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KNOWLEDGE AND AWARENESS LEVEL OF ATOPIC DERMATITIS AMONG ADULTS LIVING IN SAUDI ARABIA

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Abstract:

Background: Atopic dermatitis, also known as atopic eczema, is a common chronic-relapsing, inflammatory, and itchy eczematous skin disease that affects both adults and children. Asthma, food allergies, and allergic rhinitis are all related to atopic dermatitis, and having atopy in the family considerably increases the likelihood of developing this disease. Our study aims to assess knowledge and awareness of Atopic Dermatitis among adults living in Saudi Arabia.

Methodology: This is an observational cross-sectional study that was conducted in Saudi Arabia during 2023-2024. The sample size was estimated by Raosoft with a confidence level of 95% and a margin of error of 5%. The minimum sample size was 385. The data was collected through a standardized clear questionnaire, and its analysis was done using SPSS version 25.

Results: Knowledge score showed that the largest proportion of individuals or entities falls within the moderate level category, accounting for 48.6%. Furthermore, the data indicates that 44.0% participants are classified as low level. Conversely, the high-level category represents 7.3% of the participants. Awareness score showed that the majority of the population falls into the low level, accounting for 81.5% of the total sample. On the other hand, the data also reveals that 16.0% of participants have an average level of awareness. Additionally, the data shows that only 2.5% of the participants have a good level of awareness. Relationship between eczema and quality of life score showed that the majority of individuals (51.6%) reported a low relationship between eczema and quality of life score. Additionally, 22.9% of individuals reported an average relationship between eczema and quality of life score, while 25.4% reported a good relationship between eczema and quality of life score.

Conclusion: In conclusion, the Saudi general population exhibited poor knowledge and awareness levels towards eczema. Addressing the knowledge and awareness level of atopic dermatitis among

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adults living in Saudi Arabia is a critical step towards improving the health and well-being of those affected by this condition.

Keywords: Atopic dermatitis, atopic eczema, **cross-sectional study, Saudi Arabia.**

Introduction:

Atopic dermatitis (AD), commonly known as atopic eczema, is a prevalent chronic inflammatory skin disorder that affects people of all ages [1]. It is more common in children, although it may initially appear or continue into adulthood [2]. It is the most common chronic inflammatory skin disorder worldwide [3]. Eczema, dry skin, and itching are common symptoms of atopic dermatitis (AD) [4]. People with atopic dermatitis frequently experience a significant impact on their quality of life [5]. Because of its symptoms, including pruritus, and its frequent incidence in visible places, atopic dermatitis (AD) may have a severe impact on patients' lives by negatively impacting various aspects of quality of life (QoL) [6]. Children with atopic dermatitis may also undergo a massive burden, with significant consequences on QoL as well as bullying at school and impacts on daily activities, schoolwork, and personal relationships [7]. Atopic dermatitis has a complicated etiology that involves skin barrier dysfunction, skin dysbiosis, and a dysregulated immune system [8]. Atopic dermatitis is related to other atopic disorders such as asthma, food allergies, and allergic rhinitis, and a family history of atopy is associated with a greatly higher chance of having Atopic dermatitis [9]. Several environmental factors, including diesel pollution, humidity, and skin irritants, are also related [10]. Immunoglobulin E (IgE) levels are frequently high in atopic dermatitis patients [11]. The clinical diagnosis is based on the Hanifin and Rajka criteria [12]. Patient education has the potential to increase patients' knowledge about this disease and how to manage it [13]. One of the most common noninfectious skin illnesses in the world, atopic dermatitis (AD) affects up to 20% of children and 2-8% of adults [14]. In 60%–65% of instances, atopic dermatitis begins in the first few months of life, and in 85% of cases, it starts before the age of five [15]. Atopic dermatitis is the most prevalent skin disorder in children, affecting up to 20% of them [16]. A study has been published on parental awareness shows that there was adequate knowledge among Saudi parents, with the majority (73.9%) identified as having an acceptable level of awareness [17]. Another study shows that educational programs seem to be more beneficial than conventional treatment in the long-term management of atopic dermatitis and should be for both patients and their parents [18]. In 2020, research has been conducted about the urgent need for increased educational outreach to healthcare professionals, patients, and their families about the medical significance of these conditions and provided management options given the high disease burden in early childhood and the significant proportion that persists into adulthood [19]. We undertook the present research due to insufficient Saudi study had previously explored the level of knowledge and awareness among adults regarding Atopic Dermatitis. The research finding is expected to aid health professionals with data about subsequent action to improve the general public's knowledge and coordinate future Atopic Dermatitis promotional initiatives.

Objectives: The purpose of the study is to assess the knowledge and awareness level of Atopic Dermatitis among adults living in Saudi Arabia.

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Materials and Methods**:**

Study design: This is an observational cross-sectional study that was conducted in Saudi Arabia during 2023-2024.

Study setting: Participants, recruitment, and sampling procedure: The study's population consisted of Saudi adults over the age of 18, participants were recruited during 2023-2024 from people receiving the questionnaire.

Inclusion and Exclusion criteria: This study will include all male and female adults living in Saudi Arabia, adults living outside Saudi Arabia and children was excluded from the study.

Sample Size: The sample size was estimated by Raosoft with a confidence level of 95% and a margin of error of 5%. The minimum sample size was 385.

Method for data collection and instrument (*Data collection Technique and tools)*: An online questionnaire was prepared and distributed by the data collectors to collect data from random people in Saudi Arabia. The questionnaire will include questions regarding the participants' sociodemographic (age, gender, and educational level) as well as questions about knowledge and awareness level of Atopic Dermatitis. In our study we will used questionnaire was done by [16,17,20].

