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ORIGINAL RESEARCH

Awareness, Beliefs, and Psychological Impact of Patients with Alopecia Areata in Saudi Arabia: A Multi-Center Study

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Purpose: Alopecia Areata (AA) is a complex autoimmune condition characterized by long-term inflammatory non-scarring patches of hair loss on the face, scalp, and body. Its development involves a combination of genetic, immunological, and environmental factors, making it challenging to understand and treat. This study aims to assess the awareness, beliefs, and psychological impact of patients with Alopecia Areata.

Patients and Methods: This cross-sectional study was conducted in Eastern and Central provinces of Saudi Arabia and utilized online questionnaires to evaluate knowledge, beliefs, and psychological effects of patients with Alopecia Areata. These questionnaires were distributed using social media platforms.

Results: This study enrolled 248 patients with Alopecia Areata (AA), of whom 38.7% were aged 31–40 years and 55.2% were males. The majority were Saudis (98.4%), married (54%), and residing in the Central Region (60.1%). Nearly half (48.8%) were employed in non-medical fields, and 30.6% were vocational school graduates. Healthcare providers were the main source of AA information (52.8%), with most patients aware of AA's seriousness, curability, and quality of life impact, though many had low knowledge and experienced negative psychological effects such as shyness, anxiety, and depression.

Conclusion: Despite low self-rated knowledge, most patients recognized AA as serious and requiring treatment. Psychological well-being was heavily impacted by AA severity, quality of life, disease duration, and treatment efficacy. Although many patients showed improved AA status and good medication compliance, adverse psychological effects persisted, highlighting the need for larger studies to better understand and address these issues.

Keywords: alopecia areata, dermatology, knowledge, Middle East, mental health, survey

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Introduction

Alopecia Areata (AA), an autoimmune disorder leading to non-scarring hair loss, has varying severity, from small patches of hair loss to complete scalp (alopecia totalis) or body hair loss (alopecia universalis).[1] Genetic, immunological, and environmental factors contribute to its development, making management challenging. Alopecia totalis, which is the total loss of scalp hair, and alopecia universalis, which is the loss of all body and scalp hair, are the two extremes of AA severity.[2] AA can manifest and impact individuals of all ages, including children and adults. The average age at which it is diagnosed is 33 years, with males typically being diagnosed in childhood and females in adolescence.[3] The development of the disease is significantly influenced by both familial background and genetic factors, as well as external influences such as environmental insults or psychosocial stressors that impact its advancement.[2] Recent studies have found that the occurrence of alopecia

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areata in Saudi Arabia is between 2.3% and 5.2%, which is higher than in Western countries.[1] The prevalence of alopecia areata (AA) shows significant variation across different regions, influenced by factors such as genetics, environment, and lifestyle. The prevalence of AA in the US was originally estimated at 0.1% to 0.2% in the early 1970s.[4] More recent data shows this prevalence has increased to 0.222% by 2019 and 5% to 10% of AA cases advance to more severe forms like alopecia totalis and alopecia universalis.[5] Moreover, studies tracking trends over time suggest that the lifetime risk of developing AA could reach up to 2.1% in various populations, with global rates increasing in recent years.[6] This contrasts with India, where it is reported at 0.7%, and Singapore, which has a higher rate of 3.8%.[7] Also, two other recent studies conducted in Greece and Japan found that the prevalence of alopecia areata is estimated to be 1.27% and 2.45%, respectively.[8] Moreover, in a retrospective study analyzing the medical records of 9317 patients in dermatology clinics at a tertiary healthcare center in Riyadh, it was found that 216 patients were diagnosed with AA between 2016 and 2017, with males accounting for 57.0% of the cases.[9] Numerous research studies from various countries have consistently documented significantly low levels of patient knowledge, beliefs, and perceptions regarding AA.[2] The psychological and social symptoms that patients with AA may encounter, such as social withdrawal, anxiety, depression, and low self-esteem, can significantly affect their quality of life (QoL). In a National Alopecia Areata Foundation (NAAF) survey of 216 participants, 85% of the participants stated that they struggled on a daily basis with AA and noted mental health issues, with 47% mentioning anxiety or depression.[10,11] The occurrence of major depression among individuals with AA is said to be 8.8%, which is higher compared to the general population's rate of 1.3–1.5%. Additionally, the prevalence of generalized anxiety disorder is reported to be 18.2% in individuals with AA, while it is 2.5% in the general population.[12] Dealing with hair loss is influenced by understanding and beliefs about AA, which can result in improved adaptation. On the other hand, lack of knowledge and illogical actions worsen the adverse effects of AA.[13] This research aims to evaluate the awareness, beliefs, and psychological impact of patients with Alopecia Areata in the Eastern and Central regions of Saudi Arabia because there is a lack of information on the awareness, knowledge, and perception of AA patients in those regions.

