according to their gender. The most common of the participants were don't have eczema. Most of them live in dry weather. In addition, most of the study participants had good social connections.

REFERENCES:

1. A population-based survey of eczema prevalence in the United States. Hanifin JM, Reed ML. *Dermatitis*. 2007;18:82–91.
2. Global variations in prevalence of eczema symptoms in children from ISAAC Phase Three. Odhiambo JA, Williams HC, Clayton TO, Robertson CF, Asher MI. *J Allergy Clin Immunol*. 2009;124:1251–1258.
3. Prevalence and influencing risk factors of eczema among preschool children in Urumqi city: a cross-sectional survey. Shi H, Wan G, Wang T, et al. *BMC Pediatr*. 2021;21:347.
4. Association between attendance of day care centres and increased prevalence of eczema in the German birth cohort study LISApplus. Cramer C, Link E, Bauer CP, et al. *Allergy*. 2011;66:68–75.
5. What causes flares of eczema in children? Langan SM, Silcocks P, Williams HC. *Br J Dermatol*. 2009;161:640–646.
6. Lifetime prevalence of childhood eczema and the effect of indoor environmental factors: Analysis in Hispanic and non-Hispanic white children. Kim HB, Zhou H, Kim JH, Habre R, Bastain TM, Gilliland FD. *Allergy Asthma Proc*. 2016;37:64–71.
7. High prevalence of eczema among preschool children related to home renovation in China: A multi-city-based cross-sectional study. Sun C, Zhang J, Huang C, et al. *Indoor Air*. 2019;29:748–760.
8. Eczema. Sohn A, Frankel A, Patel RV, Goldenberg G. *Mt Sinai J Med*. 2011;78:730–739.
9. Climatic factors are associated with childhood eczema prevalence in the United States. Silverberg JI, Hanifin J, Simpson EL. *J Invest Dermatol*. 2013;133:1752–1759.
10. 'Dampness' at home and its association with airway, nose, and skin symptoms among 10,851 preschool children in Sweden: a cross-sectional study. Bornehag CG, Sundell J, Hagerhed-Engman L, Sigsggard T, Janson S, Aberg N. *Indoor Air*. 2005;15 Suppl 10:48–55.
11. Perinatal factors and the risk of atopic dermatitis: a cohort study. Parazzini F, Cipriani S, Zinetti C, et al. *Pediatr Allergy Immunol*. 2014;25:43–50.
12. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*. 2021;372:n71.
13. Fukunaga N, Okada Y, Konishi Y, Murashita T, Koyama T. Pay attention to valvular disease in the presence of atopic dermatitis. *Circ J*. 2013;77(7):1862–1866.
14. Sheary B, Harris MF. Cessation of long-term topical steroids in adult atopic dermatitis: a prospective cohort study. *Dermatitis*. 2020;31(5):316–320.
15. Guyatt GH, Oxman AD, Vist GE, Kunz R, Falck-Ytter Y, Alonso-Coello P, et al. GRADE: an emerging consensus on rating quality of evidence and strength of recommendations. *BMJ*. 2008;336(7650):924–926.
16. Grant L, Seiding Larsen L, Trennery C, Silverberg JI, Abramovits W, Simpson EL, et al. Conceptual model to illustrate the symptom experience and humanistic burden associated with atopic dermatitis in adults and adolescents. *Dermatitis*. 2019;30(4):247–254.
17. World Bank Country and Lending Groups—World Bank Data help desk. 2020. <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>. Accessed 17 Oct 2023.

