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Temperament-Character Profiles in Patients with Alopecia Areata

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ÖZET:

Alopesi areata hastaların mizaç-karakter profilleri

Amaç: Alopesia Areata (AA) yuvarlak ya da oval iz bırakmayan saç dökülmesi ile karakterize süreğen bir immünolojik deri hastalığıdır. Güncel psikosomatik tıp stresle tetiklenen değişik hastalıklara ve psikoimmünolojik değişikliklere odaklanmıştır. Literatürde AA'da görülen kişilik özelliklerine ilişkin araştırma oldukça azdır.

Bu çalışmanın amacı AA hastalarının mizaç ve karakter özelliklerini ve bunlarla ilişkili psikopatolojik özellikleri araştırmak ve sağlıklı kontrol grubu ile karşılaştırmaktır.

Yöntem: Dermatoloji kliniğine başvuran AA tanılı 73 hasta çalışmaya dâhil edildi. Sağlıklı kontrol grubunu 78 hasta oluşturdu. Genel psikopatoloji SCL-90-R ölçeği kullanılarak değerlendirildi. Kişilik özellikleri ise Mizaç ve Karakter Envanteri (TCI) kullanılarak değerlendirildi.

Bulgular: Hasta grubunda ruhsal belirti düzeyi ve depresyon alt puanları kontrol grubuna göre anlamlı olarak yüksekti. Mizaç ve karakter özellikleri değerlendirildiğinde; AA tanısı alanlarda yenilik arayışı (NS), ödül bağımlılığı (RD) ve kendini aşma (ST) alt ölçek puanları kontrol grubuna kıyasla anlamlı olarak düşüktü. Depresyon ve anksiyete eş-değişken olarak göz önüne alındığında ve ANCOVA analizi yaptığımızda, t-testi ile NS, RD ve ST için saptanan anlamlılık geçerliydi.

Sonuç: AA tanısı alan hastalarda psikiyatrik belirtilerin yaygın olduğu bilinmektedir. Bu çalışma AA hastalarının sağlıklı kontrollerle karşılaştırıldığında yenilik arayışı, ödül bağımlılığı ve kendini aşma gibi bazı mizaç özelliklerinin sağlıklı kontrollerden farklı olabileceğini göstermektedir. Yenilik arayışı, ödül bağımlılığı kendini aşma gibi özellikleri daha düşük olan AA hastaları depresyona daha yatkın olabilir.

Anahtar sözcükler: alopesi areata, psikopatoloji, mizaç-karakter

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ABSTRACT:

Temperament-character profiles in patients with alopecia areata

Objective: Alopecia areata (AA) is a chronic immunological skin disorder characterized by round or oval patches of non-scarring hair loss. Current psychosomatic medicine focuses on the triggering of various diseases by stress and on psycho-immunological changes related to psychosocial stress. There has been little research on the personality traits in alopecia areata.

The aim of this study is to examine temperament–character profiles and psychopathology of AA patients and to compare the findings with healthy controls.

Method: Seventy-three patients who applied to outpatient clinics of dermatology for AA were included. The control group (n=78) was recruited from a non-clinical population. General psychopathology was assessed with the revised version of the Symptom Checklist-90 (SCL-90-R). Personality was assessed using the Temperament and Character Inventory (TCI).

Results: The Global Severity Index (GSI) and depression subscale of the SCL-90-R scores were higher in the AA than in the control group ($p<0.05$). Total scores of novelty seeking (NS), reward dependence (RD), and self-transcendence (ST) of the patient groups were significantly lower than those of the control groups ($p<0.05$). When depression and anxiety were considered as covariates, the significant difference which was detected by the t-test still existed between the two groups in terms of NS, RD and ST.

Conclusion: It is well known that psychiatric symptoms are common in AA. This study suggests that AA patients have distinctive temperaments such as novelty seeking, reward dependence and self-transcendence dimension compared with healthy controls. AA patients with low NS, RD and ST scores may be prone to depression.

Keywords: alopecia areata, psychopathology, temperament-character

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INTRODUCTION

Alopecia areata (AA) is a chronic immunological skin disorder characterized by round or oval patches of non-scarring hair loss (1). AA is an unpredictable disease and patients may experience numerous remissions and exacerbations (2). AA can occur at any age, but often begins during childhood, as approximately 60% of AA patients develop the disease prior to age 20 (3,4). The majority of patients present with only limited patchy hair loss that can be easily masked (5). The aesthetic repercussions of this disease include the loss of scalp hair, eyebrows, and eyelashes, vital facial features. Consequently, emotional stress and reduced self-esteem can ensue (4).