Materials and Methods

Study Design

The population-based survey was conducted online using questionnaires, and the study used a descriptive cross-sectional methodology. These questionnaires were distributed from October 15, 2023, to December 22, 2023, using social media platforms to evaluate the awareness, beliefs, and psychological impact of patients with Alopecia Areata in Eastern and Central Provinces, Saudi Arabia.

Study Area and Setting

The study was conducted specifically in Al-Ahsa, in King Fahad Hospital, and Riyadh in King Fahad Medical City as a multi-center study, situated in Saudi Arabia. The research targeted the population with Alopecia areata in Al-Ahsa and Riyadh, employing an online survey platform and social media channels for participant recruitment.

Study Population

We employed a convenience sampling method through social media to distribute the questionnaires, allowing us to reach a broad audience of individuals with alopecia areata. The inclusion criteria consisted of Saudi Arabian males and females diagnosed with alopecia areata, who are citizens, at least 18 years old, and residents of Al-Ahsa or Riyadh. The exclusion criteria included individuals without alopecia areata and those with other disease including autoimmune, cardiovascular, or metabolic diseases. This allowed us to minimize potential confounding factors that could impact the study's findings. While we did not specify a particular sample size, we aimed to collect responses from as many participants as possible within our target population to enhance the representativeness of the sample.

Data Collection and Analysis

We adapted the questionnaire from a research article with a similar focus that was conducted in Makkah, with permission from the authors, and made some modifications.[2] A self-administered questionnaire was distributed via social media platforms (WhatsApp, Twitter, Telegram). The questionnaire was translated into the Arabic language, and it included 3 sections. The first section included informed consent from the participants of the study. The second section included age, gender, educational level, and marital status. The last section included questions to investigate the knowledge and psychological impact of AA on the patients. Ethical approval for this research was obtained from King Faisal University with reference number KFU-REC-2023-NOV-ETHICS1343 and this research fully complies with the Declaration of Helsinki.

Statistical Analysis

The data were analyzed using the software program Statistical Packages for Software Sciences (SPSS) version 26 (Armonk, New York, IBM Corporation, USA). Descriptive statistics were presented using numbers and percentages (%) for all categorical variables. Univariate analyses were performed using the Chi-square test to determine the influence of knowledge, belief, and psychological disorder among patients with Alopecia Areata. Values were considered significant with a p-value of less than 0.05.

Results

This study enrolled 248 patients with AA. As described in Table 1, 38.7% were aged between 31 and 40 years old, with more than half (55.2%) being males. Nearly all were Saudis (98.4%), and over half were married (54%). Patients who finished vocational school constituted 30.6%. Approximately 60.1% lived in the Central Region, and 48.8% were employed in a non-medical field. Regarding the assessment of knowledge about AA Table 2, it was observed that the most common source of AA information was healthcare providers (52.8%), followed by the Internet (28.6%) and family

Table 1 Socio-Demographic Characteristics of Patients with Alopecia Areata (n=248)