Scoring System:

Knowledge score

There were Eight questions in this part and the general people were asked about their knowledge level of Atopic dermatitis. Each question had three choices. A correct answer was given a 1 score, whereas a 0 score was given for a wrong answer. Maximum score = 8 points

The scores for knowledge varied from 0-8 points and were classified into three levels as follows:

1. High level:7-8 scores
2. Moderate level: 5-6
3. Low level: 0-4

Awareness score

A total of 10 statements were used to assess the awareness of Atopic dermatitis. For each correct answer, a score of 1 was considered. A score of "0" was provided for incorrect responses. A "2" score for all of the above, A response "I don't know" was similarly considered wrong and received a score of "0", whereas " I know very little" was considered 1 score, A response "I know" 2 score, Maximum score = 16 points, The respondent's awareness was divided into three categories:

1. Low level (0-9)
2. Average level (10-11)
3. Good level (12-16**)**

Self-assessment score

A total of 2 questions, For each correct answer, a score of 1 was considered. A score of "0" was provided for incorrect responses. "2" score for all of the above. The total score was calculated.

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Maximum score = 7 points

1. Low level (0-3)
2. Average level (4-5)
3. Good level (6-10)

Relationship between eczema and quality of life score

There were 4 statements, for each correct answer, a score of 1 was considered. A score of "0" was provided for incorrect responses A response "I don't know" was similarly considered wrong and received a score of "0", a Maximum score = 4 points

Analyzes and entry method: A pre-tested questionnaire was used in data collection. The questionnaire included questions about sociodemographic factors and awareness. Data was coded, entered, and analyzed using the Statistical Package for the Social Sciences version 25.

Results:

Table (1) showed that age distribution reveals that the majority of respondents fall within the 21-30 age group, constituting 40.9% of the sample, followed by the 31-40 age group at 16.1%. The gender distribution indicates a higher representation of females, accounting for 70.4% of the total respondents. In terms of nationality, the majority are Saudi nationals, comprising 94.1% of the sample. Geographically, the data is divided into five regions: East, Middle, North, South, and West, with the East and Middle regions having the highest representation at 34.3% and 25.0% respectively. Regarding education level, individuals with a Bachelor's degree make up the largest proportion at 52.8%, followed by those with a high school education at 23.9%. Occupationally, the sample is diverse, with students representing 33.2% and employees at 30.9%. The data also reflects a range of income brackets, with over 15,000 Saudi Riyals being the most common category at 36.5%. Lastly, the marital status distribution shows that singles and married individuals are the two major segments, accounting for 49.3% and 43.8% respectively.

Table (1): Sociodemographic characteristics of participants (n=1065)

Parameter		No.	%
Age	18_20	182	17.1
	21_30	436	40.9
	31_40	171	16.1
	41_50	169	15.9
	51_60	70	6.6
	more than 60	37	3.5
Gender	Male	315	29.6
	Female	750	70.4
Nationality	Saudi	1002	94.1
	Non-Saudi	63	5.9

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Location	East	365	34.3
	Middle	266	25.0
	North	97	9.1
	South	144	13.5
	West	193	18.1
Education Level	Illiterate	6	.6
	Elementary school	13	1.2
	middle School	37	3.5
	High school	255	23.9
	Bachelor's degree	562	52.8
	Diploma degree	123	11.5
	Graduate Studies	69	6.5
Occupation	Free businees	38	3.6
	Retired	90	8.5
	employee	329	30.9
	student	354	33.2
	Unemployed	213	20.0
	Other	41	3.8
Income (in Saudi Riyals)	Less than 5,000	141	13.2
	5,000 - 10,000	293	27.5
	11,000 - 15,000	242	22.7
	Over 15,000	389	36.5
Marital Status	Married	466	43.8
	Single	525	49.3
	Divorced	53	5.0
	Widowed	21	2.0

The first question in table (2) asked whether the respondents had heard of atopic dermatitis, and the results show that 86.1% of respondents answered "Yes," 9.3% answered "No," and 4.6% answered "Don't know." The second question inquired about the respondents' beliefs regarding the contagiousness of atopic dermatitis. The results reveal that 20.8% of respondents believed it to be contagious, while 63.8% did not, and 15.4% were unsure. The third question focused on whether the respondents believed that their children might develop atopic dermatitis if they themselves had the disease. The responses show that 52.5% of respondents expressed concern that their children could develop atopic dermatitis if they had the condition, while 25.1% did not believe this to be the case, and 22.4% were unsure.

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Table (2): Self-assessment of participants of atopic dermatitis (n=1065).

Parameter	Yes	No	Don't know
Heard of atopic dermatitis (eczema)	917 86.1%	99 9.3%	49 4.6%
Think atopic dermatitis (eczema) can be contagious	222 20.8%	679 63.8%	164 15.4%
Think your children might develop atopic dermatitis (eczema) if you have the disease?	559 52.5%	267 25.1%	239 22.4%

Table (3) showed that according to participants the majority of atopic dermatitis cases affect the skin (91.1%), followed by a much smaller percentage affecting muscles (2.3%), bones (2.5%), the heart (1.3%), and other body parts (2.8%).The causes of atopic dermatitis vary, with a notable percentage attributed to unknown reasons (27.4%), bacterial infections (10.7%), and fungal infections (11.2%). A significant proportion also indicated a lack of knowledge regarding the causes (32.9%). According to participants atopic dermatitis is more commonly observed in children (60.2%) compared to teenagers (10.9%) and the elderly (5.5%). A substantial number of respondents also expressed uncertainty about its prevalence among different age groups (18.8%). Children with atopic dermatitis may commonly suffer from allergic rhinitis (27.4%) and asthma (25.6%). A significant proportion of respondents (46.9%) indicated a lack of knowledge about the associated diseases. According to participants the most prevalent symptoms of atopic dermatitis include itch (71.3%), rash (77.5%), and redness (68.5%). A smaller percentage expressed uncertainty about the symptoms (7.6%). A considerable number of respondents indicated a lack of understanding regarding eczema (68.9%) and its treatment plan (57.7%). The majority recognized the importance of maintaining skin moisture by applying cream or lotion (58.4%) and avoiding aggravating factors such as scented soaps and hot weather (61.5%). A significant majority acknowledged the need to apply a thin layer of steroid cream only to the red, itchy areas (63.3%). A substantial number of respondents recognized the need to contact the primary care center if specific symptoms or concerns arise (55.8%). Factors such as genetics (62.1%), the environment (53.4%), and immunity (48.0%) were identified by participants to be involved in the pathogenesis of atopic dermatitis. Furthermore, family history of atopy (eczema) was recognized as a known risk factor (67.0%).

