

Alopecia areata, anxiety and depression: Are they related? A systematic review

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Abstract

Background Alopecia areata, more commonly abbreviated as AA, is a type of hair loss that is brought on by an autoimmune condition that has an uncertain prognosis. Alopecia areata, a condition that has been hypothesized to play a role in the onset of mental disorders such as anxiety and depression, has been investigated extensively in the past, but these inquiries have produced contradictory results.

Methods Guidelines from PRISMA 2020 acted as the foundation for this study's methodology. We comprehensively searched the Pubmed Embase and SagePub databases from the time of their inception to January 15th, 2023. The individuals' ages and the year of publication were both unrestricted in this study.

Results There were 6398 patients with AA from eight studies that met the inclusion criteria. There were two case-control studies and six cross-sectional studies. The current investigation showed that patients with AA have a high prevalence of psychiatric illnesses, especially anxiety, and depression.

Conclusion This study demonstrates that alopecia areata patients had higher levels of mental disorders such as anxiety and depression than healthy controls.

Key words

Alopecia areata; Anxiety; Depression.

Introduction

Examination of hair and scalp has become a concern among dermatologists. Alopecia areata (often referred to as AA), is a type of hair loss caused by an autoimmune disorder with an uncertain prognosis. Alopecia areata is a skin condition that can cause patchy or recurring hair

loss.^{1,2} Autoimmune conditions like Vitiligo, SLE, psoriasis, thyroid disease, and atopic dermatitis, were more prevalent in alopecia areata patients.³

Every year, AA affects approximately one in four thousand people, and in certain cases, the condition results in complete balding on the scalp as well as the rest of the body. Because thinning of hair is so easily noticeable, it has the potential to interfere with day-to-day life and may even lead to issues with mental health. We were interested in discovering whether or not persons who suffer from alopecia areata are more likely to suffer from mental health

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conditions like depression and anxiety.⁴

Several researchers have examined the relationship between AA and mental health diseases such as anxiety and depression. In case-control research involving 5,117 patients with AA and 20,468 controls of the same age and gender, patients with AA were shown to have a higher risk of depression in those under the age of 20 and a higher likelihood of anxiety among those between the ages of 20 and 39.⁵

This article investigates further the relationship between alopecia areate and mental health diseases such as anxiety and depression.

Methods

Protocol The Content Validity Items for Systematic Review and Meta-Analysis (PRISMA) 2020 requirements form the basis for this investigation's approach. The rules that were adopted were formed upon these elements.

Eligibility Criteria By analyzing or critically evaluating studies on the topic, this literature review aims to show how alopecia areata and mental issues such as anxiety and depression are related. This is a critical concern that was addressed in the research being considered. Researchers who meet the following criteria enter their research: 1) Writing an article requires proficiency in English and concentrating on describing the prevalence of alopecia areata, anxiety, and depression to be eligible for publication. 2) Editorials, submissions without a DOI, already published review articles, and entries that are remarkably identical studies to those that have previously been posted in a journal will not be taken into consideration for inclusion in the paper.

Data retrieval The survey's author adjusted the inclusion and exclusion requirements after

performing a literature assessment that looked at the titles and abstracts of earlier research studies. The extra materials that were provided with the research include the modified criteria. This outlined the issues that need more research and clarified the problem's breadth. After researching further studies with a comparable format, the author came to this conclusion. The systematic review process only considered studies that satisfied all of the inclusion criteria.

Quality Assessment and Data Synthesis Before deciding which articles to look into, the writers investigated a particular aspect of the research that was alluded to in the titles and abstracts of the paper. To choose the papers that will be included in the review, the full texts of publications that meet the criteria for the systematic review will next be analyzed.

