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Psychosocial and psychiatric comorbidities and health-related quality of life in alopecia areata: A systematic review

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Abstract

Background: Alopecia areata (AA) is an immune-mediated disease resulting in nonscarring hair loss. Systematic reviews on the psychosocial and psychiatric comorbidities, health-related quality of life, and interventions targeting psychosocial well-being are limited.

Objective: To conduct a systematic review of the psychosocial comorbidities, health-related quality of life, and treatment options targeting psychosocial well-being in adult and pediatric AA patients.

Methods: A systematic review was performed according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines within the PubMed database. Specific search terms included, but were not limited to, *alopecia areata*, *psychosocial*, *psychiatry*, and *quality of life*. Studies were then evaluated for their design and categorized into corresponding levels of evidence according to the guidelines adapted from the Oxford Center for Evidence Based Medicine.

Findings: Seventy-three reports met inclusion criteria, involving approximately 414,319 unique participants. AA patients were found to have psychiatric comorbidities, particularly anxiety and depression. Health-related quality of life is reduced in AA patients, but data on pediatric AA quality of life are limited. Psychotherapy is often recommended as adjuvant treatment.

Conclusion: AA has substantial psychosocial impact on patients and results in reduced health-related quality of life. Addressing this should be an active part of treatment.

Keywords

alopecia areata; anxiety; depression; hypnosis; personality; psychiatry; psychosocial; quality of life; wigs

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Alopecia areata (AA) is a chronic, autoimmune condition that causes nonscarring hair loss, affecting 0.2% of the population worldwide. There is no apparent gender predilection, and the average age of onset is 33 years.[1] Although 30%−50% of patients spontaneously recover within 1 year of diagnosis, an additional 14%−25% of patients progress to the more severe alopecia universalis and alopecia totalis, at which point recovery is rare.[2]

Given the chronic, relapsing, and unpredictable clinical course and the effect on appearance, it is not surprising that AA has a significant psychological effect on patients. Systematic reviews of its psychosocial effects, however, are limited to quality-of-life assessments.[3] We conducted a systematic review of the psychosocial and psychiatric comorbidities, the health-related quality of life, and the nonpharmacologic therapies of AA in both adult and pediatric patients.

METHODS

A systematic review was performed in the PubMed database according PubMed database according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines for clinical studies to identify the psychosocial aspects of AA up to October 8, 2019 (Supplemental Table I, available at http://www.jaad.org). A combination of the following search terms was used: “alopecia areata,” or “alopecia totalis,” or “alopecia universalis” and “psychosocial” or “psychiatry” or “psychology” or “quality of life” or “social” or “stigma.” Studies were eligible for our systematic review if they met the following inclusion criteria: peer-reviewed, with available full texts in English, providing primary data on psychosocial effects, psychiatric effects, or quality of life in patients with any form of AA. There was no exclusion of studies focusing specifically on a certain age range. Studies that met the inclusion criteria were assessed for level of evidence on a modified Oxford Centre for Evidence-based Medicine scale of 1 to 5: (1) a systematic review of randomized clinical trials (RCTs) with homogeneity, individual RCT with homogeneity, and all-or-none case series; (2) a systematic review of cohort studies, individual cohort study (including low-quality RCT), and outcomes research or ecological studies; (3) a systematic review of case-control studies, individual case-control study; (4) a case series or cross-sectional study; and (5) a case report or opinion of respected authorities. A checklist is presented in Supplemental Table II (available at http://www.jaad.org). We excluded non–peer-reviewed studies without full texts available and studies that focused solely on pathophysiology or pharmacologic treatments.

RESULTS

Study selection and characteristics

The initial search strategy resulted in 377 unique studies with human subjects. The articles were screened by title and abstracts to identify 308 articles in English. Seventy-three original publications met the inclusion criteria. Of these, we identified 24 cohort studies, 12 case-control studies, 30 cross-sectional studies, 3 case series, and 4 case reports. In total, all identified studies involved approximately 414,330 unique participants. A total of 28 studies addressed the psychosocial aspects of adults with AA, and 10 studies were pediatric-specific psychosocial studies. Seventeen articles discussed adult health-related quality of life, and 3

articles addressed pediatric health-related quality of life. Fifteen articles focused on nonpharmacologic treatments that target psychosocial well-being in patients with AA.