Table (3): Knowledge of participants of atopic dermatitis (n=1065).

Parameter		No.	%
Which part of the body is affected by atopic dermatitis (eczema)?	Skin	970	91.1
	Muscles	24	2.3
	Bones	27	2.5
	the heart	14	1.3
	Other	30	2.8

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What causes atopic dermatitis (eczema)?	Bacterial infection	114	10.7
	Fungal infection	119	11.2
	Viral infection	54	5.1
	unknown reason	292	27.4
	I don't know	350	32.9
	Other	136	12.8
Atopic dermatitis (eczema) is more common in:	children	641	60.2
	Teenagers	116	10.9
	the elderly	59	5.5
	I don't know	200	18.8
	Other	49	4.6
Typically, which of the following diseases might children with atopic dermatitis (eczema) suffer from?	Allergic rhinitis	292	27.4
	asthma	273	25.6
	I don't know	500	46.9
What are the symptoms of atopic dermatitis (eczema)?	Itch	759	71.3
	rash	825	77.5
	redness	729	68.5
	Other	81	7.6
	I don't know	81	7.6
Which of the following statements about eczema is true?	Eczema can be treated	511	48.0
	Eczema is a common skin problem in children	607	57.0
	Eczema is always caused by allergies	463	43.5
	Eczema can be transmitted from one person to another by touch	128	12.0
	I don't know	150	14.1
The most important part of taking care of eczema skin is	Use steroid cream or ointment on the skin	328	30.8
	Maintain skin moisture by applying cream or lotion	622	58.4
	Take anti-itch medications orally	67	6.3
	Taking antibiotics orally	48	4.5
It is important to avoid these things for people with eczema:	Dry air and sweat	283	26.6
	Scented or scented soaps/detergents/lotions	455	42.7
	Rough clothes	327	30.7
	Long hot baths or showers	278	26.1
	all of the above	655	61.5
How long should a person with eczema bathe?	Less than 10 minutes	371	34.8
	20 minutes	124	11.6

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	30 minutes	45	4.2
	I don't know	525	49.3
Which of the following is true regarding the steroid cream or ointment used by someone with eczema?	Steroid creams and ointments have no side effects	85	8.0
	Steroid creams and ointments should not be used after bathing	98	9.2
	You should apply a generous layer all over the skin	208	19.5
	You should apply a thin layer only to the red, itchy areas	674	63.3
When should I contact my primary care center about eczema?	If itching, dryness, redness, and peeling do not improve after 3 to 5 days	333	31.3
	If the person shows signs of skin infection including oozing/warmth/redness of the skin, fever, or not acting normally	347	32.6
	If there are any concerns about the patient's skin or general health	225	21.1
	all the above	594	55.8
How well do you understand the concept of eczema?	I know well	212	19.9
	I know very little	734	68.9
	I don't know	119	11.2
How well do you understand your eczema treatment plan?	I know well	150	14.1
	I know very little	614	57.7
	I don't know	301	28.3
Some things can aggravate eczema, such as scented soaps and hot weather. How well do you understand what makes eczema worse?	I know well	330	31.0
	I know very little	539	50.6
	I don't know	196	18.4
People with eczema often have sick days and bad days. Bad skin days are when the skin is red and itchy. How well do you understand how eczema treatment can change when a patient has poor skin condition?	I know well	206	19.3
	I know very little	556	52.2
	I don't know	303	28.5
Atopic dermatitis (eczema) has a complex disease process. What factors are involved in the pathogenesis of the disease?	Infection	307	28.8
	the environment	569	53.4
	Genetics	661	62.1
	Immunity	511	48.0

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Which of the following is a known risk factor for atopic dermatitis (eczema)?	Family history of atopy (eczema)	714	67.0
	Early exposure to antibiotics	244	22.9
	Timing of introduction of solid foods	164	15.4
	Loss of function mutations in the FLG gene	287	26.9
	Abstain from allergenic foods	306	28.7
	High birth rates	95	8.9
	Type of delivery during childbirth	123	11.5

Table (4) showed that a significant portion of respondents, accounting for 34.6%, expressed the belief that atopic dermatitis could indeed affect school achievement and performance. On the other hand, 42.2% of respondents indicated that they did not think atopic dermatitis would have such an impact, while 23.3% were unsure. Moving on to the question of whether atopic dermatitis might pose challenges in making friends, the data indicates that a substantial 46.9% of respondents believe it could indeed lead to difficulties in forming social connections. In contrast, 32.5% of respondents disagreed with this notion, and 20.7% expressed uncertainty. Furthermore, the statistics pertaining to the potential impact of atopic dermatitis on diet behavior reveal that a majority of respondents, accounting for 54.1%, believe that the condition can influence dietary habits. Meanwhile, 25.2% of respondents disagreed with this perspective, and 20.8% were unsure. Lastly, the data related to the impact of atopic dermatitis on children's vaccination schedules presents a more balanced distribution of responses. A notable 38.2% of respondents expressed uncertainty about whether atopic dermatitis could affect vaccination schedules, while 32.7% believed it could, and 29.1% disagreed.

Table (4): Awareness of participants of atopic dermatitis (n=1065).