The cause of AA is not exactly known, and it has been linked to genetic factors, autoimmune processes, infectious factors, and psychological factors (stress and personality characteristics of patients) (6). A number of studies have evaluated the relationship between AA and psychopathologies. Some of them describe patients with alopecia areata as having psychopathological morbidity more often than in the general population. In particular, high lifetime prevalence rates of depression and generalized anxiety disorder are well described in the literature (7). In another study it was shown that there was an increased risk of depression in patients with AA aged <20 years and an increased rate of anxiety in AA patients with onset between the ages of 20 and 39 years (8). Moreover, a study assessing the outcomes of treatment in AA indicates that hair regrowth in dermatologically treated AA patients was not associated with their psychological well-being (9). Willemsen and colleagues indicated that in patients with AA, the global impact score related to their traumatic experiences was significantly higher than control subjects and patients with AA experienced significantly more emotionally and physically traumatic events (10). In addition to AA, patients experienced stressful events more often than the healthy population (11).

Nowadays, specificity of personality is a controversial subject, and current psychosomatic medicine focuses on the triggering of various diseases by stress and on psycho-immunological changes related to psychosocial stress. There has been little research on personality traits in AA. The results of personality studies in AA are not concordant, as both phobic, histrionic traits and type A-behavior have been documented (12).

Cloninger's psychobiological model of personality brings together genetic and environmental factors. Temperament refers to automatic emotions and responses thought to be moderately heritable, and therefore largely genetically based. Temperament profiles are hypothesized to manifest early in life, and are related to dopaminergic, serotonergic, and noradrenergic activity (13,14). Character is largely environmentally derived and is responsive to learning and maturation. In recent studies, the inventory has been widely used such as in exploring neuropsychology (15), the genetic basis of personality in normal subjects (16), and somatic and dermatological diseases (17,18).

A comprehensive study of personality characteristics of patients with AA is not present in the literature. AA may have immunogenetical components and be affected by various environmental factors. Moreover, onset of the disease usually begins early in adulthood. Therefore, evaluating biological temperament and acquired character in AA will provide important information for clinical psychiatry. The aim of this study was to examine temperament–character profiles and psychopathology of patients with AA and to compare the findings with healthy controls. We hypothesized that patients with AA would have depressive symptoms and harm avoidance trials than healthy controls.

MATERIALS AND METHODS

Setting and Sample

This study was performed in two centers: Selçuk University, Selçuklu Medical Faculty and Malatya State Hospital. The study was performed with the approval of the Selçuk University Medical Faculty's

Ethics Committee and written informed consent, in accordance with the Declaration of Helsinki, was obtained from all participants. Patients who applied to outpatient clinics of dermatology for AA were included in the study. Initially, 88 patients with AA were screened. Patients who did not meet the study's criteria (n=4) or did not want to participate (n=9) were excluded. Patients with alopecia totalis or universalis (n=2) were excluded from the study. Patients with other dermatologic diseases, serious endocrinological disorders (overt hypothyroidism, Cushing syndrome, etc.), diagnosis of any cancer, and psychiatric diseases under pharmacological treatment were also excluded. Thereby, 73 patients with AA (25 female and 48 male), ages 18-65 years, and with the educational status of at least primary school were included in this study.

The diagnoses of AA were made by dermatologists. The clinical severity of AA was measured using the Severity of Alopecia Tool (SALT) score. The scoring was done as follows; S: scalp hair loss (S0=No hair loss, S1=≤25% hair loss, S2=26-50% hair loss, S3=51-75% hair loss, S4=76-99% hair loss, and S5=100% hair loss); B: body hair loss (B0= no body hair loss , B1= some body hair loss, and B2=100% body hair loss) (19). The patients with alopecia totalis or universalis were excluded from this study.

An age- and gender-similar healthy control group (n= 78) was recruited from employees at Selçuk University Hospital. Additional exclusion criteria for controls were any known medical and dermatological condition or current psychiatric disorder.

Measures

General psychopathology was assessed with the revised version of the Symptom Checklist-90 (SCL-90-R). It is a 90-item multidimensional self-report clinical rating scale measure of current psychopathology widely employed in psychiatric and medical populations with well-established reliability and validity (20). The SCL-90 is a multidimensional inventory projected to evaluate a wide spectrum of psychological problems and psychopathological symptoms (20). It is composed of 90 items, which might be answered according to a 5-point scale, graded from 0 to 4, from "none" to "extremely." This scale has nine primary domains of symptoms: somatization, obsessivity-compulsivity, interpersonal sensitivity, depression, anxiety, anger-hostility, phobic anxiety, paranoid ideas, and psychoticism. They are used for the calculation of the Global Severity Index (GSI). The SCL-90-R has been demonstrated to be reliable in the Turkish population (21).