Result

We summarize the results of eight studies including 6398 patients with AA. The first study showed the difference between the mean scores of anxiety in the cases and control groups was

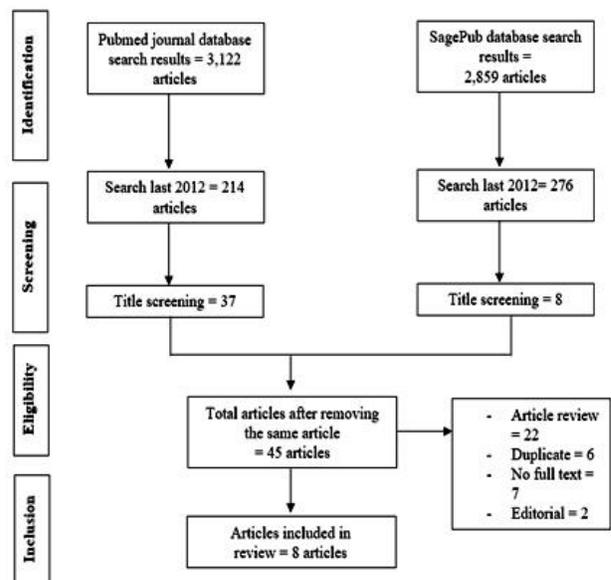


Figure 1 Article search flowchart.

significant ($P=0.003$): 12.76 ± 7.21 for patients and 8.54 ± 6.37 for controls. Similarly, the groups' respective mean ratings of depression were significantly different, coming in at 12.84 ± 4.03 and 6.22 ± 4.95 , respectively ($P=0.001$). In addition, patients with AA were almost five times more likely to experience despair, while normal people were around three times more likely to experience anxiety.⁶

Sellami, *et al.* (2014)⁷ showed 38% and 62% of patients, respectively, had depression and anxiety, respectively, of those who were examined. There was a statistically significant variance seen between illness and the healthy controls for both anxious feelings ($P=0.047$) and depression ($P=0.005$). The average score for depression was 7.18 and the average score for anxiety was 7.9 and 3.48. Another study with The Minnesota Multiphasic Personality Inventory (MMPI-2) was used to investigate the mental health and character characteristics of 73 patients and 73 healthy controls. The results of an analysis of the MMPI-2 profile revealed that the patients with alopecia areata had greater scores on some scales than the controls did. These scales included depression, anxiety, and family relationships.⁸

Annagur, 2013⁹ carried out a study in which AA scored significantly higher on the depression subscale of the SCL-90-R, and the global severity index (GSI) was greater than the control group's ($p<0.05$). Yet, the t-test revealed a substantial gap between the two groups in terms of novelty seeking, reward reliance, and self-transcendence when depression and anxiety were taken into account as factors.

In contrast to the controls, patients in the child group displayed higher state anxiety and trait anxiety ratings as well as poorer parent-rated psychosocial and overall HRQL scores. The existence of AA among young people was also

found to be positively correlated with the depression score. Only the state anxiety score in the teenage group showed a significant correlation with AA. All of the parent-rated HRQL scores were lower than controls in this age category.¹⁰

Another investigation was carried out with 584 AA patients. The most prevalent symptom was alopecia areata (94.7%). Atopic disorders (allergic rhinitis 17.12 vs. 11.62% in the control group [$P=0.08$]; eczema 14.20 vs. 4.07% [$P<0.01$]), autoimmune (thyroid disorders 18.80 vs. 7.56% [$P<0.01$]); psychological (anxiety 13.70 vs. 9.88% [$P=0.18$]; depression 14.72 vs. 11.44% [$P=0.19$]), nutritional deficiencies (vitamin D deficiency 39 vs. 12.79% [$P<0.01$]; anemia (16.80 vs. 7.56% [$P<0.01$]), and gastrointestinal disorders (celiac disease 0.86 vs. 0.58% [$P=0.37$]) are frequently present concomitant diseases in individuals with AA.¹¹

Sahiner, *et al.* (2014)¹² showed both anxiety and depression scores, as well as the rate of childhood traumatic events, were considerably greater in those with psoriasis and AA compared to healthy controls. Patients diagnosed with psoriasis and AA did not significantly differ from one another in any significant way. It's possible that traumatic experiences in childhood and other stressful events in adulthood play a part in the development of alcoholism. In addition, this function might also apply to psoriasis and other physical manifestations of mental illness. Because of this finding, they may now be able to comprehend the part that both historical and contemporary sources of psychological strain play in the development of dermatological psychosomatic conditions. When it comes to assessing stressful life events and traumatic experiences in childhood, psychodermatologic novel approaches are required.