Parameter	Yes	No	Don't know
Do you think atopic dermatitis (eczema) will affect school achievement and performance?	368 34.6%	449 42.2%	248 23.3%
Do you think a person with atopic dermatitis (eczema) will have problems making friends?	346 32.5%	499 46.9%	220 20.7%
Do you think atopic dermatitis can affect diet behavior?	576 54.1%	268 25.2%	221 20.8%
Do you think atopic dermatitis (eczema) can affect children's vaccination schedule?	348 32.7%	310 29.1%	407 38.2%

According to the data in figure (1) showing knowledge score, the largest proportion of individuals or entities falls within the moderate level category, accounting for 48.6%. Furthermore, the data indicates that 44.0% participants are classified as low level. Conversely, the high level category represents 7.3% of the participants.

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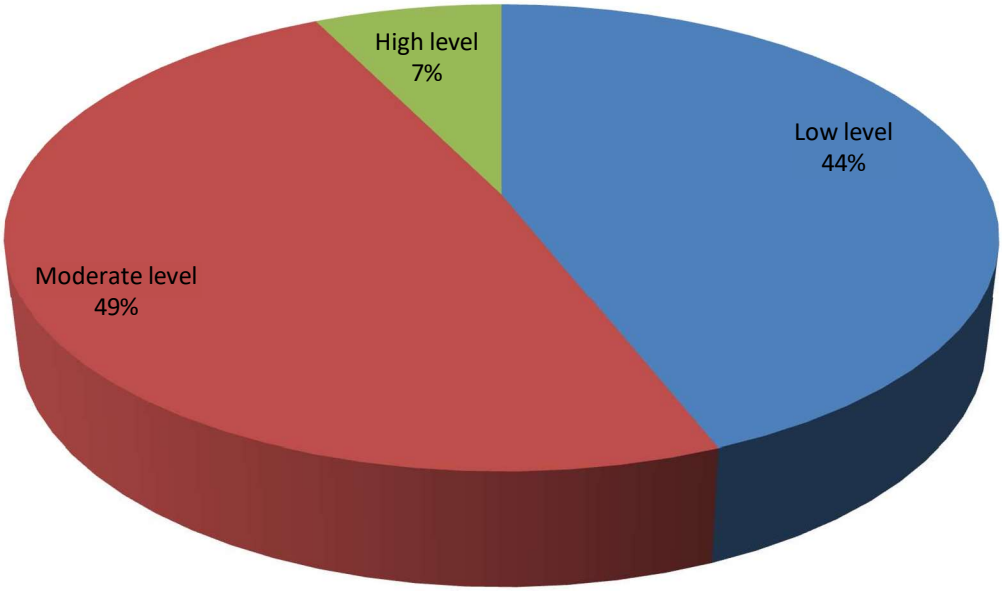
Figure 1 Knowledge score level of Atopic Dermatitis among adults living in Saudi Arabia



The data in figure (2) showed that the majority of the population falls into the low level awareness category, accounting for 81.5% of the total sample. On the other hand, the data also reveals that 16.0% of participants have an average level of awareness. Additionally, the data shows that only 2.5% of the participants have a good level of awareness.

Figure 2 Awareness score level of Atopic Dermatitis among adults living in Saudi Arabia

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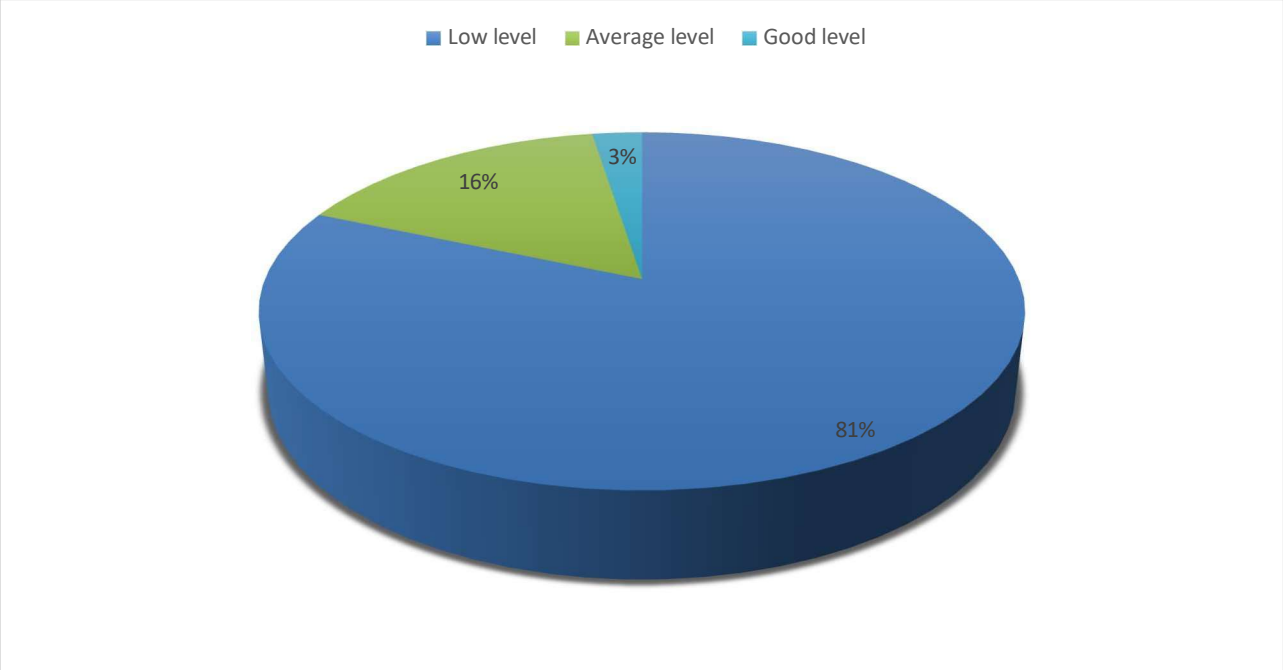

Figure (3) showed that the majority of individuals (51.6%) reported a low relationship between eczema and quality of life score. Additionally, 22.9% of individuals reported an average relationship between eczema and quality of life score, while 25.4% reported a good relationship between eczema and quality of life score.