Personality was assessed using the Temperament and Character Inventory (TCI). The TCI was developed by the psychiatrist C. Robert Cloninger and is based on his psychobiological theory of personality (14). It is suitable for measuring both normal and abnormal behavior patterns. The TCI is a set of 240 questions answered as true or false, a self-reporting questionnaire measuring four dimensions of temperament and three dimensions of character. The TCI has been extensively used in clinical/non-clinical populations and its validity and reliability for the Turkish population has been assessed (22). Each of the seven TCI dimensions is about 50% heritable according to large-scale twin studies (23). The temperament dimensions measure individual differences in emotional responses to associatively conditioned stimuli. The four temperaments are harm avoidance (HA) (i.e., anxious versus risk-taking), novelty seeking (NS) (consideration about impulsivity versus rigidity), reward dependence (RD) (give information about approval seeking versus remaining aloof), and persistence (PS) (i.e., overachieving versus underachieving). The character dimensions assess individual differences in higher cognitive processes that modulate emotional conflicts to satisfy a person's goals and values. The character dimensions quantify the three branches of mental self-government: self-directedness (SD) (executive functions such as being responsible, purposeful, and resourceful), cooperativeness (CO) (legislative functions, i.e. tolerance, forgiveness, and helpfulness), and self-transcendence (ST) (judicial functions, such as

being intuitive, judicious, and aware) (24).

Individual differences in TCI character dimensions measure the presence and severity of personality traits, whereas the temperament dimensions indicate membership in the anxious cluster if high in harm avoidance, the impulsive cluster if high in novelty seeking, and the aloof cluster if low in reward dependence (25,26).

Procedure

The study was described to patients and they were invited and encouraged to participate in the study by the attending dermatologists after their initial assessment. Written informed consents of the contributors were obtained. The self-report scales were administered after the clinical assessment. The socio-demographic information was also recorded during an interview.

Statistical Analysis

All analyses were performed with SPSS version 11.0 for Windows (Chicago, IL, USA). Data met the criteria for parametric analysis. The chi-square test was used to analysis sociodemographic data (gender, education, marital status). All variables were tested with the Kolmogorov-Smirnov test to determine whether their distributions were normal. For comparisons within the study group, the t-test or Mann-Whitney U-Test (when the data were not normally distributed) was used for continuous variables. All p values were two-tailed, and the statistical significance was set as $p<0.05$.

Depression (subscore of SCL-90) and anxiety (subscore of SCL-90) scores were regarded as covariates and the difference between the groups was evaluated using analysis of covariance (ANCOVA). Spearman correlations were calculated between TCI main scales and illness duration and SALT score in the patient group with AA.

RESULTS

In our study, there were 73 patients with AA, of whom 25 were female and 48 were male. Patient and control groups were similar in terms of age, gender, education, and marital status (for all parameters $p>0.05$). Socio-demographic results of the subjects are shown in Table 1.

All patients were diagnosed as AA with patchy patterns of hair loss. According to the SALT score, 28.8% (n=21) of patients were classified as S0, 67.1% (n=49) as S1, 2.7% (n=2) as S2, 1.4% (n=1) as S3. Regarding B score, 57.5% of patients were categorized as B0 and 42.5% as B1.

The mean duration of AA was 23.25 months (SD±41.4). The mean number of attacks was 2.44 (SD±3.25). Duration of the current episode of scalp hair loss may be stratified by subgroups as following: < 3 months (n=30), 3-12 months (n=24), 12-24 months (n=2), >2-5 years (n=8), >5 years (n=9). The current episode was the first episode in 56.2% (n=41) of the patients.

