

ORIGINAL ARTICLE

3 Parental awareness toward atopic 4 dermatitis in children, Saudi Arabia

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9 ABSTRACT

10 **Background:** Atopic dermatitis is a very common disease of the skin, and it is also known as the chronic relaps-
11 ing skin disorder. This study was conducted to study the level of parental awareness toward atopic dermatitis
12 in children, Saudi Arabia, and to compare it with different sociodemographic factors.

13 **Methodology:** In this cross-sectional study, 510 participants from major cities were randomly enrolled. The
14 males were 77.6%, whereas females were 22.4%. A pretested questionnaire was used for data collection.

15 **Results:** The findings of the study indicated that 73.9% of Saudi parents found to be with a good level of
16 awareness toward atopic dermatitis in children. Significant differences were observed between gender, age,
17 marital status, number of children, level of education, and occupation in relation to the level of awareness. The
18 results showed that the level of awareness was higher in males, age group (25-39), married, and parents who
19 had three or four children. The highest level of awareness was observed in parents with university's education,
20 whereas the lowest level of awareness was observed in parents with primary education. Employed parents had
21 a higher level of awareness when compared with non-employed.

22 **Conclusion:** The level of awareness toward atopic dermatitis in children was sufficient among Saudi parents
23 in Saudi Arabia. Moreover, a significant relation was observed between gender, age, marital status, number of
24 children, level of education, occupation, and the level of awareness toward atopic dermatitis in children.

25 **Keywords:** Atopic, dermatitis, parental.

26 Introduction

27 The atopic dermatitis is a very common disease of
28 the skin. This is also known as chronic relapsing skin
29 disorder. This affects both children and adults, and this
30 can also be taken as a synonym of eczema. This skin
31 disease does not only affect the health of a person but
32 also influences the career too [1]. This is an inflammatory
33 skin infection that can show its symptoms at the early
34 age of the individual. The atopic dermatitis is connected
35 with the increase in serum immunoglobulin E in the
36 body. The family history of atopy that explains a group
37 of diseases such as eczema, asthma, and rhinitis allergy
38 also associates with atopic dermatitis [2]. There is no
39 appropriate clinical test to identify this disease, but, in its
40 serious condition, it involves long-term thick, lichenified
41 skin, and red-colored plaques. The patients have to bear
42 acute vesicular flaring up side by side with eczema in the
43 early stage of atopic dermatitis [3].

44 Steroids are used to cover the symptoms and severity
45 of this disease. The steroids are considered as a pillar
46 in the management of atopic dermatitis. However, there
47 are many abuses of steroids. If steroids are used for long
48 terms, it can have an adverse reaction, xenophobia, and
49 extreme disbelief on medication [4].

50 There are a few patients known about the treatment of
51 atopic dermatitis. The patients mix the information

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52 received from the physicians with their experience during
 53 the treatment of disease. The patients lack awareness of
 54 the management of the disease during flare up.

55 Betloch et al. [5] explained that there is very little
 56 awareness about the symptoms and management at initial
 57 stages. There are about 97.2% of patients who require
 58 medication for new break out of the disease, and there
 59 are 72.2% of individuals who use therapy side by side
 60 with medications. For the treatment of atopic dermatitis,
 61 it is required to check the family's health background
 62 of the patients. The awareness of the parents is very
 63 important to protect the child from this disease. There
 64 is a significant and positive relationship between the
 65 attitude of the parents and the children suffering from
 66 atopic dermatitis [6].

67 There are many studies on the causes of atopic dermatitis
 68 among the adult population; these studies explained
 69 that the disease most commonly affects the face and
 70 hands and most frequently eyelids of the patient. This
 71 disease affects about one-fifth of all individuals in their
 72 lifetime. However, the prevalence is different in different
 73 countries.

74 Atopic dermatitis can affect 15%-30% of children and
 75 2%-10% of adults globally. It is treated commonly by
 76 corticosteroid creams or ointments, but for the long-
 77 term existence or severe acute eczema, it would need
 78 immunosuppressant medication or phototherapy such
 79 as ultraviolet or UV light along with topical treatment.
 80 This disease affects not only the health appearance of the
 81 patient but also influences their quality of life and their
 82 confidence level.