Figure 3 Relationship between eczema and quality of life score

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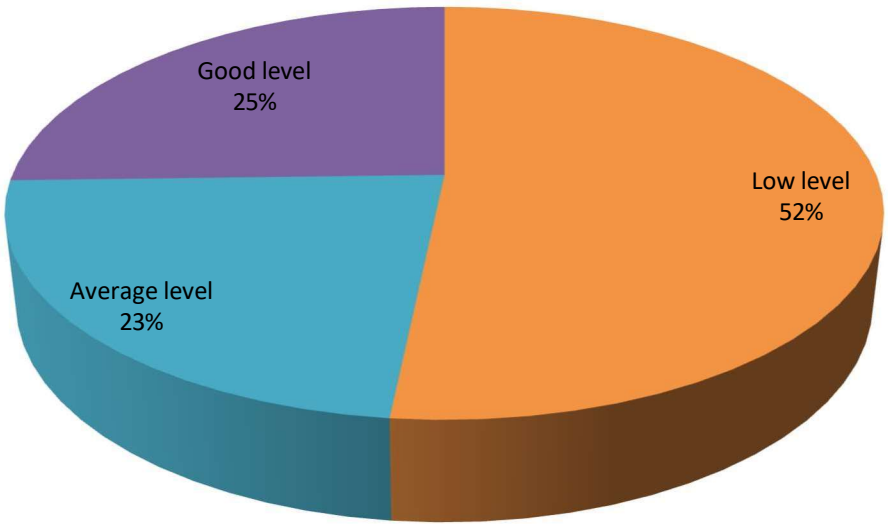

Table (5) showed that age distribution among the 1065 participants, the majority fall within the 21-30 age group (40.9%), followed by the 18-20 age group (17.1%), and the 31-40 age group (16.1%). The percentages indicate the distribution of knowledge scores was higher among 21-30 age group, with a significant p-value of 0.001. Moving on to marital status, the data reveals that a substantial proportion of participants are single (49.3%) or married (43.8%), with relatively smaller percentages for divorced (5.0%) and widowed (2.0%) individuals. The p-value of 0.001 indicates a significant relationship between marital status and knowledge score. For single participants seemed to exhibit higher knowledge scores. In terms of gender, the majority of participants are female (70.4%) compared to male participants (29.6%). The p-value of 0.001 suggests a significant association between gender and knowledge score. For females exhibited higher knowledge scores. Regarding nationality, the vast majority of participants are Saudi (94.1%), with a smaller percentage being non-Saudi (5.9%). The p-value of 0.618 indicates a non-significant association. The location data illustrates that the highest percentage of participants are from the East region (34.3%), followed by the Middle (25.0%) and West (18.1%) regions. The p-values (0.005) suggest a significant association between location and knowledge score. East residents exhibited higher knowledge scores. Looking at education level, the majority of participants hold a Bachelor's degree (52.8%), followed by high school (23.9%) and graduate studies (6.5%). The p-value of 0.038 indicates a significant association between education level and knowledge score. For participants with bachelor's degree exhibited higher knowledge scores. In terms of occupation, the largest percentage of participants was students (33.2%) and employees (30.9%), followed by unemployed individuals (20.0%). The p-value of 0.001 highlights a statistically significant association between occupation and knowledge score. For students exhibited higher knowledge scores. Finally, the data on income shows that the majority of participants fall within the over 15,000 Saudi Riyals income bracket (36.5%),

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followed by the 5,000 - 10,000 (27.5%) and 11,000 - 15,000 (22.7%) brackets. The p-value is 0.004, as participants with income over 15000 Saudi Riyals exhibited higher knowledge scores.

Table (5): Association between sociodemographic characteristics and knowledge score (n=1065).

Parameter		Knowledge score			Total (N=1065)	P value
		Low level	Moderate level	High level		
Age	18_20	84	87	11	182	**0.001**
		7.9%	8.2%	1.0%	17.1%	
	21_30	169	219	48	436	
		15.9%	20.6%	4.5%	40.9%	
	31_40	79	82	10	171	
		7.4%	7.7%	0.9%	16.1%	
	41_50	70	92	7	169	
		6.6%	8.6%	0.7%	15.9%	
	51_60	37	31	2	70	
		3.5%	2.9%	0.2%	6.6%	
	more than 60	30	7	0	37	
		2.8%	0.7%	0.0%	3.5%	
marital status	Single	209	268	48	525	**0.001**
		19.6%	25.2%	4.5%	49.3%	
	Married	210	233	23	466	
		19.7%	21.9%	2.2%	43.8%	
	Divorced	34	13	6	53	
		3.2%	1.2%	0.6%	5.0%	
	Widow	16	4	1	21	
		1.5%	0.4%	0.1%	2.0%	
Gender	Male	166	125	24	315	0.001
		15.6%	11.7%	2.3%	29.6%	
	Female	303	393	54	750	
		28.5%	36.9%	5.1%	70.4%	
Nationality	Saudi	445	484	73	1002	**0.618**
		41.8%	45.4%	6.9%	94.1%	
	Non-Saudi	24	34	5	63	
		2.3%	3.2%	0.5%	5.9%	
Location	East	135	205	25	365	**0.005**
		12.7%	19.2%	2.3%	34.3%	
	Middle	130	119	17	266	