Psychosocial and psychiatric comorbidities are associated with AA in adults

Our review identified 28 articles addressing the psychological and psychiatric dimensions of AA in adults (Table I). The strongest level of evidence was 2b (for definition, see Methods).

Twelve of 28 studies involving 32,461 patients discussed the relationship between psychiatric disorders and AA. Nine of these 12 studies including 31,766 total participants demonstrated or suggested a higher incidence of mental health disorders, such as anxiety, depression, attention deficit hyperactivity disorder, and certain psychotic disorders in patients with AA compared with healthy controls.[5,11,12,25,28,30,32] Level of evidence for these studies ranged from 2b to 3b. Of importance, patients with AA were found to have higher rates of psychiatric hospitalizations.[5,11,12,25,28,30,32]

Personality differences between patients with AA and healthy controls are less clear, as some studies denoted minimal differences,[21,31] whereas others noted a higher prevalence of harm-avoidant and reward-dependent personalities in AA patients. Patients with AA might also exhibit a higher level of alexithymia, which is the inability to express emotions.[14,18,24,33,34] Finally, AA relapse can pose a risk of developing paranoia and obsessive-compulsive traits.[6] Some studies demonstrated impaired coping with stress in AA patients, whereas others found no differences.[9,15,17] Lastly, similar to patients with psoriasis and atopic dermatitis, patients with AA have higher levels of family dysfunction than controls.[14]

Frequently, stressful life events preceded diagnosis (n = 17 articles).[19,20,23,29] Specifically, emotional stress and neglect were implicated.[10,16] The remaining 11 of 28 studies, however, found no significant difference between patients' experiences versus those of healthy controls,[24] even immediately preceding hair loss.[22,27]

Psychosocial and psychiatric comorbidities are associated with AA in children

We identified 10 articles focusing exclusively on the psychiatric comorbidities and psychological aspects of AA within pediatric patients (Table II). The strongest level of evidence is 2b. Pediatric patients with AA have, on average, a higher psychiatric burden than age-matched controls, with higher prevalence of anxiety, depression, and psychiatry appointments.[35,41,42] The prevalence of major depressive disorder or obsessive-compulsive disorder is as high as 50% or 30%, respectively, among others such as anxiety disorders, mood disorders, and disruptive behavioral disorders.[39]

One study investigated the social ramifications of AA in children. Healthy children can perceive children with AA as sick or dying,[37] emphasizing the need for counseling patients, families, and peers to help avoid social isolation caused by AA. In addition, like their adult counterparts, pediatric patients with AA experience more stressful lifetime events than their healthy siblings do.[38,40,44]

Suicide risk in AA

The link between suicidality and AA is not clear. Although one report concluded that patients with AA do not show suicidal ideation,[26] another study found that 12.8% of patients with AA are at risk of committing suicide.[4] In further support for possible increased risk of suicide in patients with AA is a case series of suicides in 4 AA-affected boys between the ages of 14 and 17 years within 1 year of diagnosis.[36]

Health-related quality of life is reduced in AA

Our review revealed 17 studies focused on adult-specific, health-related quality-of-life measures, with the highest level of evidence at 2b (Table III). The most frequently used and validated questionnaires were dermatology-specific instruments, the Dermatology Life Quality Index (DLQI) and Skindex (61-item questionnaire), and a generic measure, the Short-Form (SF) Health Survey.[46,50,55] Hair-specific measures included the Hairdex,[47] the Alopecia Areata Symptom Impact Scale (AASIS), the Alopecia Areata Quality of Life Index, and the Alopecia Areata Quality of Life (Table III).[57,59,61,62]

Nearly 80% of AA patients report impaired health-related quality of life based on DLQI survey results,[48] particularly those with severe AA.[13] Areas predominantly affected are embarrassment and social interaction, with the severity of the effects being related to percent hair loss and concomitant depression.[46,50] Skindex survey results indicate that worse scores are more prevalent in older patients with AA; these results can be influenced by educational level, social class, and family history.[46,54] SF Health Survey results demonstrate that mental health and vitality are the most affected dimensions in AA, whereas physical functioning and pain are the least affected.[66] Notably, scores do not correlate with severity of disease, and unmarried individuals score lower than their married counterparts.