18. Avena-Woods C. Overview of atopic dermatitis. *Am J Manag Care*. 2017;23(8 Suppl):S115–S123.
19. Silverwood RJ, Mansfield KE, Mulick A, Wong AYS, Schmidt SAJ, Roberts A, et al. Atopic eczema in adulthood and mortality: UK population-based cohort study, 1998–2016. *J Allergy Clin Immunol*. 2021;147(5):1753–1763.
20. World Bank. Consumer price index (2010 = 100) | Data; 2021. <https://data.worldbank.org/indicator/FP.CP.I.TOTL>. Accessed 17 Oct 2023.
21. Andersen L, Nyeland ME, Nyberg F. Higher self-reported severity of atopic dermatitis in adults is associated with poorer self-reported health-related quality of life in France, Germany, the U.K. and the U.S.A. *Br J Dermatol*. 2020;182(5):1176–83.
22. Le PH, Vo TQ, Nguyen NH. Quality of life measurement alteration among Vietnamese: impact and treatment benefit related to eczema. *J Pak Med Assoc*. 2019;69(Suppl 2):S49–S56.
23. Lee SH, Lee SH, Lee SY, Lee B, Lee SH, Park YL. Psychological health status and health-related quality of life in adults with atopic dermatitis: a nationwide cross-sectional study in South Korea. *Acta Derm Venereol*. 2018;98(1):89–97.
24. Misery L, Seneschal J, Reguiat Z, Merhand S, Héas S, Huet F, et al. The impact of atopic dermatitis on sexual health. *J Eur Acad Dermatol Venereol*. 2019;33(2):428–432.
25. Katoh N, Saeki H, Kataoka Y, Etoh T, Teramukai S, Takagi H, et al. Atopic dermatitis disease registry in Japanese adult patients with moderate to severe atopic dermatitis (ADDRESS-J): baseline characteristics, treatment history and disease burden. *J Dermatol*. 2019;46(4):290–300.
26. Ameen M, Rabe A, Blanthorn-Hazell S, Millward R. The prevalence and clinical profile of atopic dermatitis (AD) in England—a population based linked cohort study using clinical practice research datalink (CPRD) and Hospital episode statistics (HES) Value Health. 2020;23(s2):S745.
27. Augustin M, Langenbruch A, Blome C, Gutknecht M, Werfel T, Ständer S, et al. Characterizing treatment-related patient needs in atopic eczema: insights for personalized goal orientation. *J Eur Acad Dermatol Venereol*. 2020;34(1):142–152.
28. Chee A, Branca L, Jeker F, Vogt DR, Schwegler S, Navarini A, et al. When life is an itch: What harms, helps, and heals from the patients' perspective? Differences and similarities among skin diseases. *Dermatol Ther*. 2020.
29. Falissard B, Simpson EL, Guttman-Yassky E, Papp KA, Barbarot S, Gadkari A, et al. Qualitative assessment of adult patients' perception of atopic dermatitis using natural language processing analysis in a cross-sectional study. *Dermatology and Therapy*. 2020;10(2):297–305.
30. Ng MSY, Tan S, Chan NHQ, Foong AYW, Koh MJA. Effect of atopic dermatitis on quality of life and its psychosocial impact in Asian adolescents. *Australas J Dermatol*. 2018;59(2):e114–e117.
31. Wang X, Li LF, Zhao DY, Shen YW. Prevalence and clinical features of atopic dermatitis in China. *Biomed Res Int*. 2016;2016:2568301.
32. Ferrucci S, Casazza G, Angileri L, Tavecchio S, Germiniasi F, Berti E, et al. Clinical response and quality of life in patients with severe atopic dermatitis treated with dupilumab: a single-center real-life experience. *J Clin Med*. 2020;9(3):791.
33. Lei D, Yousaf M, Janmohamed SR, Vakharia PP, Chopra R, Chavda R, et al. Validation of four single-item patient-reported assessments of sleep in adult atopic dermatitis patients. *Ann Allergy Asthma Immunol*. 2020;124(3):261–266.
34. Lei DK, Yousaf M, Janmohamed SR, Vakharia PP, Chopra R, Sacotte R, et al. Validation of patient-reported outcomes information system sleep disturbance and sleep-related impairment in adults with atopic dermatitis. *Br J Dermatol*. 2020;183(5):875–882.
35. Nettis E, Ferrucci SM, Ortoncelli M, Pellacani G, Foti C, Di Leo E, et al. Use of dupilumab for 543 adult patients with moderate-to-severe atopic dermatitis: a multicenter, retrospective study. *J Investig Allergol Clin Immunol*. 2020;32:124–132.
36. Heckman CJ, Riley M, Valdes-Rodriguez R, Yosipovitch G. Development and initial psychometric properties of two itch-related measures: scratch intensity and impact, sleep-related itch and scratch. *J Invest Dermatol*. 2020;140(11):2138–45.e1.
37. Heratizadeh A, Haufe E, Stölzl D, Abraham S, Heinrich L, Kleinheinz A, et al. Baseline characteristics, disease severity and treatment history of patients with atopic dermatitis included in the German AD Registry TREAT Germany. *J Eur Acad Dermatol Venereol*. 2020;34(6):1263–1272.
38. Wei W, Ghorayeb E, Andria M, Walker V, Schnitzer J, Kennedy M, et al. A real-world study evaluating adequacy of Existing Systemic Treatments for patients with moderate-to-severe Atopic Dermatitis (QUEST-AD): baseline treatment patterns and unmet needs