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		12.2%	11.2%	1.6%	25.0%	
	North	57	34	6	97	
		5.4%	3.2%	0.6%	9.1%	
	South	59	70	15	144	
		5.5%	6.6%	1.4%	13.5%	
	West	88	90	15	193	
		8.3%	8.5%	1.4%	18.1%	
Education Level	Illiterate	5	1	0	6	**0.038**
		0.5%	0.1%	0.0%	0.6%	
	Primary school	11	2	0	13	
		1.0%	0.2%	0.0%	1.2%	
	middle School	22	13	2	37	
		2.1%	1.2%	0.2%	3.5%	
	High school	115	123	17	255	
		10.8%	11.5%	1.6%	23.9%	
	Bachelor's degree	227	294	41	562	
		21.3%	27.6%	3.8%	52.8%	
	Diploma degree	58	53	12	123	
		5.4%	5.0%	1.1%	11.5%	
	Graduate Studies	31	32	6	69	
		2.9%	3.0%	0.6%	6.5%	
Occupation	free businees	22	15	1	38	**0.001**
		2.1%	1.4%	0.1%	3.6%	
	Unemployed	96	104	13	213	
		9.0%	9.8%	1.2%	20.0%	
	Retired	60	28	2	90	
		5.6%	2.6%	0.2%	8.5%	
	employee	128	172	29	329	
		12.0%	16.2%	2.7%	30.9%	
	Student	135	187	32	354	
		12.7%	17.6%	3.0%	33.2%	
	Other	28	12	1	41	
		2.6%	1.1%	0.1%	3.8%	
Income (in Saudi Riyals)	Less than 5,000	72	49	20	141	**0.004**
		6.8%	4.6%	1.9%	13.2%	
	5,000 - 10,000	128	148	17	293	
		12.0%	13.9%	1.6%	27.5%	
	11,000 - 15,000	103	122	17	242	
		9.7%	11.5%	1.6%	22.7%	

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	Over 15,000	166	199	24	389
		15.6%	18.7%	2.3%	36.5%

Table (6) showed that in terms of age, the study found that the majority of participants fell within the age range of 21-30 years old, with 40.9% of the total participants falling within this age group. Regarding marital status, the study found that the majority of participants were either single or married, with 49.3% and 43.8% of the total participants falling within these categories, respectively. In terms of gender, the study found that the majority of participants were female, with 70.4% of the total participants falling within this category. In terms of nationality, the study found that the majority of participants were Saudi, with 94.1% of the total participants falling within this category. Regarding location, the study found that the majority of participants were from the eastern region of Saudi Arabia, with 34.3% of the total participants falling within this category. In terms of education level, the study found that the majority of participants had a Bachelor's degree, with 52.8% of the total participants falling within this category. Regarding occupation, the study found that the majority of participants were either employees or students, with 30.9% and 33.2% of the total participants falling within these categories, respectively. Finally, in terms of income, the study found that the majority of participants had an income of over 15,000 Saudi Riyals, with 36.5% of the total participants falling within this category. All sociodemographic characteristics had no significant association with awareness score.

Table (6): Association between sociodemographic characteristics and awareness score (n=1065).

Parameter		Awareness score			Total (N=1065)	P value
		Good	Average	Low		
Age	18_20	5	29	148	182	**0.886**
		0.5%	2.7%	13.9%	17.1%	
	21_30	12	75	349	436	
		1.1%	7.0%	32.8%	40.9%	
	31_40	5	22	144	171	
		0.5%	2.1%	13.5%	16.1%	
	41_50	5	26	138	169	
		0.5%	2.4%	13.0%	15.9%	
	51_60	0	11	59	70	
		0.0%	1.0%	5.5%	6.6%	
	more than 60	0	7	30	37	
		0.0%	0.7%	2.8%	3.5%	
marital status	Single	17	86	422	525	**0.722**
		1.6%	8.1%	39.6%	49.3%	

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	Married	9	72	385	466	
		0.8%	6.8%	36.2%	43.8%	
	Divorced	1	10	42	53	
		0.1%	0.9%	3.9%	5.0%	
	Widow	0	2	19	21	
		0.0%	0.2%	1.8%	2.0%	
Gender	Male	5	59	251	315	0.141
		0.5%	5.5%	23.6%	29.6%	
	Female	22	111	617	750	
		2.1%	10.4%	57.9%	70.4%	
Nationality	Saudi	26	163	813	1002	**0.472**
		2.4%	15.3%	76.3%	94.1%	
	Non-Saudi	1	7	55	63	
		0.1%	0.7%	5.2%	5.9%	
Location	East	12	59	294	365	**0.538**
		1.1%	5.5%	27.6%	34.3%	
	Middle	7	42	217	266	
		0.7%	3.9%	20.4%	25.0%	
	North	1	17	79	97	
		0.1%	1.6%	7.4%	9.1%	
	South	6	20	118	144	
		0.6%	1.9%	11.1%	13.5%	
	West	1	32	160	193	
		0.1%	3.0%	15.0%	18.1%	
Education Level	Illiterate	0	0	6	6	**0.097**
		0.0%	0.0%	0.6%	0.6%	
	Primary school	0	0	13	13	
		0.0%	0.0%	1.2%	1.2%	
	middle School	2	9	26	37	
		0.2%	0.8%	2.4%	3.5%	
	High school	8	44	203	255	
		0.8%	4.1%	19.1%	23.9%	
	Bachelor's degree	13	79	470	562	
		1.2%	7.4%	44.1%	52.8%	
	Diploma degree	4	19	100	123	
		0.4%	1.8%	9.4%	11.5%	
	Graduate Studies	0	19	50	69	
		0.0%	1.8%	4.7%	6.5%	
Occupation	Free business	2	4	32	38	**0.874**
		0.2%	0.4%	3.0%	3.6%	

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	Unemployed	7	36	170	213	
		0.7%	3.4%	16.0%	20.0%	
	Retired	0	16	74	90	
		0.0%	1.5%	6.9%	8.5%	
	employee	9	51	269	329	
		0.8%	4.8%	25.3%	30.9%	
	Student	8	56	290	354	
		0.8%	5.3%	27.2%	33.2%	
	Other	1	7	33	41	
		0.1%	0.7%	3.1%	3.8%	
Income (in Saudi Riyals)	Less than 5,000	7	29	105	141	**0.180**
		0.7%	2.7%	9.9%	13.2%	
	5,000 - 10,000	7	49	237	293	
		0.7%	4.6%	22.3%	27.5%	
	11,000 - 15,000	7	34	201	242	
		0.7%	3.2%	18.9%	22.7%	
	Over 15,000	6	58	325	389	
		0.6%	5.4%	30.5%	36.5%	