Depression subscales of the SCL-90-R scores were higher in the AA than in the control group ($p<0.05$). Other subscales scores were not significantly different between groups ($p>0.05$). In addition to the general psychopathology index scores, the Global Severity Index (GSI) was

Table 1: Socio-demographic data of both groups

	Patients (n= 73) Mean±S.D.	Controls (n=78) Mean±S.D.
Age (mean years±S.D)	27.66±7.79	29.50±7.19
Gender		
Female (n, %)	25 (34)	34 (43)
Male (n, %)	48 (66)	44 (57)
Marital status		
Married (n, %)	21 (28)	24 (30)
Single (n, %)	52 (72)	54 (70)
Education (mean years±S.D)	10.64±3.53	10.76±3.52

(for all parameters p>0.05)

Table 2: SCL-90-R Subscale scores of the subjects

	Patients (n= 73) Mean±S.D.	Controls (n=78) Mean±S.D.	Z/t	p
Somatization[a]	0.82±0.64	0.67±0.55	-1.600	0.110
Obsessional compulsion[b]	1.05±0.63	0.88±0.66	1.610	0.110
Interpersonal sensitivity[a]	0.73±0.40	0.70±0.41	-0.975	0.330
Depression[a]	1.02±0.72	0.73±0.56	-2.593	0.010
Anxiety[a]	0.74±0.62	0.57±0.55	-1.809	0.070
Anger-hostility[a]	0.99±0.82	0.75±0.76	-2.396	0.057
Phobic anxiety[a]	0.43±0.47	0.41±0.57	-1.038	0.299
Paranoid ideation[a]	0.95±0.75	0.88±0.76	-1.057	0.291
Psychoticism[a]	0.50±0.55	0.47±0.50	-0.433	0.665
GSI[a]	0.84±0.53	0.64±0.41	-2.493	0.013

GSI: Global Severity Index.
a=Mann Whitney U test (Z), b= independent-samples t test (t)

Table 3: SCL-90-R Subscale scores of the subjects

	Patients (n= 73) mean±S.D.	Controls (n=78) mean±S.D.	Z/t	p
Temperament				
Novelty seeking (NS)[b]	18.57±3.37	20.68±3.70	-3.65	<0.001
Exploratory excitability vs. stoic rigidity (NS1)[a]	5.67±1.72	6.16±1.67	-2.038	0.042
Impulsiveness vs. reflection (NS2)[a]	4.15±1.82	5. 82±2.45	-4.261	<0.001
Extravagance vs. reverse (NS3)[a]	4.32±1.38	3.98±1.38	-1.415	0.157
Disorderliness vs. regimentation (NS4)[a]	4.28±1.59	4.84±1.71	-2.521	0.012
Harm avoidance (HA)[b]	17.71±4.84	18.35±5.87	- 0.73	0.470
Worry/pessimism vs. uninhibited optimism (HA1)[a]	5.88±1.97	5.62±1.99	-0.628	0.530
Fear of uncertainty vs. confidence (HA2)[a]	4.36±1.43	4.26±2.90	-1.712	0.087
Shyness with strangers vs. gregariousness (HA3)[a]	3.24±1.64	3.98±2.13	-2.646	0.008
Fatigability and asthenia vs. vigor (HA4)[a]	4.32±1.87	4.51±2.44	- 0.546	0.585
Reward dependence (RD)[b]	13.57±2.98	15.44±2.79	-3.98	<0.001
Sentimentality vs. insensitivity (RD1)[a]	7.01±2.01	7.34±1.56	-1.081	0.280
Attachment vs. detachment (RD2)[a]	4.03±1.53	4.94±1.72	-3.557	0.002
Dependence vs. independence (RD3)[a]	2.56±1.12	3.24±1.43	-3.557	<0.001
Persistence (PS)[a]	4.86±1.47	4.88±1.49	-0.142	0.887
Character				
Self-directedness (SD)[a]	27.5±5.60	26.70±7.67	-1.258	0.208
Responsibility vs. blaming (SD1)[b]	4.41±1.85	4.67±1.91	-0.84	0.401
Purposefulness vs. lack of goal direction (SD2)[b]	5.52±1.65	5.22±2.97	0.77	0.440
Resourcefulness vs. inertia (SD3)[b]	3.21±1.12	2.72±1.45	2.33	0.020
Self-acceptance vs. self-striving (SD4)[a]	6.20±2.09	5.58±3.11	-1.828	0.062
Congruent second nature vs. incongruent habits (SD5)[a]	8.05±1.83	8.10±2.02	-0.068	0.940
Cooperativeness (CO)[b]	27.41±5.03	27.28±5.73	0.15	0.880
Social acceptance vs. social intolerance (C1)[a]	5.61±1.54	5.24±1.64	-1.846	0.065
Empathy vs. social disinterest (C2)[a]	4.31±1.11	5.08±1.92	-3.305	0.001
Helpfulness vs. unhelpfulness (C3)[a]	4.72±1.27	5.08±1.33	-1.890	0.059
Compassion vs. revengefulness (C4)[b]	6.34±2.57	5.96±2.47	0.94	0.350
Pure-hearted principles vs. self-advantage (C5)[a]	6.58±1.98	5.78±1.55	-2.996	0.003
Self-transcendence (ST)[a]	17.32±4.39	19.71±5.39	-2.930	0.003
Self-forgetful vs. self-conscious (ST1)[a]	6.11±3.45	6.26±2.98	-0.669	0.504
Transpersonal identification vs. self-differentiation (ST2)[a]	4.46±1.79	5.49±2.11	-2.847	0.004
Spiritual acceptance vs. rational materialism (ST3)[a]	6.95±1.91	8.03±2.01	-2.828	0.005