83 Alshareef et al. [7] explained that the chronic skin disease
 84 affects children. This disease not only affects different
 85 body parts but also influences the daily activities of the
 86 individual. This study concluded that atopic dermatitis
 87 has a negative impact on the quality of life of both patients
 88 and their relatives. Alqahtani [8] investigated the high
 89 levels of allergy in children and adults which can lead
 90 to morality. This study investigated the risk factors and
 91 existence of different types of allergies among school-
 92 going children and adolescents in the Najran, Saudi
 93 Arabia. This study found that there is a great problem
 94 of atopic dermatitis in this region of Saudi Arabia. The
 95 parents did not have much awareness about this skin
 96 disease.

97 Alqahtani [9] exposed the problem of allergy and its
 98 effect on students. This study found that the existence of
 99 the topic dermatitis in adolescents was very high, and it
 100 affected the health of students. This study also explained
 101 that the parent contribution was needed to control the
 102 severity of the disease, and awareness was very crucial to
 103 curb all the types of atopic dermatitis.

104 Alahmad et al. [10] elaborated that there were a lot of
 105 people who were affected with the atopic dermatitis
 106 and its different types. Al-Herz [11] did a study based
 107 on the review of previous studies consisting of atopic

diseases, atopic disorders, allergic rhinitis, allergy in 108
 children, eczema, and food allergy. This study found 109
 that the existence of these diseases frequently affected 110
 children, made the skin rough, and decreased the daily 111
 activities. This disease also affects the economic status, 112
 living standard, and lifestyles of the infected people. 113
 This study further explained that there were many causes 114
 of atopic dermatitis such as genetic factors and gene 115
 polymorphism, and the elevated rate of consanguinity 116
 in the area might contribute to the higher occurrence of 117
 atopic dermatitis. 118

Alhazmi et al. [12] investigated the prevalence, causes, 119
 and symptoms of atopic dermatitis in Jazan, Saudi Arabia. 120
 The biggest cause of the existence of atopic dermatitis 121
 was a lack of awareness. This study suggested that there 122
 was more need to investigate the environmental factors 123
 that can affect people and can cause skin problems. 124

This study explored the current situation of the 125
 awareness level of the parents about atopic dermatitis 126
 in the country of Saudi Arabia. The causes of atopic 127
 dermatitis in children and its treatment in initial stages 128
 were also explored. Another objective of this study was 129
 to compare the level of parental awareness with different 130
 demographic factors. 131

132 **Subjects and Methods**

This cross-sectional study was carried out among adult 133
 population in Saudi Arabia, about parental awareness 134
 toward atopic dermatitis in children. This study was 135
 conducted in different major cities in Saudi Arabia 136
 from January to June 2020. The study population was 137
 all parents who lived in Saudi Arabia. All the parents, 138
 who were Saudi Arabian residents, were included in this 139
 study. Moreover, all non-Saudi residents were excluded 140
 from this study. The total enumeration method was used 141
 for including all male and female parents who agreed to 142
 answer the questionnaire in this study. The sample size 143
 taken in this study was according to this formula with 144
 significance adopted at $p > 0.05$ [$n = NZ^2P(1 - P)/(D^2 +$ 145
 $Z^2P(1 - P))$], and the total respondents were 382. 146

A pre-tested questionnaire was used in data collection. 147
 The questionnaire included questions about 148
 sociodemographic factors and awareness. A non- 149
 probability sampling technique was employed to collect 150
 the data from the participants. Data were coded, entered, 151
 and analyzed using the Statistical Package for the Social 152
 Sciences version 23. The obtained data were descriptive 153
 statistically analyzed. The level of awareness of parents 154
 toward atopic dermatitis in children was assessed using 155
 a scoring system. A score of 1 was given to correct 156
 responses, whereas 0 was used for incorrect/do not know 157
 responses. Parents were categorized into two categories; 158
 scores less than 5 out of 10 were considered as a poor 159
 level of awareness, whereas scores equal to or greater 160
 than 5 were considered as a good level of awareness. 161
 Furthermore, the relationship between sociodemographic 162
 factors of parents and their level of awareness was 163

164 calculated using the Chi-square test. A statistical
165 significance was determined at $p = 0.05$.

166 **Results**

167 In this study, 510 voluntarily participating Saudi parents
168 were enrolled who were classified based on their
169 sociodemographic information (as shown in Table 1). It is
170 evident from the given data that 396 (77.6%) participants
171 were males, whereas 114 (22.4%) were females.