Hair-specific quality-of-life measures depict a lower quality of life in patients with AA compared with that in healthy adults. Specifically, decreased quality of life is more prevalent in those younger than 50 years, in female patients, in those with ongoing hair loss, in those with concurrent family stress, and in those with recent job changes.[51] Nail involvement does not contribute to lower quality of life.[60] In addition, patients with higher AASIS scores are willing to pay more to control their disease, and overall willingness-to-pay levels in AA are similar to those in vitiligo, atopic dermatitis, and psoriasis.[58]

As expected, the presence of psychosocial and psychiatric comorbidities influences quality of life in AA patients. For example, anxiety and anxiety-related personality traits within the context of AA contribute to lower health-related quality-of-life scores, regardless of severity.[5,8,45] In comparison with other dermatologic diseases, patients with AA report better overall quality of life than psoriasis patients do.[67]

Quality of life is impacted in children with AA, but measures are lacking

Our review identified 3 articles that discussed pediatric-specific, health-related quality of life (Table III). The quality-of-life measures discussed were the Quality of Life in a Child's Chronic Disease Questionnaire (QLCCDQ), the Family Dermatology Life Quality Index (FDLQI), and the Pediatric Quality of Life Inventory.

Overall, quality of life decreases in proportion to disease severity and age of the affected child. This finding applies to caretakers of affected children as well. One prospective study of AA-affected children found a negative correlation between symptom severity and parent quality of life, as measured with the QLCCDQ and the FDLQI.[63]

Likewise, the Pediatric Quality of Life Inventory, among other psychology-oriented questionnaires, revealed that children with AA have higher anxiety, depression, and maladaptive coping habits, which negatively affect their quality of life.[17,65] Adolescents with AA have higher rates of anxiety but not depression. Both children and adolescents have a lower parent-rated quality of life.[65]

Therapies targeting psychosocial impact and quality of life

Our review identified 15 articles discussing nonpharmacologic therapies targeting quality of life in AA patients (Table IV). The highest level of evidence was 2b. The most commonly cited effective treatment was psychotherapy (n = 6), followed by hypnotherapy (n = 4). Other techniques included wigs and pharmacotherapy to increase quality of life, with evidence lacking to support the adopted use of any one specific technique.[74]

Willemsen et al[34,56,68,69] studied hypnosis from 2006 to 2011, testing it in conjunction with conventional therapies and alone. In these studies, hypnosis improved alexithymia, anxiety, and depression, with these results being sustained over 6 months, as quantified by quality-of-life measures such as the Symptom Checklist-90, SF Health Survey, and Skindex.[34,56,68,69] Psychiatric medications have also been shown to improve well-being. A cohort of patients with AA and depression who received citalopram in addition to triamcinolone injections saw a reduction in diameter of their patchy hair loss compared with those who received treatment with triamcinolone injections alone.[78] Conventional therapies aiming at improved hair growth can also improve quality of life. Patients treated with standard or emerging therapies, such as tofacitinib, have demonstrated an improvement in quality of life when experiencing hair growth.[53]

Family, group, and individual psychotherapy are often-cited tools that help patients and families cope with AA.[33,70] Less rigorous are case reports detailing behavioral modification such as hair massage, relaxation, and monetary rewards for the patient as nonpharmacologic treatment options.[72] A case-control study comparing psychotherapy and relaxation training in addition to immunosuppressants versus immunosuppressants alone demonstrated greater hair regrowth in those undergoing psychoimmunotherapy.[73] Similarly, mindfulness-based stress reduction programs in conjunction with conventional therapy improved quality of life in patients with AA, with results lasting 6 months after cessation of the program.[71] Wigs and hairpieces improve quality of life through enhanced confidence and perceived competence.[76] Although wearing wigs increases social confidence, it can also contribute to maintaining anxiety.[75]

DISCUSSION

This systematic review highlights the psychosocial effects of AA. The highest level of evidence in all categories, 2b, supports the following ideas: (1) psychiatric comorbidities,

including anxiety and depression, are more prevalent in patients with AA; (2) stressful life events typically precede diagnosis; and (3) health-related quality of life is reduced with AA. Although psychiatric differences are evident between AA patients and healthy controls, personality differences, such as variation in coping strategies, are less clearly correlated to AA.