Table 1 The literature include in this study.

Author	Origin	Method	Sample Size	Instrument	Result
Baghestani, 2015 [6]	Iran	Case-control study	68 patients diagnosed with AA with 68 healthy individuals	Hamilton anxiety and depression rating scale	The case and control groups' mean anxiety levels were 12.76±7.21 and 8.54±6.37, respectively, P=0.003. Similarly, the groups' mean depression scores were 12.84±4.03 vs. 6.22±4.95, P=0.001. Furthermore, patients with AA were five times more likely than normal persons to feel despair and three times more likely to experience anxiety.
Sellami, 2014 [7]	Tunisia	Case-Control Study	50 patients diagnosed with AA	Hamilton anxiety and depression rating scales	Anxiety and depression were identified in 38% and 62% of individuals, respectively. There was a statistically significant distinction between the patients and the control group in terms of depression (P=0.047) and anxiety (P=0.005). The mean score for depression was 7.18±3.72, while the mean score for anxiety was 7.9±3.48.
Alfani, 2012 [8]	Italy	Cross-sectional	146 total (73 AA and 73 Controls)	MMPI-2	When compared to healthy controls, patients diagnosed with AA reported considerably greater levels of anxiety (p=0.001). Depression ratings in AA patients were substantially greater than in controls (p=0.003).
Annagur, 2013 [9]	Turkey	Cross-sectional	151 total (73 AA and 78 Controls)	SCL-90-R	The mean score (SD) of patients with AA was 0.74±0.62, and the controls' mean score (SD) was 0.57±0.55 (p=0.07). When AA patients were compared to controls, their mean depression score was considerably greater (1.02±0.72 vs. 0.73±0.56, p=0.01)
Bilgic, 2013 [10]	Turkey	Cross-sectional	139 total (74 AA and 65 Controls)	STAIc dan CDI	Patients with AA had higher trait anxiety scores (36.3±6.9) compared to controls (34.0±5.4) (p=0.028). Patients with AA had higher state-anxiety scores (44.2±4.8) compared to controls (38.0±8.4) (p <0.001). Patients with AA had significantly higher depression scores (10.4±6.9) compared to controls (8.2±6.1) (p=0.036).
Miller, 2015 [11]	United State	Cross-sectional	756 total (584 AA and 172 Controls)	N/A	There was not a significant difference between the odds ratio of having anxiety in patients with AA and controls (1.45, 0.83-2.52), p=0.1882. Patients with AA were more likely than controls to report having AA. The OR of having depression was not significantly different among patients with AA and controls (1.41, 0.84-2.41), p=0.1928
Sahiner, 2014 [12]	Turkey	Cross-sectional	91 total (41AA and 50 Controls)	BAI, BDI	There was a statistically significant difference between the mean BAI score of AA patients and that of controls (12.8±12.9 vs. 5.0±4.7, respectively, p=0.05). Mean BDI score was significantly different among AA patients and controls (13.2±10.9 vs. 4.9±3.8, respectively, p <0.05)
Macbeth, 2022 [4]	UK	Cross-sectional	5,435 people with newly diagnosed AA	BAI, BDI	Depression and anxiety were more prevalent in people diagnosed with AA than in controls (P <0.001). People with AA were also more likely to subsequently develop new-onset depression and anxiety: adjusted hazard ratio (aHR) for recurrent depressive disorder 1.38 [95% CI= 1.13-.69], depressive episodes aHR 1.30 (95% CI= 1.04-1.62) and anxiety disorder aHR 1.33 (95% CI=1.09-1.63); to be issued time off work certificates (aHR 1.56, 95% CI=1.43-1.71); and to be recorded as unemployed (aHR 1.82, 95% CI=1.33-2.49). Higher rates of antidepressant prescribing were also seen in people with AA.

