ORIGINAL ARTICLE

Assessment of Perceptions and Experiences toward Allergic Diseases: A Cross-Sectional Community-based Study from the Prospective of Saudi Adult's

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Abstract

Background and Objective: Although allergic diseases (AD) are very common and their cause may not be easily identifiable, the presence of these diseases worsens everyday activities. Therefore, this study aimed to assess the Incidence, Perceptions, and Experiences of AD among Saudi adults in Riyadh, Saudi Arabia. **Methods:** A cross-sectional study was conducted from March to August 2024 using an online questionnaire among the Saudi adults living in Riyadh, Saudi Arabia, using a convenience sampling technique. The data were collected. To achieve the objective, a validated, self-reporting questionnaire, with a total of 20 items, assessed the participant's responses toward AD. The data were analyzed using the Statistical Package for the Social Sciences version 27. **Results:** The response rate was. The majority of the participants (73%) do not have any family history of AD; however, a similar percentage of participants are diagnosed with some form of AD. The most commonly reported AD were asthma 59 (25%), followed by eczema, 85 (21.9%), allergic rhinitis 47 (12.1), skin rash 27 (6.9%), and urticaria 10 (2.6%). Although the majority of the participants (91.3%) reported that their allergy is not serious, while 74.3% reported that it affects their daily activities. The most common cause of AD among respondents was due to insects (9.4%) and clothes (8.7%). The most commonly reported symptom associated with allergy was itching (64.6%), followed by itching with a burning sensation (23.9%) and feeling hot (11.6%). **Conclusion:** The current findings revealed that various allergy disorders existed among Saudi residents, the most frequent of which were eczema, asthma, and allergic rhinitis. Individuals' quality of life is negatively impacted by allergies in the form of interference with daily activities, sleep problems, difficulty breathing, and school absenteeism.

Key words: Allergic disease, allergic rhinitis, eczema, Saudi adults, skin rash

INTRODUCTION

Although allergic diseases (AD) are very common and their cause may not easily identifiable, among the AD, contact dermatitis is a common disease and is characterized by an inflammatory intolerance response characterized by a particular substance by direct contact with the skin. It occurs when the skin encounters irritants or allergens, leading to an allergic reaction or irritation.[1,2] According to the Global Disease Burden Index, dermatitis ranks first among skin diseases and ranks 15th worldwide for non-fatal diseases[3] annually, there are estimated amounts of 5.7 million physician visits.[4] A common disease seen in many countries is allergic and irritant contact dermatitis.[1,5,6] Contact dermatitis is a leading cause of occupational disease.[7] It has the potential for substantial effects on quality of life and the occupational activity of patients, and its potential to persist or recur if not treated for many years, and it can be considered a long-term chronic condition.[8-10] The diagnosis and treatment of this condition require a multi-stage approach, causing increased financial and healthcare system burdens.[7,11] Contact dermatitis is treated first with self-care measures and over-the-counter medications.[9]

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Allergy is a significant concern for people of all ages worldwide, regardless of gender, race, or socioeconomic background.[12,13] It is one of the most common and rapidly expanding chronic human health disorders, as well as a cause of unfavorable work-related outcomes (examples include absenteeism, diminished motivation, poor performance, and low personal achievement).[7,9] Furthermore, research has indicated that AD-like dermatitis and eczema hurt physical and mental health (i.e., emotional, psychological, and social well-being).[14,15] It can cause serious psychological repercussions such as worry, disrupted sleep due to itching and scratching, and exhaustion.[9]