Study Variables	N (%)
Age group	
• 18–25 years	50 (20.2%)
• 26–30 years	50 (20.2%)
• 31–40 years	96 (38.7%)
• 41–50 years	44 (17.7%)
• >50 years	08 (03.2%)
Gender	
• Male	137 (55.2%)
• Female	111 (44.8%)
Nationality	
• Saudi	244 (98.4%)
• Non-Saudi	04 (01.6%)
Marital status	
• Single	106 (42.7%)
• Married	134 (54.0%)
• Divorced	08 (03.2%)
Educational level	
• Uneducated	01 (0.40%)
• Elementary School	07 (02.8%)
• Intermediate School	05 (02.0%)
• High School	74 (29.8%)
• Vocational School	76 (30.6%)
• Diploma Degree	15 (06.0%)
• Bachelor's Degree	65 (26.2%)
• Postgraduate	05 (02.0%)

(*Continued*)

Table 1 (Continued).

Study Variables	N (%)
Region	
• Central Region	149 (60.1%)
• Northern Region	12 (04.8%)
• Southern Region	09 (03.6%)
• Western Region	09 (03.6%)
• Eastern Region	69 (27.8%)
Occupation	
• Student Medical Field	05 (02.0%)
• Student Non-medical Field	36 (14.5%)
• Employee Medical Field	25 (10.1%)
• Employee Non-medical Field	121 (48.8%)
• Unemployed	61 (24.6%)

Table 2 Assessment of Knowledge About Alopecia Areata (n=248)

Statement	N (%)
The most common source you usually gain knowledge from about alopecia areata is?	
• None	21 (08.5%)
• Health Care Providers	131 (52.8%)
• Internet	71 (28.6%)
• Family and Friends	19 (07.7%)
• News Paper or Magazines	02 (0.80%)
• TV	01 (0.40%)
• All of the Above	03 (01.2%)
Have you ever heard about alopecia areata before diagnosis?	
• Yes	153 (61.7%)
• No	95 (38.3%)
Please rate your level of knowledge regarding alopecia areata	
• Low (10%-20%)	117 (47.2%)
• Moderate (30%-50%)	81 (32.7%)
• High (>50%)	50 (20.2%)
Do you think that alopecia areata is a serious condition that must be treated?	
• Yes	166 (66.9%)
• No	82 (33.1%)
Do you think alopecia areata may be influenced by genetic or nutritional factors that cause the disease?	
• Yes	139 (56.0%)
• No	109 (44.0%)
Do you think alopecia areata is a curable disease?	
• Yes	177 (71.4%)
• No	71 (28.6%)
Do you think alopecia areata may affect the quality of life?	
• Yes	190 (76.6%)
• No	58 (23.4%)

and friends (7.7%). Patients who have heard of AA before diagnosis constitute 61.7%. Approximately 47.2% rated their AA knowledge as low. More than two-thirds of the patients (66.9%) believed that AA is a serious condition that must be treated. Approximately 56% were of the opinion that genetic or nutritional factors could influence AA. Also, 71.4% believed that AA is a curable disease, while 76.6% were aware that AA could affect the quality of life. In Table 3, a vast majority of the patients (89.1%) believed that AA could affect their psychological status negatively. Approximately

Table 3 Basic Information About AA Status (n=248)

Variables	**N (%)**
Does alopecia areata affect your psychological health negatively?	
• Yes	221 (89.1%)
• No	27 (10.9%)
How long have you had alopecia areata?	
• <1 year	15 (06.0%)
• 1 year	30 (12.1%)
• 2–3 years	51 (20.6%)
• 4–10 years	76 (30.6%)
• >10 years	76 (30.6%)
Type of alopecia areata	
• Patchy alopecia areata	94 (37.9%)
• Alopecia areata totalis	41 (16.5%)
• Alopecia areata universalis	102 (41.1%)
• Alopecia areata ophiasis	11 (04.4%)
Family history of Alopecia Areata	
• Yes	76 (30.6%)
• No	172 (69.4%)
Degree of compliance with medications	
• <10%	13 (05.2%)
• 10% - 30%	10 (04.0%)
• 31% - 50%	12 (04.8%)
• 51% - 70%	27 (10.9%)
• 71% - 90%	45 (18.1%)
• 91% - 100%	141 (56.9%)
How much improvement in percentage with treatment?	
• <10%	37 (14.9%)
• 10% - 30%	24 (09.7%)
• 31% - 50%	31 (12.5%)
• 51% - 70%	52 (21.0%)
• 71% - 90%	70 (28.2%)
• 91% - 100%	34 (13.7%)