According to Macbeth, *et al.* (2022) ($P < 0001$), patients with an AA diagnosis were more likely to experience depression and anxiety than controls. New-onset depression and anxiety were also more common in AA participants. Additionally, the prevalence of antidepressant prescriptions was higher in AA members.⁴

Discussion

Alopecia areata is a type of hair thinning that is brought on by an autoimmune condition that has an uncertain prognosis that can cause patchy or recurring hair loss.^{1,2}

Alopecia areata occurs in 1.7% of the population. Genetic factors and family history play an important role in AA occurring (10-42%). There is an increasing body of evidence suggesting that AA is an autoimmune illness mediated by T lymphocytes. Since AA is an autoimmune disease, it is linked to other conditions that are either confirmed to have an autoimmune or have a family history such as vitiligo, atopy, and thyroid disease.^{1,2}

According to the research carried out by Tan and colleagues, 82% of respondents who had extensive AA had considerably higher levels of psychological discomfort throughout their lifetimes compared to those who had limited AA. According to the findings, those who have severe forms of AA are more likely to have elevated levels of sadness, anxiety, and stress compared to those who have lesser forms of the condition. As a result of this, the authors came to the conclusion that the chance of patients getting psychological comorbidities increased in proportion to the severity of AA.^{13,14}

Numerous previous investigations have been conducted on alopecia areata, a condition that has been hypothesized to play a role in the onset of psychiatric disease; nevertheless, these

studies have yielded conflicting findings. This finding is consistent with the other studies that have been conducted on individuals who have AA. The current investigation showed that patients with AA have a high prevalence of psychiatric illnesses. Yasemin and Colon's study revealed that there was no discernible difference between the case and control groups.¹⁵⁻¹⁷

There is some evidence to suggest that individuals diagnosed with AA suffer from negative psychosocial effects. For instance, qualitative research has demonstrated that patients have reported experiencing a significant amount of distress.^{18,19} It was common for people to have feelings of depression, anxiety, and suicidal thoughts in addition to feelings of melancholy, insecurity, and feelings of inadequacy, and self-consciousness. The vast majority of qualitative research demonstrates that people have difficulty engaging in ordinary activities, such as taking part in sports or attending social events, because of a fear that their looks would be noticed by others. It was also pointed out that the unpredictability of AA was a cause of specific concern, and it was noted that women appear to experience higher levels of stress and distress than males do.^{20,21}

The findings of our study found that those with AA have a greater frequency of co-occurring mental health disorders than people without AA. This demonstrates the essential need for evidence-based mental health treatment services to identify and help persons who are experiencing psychological discomfort. Additional research is required to determine whether or not treatments for alopecia (such as prescription medications and procedures that include altering one's appearance, such as wearing wigs or getting tattoos) lessen the psychological burden brought on by the condition.²²⁻²³

Then again, additional research is required to create and validate psychological treatments and interventions that can be utilized with AA members. It is also necessary to give some thought to the question of where these therapies should be located (for example, inside psychiatric services), as well as whether or not they would be more appropriately located under specialized psycho-dermatology services. Given that the relationship between AA and prevalent mental health diseases may operate in both directions, it is imperative that additional studies be conducted to understand whether or not an active treatment for AA might enhance the mental health outcomes that are experienced over the long run.²⁴⁻²⁶

Limitation

The study may be hampered by publication bias.

Conclusion

According to this study, alopecia areata sufferers have higher levels mental illness such as anxiety and depression than healthy controls. Physicians should take note of the regular assessments of these diseases in consideration of this increased risk.

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