- assessment. *Ann Allergy Asthma Immunol.* 2019;123(4):381–8.e2.
39. Boehm D, Schmid-Ott G, Finkeldey F, John SM, Dwinger C, Werfel T, et al. Anxiety, depression and impaired health-related quality of life in patients with occupational hand eczema. *Contact Dermatitis.* 2012;67(4):184–192.
40. Chrostowska-Plak D, Reich A, Szepietowski JC. Relationship between itch and psychological status of patients with atopic dermatitis. *J Eur Acad Dermatol Venereol.* 2013;27(2):e239–e242.

ANNEX 1: DATA COLLECTION TOOL

1. What is your gender?
 - Male
 - Female
2. How old are you?
 - Less than 18
 - 18-28
 - 29-39
 - 40-50
 - 51-61
 - 62 and more
3. Do you have eczema now?
 - Yes
 - No
4. Do you have any allergy to any substance?
 - Yes
 - No
5. Do you have chest pain?
 - Yes
 - No
6. Do you have nasal allergies?
 - Yes
 - No
7. Do you have persistent respiratory infections?
 - Yes
 - No
8. Is there a family history of eczema?
 - Yes
 - No
9. Do you have constant itching?
 - Yes
 - No
10. Do you have psoriasis?
 - Yes
 - No

11. Do you have other skin diseases?
 - Yes
 - No
12. Have you ever had an itchy rash that came and went for at least six months?
 - Yes
 - No
13. Have you had this itchy rash at any time in the past 12 months?
 - Yes
 - No
14. Has this itchy rash ever affected any of the following places?
 - Flexors of the elbow joint
 - The front side of the foot
 - lower back
 - Behind the knee joint
 - Around the neck
 - The eyes
 - The second
 - Palm of the hand
 - I don't have a rash
15. Do you have carpets in your home?
 - Yes
 - No
16. Does anyone smoke in your house?
 - Yes
 - No
17. Are there currently flowering plants in your home?
 - Yes
 - No
18. Are there currently pets in your home?
 - Yes
 - No
19. Is there mold or moisture in your home?
 - Yes
 - No
20. Do you use air conditioner?
 - Yes
 - No
21. Do you have dry skin?
 - Yes
 - No
22. The nature of the weather in the area where you live?
 - humid weather
 - dry weather

APPENDIX 2: Participants responses to scale items

	variable	Frequency	Percent
Age	less than 18	61	10.0%
	18-28	322	52.6%
	29-39	138	22.5%
	40-50	68	11.1%
	51-61	20	3.3%
	62 and above	3	0.5%
Gender	Male	168	27.5%
	Female	444	72.5%

Do you have eczema now?	Frequency	Percent
Yes	82	13.4%
No	530	86.6%

The nature of the weather in the area where you live?	Frequency	Percent
humid weather	275	44.9%
dry weather	337	55.1%

Has this itchy rash ever affected any of the following places		
	Frequency	Percent
Flexors of the elbow joint	36	5.9%
The front side of the foot	32	5.2%
lower back	15	2.5%
Behind the knee joint	17	2.8%
Around the neck	27	4.4%
The eyes	22	3.6%
The second	4	0.7%
Palm of the hand	31	5.1%
I don't have a rash	428	69.9%