30.6% reported having AA for over 10 years. The most common type of AA in our study was AA universalis. Family history of AA has been reported by 30.6%. Nearly 60% indicated 91% to 100% compliance with hair loss medication, while only 13.7% indicated improvement in treatment between 91% and 100%. Additionally, Figure 1 illustrates that the most common distressing emotional feeling due to the occurrence of AA was feeling shy in front of others (46.8%), followed by anxiety (14.9%) and depression (13.3%).

According to the univariate analysis presented in Table 4, several factors were significantly associated with the belief that alopecia areata (AA) negatively affects psychological health. Individuals who recognized AA as a serious condition ($p<0.001$), acknowledged its impact on quality of life ($p<0.001$), had lived with AA for more than three years ($p=0.006$), were diagnosed with alopecia universalis ($p=0.011$), or reported improvement of 71–90% after treatment ($p=0.002$) were more likely to believe AA affected their psychological well-being. These findings suggest that long-term awareness and understanding of AA, as well as the severity of the condition, have profound effects on patients' psychological health. In practical terms, this underscores the importance of providing psychological support for those diagnosed with more severe forms of AA, like alopecia universalis, and ensuring that patients are well-informed about the nature of AA and its impact on their lives. Moreover, the association between treatment improvement and psychological outlook highlights the need for effective management and clear communication regarding treatment expectations. For healthcare providers, these results imply that early intervention, consistent follow-up, and addressing the emotional aspects of AA are essential for improving patient outcomes.

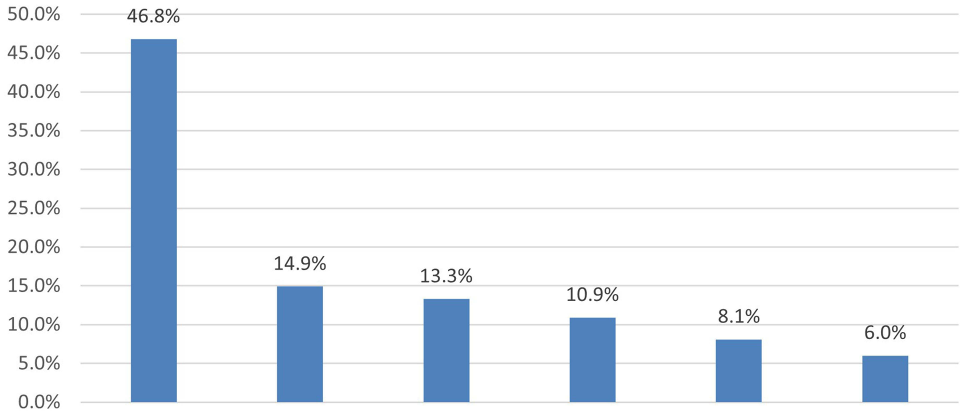

Figure 1 Experienced Emotional Feelings Caused by Alopecia Areata.
Notes: 46.8% feel shy in front of the others. 14.9% Anxiety. 13.3% Depression. 10.9% No negative feeling. 8.1% All of the above. 6.0% Tension or anger.