AA patients experience depression and anxiety at a rate higher than that in controls and at rates similar to other chronic skin conditions. For example, approximately 5%−21% of patients with hidradenitis suppurativa experience depression[79]; they experience anxiety nearly twice as much as healthy controls (odds ratio, 1.7).[80] Patients with psoriasis are 1.5-fold more likely to experience depression than healthy controls, with depression as the third leading comorbidity in this population (nearly 18%).[81] Prevalence of anxiety typically matches that of depression in patients with psoriasis.[81] Patients with atopic dermatitis also experience depression at a rate of 20% versus 14% in healthy controls, with higher accompanying rates of suicidality.[82] Although all conditions place patients at risk for depression, patients with hidradenitis suppurativa seem to have the highest levels of anxiety. Regarding psychiatric comorbidities, it seems that results are generalizable between AA and other chronic skin diseases.

AA patients typically experience stressful events, and they doso at a rate nearly twice as high as that of healthy controls. This finding is similar to that found in other dermatologic and cutaneous disorders, such as psoriasis and atopic dermatitis, in which 30%−70% of patients, respectively, have experienced stressful lifetime events.[83] Stress and related oxidative stress can be particularly important for the pathogenesis of AA. In one study, patients with AA who demonstrated elevated psychosocial stress compared with controls had a corresponding novel polymorphism in their adrenocorticotropin receptor resulting in an insufficient hormonal response to stress; this was true in both patients with AA and controls with severe stress.[84] Other studies have more directly illustrated the association between stress and AA. When exposed to reactive oxygen species (ROS), cellular membranes create byproducts (eg, malondialdehyde) that can negatively regulate cellular function.[85] Multiple studies have demonstrated elevated levels of these byproducts in the plasma, red blood cells, and scalps of patients with AA.[85]

Health-related quality of life is reduced in patients with AA, and psychiatric comorbidities reduce it further. Although hair-specific quality-of-life measures have been incorporated into the field, future studies are necessary to evaluate the validity of general health-related quality-of-life questionnaires, such as the DLQI in AA. Further study is also needed to clarify the relationship between alopecia severity and health-related quality of life, as our results were contradictory but similar to the results reported by Rencz et al.[3] Greater quality-of-life measures specific to pediatric patients with alopecia are also needed to fully understand the nuances of the disease’s effects on children and their caretakers. This is important, as some studies suggest a strong link between AA and suicidality in children.

Within this context, we suggest that interventions targeting the complex psychosocial dimension of AA should accompany conventional therapies to reduce morbidity and mortality, particularly in children. Practically speaking, patients and their families should be

counseled at each visit to anticipate psychosocial comorbidity. Given that stressful lifetime events precede diagnosis and are thought to possibly exacerbate disease, it is imperative that resources be available to reduce and manage stress. These resources include individual therapy, family support groups, and peer support groups. The National Alopecia Areata Foundation provides similar resources for affected patients. National Alopecia Areata Foundation resources vary from support groups and youth mentorship programs to cosmetic guides, treatment overviews, and parent support packs. The affiliated peer support groups are a topic of discussion within the literature, as authors speak to their therapeutic effect through reduced isolation and the experience of catharsis.[86]

As demonstrated here, stress and psychosocial comorbidities are associated with AA, thereby affecting health-related quality of life in both adults and children with AA. As a result, interventions aimed at improving psychosocial well-being are an important part of managing patients with AA.

CONCLUSION

Our systematic review demonstrates a relationship among psychiatric comorbidities, stressful life events, and AA. Although health-related quality of life is affected, pediatric quality-of-life measures are lacking. Adjuvant psychotherapy and support groups should be considered in addition to systemic medications to reduce morbidity and mortality.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Abbreviations used:

AA	alopecia areata
AASIS	Alopecia Areata Symptom Impact Scale
DLQI	Dermatology Life Quality Index
FDLQI	Family Dermatology Life Quality Index
QLCCDQ	Quality of Life in a Child’s Chronic Disease Questionnaire
RCT	randomized controlled trial
SF	Short-Form

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CAPSULE SUMMARY

- Prior reviews have focused on quality-of-life measures; currently, little is known of the psychosocial and psychiatric comorbidities, and effective nonpharmacologic therapies, of alopecia areata.
- Stressful life events and psychiatric disorders are associated with alopecia areata and diminish health-related quality of life; psychotherapy is a successful adjuvant therapy.