172 Concerning the marital status, most of the participating
173 parents (78.6%) were married, 56 (11%) were widowed,
174 and 53 (10.4%) were divorced. Segregating based on a
175 number of offspring, the majority of parents ($n = 263$,
176 51.6%) had three or four children, 124 (24.3%) had either
177 one or two children, 60 (11.8%) was observed for parents
178 with 5 or more children, and 63 (12.4%) of the parents had
179 no children. More than half of the parents (51.2%) had
180 a university's degree, and 150 (29.4%) were secondary
181 educated. In addition, 383 (75.1%) of the participants
182 had an occupation, whereas 127 (24.9%) had not.

183 To assess Saudi parents awareness toward atopic
184 dermatitis in children, while focusing on the first aim of
185 the study, the data analysis is shown in Table 2, which
186 revealed that 363 (71.2%) out of 510 parents had heard of
187 atopic dermatitis from family/friends (46.9%), healthcare
188 professionals (44.9%), social media (26.5%), and other
189 sources such as internet and newspaper (27.1%) (Figure
190 1). About the details of atopic dermatitis, 135 (26.5%)
191 parents thought that atopic dermatitis can be infectious,

192 whereas 291 (57.1%) did not. About one-third of the
193 parents (33.7%) thought that their children could have
194 atopic dermatitis if they had the disease. About 356
195 (69.8%) parents knew that the part of the body that
196 is affected by atopic dermatitis was the skin. On the
197 contrary, a few parents thought that the affected part was
198 the kidney, brain, and heart which represented 8.2%,
199 7.6%, and 6.3%, respectively. About the causes of atopic
200 dermatitis, 145 (28.4%) parents said that it was idiopathic,
201 179 (35.1%) said that it was caused by bacteria, and
202 89 (17.5%) said that it was caused by parasites. More
203 than half of the parents (310, 60.8%) knew that atopic
204 dermatitis was more common in children, 113 (22.2%)
205 said that it was more common in middle ages, 49 (9.6%)
206 said that it was more common in elderly, and 38 (7.5%)
207 did not know.

208 Table 3 shows the effects of atopic dermatitis on children,
209 and 236 (46.3%) of the parents said that their children
210 had been diagnosed with atopic dermatitis before. About
211 221 (43.3%) parents thought that atopic dermatitis
212 would affect their children's achievements and school
213 performance, whereas 240 (47.1%) did not.

214 The level of awareness of parents toward atopic dermatitis
215 in children was classified based on their responses into
216 poor and good levels. There was relatively sufficient
217 awareness among Saudi parents, where most of them
218 (73.9%) were recognized with good level of awareness
219 (as shown in Figure 2).

220

Table 1. Sociodemographic characteristics of study participants ($n = 510$).

Character		Frequency	Percentage
Gender	Male	396	77.6%
	Female	114	22.4%
Age (years)	<18	19	3.7%
	18-24	36	7.1%
	25-39	358	70.2%
	40-59	68	13.3%
	≥60	29	5.7%
Marital status	Married	401	78.6%
	Divorced	53	10.4%
	Widowed	56	11%
Number of children	None	63	12.4%
	1-2	124	24.3%
	3-4	263	51.6%
	5 or more	60	11.8%
Level of education	Primary school	48	9.4%
	Middle school	51	10%
	Secondary school	150	29.4%
	University	261	51.2%
Occupation	Yes	383	75.1%
	No	127	24.9%