The prevalence of AD varies in different countries. For example, a study in the United States (U.S.) reported a prevalence of AD between 1.5% and 5.4%,[16] whereas the prevalence of in Spain was contact dermatitis 28%.[17] In the United Kingdom, the prevalence of 17 and 55% occupational AD reported.[18] Similarly, another retrospective study among Romanians reported an 80–90% prevalence of allergic dermatitis.[13] In Ethiopia, the prevalence of AD was 31.5% among healthcare providers.[19] In Germany, the reported allergic dermatitis prevalence was between 15% and 20%,[1] in Tunisia prevalence of 4% of all occupational diseases was reported.[20] Furthermore, previous studies revealed that the contact dermatitis is more prevalent among females, Infants, and Elderly.[10] According to a recent research, 61.2% of skin diseases are prevalent in Saudi Arabia.[20] The father's occupation as a farmer, poor personal hygiene, a history of skin conditions, sharing clothing and towels with family members, experiencing trauma within the last month, and not having health insurance were the most common factors linked to skin allergies.[20] In accordance with a different study conducted in the Hail region of Saudi Arabia, vitiligo, which is the most common pigmentary lesion overall, psoriasis, acne, alopecia, and other pigmentary diseases are the most common AD. Atopic dermatitis is the most common among all eczema patients.[21]

Skin allergies impact a wide range of ethnic groups, with inequalities in frequency, disease development, clinical outcomes, and access to care.[22,23] There is little information on perceptions and experiences with skin allergies in the Arabic population, even though there is a significant economic and psychosocial cost of skin allergies, as well as a major unmet need for disease care, which must be addressed. Furthermore, there is an increasing tendency of skin disease prevalence; however, due to the region's huge number of factors, including environmental, socioeconomic, and sociocultural variety, prevalence differs widely among and within countries. Despite the continued rise of numerous skin-related diseases in Saudi Arabia and other countries, insufficient research has been conducted in Saudi Arabia to analyze adults' perceptions and experiences with skin allergies and their associated factors. As a result, the current study is necessary to analyze perceptions and experiences with skin allergies among adults in Riyadh Saudi Arabia. As a result, the purpose of this study was to analyze perceptions and Experiences toward skin allergies and its associated factors among Saudi adults in Riyadh, Saudi Arabia.

METHODS

Study design and population

The study followed a cross-sectional design using an anonymous self-administered online questionnaire from March to August 2024. The targeted population for this study was adults aged above >18 years, a Saudi national, able to provide informed consent, and agreed to complete the questionnaires, both genders, residing in the region, were included. Adults who did not match the inclusion criteria were excluded from the study. This study used a snowball sampling approach to collect the data from the targeted respondents using WhatsApp, Instagram, Snapchat, and Facebook social media sites. Furthermore, before data collection, the study protocol was reviewed and approved by the ethical committee at King Saud University, Riyadh, Saudi Arabia. This study followed the declaration of Helsinki a guideline for human research. In addition, participants were assured that the data would be used for research purposes and confidentiality would be maintained throughout the study.

Similar to a previous study[24,25] the required sample size was calculated using a Raosoft sample size calculator at 95% confidence intervals and 5% pre-determined margin of error with 50% response distribution for each question. The minimum required sample size for this study was 385 individuals.

Questionnaire design

The questionnaire was adapted from previous research, and it involved three sections.[25-27] Section one collected sociodemographic information (4 items), such as age, gender, and the past medical history of the participants, including prior history of AD. Section 2 involved perceptions and experiences toward AD, with a total of 9 items assessed. Section 3 evaluated the frequency of signs and symptoms allergy. The last section of the study collected information about the source of AD and the source of the treatment for their allergy, assessed on multiple choice questions. The original version of the questionnaire was prepared in the English language and then translated into Arabic using forward and backward translation procedures. To ensure the clarity of the questions, the questionnaire was pilot-tested with a small number of (n = 30) participants selected randomly. The data from the pilot study were excluded from the final results. The reliability was determined using Cronbach alpha value, which was found to be 0.76, indicating the questionnaires are reliable and valid to carry out the study.

Since Arabic is Saudi Arabia's official language, the final questionnaire was disseminated in that language. Using Google Forms, the questionnaire was developed. To the survey link, an introduction was included which outlined the goal of the study, the inclusion criteria, and an invitation to participate for subjects. The cover page of the questionnaire displayed a participant information sheet with detailed information about the conduct of the study.