Table I.

The psychosocial impact of alopecia areata on adult patients

Year	Study	No. of patients	Study type	Level of evidence	Population subtype	Outcome
2019	Vélez-Muñiz et al [4]	126	Cross-sectional	3b	3–78 years	12% suicide risk in patients; 75% of adults referred to psychiatrist for depression or anxiety vs 6% of children with depressive symptoms
2019	Singam et al[5]	5604	Large-scale, cross-sectional	3a	All age ranges	AA associated with hospitalizations for psychiatric reasons, including mood and anxiety disorders
2017	Talaei et al[6]	24	Cohort	2b	>12 years	AA patients with higher harm avoidance and reward dependence than controls
2016	Yu et al[7]	342	Cohort	2b	>18 years	Illness perception plays a large role in determining quality of life in AA patients; illness perception is worse in androgenic alopecia patients than in AA patients
2014	Erfan et al[8]	152	Cross-sectional	3b	18–60 years	Personality of AA patients does not differ from the rest of the population
2013	Monselise et al[9]	77	Cross-sectional	3b	19–68 years	AA patients cope poorly with stress and are mildly depressed, similar to patients with androgenic alopecia
2012	Taheri et al[10]	61	Case-control	3b	All age ranges	No differences between physical and sexual stressful events in AA patients vs healthy controls; higher number of emotionally stressful events with higher mean scores than the healthy group
2012	Alfani et al[11]	146	Cross-sectional	3b	Age > 18 years	AA patients are more depressed and anxious, more in conflict with social surroundings
2012	Chu et al[12]	25,585	Cohort	2b	All age ranges	Age of AA onset is a risk factor for development of psychiatric diseases
2012	Reid et al[13]	104	Cross-sectional	3b	Age > 18 years	Patients with AA rate hair loss more severely than providers, and this rating plays a greater factor in quality of life than provider rating
2011	Poot et al[14]	106	Multicenter case-control	3b	Nonspecific adult	Patients with AA have high rates of family dysfunction, which can exacerbate disease
2011	Matzer et al[15]	45	Cohort	2b	22–77 years	Patients with AA do not differ from healthy controls in coping strategies and have lower levels of aggression
2010	Grahovac et al[16]	1	Case report	5	58-year-old woman	Life-altering, stressful events can and often do precede development of AA
2009	Welsh and Guy[17]	12	Cohort	2b	Nonspecific adult	Coping strategies evolve in patients with AA, ranging from denial to acceptance over time
2009	Willemsen et al[18]	90	Cross-sectional	3b	>18 years	There is no relationship between emotional and childhood stress with alexithymia in AA patients; higher education results in lower alexithymia
2009	Willemsen et al[19]	181	Case-control	3b	All age ranges	More patients with AA experience total lifetime and childhood stress, particularly traumatic events
2007	Manolache and Benea[20]	77	Case-control	3b	>15 years	There is a relationship between stressful events and AA development or exacerbation
2005	Carrizosa et al[21]	50	Case-control	3b	Nonspecific adult	No personality type or traits specific to AA vs other skin conditions
2004	Gulec et al[22]	104	Case-control	3b	Age 18–65 years	No difference between AA patients and controls with respect to stressful events, anxiety, and depression

Year	Study	No. of patients	Study type	Level of evidence	Population subtype	Outcome
2003	Brajac et al[23]	90	Case-control	3b	Nonspecific adult	Number of patients with four stressful life events in 6 months higher in AA than in controls
2003	Picardi et al[24]	123	Case-control	3b	Age 18–60 years	No difference between frequency of stressful life events in AA patients vs healthy controls
2003	Ruiz-Doblado et al[25]	32	Cross-sectional	3b	Age 16–67	High psychiatric comorbidity, mainly adjustment disorders, anxiety, and depression in AA patients compared with healthy controls
1998	Gupta and Gupta[26]	480	Cohort	2b	Nonspecific adult	Adult patients with AA tend to have lower rates of suicidal ideation in comparison with other cosmetically disfiguring disorders including psoriasis
1992	van der Steen et al[27]	178	Cohort	4	Nonspecific adult	No evident correlation between stressful lifetime events and AA development
1991	Colon et al [28]	31	Cross-sectional	3b	17–59 years	Majority of AA patients have at least one lifetime psychiatric diagnosis, particularly depression
1984	Perini et al[29]	108	Cross-sectional	3a	Nonspecific adult	AA patients have significantly more stressful lifetime events in the 6 months preceding diagnosis compared with healthy controls
1964	Sandok[30]	1	Case report	5	22-year-old man	Patients' AA exacerbations and remission closely linked to periods of emotional stress
1958	Macalpine[31]	125	Cohort	2b	3–62 years	No evidence that psychological factors or psychiatric diagnosis precipitate or exacerbate AA