221

Parental awareness toward atopic dermatitis in children

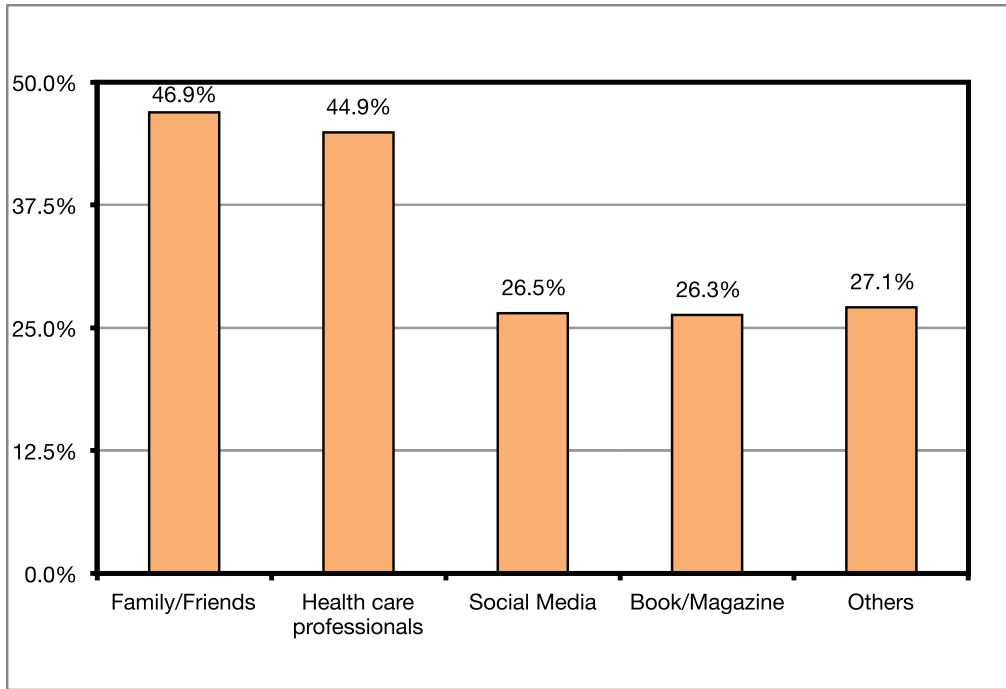


Figure 1. How did you hear about atopic dermatitis?

Table 2. Detailed awareness of parents toward atopic dermatitis.

222

	Yes	No	DK ^a
1. Have you ever heard about atopic dermatitis?	363 71.2%	147 28.8%	-
2. Do you think that atopic dermatitis can be infectious?	135 26.5%	291 57.1%	84 16.5%
3. Do you think your children could have atopic dermatitis if you are having the disease?	172 33.7%	162 31.8%	176 34.5%
4. Which part of the body that is affected by atopic dermatitis?	Skin	Others	DK
	356 69.8%	113 22.1%	41 8.1%
5. What causes atopic dermatitis?	Idiopathic	Others	DK
	145 28.4%	268 52.5%	97 19%
6. Atopic dermatitis is more common in	Children	Others	DK
	310 60.8%	162 31.8%	38 7.4%
7. Commonly, children with atopic dermatitis may be also suffered from which of the following diseases?	Allergic rhinitis	Asthma	DK
	257 50.4%	81 15.9%	22 4.3%
8. What are the symptoms of atopic dermatitis?	Skin rash	Itching	Redness
	232 45.5%	248 48.6%	168 32.9%
9. What can be used to treat your child if they encountered atopic dermatitis?	Topical steroid	Vaseline	DK
	131 25.7%	169 33.1%	61 12%
10. What measures can be done to prevent the occurrence of atopic dermatitis in your children?	Skin moisturizers	Shorten bath duration	Avoid food trigger allergy
	179 35.1%	74 14.5%	170 33.3%

^aDK = Do not know.

223

224 **Table 3.** Effects of atopic dermatitis on children.

	Yes	No	DK
1. Had one of your children ever been diagnosed with atopic dermatitis before?	236 46.3%	274 53.7%	-
2. Do you think that atopic dermatitis will affect your children's achievements and school performance?	221 43.3%	240 47.1%	49 9.6%
3. Do you think that a child with atopic dermatitis will have problems making a friend?	234 45.9%	276 54.1%	-
4. Do you think that atopic dermatitis can affect the vaccination schedule of your child?	245 48%	265 52%	-
5. Do you think that atopic dermatitis can affect diet behavior of your child?	225 44.1%	285 55.9%	-

225

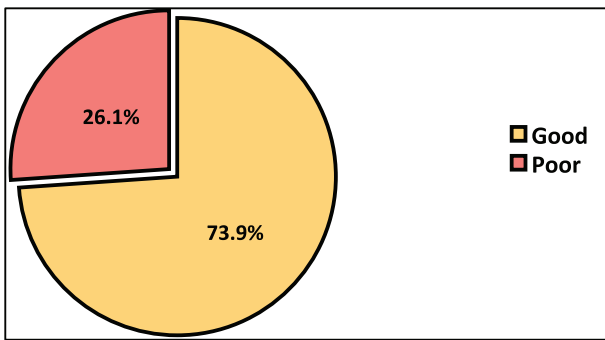


Figure 2. Level of awareness of parents toward atopic dermatitis.