Statistical analysis

The data, after being gathered in Excel, were imported into version 27 of the Statistical Package for the Social Sciences. To present the study's findings, descriptive statistics such as frequencies (*n*) and percentages (%) were employed. For every analysis, an alpha level of 0.05 was used as the threshold for statistical significance.

RESULTS

A total of 389 participants agreed to take part in this study and completed the questionnaire. Just more than two-thirds (75.6%) of them were female, and just above half (54.4%) were aged between 18 and 24 years. The majority of the participants (73%) do not have any family history of AD, and a similar percentage of participants are diagnosed with some form of AD. Furthermore, detailed responses of participants' demographic characteristics were given in Table 1.

Over two-thirds (65.6%) of participants reported never having AD (Table 2). The majority of the participants (91.3%) reported that their allergy is not serious, while 74.3% reported that it affects their daily activities. It was reported that more than two-thirds (65.6%) of the participants did not visit a doctor or pharmacist if they had an allergic reaction to an allergen. The majority of participants (62.2%) indicated that after applying topical medications, skin traces never remain after sensitivity is resolved. If no topical medications are used, slightly <½ of respondents (48.6%) believe that occasionally, skin traces remain after sensitivity has passed. In a survey of their participants, 68.9% said they had experienced an attack of allergies in the past 6 months. However, 71.2% said they rarely experienced allergies. The most commonly reported AD were asthma 59 (25%), followed by eczema, 85 (21.9%), allergic rhinitis 47 (12.1), skin rash 27 (6.9%), and urticaria 10 (2.6%), as shown in Figure 1.

In this study, when we asked about the most probable cause of AD among respondents, 9.4% of them reported allergies due to insects, while 8.7% of them said it due to clothes. On the other hand, 7.5% of them agreed allergy due to animals, as shown in Figure 2.

The signs, onset, and symptoms of AD are described in Table 3. The most commonly reported symptom associated

Table 1: Demographic information of the participants (*n*=389)

Characteristics	Frequency *n* (%)
Gender	
Male	95 (24.4)
Female	294 (75.6)
Age group	
19	1 (0.3)
20–24	212 (54.5)
25–35	175 (45)
36	1 (0.3)
Is there a family history of any allergic diseases?	
Yes	115 (29.6)
No	284 (73)
Have you ever been diagnosed with any allergic diseases?	
Yes	284 (73)
No	105 (27)