All studies (n = 27) demonstrating the psychosocial effects of AA on adult patients. Most (n = 17) studies found a relationship between alopecia areata and psychiatric or psychological diagnosis, and the frequency of stressful lifetime events.

AA, Alopecia areata.

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Table II.

The psychosocial impact of alopecia areata on pediatric patients

Year	Study	No. of patients	Study type	Level of evidence	Population subtype	Outcome
2019	Hwang et al[35]	370,019	Large-scale, population-based cohort	2b	Age < 20 years	Frequency of psychiatry appointments greater in AA patients than in controls; frequency of ILI correlates to psychiatry appointment frequency
2014	Sinclair[36]	4	Case series	4	<18 years	Four suicides within 1 year of AA diagnosis
2013	Hankinson et al[37]	123	Cross-sectional	3b	Grades K-8	Grades K-3: uncomfortable, surprised, shocked, and sad when viewing child with AA Grades 5–8: sad but no stated discomfort, majority believe child to be sick
2011	Diaz-Atienza and Gurpegui[38]	31	Case-control	3b	Pediatric AA vs CD vs healthy	Higher frequency of stressful life events and higher urinary catecholamines in AA patients vs healthy siblings
2008	Ghanizadeh[39]	14	Cohort	2b	Age < 18 years	Nearly 80% of AA patients have $1 psychiatric diagnosis, majority is MDD
2008	Manolache et al[40]	43	Case-control	3b	Age < 14 years	Higher frequency of stressful life events in AA children vs controls; majority with one lifetime stressful event preceding diagnosis
1997	Liakopoulou et al[41]	33	Case-control	3b	Age < 18 years	AA children with more psychosocial issues, including depression and withdrawal vs controls
1996	Reeve et al[42]	12	Cohort	2b	Age 6–17 years	No significant difference between no. of psychiatric disorders and stressful events in AA children vs controls
1979	Tobak and Rajkumar[43]	15	Case-control	3b	Age 3–12 years	Early childhood experiences impact and possibly predispose to AA development in future
1968	Mehlman and Griesemer[44]	20	Case series	4	Nonspecific pediatric	Stressful lifetime events as a risk factor for AA development; stressful events often precede AA development in children

All studies (n = 11) demonstrating the psychosocial effects of AA on pediatric patients. Most (n = 9) studies demonstrated the association between psychiatric and psychological disorders, and the frequency of stressful lifetime events with alopecia areata.

AA, Alopecia areata; *CD*, chronic disease; *ILI*, intralesional injection; *MDD*, major depressive disorder.

Table III.