The univariate analysis in Table 5 revealed significant associations between knowledge of alopecia areata (AA) and two key factors: patients with moderate to high levels of AA knowledge were more likely to have a family history of AA (p=0.030) and to have previously heard of AA (p<0.001). This suggests that personal and familial exposure to AA contributes to better awareness and understanding of the condition. However, no significant relationships were found between perceived AA knowledge and other demographic variables such as age group, gender, marital status, educational

Table 4 Univariate Analysis to Determine the Influence of Belief That AA Affects Psychological Health Negatively (n=248)

Factor	**Belief That AA Affects Psychological Health Negatively**		**P-value §**
	Yes N (%) (n=221)	**No N (%) (n=27)**	
Age group			
• ≤30 years	89 (40.3%)	11 (40.7%)	0.963
• >30 years	132 (59.7%)	16 (59.3%)	
Gender			
• Male	120 (54.3%)	17 (63.0%)	0.393
• Female	101 (45.7%)	10 (37.0%)	
Marital status			
• Unmarried	105 (47.5%)	09 (33.3%)	0.163
• Married	116 (52.5%)	18 (66.7%)	
Educational level			
• Vocational or below	81 (37.5%)	06 (22.2%)	0.118
• Diploma or higher	135 (62.5%)	21 (77.8%)	
Region			
• Outside Central Region	88 (39.8%)	11 (40.7%)	0.926
• Inside Central Region	133 (60.2%)	16 (59.3%)	
Occupation			
• Unemployed	56 (25.3%)	05 (18.5%)	0.736
• Employed	129 (58.4%)	17 (63.0%)	
• Student	36 (16.3%)	05 (18.5%)	

(*Continued*)

Table 4 (Continued).

Factor	Belief That AA Affects Psychological Health Negatively		P-value §
	Yes N (%) (n=221)	No N (%) (n=27)	
Family history of Alopecia Areata			
• Yes	71 (32.1%)	05 (18.5%)	0.148
• No	150 (67.9%)	22 (81.5%)	
Heard of AA			
• Yes	139 (62.9%)	14 (51.9%)	0.265
• No	82 (37.1%)	13 (48.1%)	
Perceived knowledge of Alopecia Areata			
• Low	103 (46.6%)	14 (51.9%)	0.606
• Moderate to high	118 (53.4%)	13 (48.1%)	
Knowledge that AA is a serious condition			
• Yes	157 (71.0%)	09 (33.3%)	<0.001 **
• No	64 (29.0%)	18 (66.7%)	
Knowledge that AA is a curable disease			
• Yes	158 (71.5%)	19 (70.4%)	0.903
• No	63 (28.5%)	08 (29.6%)	
Knowledge that AA affects the quality of life			
• Yes	188 (85.1%)	02 (07.4%)	<0.001 **
• No	33 (14.9%)	25 (92.6%)	
Duration of AA			
• ≤3 years	79 (35.7%)	17 (63.0%)	0.006 **
• >3 years	142 (64.3%)	10 (37.0%)	
Type of AA			
• Patchy alopecia areata	76 (34.4%)	18 (66.7%)	0.011 **
• Alopecia areata totalis	38 (17.2%)	03 (11.1%)	
• Alopecia areata universalis	96 (43.4%)	06 (22.2%)	
• Alopecia areata ophiasis	11 (05.0%)	0	
How much improvement in percentage with treatment?			
• ≤50%	83 (37.6%)	09 (33.3%)	0.002 **
• 51–70%	48 (21.7%)	04 (14.8%)	
• 71–90%	66 (29.9%)	04 (14.8%)	
• >90%	24 (10.9%)	10 (37.0%)	

Notes: § P-value has been calculated using Chi-square test. ** Significant at p<0.05 level.
Abbreviation: AA, Alopecia Areata.

level, region, and occupation (all p>0.05). This indicates that general knowledge of AA does not seem to be influenced by these factors, suggesting that awareness and education efforts should be targeted broadly across different demographics. These findings highlight the importance of family medical history in raising awareness about AA, suggesting that healthcare providers could consider incorporating family history discussions into routine consultations to improve patient knowledge. Furthermore, educational campaigns on AA could be designed to reach a wider audience, given the lack of significant associations with demographic factors.