a=Mann Whitney U test (Z)
b= independent-samples t test (t)

Table 4: Analysis of covariance with the covariates depression (subscore of SCL-90) and anxiety (subscore of SCL-90)

TCI	Patients	Controls	t/Z	p	F	p
NS[b]	18.57±3.37	20.68±3.70	-3.65	<0.001*	19,391	<0.001*
HA[b]	17.71±4.84	18.35±5.87	-0.73	0.47	1.249	0.271
RD[b]	13.57±2.98	15.44±2.79	-3.98	<0.001*	14.366	<0.001*
PS[a]	4.86±1.47	4.88±1.49	-0.142	0.94	0.005	0.947
SD[a]	27.5±5.60	26.70±7.67	-1.258	0.87	2.238	0.137
CO[b]	27.41±5.03	27.28±5.73	0.15	0.88	1.451	0.230
ST[a]	17.32±4.39	19.71±5.39	-2.930	0.003*	15.519	<0.001*

NS: Novelty seeking, HA: Harm avoidance, RD: Reward dependence, PS: Persistence, SD: Self-directedness, CO: Cooperativeness, ST: Self-transcendence.
a=Mann Whitney U test (Z), b= independent-samples t test (t), F: ANCOVA test, ANCOVA with depression and anxiety scores as covariates.
*: statistically significant

significantly higher in the AA than in the control group (p<0.05). The SCl-90-R subscale scores are shown in Table 2.

Temperament dimension scores were compared between the patients and control groups. Total scores of novelty seeking (NS) and subscores of exploratory excitability (NS-1), impulsiveness (NS-2) and disorderliness (NS-4) of the patient group were significantly lower than the control group (p<0.05). Shyness (HA3) subscores of the patient group were significantly lower than the control group (p<0.05). Total scores of reward dependence (RD) and attachment (RD2) and dependence (RD3) subscores of the patient group were significantly lower than the control group (p<0.05).

Character dimensions scores were compared between the patient and control groups. Resourcefulness (SD3) subscores of the patient group were significantly higher than the control group (p<0.05). Empathy (C2) subscores of the patient group were significantly lower than the control group (p<0.05). Pure-hearted principles (C5) subscores of the patients group were significantly higher than the control group (p<0.05). Total scores of self-transcendence (ST) and transpersonal identification (ST2) and spiritual acceptance (ST3) subscores of the patient group were significantly lower than the control group (p<0.05). Temperament and character dimensions scores are shown in Table 3.

We compared the personality profiles of the AA patients with those of the controls by means of an ANCOVA and used anxiety and depression as covariates. We controlled the influence of depression and anxiety as these variables are known to influence temperament as well as character dimensions (18). When depression and anxiety were considered as covariates, the significant difference which was detected by the t-test still existed between the two groups in terms of NS, RD and ST. The results are shown in Table 4. The duration of illness and the SALT scores (both for scalp and body) were not correlated with the TCI main scores; therefore, we didn't perform an analysis of covariance for these parameters.

DISCUSSION

The main finding of this study is that patients with AA are associated with a personality style that is low novelty seeking, low reward dependence, and low self-transcendence. When depression and anxiety were considered as covariates, the significant difference, which was detected by comparison tests still existed between the two groups in terms of NS, RD and ST. In addition, the duration of illness and the SALT scores were not correlated with the TCI main scores. The second finding is that AA patients have higher depressive scores and general psychopathology index scores than healthy controls.

Individuals with lower novelty seeking traits may be said to be slow tempered, indifferent, uninquisitive, unenthusiastic, unemotional, reflective, thrifty, reserved, tolerant of monotony, systematic, and orderly (13). Such individuals have difficulty adapting to changes in their life. From

that data, it can be suggested that AA patients are not open to improvements, will have difficulty to adapt to newness and changes, and these changes and improvements would be a stressor for them.