Summary of the health-related quality of life questionnaires

Population	Quality-of-life questionnaire	Description	Studies
Adult, general	Dermatology Life Quality Index (DLQI)	• 10-item questionnaire, used in those >16 years old • Measures effects on quality of life over 1 week • >110 translations, widely used tool • Scores range from 0 (no effect on quality of life) to 30 (poor quality of life)	Russo et al, 2019[45]; Mulinari-Brenner, 2018[46]; Gonul et al, 2018[47]; Liu et al, 2018[48]; Yu et al 2016[7]; Jankovic et al 2015[49]; Qi et al 20 1 5[50]; Shi et al 2013[51]; Al-Mutairi and Eldin 2011[52]
	Skindex	• 61-item survey • Measures degree to which a patient is bothered by condition; assessed by categories of symptoms, emotions, and function • Scores range from 0 (not bothered, high quality of life) to 100 (always bothered, poor quality of life).	Mulinari-Brenner, 2018[46]; Liu, Craiglow and King, 2018[53]; Essa et al 2018[54]; Jankovic et al 2015[49]; Shi et al 2013[51]; Nijsten et al 2009[55]; Willemsen et al 2010[56]; Willemsen et al 2011[34]; Reid et al 2012[13]
	Short-Form Health Survey	• 36-item questionnaire Not specific to skin • Evaluates 8 dimensions of quality of life, including physical functioning, bodily pain, social functioning, and mental health among others • Scores range from 0 (poor quality of life) to 100 (high quality of life)	Mulinari-Brenner, 2018[46]; Jankovic et al 2015[49]; Willemsen et al 2010[56]
	HAIRDEX	• Measures quality of life in patients with head and scalp disease • Five categories: emotions, functioning, symptoms, self-confidence, and stigmatization—graded from 0 to 4 according to the frequency	Gonul et al 2018[47]
	Alopecia Areata Symptom Impact Scale (AASIS)	• Consists of 13 items • Disease-specific: how AA symptoms interfere with daily functioning	Mendoza et al 2018[57]; Okhovat et al 2017[58]; Mendoza et al 2013[59]
	Nail psoriasis QoL scale (NPQ10)	• Questionnaire to measure quality of life in patients with nail psoriasis	Roest et al. 2018[60]
	Alopecia Areata Quality of Life (AAQ)	• 7 items evaluating 3 categories of quality of life: restriction of activity, concealment, and adaptation.	Endo et al[61]
	Alopecia Areata Quality of Life Index (AA-QLI)	• 21-question questionnaire • Three areas of daily life: subjective symptoms, relationship, objective signs	Fabbrocini et al 2013[62]
Pediatric	Quality of Life in a Child's Chronic Disease Questionnaire (QLCCDQ)	• 15-item questionnaire • Responses are scaled from 1 to 7 from most to least bothered • Targets 3 components of quality of life: parent's emotions, perception of child's symptoms, and role limitations owing to disease	Putterman et al 2019[63]
	Children's Dermatologie Life Quality Index (CDLQI)	• 10-item questionnaire created to simulate adult DLQI • Scores reported out of sum total of 30 points • Higher scores represent greater quality of life impairment	Putterman et al 2019[63]; Liu et al 2018[48]; Ghajarzadeh et al 2012[64]
	Pediatric Quality of Life Inventory	• 23-item questionnaire • Assess healthy children and those with acute or chronic conditions • 4 dimensions including physical, emotional, social, and school functioning	Bilgic et al 2014[65]
Family	Family Dermatology Life Quality Index (FDLQI)	•10-item questionnaire • Each question measures family member's perception of effect on quality of life over the last 1 month • Scores reported out of sum total out of 30 points, higher scores represent greater quality of life impairment	Putterman et al 2019[63]; Russo et al 2019[45]; Liu et al 2018[48]

Summary of the health-related quality of life questionnaires and their descriptions, specific to adults (n = 5), specific to alopecia areata (n = 3, total n = 8 for adults), specific to pediatrics (n = 3), and to families (n = 1).

AA, Alopecia areata.

Table IV.

Summary of top 5 nonpharmacologic treatments for alopecia areata

Effective treatment	No. of studies	No. of patients	Studies	Highest levels of evidence
Hypnosis	4	98	Willemsen et al 2011[34]; Willemsen et al 2010[56]; Willemsen and Vanderlinden 2008[68]; Willemsen et al 2006[69]	2b
Therapy (including group, family, individual and meditation-based)	6	45	Aschenbeck et al 2017[70]; Gallo et al 2017[71]; Colaianni and Poot 2016[33]; Putt et al 1994[72]; Teshima et al 1991[73]; Cohen and Lichtenberg 1967[74]	2b
Wig	3	424	Montgomery et al 2017[75]; Inui et al 2013[76]; Park et al[77]	3b
Antidepressant	1	60	Abedini et al 2014[78]	3b
Alopecia areata pharmacologic therapy	1	30	Liu et al 2018[53]	2b

Summary of the 5 distinct types of nonpharmacologic treatments within the literature. The most commonly cited and effective therapy was psychotherapy (n = 6), with wigs being a close second (n = 4).