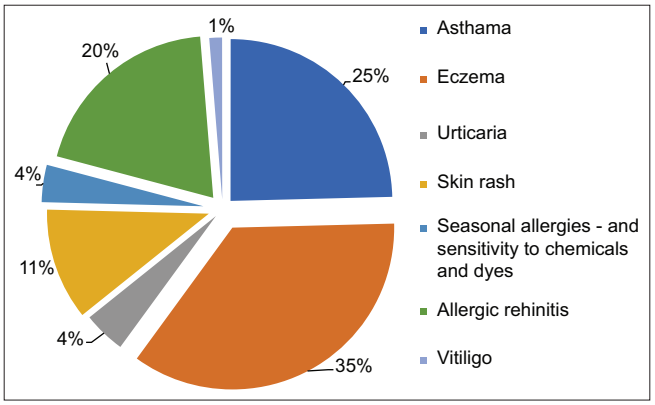

Figure 1: Allergic diseases among respondents

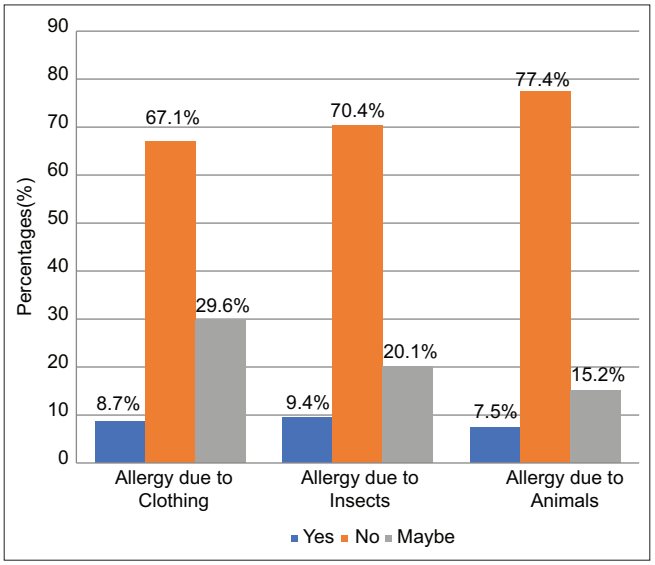

Figure 2: Causes of allergy among participants

Table 2: Participants responses toward perceptions and experiences toward allergic diseases (*n*=389)

Characteristics	*n* (%)
Have you ever had an allergic disease?	
Yes	134 (34.3)
No	255 (65.6)
How much does your skin sensitivity affect your daily activities?	
Severe	10 (2.6)
Medium	90 (23.1)
Low	289 (74.3)
Did you see a doctor or pharmacist if you had an allergy attack after direct contact with an allergen?	
Yes	134 (34.4)
No	255 (65.6)
How many times per month are you exposed to allergens?	
Once	43 (11)
Twice	28 (7.2)
More than twice	41 (10.5)
Rarely	277 (71.2)
If topical medications are used, how do skin effects remain after your sensitivity ends?	
Always	17 (4.4)
Never	242 (62.2)
Occasionally	130 (33.4)
If no topical medications are used, do skin traces remain after the end of your sensitivity?	
Always	52 (13.4)
Never	148 (37.1)
Occasionally	189 (48.6)
Have you had an allergic attack in the past 6 months?	
Yes	268 (68.9)
No	121 (31.1)

with allergy was itching (64.6%), followed by itching with a burning sensation (23.9%) and feeling hot (11.6%). The form of sensitivity virtual was redness accompanied by heat (48.6%). However, without borders or corners was the shape of the limits of virtual sensitivity. Almost half (49.9%) responded unspecified when asked when they have skin allergies most often.

In this study, the most commonly reported sources of information for AD was dermatologist 40.9% (n = 159), followed by the internet 27% (n = 105), general physician 8.5% (n = 33), and social media 6.4% (n = 25), as shown in Figure 3.

Table 3: Participants responses toward signs, onset, and symptoms of allergic diseases

Characteristics	*n* (%)
Symptoms associated with your allergy?	
Feeling hot	45 (11.6)
Itching	251 (64.6)
Itching with a burning sensation	93 (23.9)
What is the form of your sensitivity virtual?	
Bubbles and bulge	55 (14.1)
Dense and crusty	145 (37.3)
Redness accompanied by heat	189 (48.6)
What is the shape your allergic rashes (skin rash)?	
Clear corners and more distinct lines and borders	72 (18.6)
Less clear lines and blurred boundaries	62 (15.9)
Without borders or corners	255 (65.6)
When do you most often have skin allergies?	
Every time	41 (10.5)
In summer	66 (17)
In winter	88 (22.6)
Unspecified	194 (49.9)