Individuals lower on the reward dependence spectrum are often described as practical, tough minded, cold, and socially insensitive. They are content to be alone and rarely initiate open communication with others. They prefer to keep their distance and typically have difficulties in finding something in common with other people. This social detachment can also be a disadvantage, when lack of sensitivity in social communication interferes with the cultivation of beneficial social affiliations (13,14). Kilic et al. reported that RD scores in psoriatic patient groups were observed to be the same as in a control group, which can be concluded as a situation masked by depression (18). Kim et al. reported a study in which they investigated the personality traits of patients with atopic dermatitis. They reported that patients with atopic dermatitis showed high HA and low RD scores that corresponded to usually being cunning, devious, ineffectual, reserved, underachieving, alienated, and cynical. In the aforementioned study, it was mentioned that RD was negatively related with depression (27). In our study we determined that RD total score and subscores in AA patients were significantly lower than those of healthy controls. These findings could be explained with depressive symptomatology because depression can certainly affect social interest, as in the RD findings. Nevertheless, we didn't observe any significant effect of depression on RD in the analysis of covariance. However, because our study was based on self-testing, it is hard to make a definite conclusion on this subject. With these results, it could be suggested that AA patients might have problems in social environments. They also could have difficulty in establishing social relations and self-expression.

Harm avoidance is one of the four independent temperament dimensions forming the "emotional core" of personality. This temperament dimension reflects a heritable neurobiological disposition to the early emotion of fear and its related automatic behaviors, which can be described as inhibition. Individuals who are very harm avoidant easily acquire conditioned avoidant responses to aversive stimuli, thus making them susceptible to fear (28). TCI harm avoidance quantifies individual differences in the extent to which a person is anxious, pessimistic, fatigued, and shy versus risk-taking, optimistic, and outgoing (24). Kilic et al. reported that HA scores in psoriatic patients were higher than the control group, from which could be concluded that psoriatic patients have tendencies toward anxiety and depression (18). Similarly, HA scores in patients with atopic dermatitis were observed at high levels (27). However in contrast to what was expected, we could not find a significant difference between patient and control groups. Only the HA3 scores, which is subscore of HA, were significantly lower when compared with the control group. In light of these findings, it could be suggested that AA patients are shy individuals to others and we can say that these patients think of themselves as prone to being fragile in social relations.

When character dimensions were examined, we found ST scores significantly lower than those of control group. We also found that SD3 and C5 subscores were significantly higher than those of the control group. From these findings, it can be concluded that AA patients are prone to solving their own problems and they are virtuous and principled. But they also have traits of social disinterest, self-differentiation, and rational materialism. However the AA patients with low SR scores may be prone to depression. Already we've found that depression scores of patients with AA were higher in the SCL-90-R. Character dimensions represent the "cognitive core" of personality as they involve higher cognitive processes than those in the temperament dimensions. However, Cloninger suggested that higher self-transcendence was consistently associated with higher positive affect for each of the four possible configurations of self-directedness and cooperativeness (29). Low scorers in self-transcendence tend to be proud, impatient, unimaginative, unappreciative of art, self-aware,

materialistic, and unfulfilled. They cannot tolerate ambiguity, uncertainty, and surprises. Instead, they strive for more control over almost everything.

Obviously, our study has certain methodological limitations. Firstly, our study is based on self-reporting measures. Therefore, psychiatric diagnoses and comorbid diagnoses were not included. Secondly, the TCI is a self-reporting measure assessing a wide range of personality dimensions, whereas the SCID-II combines self-reporting and interview, aiming at the assessment of maladaptive symptoms of personality disorders. Thirdly, our study design is cross sectional. It may be inadequate to show the potential long term impact of clinic depression and duration of disease on the temperament and character dimensions.

This study is the first study to examine the properties of temperament and character in patients with AA. Significant findings demonstrated temperament and character traits of patients with AA. These studies can help to identify specific personality traits in AA. These temperament and character traits of patients with AA may provide information to clinicians for planning psychiatric treatment and psychotherapeutic approaches.

CONCLUSION

It is well known that psychiatric symptoms are common in AA. This study suggests that AA patients have distinctive temperaments such as novelty seeking, reward dependence and self-transcendence dimension compared with healthy controls. Longitudinal studies are required to determine the relationship between depressive symptoms and temperament-character trials. Investigating temperament and character trials may help us to clarify the psychiatric specifications of AA.

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Statement of interest

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