Table 5 Univariate Analysis to Determine the Association Between the Perceived Knowledge of AA in Relation to the Socio-Demographic Characteristics and the General Understanding of AA (n=248)

Factor	Perceived Knowledge of AA		P-value §
	Low N (%) (n=117)	**Moderate to High N (%) (n=131)**	
Age group			
- ≤30 years	47 (40.2%)	53 (40.5%)	0.963
- >30 years	70 (59.8%)	78 (59.5%)	
Gender			
- Male	67 (57.3%)	70 (53.4%)	0.545
- Female	50 (42.7%)	61 (46.6%)	
Marital status			
- Unmarried	54 (46.2%)	60 (45.8%)	0.956
- Married	63 (53.8%)	71 (54.2%)	
Educational level			
- Vocational or below	46 (40.0%)	41 (32.0%)	0.196
- Diploma or higher	69 (60.0%)	87 (68.0%)	
Region			
- Outside Central Region	45 (38.5%)	54 (41.2%)	0.658
- Inside Central Region	72 (61.5%)	77 (58.8%)	
Occupation			
- Unemployed	30 (25.6%)	31 (23.7%)	0.548
- Employed	65 (55.6%)	81 (61.8%)	
- Student	22 (18.8%)	19 (14.5%)	
Family history of Alopecia Areata			
- Yes	28 (23.9%)	48 (36.6%)	0.030 **
- No	89 (76.1%)	83 (63.4%)	
Heard of AA			
- Yes	53 (45.3%)	100 (76.3%)	<0.001 **
- No	64 (54.7%)	31 (23.7%)	

Notes: § P-value has been calculated using Chi-square test. ** Significant at $p<0.05$ level.
Abbreviation: AA, Alopecia Areata.

Discussion

In addition to the physical symptoms, AA can also have significant psychological and social implications for patients. Individuals with AA may experience issues like depression, anxiety, and social withdrawal, which can negatively impact their overall well-being and quality of life.[10] Given the limited research on AA awareness and patient experiences in Saudi Arabia, this study aimed to investigate how people with AA perceive, understand, and cope with the disorder's psychological effects. In the present study, the majority of patients reported having a low level of knowledge (47.2%). Along with the belief in more than half of patients that genetic or nutritional factors have an influence on AA and it is a serious condition that is curable but can affect the quality of life. In addition, (89.1%) of patients stated that AA has a negative effect on their psychological health. The prevalent age in our study was 31 to 40 (38.7%), which is consistent with an earlier study in Saudi Arabia, where (46.9%) of patients were in this age range.[2] Similar to previous studies, males account for more than half of patients, and we found that AA presents slightly more among males (55.2%).[2,13,14] AA universalis was the most common type in our study, representing (41.1%), followed by patchy AA (37.9%), with a duration of AA of 4–10 years or longer (30.6%). In contrast to the previous study, patchy AA was the most common type, with a mean duration of the disease of 2 months.[15] The variation in findings regarding the predominance of alopecia universalis in our study, may be attributed to geographical and cultural factors. For instance, cultural practices like the use of head coverings or differing perceptions of hair loss in various regions may influence how individuals experience and report their condition.[16] Additionally, environmental factors and genetic predispositions unique to specific populations could also play a role in the observed differences in AA subtypes across studies.[17]