Table (7) shows that there is no significant relationship between age and quality of life scores, as indicated by the P value of 0.779. Across different age groups, the percentage of individuals with low quality of life scores remains relatively consistent, ranging from 7.7% to 17.1%. Similarly, marital status does not appear to have a significant association with quality of life scores, with a P value of 0.105. The percentages of individuals with low quality of life scores are fairly consistent across the categories of single, married, divorced, and widowed individuals, ranging from 2.0% to 5.0%. In terms of gender, the data indicates that there is no significant relationship between gender and quality of life scores, with a P value of 0.543. The percentages of individuals with low quality of life scores are consistent across male and female respondents, ranging from 14.7% to 36.9%. The nationality of the respondents also does not seem to have a significant association with quality of life scores, as indicated by a P value of 0.148. The percentages of individuals with low quality of life scores are relatively consistent between Saudi and non-Saudi nationals, ranging from 2.0% to 48.5%. Furthermore, the location of the respondents does not show a significant relationship with quality of life scores, with P values ranging from 0.186 to 0.828. The percentages of individuals with low quality of life scores are consistent across different regions, ranging from 4.6% to 18.8%. Education level also does not appear to have a significant association with quality of life scores, as indicated by a P value of 0.828. The percentages of individuals with low quality of life scores are relatively consistent across different education levels, ranging from 0.3% to 26.9%. Similarly, occupation does not show a significant relationship with quality of life scores, with a P value of 0.137. The percentages of individuals with low quality of life scores are consistent

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across different occupations, ranging from 1.9% to 16.1%. Finally, the data suggests that income in Saudi Riyals does not have a significant association with quality of life scores, as indicated by P values ranging from 0.469 to 0.823. The percentages of individuals with low quality of life scores are relatively consistent across different income levels, ranging from 6.9% to 19.9%.

Table (7): Association between sociodemographic characteristics and relationship between eczema and quality of life score (n=1065).

Parameter		Relationship between eczema and quality of life score			Total (N=1065)	P value
		Good	Average	Low		
Age	18_20	47	42	93	182	**0.779**
		4.4%	3.9%	8.7%	17.1%	
	21_30	96	104	236	436	
		9.0%	9.8%	22.2%	40.9%	
	31_40	49	36	86	171	
		4.6%	3.4%	8.1%	16.1%	
	41_50	51	36	82	169	
		4.8%	3.4%	7.7%	15.9%	
	51_60	19	18	33	70	
		1.8%	1.7%	3.1%	6.6%	
	more than 60	9	8	20	37	
		0.8%	0.8%	1.9%	3.5%	
marital status	Single	136	127	262	525	**0.105**
		12.8%	11.9%	24.6%	49.3%	
	Married	108	102	256	466	
		10.1%	9.6%	24.0%	43.8%	
	Divorced	20	8	25	53	
		1.9%	0.8%	2.3%	5.0%	
	widow	7	7	7	21	
		0.7%	0.7%	0.7%	2.0%	
Gender	Male	79	79	157	315	0.543
		7.4%	7.4%	14.7%	29.6%	
	Female	192	165	393	750	
		18.0%	15.5%	36.9%	70.4%	
Nationality	Saudi	250	235	517	1002	**0.148**
		23.5%	22.1%	48.5%	94.1%	
	Non-Saudi	21	9	33	63	
		2.0%	0.8%	3.1%	5.9%	

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Location	East	78	87	200	365	**0.186**
		7.3%	8.2%	18.8%	34.3%	
	Middle	77	51	138	266	
		7.2%	4.8%	13.0%	25.0%	
	North	25	23	49	97	
		2.3%	2.2%	4.6%	9.1%	
	South	48	43	102	193	
		4.5%	4.0%	9.6%	18.1%	
	West	43	40	61	144	
		4.0%	3.8%	5.7%	13.5%	
Education Level	Illiterate	2	1	3	6	**0.828**
		0.2%	0.1%	0.3%	0.6%	
	Primary school	4	2	7	13	
		0.4%	0.2%	0.7%	1.2%	
	middle School	9	9	19	37	
		0.8%	0.8%	1.8%	3.5%	
	High school	60	62	133	255	
		5.6%	5.8%	12.5%	23.9%	
	Bachelor's degree	144	132	286	562	
		13.5%	12.4%	26.9%	52.8%	
	Diploma degree	38	19	66	123	
		3.6%	1.8%	6.2%	11.5%	
	Graduate Studies	14	19	36	69	
		1.3%	1.8%	3.4%	6.5%	
Occupation	free businees	13	5	20	38	**0.137**
		1.2%	0.5%	1.9%	3.6%	
	Unemployed	49	35	129	213	
		4.6%	3.3%	12.1%	20.0%	
	Retired	25	22	43	90	
		2.3%	2.1%	4.0%	8.5%	
	employee	84	79	166	329	
		7.9%	7.4%	15.6%	30.9%	
	student	88	95	171	354	
		8.3%	8.9%	16.1%	33.2%	
	Other	12	8	21	41	
		1.1%	0.8%	2.0%	3.8%	
Income (in Saudi Riyals)	Less than 5,000	30	37	74	141	**0.469**
		2.8%	3.5%	6.9%	13.2%	
	5,000 - 10,000	82	68	143	293	
		7.7%	6.4%	13.4%	27.5%	

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11,000 - 15,000	60	61	121	242
	5.6%	5.7%	11.4%	22.7%
Over 15,000	99	78	212	389
	9.3%	7.3%	19.9%	36.5%

Discussion:

Atopic dermatitis, also known as eczema, is a common chronic skin condition that affects millions of people worldwide. It is characterized by red, itchy, and inflamed skin that can be both physically and emotionally distressing. In Saudi Arabia, the prevalence of atopic dermatitis among adults is not well-documented, and there is limited research on the knowledge and awareness level of this condition among the general population [1-3]. One of the key factors that contribute to the lack of knowledge and awareness about atopic dermatitis in Saudi Arabia is the stigma associated with skin conditions. Many people are reluctant to seek medical help or openly discuss their skin issues due to fear of judgment or discrimination. This can lead to a lack of understanding about the condition and its management, which in turn can result in inadequate treatment and poor quality of life for those affected by atopic dermatitis [8].