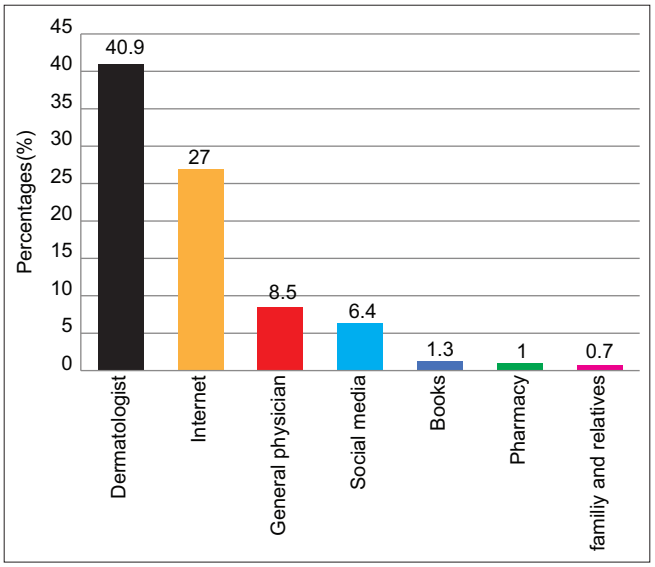

Figure 3: Source for information about your allergic disease

With regards to the main source of information for the treatment of allergies in this study was dermatologist 48.8% (n = 190), followed by the pharmacist (14.9%; n = 58) physician, 7.7% (n = 30), as shown in Figure 4.

DISCUSSION

Although hygiene is important in maintaining optimal health outcomes and avoiding potential skin reactions or allergies,

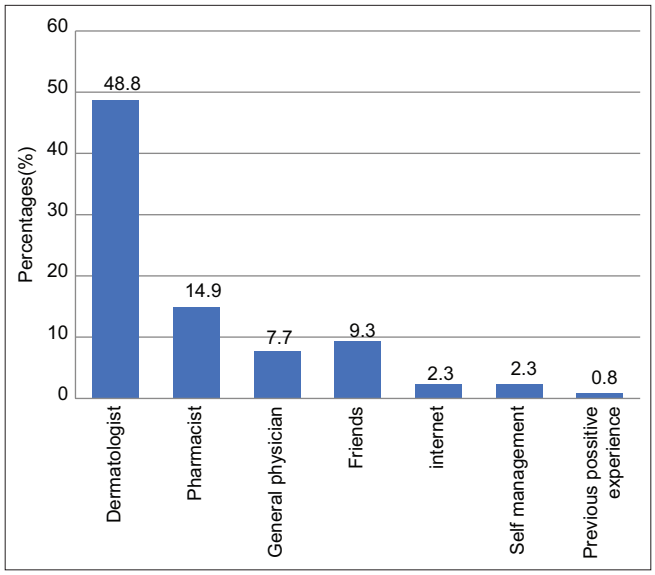

Figure 4: Source of information for the treatment of allergic disease

AD is a frequent condition that affects many people globally, regardless of age or gender. Adults in Saudi Arabia are no exception to these problems. Personal hygiene habits, on the other hand, have an important role in reducing the occurrence of skin allergies. Improper hygiene practices, such as not washing hands frequently or wearing clothing that is too tight, can increase the risk of irritant and allergen exposure. Furthermore, factors such as humidity, weather, and chemical exposure can all contribute to the development of these disorders. The current findings revealed that asthma, followed by eczema, allergic rhinitis, skin rash, and urticaria, were the most commonly reported skin allergies among respondents. These findings were similar to previous studies, published in Saudi Arabia and other countries.[22,26] For example, a recent meta-analysis published in 2020 by Almohideb found the incidence of skin disease patterns in different locations of Saudi Arabia, with skin appendages and dermatitis being the most commonly reported skin disorders at 24.8% and 24%, respectively.[26] Skin infection accounted for around 18.5% of all infections.[22] Similarly, another study by Alqahtani in 2020 among young Saudi adults revealed a relatively high prevalence of AD and reported a 13.1% for dermatitis, and 5% for allergic rhinitis.[27] On the other hand, a more recent study in the capital region reported that 32.4% (n = 697) of the respondents suffered from Eczema, which was the most common type of allergy.[28] Furthermore, centers for disease control and Prevention reported that 18.9% of American adults have a seasonal allergy, 10.8% have eczema, and 5.8% have a food allergy, furthermore, the previous findings revealed boys (20%) are more likely to have a seasonal allergy than girls (17.7%) and Children's under the age of 6–11 years are most likely to have eczema (12.1%), then children 0–5 years (10.4%), and children 12–17 years (9.8%).[14,29] In addition, a recent large survey of five countries about skin diseases by Salah *et al*., revealed a 35.6% of respondents have allergies. Among patients reporting allergies, 68.6% declared that their allergy makes their skin react.[30] These findings suggest that allergies are more common and prevalent among individuals, due to a variety of reasons, including changes in weather or environmental conditions, therefore it is advisable to use various medical products, furthermore handwashing or maintaining hygiene is another possible solution to prevent the occurrence of eczema.[31]