Among our participants, (30.6%) documented having a family history of AA, which is similar to recent studies.[2,14,18] In this study, (47.2%) of participants rated their AA knowledge as low. According to a previous study done in Saudi Arabia, a moderate level of knowledge was the most commonly found among (42.0%) of patients.[2] While in a study done by Maan et al[13] reported that (62%) of patients in Pakistan had no knowledge about AA etiologies. Higher levels of knowledge were significantly associated with previous family history and hearing about AA before diagnosis in our study. Prior results showed a significant relationship with educational level and marriage.[2] More than half of patients thought that genetic or nutritional factors are causative factors, which is consistent with previous findings.[2] However, in another study, (78%) of patients believed that AA is not related to nutritional factors.[13] On the other hand, some studies reported that part of their participants believed that infection is a cause of AA.[13,14] Additionally, like our results, a large number of patients thought that AA could be cured.[2,13] Regarding patients' sources of information, our study indicated that the majority of participants seek healthcare providers (52.8%) as a source, followed by Internet (28.6%) and family and friends (7.7%). This finding was also reported in prior studies.[2,18] Our study indicated that AA affects the psychological health negatively in (89.1%) of patients; feeling shy in front of others, followed by anxiety, and depression are the most encountered emotional feelings by the patients. Similarly, AA had a negative effect on the psychological aspect in (79.6%) of patients, with feeling ashamed in front of other people, anxiety, and depression being the most noted negative psychological effects.[2] In a previous study by Erol et al[16] it was found that women who wore headscarves had lower scores in physical, psychological, and overall well-being compared to those who did not wear scarves. Hair carries various symbolic meanings across cultures, influencing individuals' religious, social, and political beliefs in different ways.[16] Other studies in Saudi Arabia also indicated anxiety and depression as psychological consequences of AA.[14,18] Our study showed that the psychological aspect of AA was significantly affected by having a perception of AA as a serious condition and that AA affects the quality of life, duration of disease of more than 3 years, AA universalis, and improvement between 71–90% after AA treatment. Another study found younger age, being single or divorced, and having a high level of education have a significant relationship with adverse psychological impact.[18] Interestingly, although AA status improved with 51% or higher in our patients (62.9%), still majority of study participants reported a negative impact on their psychological status. Unlike another study, the higher AA improvement was associated with improvement in psychological aspects.[19] Moreover, in this study, over half of the patients had good compliance with medication, despite the fact that psychological status inversely influences treatment compliance.[20,21] This finding highlights the critical clinical importance of integrating psychiatric and psychological support into the management of Alopecia Areata patients to enhance the overall quality of life for these individuals. However, it's important to acknowledge some limitations of our research. Firstly, the convenience sampling for recruitment may limit how well our findings apply to the broader AA population. Secondly, as the study relies on self-reported information from participants, there's a possibility of reporting bias. Finally, the cross-sectional design restricts our ability to establish a cause-and-effect relationship between the variables we studied. Yet, this study is the first to address factors previously unexplored in relation to the knowledge and psychological health of AA patients in Saudi Arabia. Despite these limitations, our findings suggest a strong association between AA and psychological distress. Future research that incorporates broader recruitment methods, longitudinal designs, and larger samples can further strengthen our understanding of this link and inform the development of more comprehensive treatment strategies for AA patients. While most participants demonstrated a good understanding of, some gaps and inaccuracies in knowledge about crucial aspects were identified. To improve treatment quality, it's essential to invest in ongoing education for physicians, ensuring they stay current on evidence-based treatment protocols for Alopecia Areata.

Conclusion

Our research shows that healthcare providers are the primary source of information for patients with AA, with a significant percentage (52.8%) having heard of the condition before diagnosis. While many patients rated their knowledge as low, most recognized AA as a serious condition requiring treatment. Also, the psychological part of AA was found to be highly impacted by the view of AA as a serious condition, the impact of AA on quality of life, length of the disease beyond three years, AA universalis, and improvement ranging from 71 to 90% following AA therapy. Even though the AA status improved in our patients, the majority of them reported adverse effects on their psychological well-being. Furthermore, over half of the patients in this study had good medication compliance, despite the fact that psychological state and treatment compliance have an unfavorable relationship. Future studies with larger sample sizes can enhance our understanding of the psychological and social implications of alopecia, while implementing educational programs and support services can promote awareness and provide comprehensive treatment approaches for affected individuals, benefiting society as a whole.

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Disclosure

The author(s) report no conflicts of interest in this work.

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