Furthermore, there is a shortage of educational resources and public health campaigns focused on atopic dermatitis in Saudi Arabia. This lack of information can lead to misconceptions and myths about the condition, which can further hinder the ability of individuals to seek appropriate care and support [12].

Our study showed that knowledge the largest proportion of individuals or entities falls within the moderate level category, accounting for 48.6%. Furthermore, the data indicates that 44.0% participants are classified as low level. Conversely, the high level category represents 7.3% of the participants, indicating inadequate knowledge score. Inconsistent with a study that evaluated the level of awareness among Saudi parents regarding atopic dermatitis. It was found that 73.9% of the parents demonstrated a high level of awareness [17], which is consistent with previously reported findings from Serbia, Belgrade, by Reljić et al. In their study, the average score of parental knowledge regarding children with atopic dermatitis was reported to be 9.5 ± 1.9 out of 12 [21].

In our study awareness score was inadequate as 81.5% had low level of awareness. Also we found that more than half of the participants (51.6%) had low relationship between eczema and quality of life score. In order to substantiate our results, Alkatheri conducted a study on prevalent dermatological conditions, which revealed that around 94% of primary healthcare practitioners exhibited inadequate knowledge, as indicated by their scores falling below 60%. Previous investigations conducted in Bulgaria [23] and Mediterranean islands likewise found low knowledge scores [24].

In our study there was no significant association found between sociodemographic characteristics and awareness score or relationship between eczema and quality of life score. There were significant association found between sociodemographic characteristics and knowledge score, as age (p-value= 0.001), marital status (p-value= 0.001), gender (p-value= 0.001), location (p-value= 0.005), education

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level (p-value= 0.038), occupation (p-value= 0.001), and income (p-value= 0.004). Similarly, there was a notable distinction in awareness levels based on age (p = 0.000). The results indicated that individuals between the ages of 25-39 had a higher level of awareness compared to other age groups [17]. This finding contradicts the previous study conducted by Reljić et al., which found that older parents (p = 0.040) were more likely to have a greater understanding of atopic dermatitis [21]. A strong correlation was found between marital status and level of awareness (p = 0.000). Married parents exhibited the highest level of awareness [17], which aligns with the findings reported by Reljić et al [21]. It was observed that married or partnered parents (p = 0.004), as well as those who had experienced atopic dermatitis themselves, were more likely to possess greater knowledge about atopic dermatitis [17].

It is crucial to address the knowledge and awareness gap surrounding atopic dermatitis in Saudi Arabia in order to improve the quality of life for those affected by the condition. This can be achieved through targeted educational initiatives aimed at increasing public awareness, dispelling myths, and reducing stigma. Healthcare providers also play a crucial role in educating their patients about atopic dermatitis and providing them with the necessary support and resources to manage their condition effectively [18]. In addition, more research is needed to better understand the prevalence and impact of atopic dermatitis in Saudi Arabia. This will help to inform public health strategies and policies aimed at improving the management and care of individuals with atopic dermatitis.

The study provides valuable insights into the understanding and awareness of atopic dermatitis among adults in Saudi Arabia. However, it is important to acknowledge the limitations of the study in order to provide a comprehensive understanding of its findings. One limitation of the study is the potential for selection bias, as the sample population may not be representative of the entire adult population in Saudi Arabia. Additionally, the study may be limited by the use of self-reported data, which can introduce response bias and inaccuracies. Furthermore, the study may not account for cultural or regional differences within Saudi Arabia, which could impact the generalizability of the findings. Despite these limitations, the study provides valuable insights into the knowledge and awareness of atopic dermatitis among adults in Saudi Arabia, and serves as a foundation for future research in this area.

The findings of this study can help healthcare professionals and policymakers in Saudi Arabia to develop targeted educational programs and interventions to improve the understanding and management of atopic dermatitis in the adult population. By increasing awareness and knowledge about this chronic skin condition, it is possible to reduce the burden of atopic dermatitis and improve the quality of life for affected individuals. Additionally, this study can also serve as a foundation for future research on atopic dermatitis in Saudi Arabia, leading to advancements in treatment and care for those living with this condition. Overall, the implications of this study have the potential to make a positive impact on the healthcare system and the lives of adults with atopic dermatitis in Saudi Arabia.

Conclusion:

In conclusion, the Saudi general population exhibited poor knowledge and awareness levels towards eczema. Addressing the knowledge and awareness level of atopic dermatitis among adults living in Saudi Arabia is a critical step towards improving the health and well-being of those affected by this condition. Also, by increasing awareness, reducing stigma, and providing access to appropriate care and

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support, we can make a positive impact on the lives of individuals living with atopic dermatitis in Saudi Arabia.

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Ethical approval
Ethical approval was obtained from the research ethics committee of the Ministry of health with Application number[A01843]. An informed consent was obtained from each participant after explaining the study in full and clarifying that participation is voluntary. Data collected were securely saved and used for research purposes only.

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Conflict of interests
The authors declare that there are no conflicts of interest.

Informed consent:
Written informed consent was obtained from all individual participants included in the study.

Data and materials availability

All data associated with this study are present in the paper

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