In our study, nearly one-third of the participants had a family history of skin disease, and 27% agreed that they had been diagnosed with a skin disease, whereas a recent study in Saudi Arabia found that nearly one-fifth of the study participants (19.5%) reported suffering from some form of allergy and having a family history of allergy.[28] Furthermore, previous research has shown that Saudi people have a personal history of hand eczema or other skin conditions on their hands.[32] Moreover, a prior study found an association between allergy and significant skin reactions, which were related to skin discomforts such as itching, burning, and pain. Skin discomforts were linked to a higher likelihood of poor quality of life.

In this study, the most common symptoms associated with allergy among respondents were itching, followed by itching and burning. Furthermore, 22.6% of them reported having allergies in winter, while half of them reported unspecified time. These findings were comparable to previous findings.[30,31] For instance, a study by Alwadany *et al*., in 2023, the author reported severe itching among 59.6% of the respondents, followed by pain or discomfort at 22.1%, burning or pain at 21.2% redness at 75%.[28] Similarly, another study among healthcare workers in Saudi Arabia revealed dryness (92.9%), itchiness (50%), and redness (46.4%) of the skin.[32] Likewise, another study by Aburiziza *et al*., reported that the prevalence of allergy was higher in the summer and winter than in spring and autumn.[33] Further research suggested that the central region of Saudi Arabia was found to have a higher incidence of allergies compared to other regions in Saudi Arabia.[33,34] This might be because Saudi Arabia is a dry country where there are periodic sandstorms in all seasons, which carry many types of microorganisms and dust particles that can trigger or exacerbate respiratory diseases such as allergies and skin reactions.[33,34]

However, in this study, 34.3% of the respondents reported that their allergy was due to direct contact with allergens, and the majority of them reported that their allergy was not serious. Further, 8.7% of them reported their allergy due to clothes, while 9.4% of them said it was due to insects. These findings were similar to earlier findings by Aburiziza *et al*., where the author reported the use of perfumes effect of dust, air conditioning, weather, air pollution, drugs or chemicals, tobacco, and insects.[33] In addition, a high risk of skin allergy was only considered to be present if a respondent had skin sensitivity, environmental factors, skin barrier function, and hygiene conditions. A higher figure for contact dermatitis and skin diseases has been described in many countries in the Middle East.

However, our study has a few drawbacks. First, the research was designed as an online cross-sectional self-reported survey, which could make our findings appear less reliable. However, because the survey was anonymous and entirely voluntary, one can presume that the incidence and perceptions of allergies were accurately recorded. Second, the study was conducted on a general population rather than on individuals who had hospital consultations. Third, although analyzing participants' perspectives and experiences with allergic disorders, as well as their causes and treatment, the amount of knowledge regarding allergies was not assessed. Finally, this study was limited to a single region in Saudi Arabia, limiting the generalizability of the results to other regions and countries.

CONCLUSION

The current findings revealed that various allergy disorders existed among Saudi residents, the most frequent of which were eczema, asthma, and allergic rhinitis. Individuals' quality of life is negatively impacted by allergies in the form of interference with daily activities, sleep problems, difficulty breathing, and school absenteeism. More research is needed to determine the predictors of the rising prevalence of allergy disorders in Saudi Arabia, as well as the impact of mass screening programs on this prevalence. Furthermore, research based on confirmed laboratory testing that analyzes the incidence of allergic disorders is essential to emphasize the true prevalence of diseases.

DATA AVAILABILITY

The data used to support the findings of this study are available from the corresponding author on request.

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