226 The Chi-square test was used to determine the
 227 significance of differences between the level of
 228 awareness toward atopic dermatitis in children and the
 229 sociodemographic data of the parents (shown in Table
 230 4). Significant differences were observed between
 231 gender, age, marital status, number of children, level
 232 of education, and occupation in relation to the level of
 233 awareness, as the calculated *p*-values were recorded as
 234 0.000 for all parameters and 0.001 for the occupation
 235 parameter.

236 The present results showed that the level of awareness
 237 was higher in males, 25-39 years of age group, married,
 238 and parents who had three or four children. The level
 239 of awareness improved with the level of education
 240 as depicted by the highest level of awareness being
 241 observed in parents who had university's education,
 242 whereas the lowest level of awareness was observed
 243 in primary educated parents. Employed parents had a
 244 higher level of awareness when compared with non-
 245 employed.

Discussion

246

This study involved a random selection of 510 Saudi
 247 parents to assess their awareness toward atopic dermatitis
 248 in children and to analyze whether there was a significant
 249 relationship between sociodemographic data of the
 250 parents and their level of awareness.
 251

In this study, the Saudi parents' awareness toward atopic
 252 dermatitis was assessed, 73.9% of the parents were
 253 recognized with a good level of awareness which was
 254 similar to previously reported data in Serbia, Belgrade,
 255 by Reljić et al. [6], where it was stated that the average
 256 score of parental knowledge toward children with atopic
 257 dermatitis was 9.5 ± 1.9 out of 12.
 258

Concerning the relationship between the level
 259 of awareness toward atopic dermatitis and the
 260 sociodemographic data of the parents, significant
 261 differences were observed between gender, number of
 262 children, level of education, and occupation in relation
 263 to the level of awareness. Furthermore, a significant
 264 difference was observed between age and level of
 265 awareness ($p = 0.000$), and the results showed that 25-39
 266 years of age group had a higher level of awareness when
 267 compared with the other age groups, which was contrary
 268 to the findings previously reported by Reljić et al. [6],
 269 where it was observed that older ($p = 0.040$) parents
 270 were more likely to be more knowledgeable on atopic
 271 dermatitis. A significant relation was also observed
 272 between marital status and level of awareness ($p = 0.000$).
 273 Married parents had the highest level of awareness; this
 274 was in accordance with previously reported results by
 275 Reljić et al. [6], where it was observed that married/
 276 partnered parents ($p = 0.004$), and those who had have
 277 atopic dermatitis themselves were more likely to be
 278 more knowledgeable on atopic dermatitis.
 279

Table 4. The relationship between demographic characteristics of parents and their level of awareness.

Character	Level of awareness				p-value
	Good		Poor		
	count	%	count	%	
Gender					
Male	321	81.1	75	18.9	0.000
Female	56	49.1	58	50.9	
Age (years)					
<18	10	52.6	9	47.4	0.000
18-24	22	61.1	14	38.9	
25-39	301	84.1	57	15.9	
40-59	26	38.2	42	61.8	
≥60	18	62.1	11	37.9	
Marital status					
Married	325	81	76	19	0.000
Widowed	37	66.1	19	33.9	
Divorced	15	28.3	38	71.7	
Number of children					
None	18	28.6	45	71.4	0.000
1-2	95	76.6	29	23.4	
3-4	230	87.5	33	12.5	
5 or more	34	56.7	26	43.3	
Level of education					
Primary school	18	37.5	30	62.5	0.000
Middle school	26	51	25	49	
Secondary school	106	70.7	44	29.3	
University	227	87	34	13	
Occupation					
Yes	297	77.5	86	22.5	0.001
No	80	63	47	37	

282 **Conclusion**

283 The level of awareness toward atopic dermatitis in
 284 children was sufficient among parents in Saudi Arabia.
 285 Moreover, a significant relation was observed between
 286 gender, age, marital status, number of children,
 287 occupation, and the level of awareness toward atopic
 288 dermatitis in children. Furthermore, a significant direct
 289 relation was observed between the level of education
 290 and level of awareness.

291 **Conflict of interest**

292 The authors declare that there is no conflict of interest
 293 regarding the publication of this article.

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295 None.

296 **Consent for publication**

297 Informed consent was obtained from all participants.

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