<i>Table 1: Identify factors and reasons of ekzema among study participants</i>		
survey item	Yes	No
	152	460
Do you have any allergy to any substance?	24.8%	75.2%
	64	548
Do you have chest pain?	10.5%	89.5%
	133	479
Do you have nasal allergies?	21.7%	78.3%
	68	544
Do you have persistent respiratory infections?	11.1%	88.9%
	191	421
Is there a family history of eczema?	31.2%	68.8%
	102	510
Do you have constant itching?	16.7%	83.3%
	26	586
Do you have psoriasis?	4.2%	95.8%
	87	525
Do you have other skin diseases?	14.2%	85.8%
	103	509
Have you ever had an itchy rash that came and went for at least six months?	16.8%	83.2%
	94	518
Have you had this itchy rash at any time in the past 12 months?	15.4%	84.6%
	546	66
Do you have carpets in your home?	89.2%	10.8%
	256	356
Does anyone smoke in your house?	41.8%	58.2%
	230	382
Are there currently flowering plants in your home?	37.6%	62.4%
	150	462
Are there currently pets in your home?	24.5%	75.5%
	40	572
Is there mold or moisture in your home?	6.5%	93.5%
	546	66
Do you use air conditioner?	89.2%	10.8%
	273	339
Do you have dry skin?	44.6%	55.4%

Logistic Regression

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	612	100.0
	Missing Cases	0	.0
	Total	612	100.0
Unselected Cases		0	.0
Total		612	100.0

Dependent Variable Encoding

Original Value	Internal Value
Yes	0
No	1

**Block 0: Beginning Block
Classification Table^{a,b}**

		Predicted		
		Eczema now		Percentage Correct
Observed		Yes	No	
		Step 0	Eczema now Yes	0
No	0		530	100.0
Overall Percentage				86.6

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	1.866	.119	247.306	1	.000	6.463

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	gender	.017	1	.896
		any.allergy.substance	35.305	1	.000
		chest.pain	2.944	1	.086
		nasal.allergies	5.539	1	.019
		persistent.respiratory.infections	4.945	1	.026
		family.history	30.062	1	.000
		constant.itching	156.862	1	.000
		psoriasis	38.285	1	.000
		other.skin.diseases	6.227	1	.013
		itchy.rash.least.six.months	80.000	1	.000
		itchy.rash.past.12.months	93.661	1	.000
		itchy.rash.affected	40.547	1	.000
		carpets.in.home	5.548	1	.019
		smoke	1.070	1	.301
		flowering.plants.in.home	.608	1	.435
		pets.in.home	.092	1	.762
		mold.or.moisture.in.home	7.334	1	.007
		air.conditioner	.497	1	.481
		dry.skin	21.497	1	.000
		nature.weather	2.155	1	.142
		age	.454	1	.500
Overall Statistics			215.016	21	.000

Block 1: Method = Enter
Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	177.392	21	.000
	Block	177.392	21	.000
	Model	177.392	21	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	304.737 ^a	.252	.462

Classification Table^a

	Observed	Predicted			
		Eczema now		Percentage Correct	
		Yes	No		
Step 1	Eczema now	Yes	41	41	50.0
		No	16	514	97.0
	Overall Percentage				90.7

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a						
gender	.326	.353	.853	1	.356	1.385
any.allergy.substance	.894	.330	7.334	1	.007	2.446
chest.pain	-.327	.504	.421	1	.516	.721
nasal.allergies	-.385	.383	1.011	1	.315	.680
persistent.respiratory.infections	.174	.476	.133	1	.715	1.190
family.history	.438	.333	1.729	1	.188	1.549
constant.itching	2.119	.349	36.941	1	.000	8.321
psoriasis	1.135	.600	3.576	1	.059	3.110
other.skin.diseases	-.212	.404	.274	1	.601	.809
itchy.rash.least.six.months	.734	.453	2.630	1	.105	2.084
itchy.rash.past.12.months	.820	.460	3.182	1	.074	2.271
itchy.rash.affected	.052	.063	.685	1	.408	1.054
carpets.in.home	-.699	.501	1.945	1	.163	.497
smoke	-.757	.344	4.834	1	.028	.469
flowering.plants.in.home	.609	.359	2.871	1	.090	1.838
pets.in.home	-.550	.397	1.923	1	.166	.577
mold.or.moisture.in.home	.141	.559	.063	1	.802	1.151
Air conditioner	.087	.546	.025	1	.873	1.091
Dry skin	.639	.324	3.895	1	.048	1.894
Nature weather	.038	.320	.014	1	.906	1.038
age	-.019	.016	1.333	1	.248	.982
Constant	-7.144	2.118	11.379	1	.001	.001