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The Multiple Mediating Roles of Experiential Avoidance and Mindfulness Between Cognitive Fusion and Social Appearance Anxiety Among Patients with Acne Vulgaris

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ABSTRACT

Patients with acne vulgaris frequently experience social appearance anxiety (SAA). We aimed to investigate the multiple mediating role of experiential avoidance (EA) and mindfulness between cognitive fusion (CF) and SAA in these patients. This study adopted a cross-sectional design and included patients with acne vulgaris (n=90) and healthy controls (n=90). The Acceptance and Action Questionnaire-II (AAQ-II), Cognitive Fusion Questionnaire (CFQ), Five Facet Mindfulness Questionnaire-Short Form (FFMQ-SF), and Social Appearance Anxiety Scale (SAAS) were used as assessment tools. Independent groups t-test, Pearson's correlation analysis, and the bootstrapping method were employed for analysis. The level of psychological flexibility was lower than healthy controls. The SAAS score exhibited a positive and significant correlation with the CFQ and AAQ-II scores and a negative and significant correlation with FFMQ-SF act with awareness, observe, describe, nonjudging of inner experience, and nonreactivity to the internal experience scores in individuals with acne vulgaris. In the mediation analysis, mindfulness (β=0.219, SH=0.076, 95% GA [0.126, 0.426]) and EA (β=0.248, SH=0.111, 95% GA [0.094, 0.531]) play a full mediating role relating CF with SAA in this group. The results indicate that mindfulness and EA play a full mediating role between SAA and CF.

Keywords: Acne vulgaris, cognitive fusion, experiential avoidance, mindfulness, psychological flexibility, social appearance anxiety.

ÖZ

Akne Vulgaris Hastalarında Yaşantısal Kaçınma ve Bilinçli Farkındalığın Bilişsel Birleşme ve Sosyal Görünüş Kaygısı Üzerindeki Çoklu Aracı Rolleri

Sosyal görünüş kaygısı, akne vulgariste sıklıkla görülmektedir. Bu çalışmada, yaşantısal kaçınma ve bilinçli farkındalığın, bilişsel birleşme ve sosyal görünüş kaygısı üzerindeki çoklu aracı rolleri araştırıldı. Çalışma kesitsel olup akne vulgaris tanılı hastalar (n=90) ile sağlıklı kontrolleri (n=90) içermektedir. Değerlendirme araçları olarak Kabul ve Eylem Formu-II, Bilişsel Birleşme Ölçeği, Beş Faktörlü Bilgece Farkındalık Ölçeği-Kısa Form ve Sosyal Görünüş Kaygısı Ölçeği uygulandı. Analiz için bağımsız gruplar t-testi, Pearson korelasyon analizi ve yeniden örnekleme yöntemi kullanıldı. Psikolojik esneklik düzeyi akne vulgaris hastalarında sağlıklı kontrollerden daha düşük bulundu. Aracı değişken analizi sonuçları bu grupta bilinçli farkındalık (β=0,219, SH=0,076, %95 GA [0,126, 0,426]) ve yaşantısal kaçınmanın (β=0,248, SH=0,111, %95 GA [0,094, 0,531]) bilişsel birleşme ile sosyal görünüş kaygısı arasında tam aracı rolü olduğunu göstermektedir.

Anahtar Kelimeler: Akne vulgaris, bilişsel birleşme, yaşantısal kaçınma, bilinçli farkındalık, psikolojik esneklik, sosyal görünüş kaygısı.

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INTRODUCTION

Acne is defined as the formation of comedones, papules, pustules, and, less commonly, nodules, cysts, and scars. It is particularly common among the young and adults and may affect an individual's quality of life in terms of health, emotions, personal relationships, and social life (Demirçay et al, 2006; Walker & Lewis-Jones, 2006). Both men and women consider the effects of acne on their emergence in the most disturbing aspect of the disease, and the negative effects of acne occur at any age (Jowett & Ryan, 1985). In recent years, numerous studies have been conducted on the association between acne vulgaris and psychological factors. In particular, facial dermatoses may deteriorate mental and physical health, reduce self-esteem, and decrease social interaction (Salman et al, 2016).

Social appearance anxiety (SAA) refers to anxiety about overall appearance, including fear of negative evaluation and body shape (Yolaç Yarpuz et al, 2008). In disorders that affect physical appearance, such as acne vulgaris, the psychological factors that promote distress related to appearance should be identified (Clarke et al, 2013). The difficulties induced by SAA among patients with acne vulgaris cause loss of workforce, family problems, and, importantly, problems in social relations, increase the disease burden of the individual, and decrease their quality of life (Okwara et al, 2021; Lasek & Chren, 1998). The published data indicate the importance of behavioral and cognitive factors, including beliefs about the acceptability and value of social comparisons, physical appearance, self-focused attention, avoidance behavior, and information processing biases, in maintaining appearance anxiety (Egan et al, 2011; Kent, 2000; Kornhaber et al, 2014; Thompson et al, 2002). These factors may negatively affect social interactions and social skills, thereby perpetuating the existing problem.

Recently, the effectiveness of acceptance and commitment therapy (ACT), which is among the third-phase cognitive behavioral therapy methods for increasing psychological flexibility in disorders affecting appearance, such as acne, has been investigated (Zucchelli et al, 2018). Psychological flexibility, which is discussed in ACT, is defined as the determination to approach our inner lives with attention and openness, to be present now, and to behave based on certain values. Meanwhile, psychological rigidity is defined as fusion with thoughts, attempt to avoid experiencing unwanted internal events, and reduction of mindfulness (Krafft et al, 2020). Experiential avoidance (EA), a component of psychological rigidity, is defined as the maintenance of negative inner experiences, reluctance to be in contact with them, and attempt to change the frequency and form of these inner experiences as well as the events that trigger them. Furthermore, cognitive fusion (CF) is defined as a person's behavior being highly influenced by cognitions and the predominance of thought over behavior. The content of thoughts becomes a reference point for behaviors. People direct their behaviors based on the cognitive content. As CF becomes more severe, people react according to their thoughts rather than environmental stimuli. This, in turn, reduces the likelihood of behaving appropriately to the context that one is in. Losing mindfulness is defined as the past and future occupying an individual's attention, causing them to ignore what is happening around the person at a given moment and not being able to react actively when necessary (Ciarrochi et al, 2010). Psychological rigidity may cause distressing inner experiences in individuals with SAA (Montgomery et al, 2016; Shepherd et al, 2019). Few studies have explored the potential role of psychological flexibility in appearance anxiety. A study on the effect of mindfulness on burn-related stress, a lower level of ability to act with mindfulness and to have inner experiences nonjudgmentally and without responding to them was associated with higher appearance anxiety (Shepherd et al, 2019). A study investigating CF associated with body image in psoriasis showed that disease severity, level of acceptance, and disability were strongly correlated with CF (Almeida et al, 2020).

However, no study has evaluated psychological flexibility in patients with acne vulgaris. Likewise, there is no study investigating the role of EA and mindfulness between CF and SAA in these patients. CF is a process where the individual's memories, thoughts, judgments, and evaluations intertwine and the individual shapes their behavior according to inner experiences (Ciarrochi et al, 2010). Furthermore, mindfulness is defined as minding the present moment without judgment. Conscious connection to the present moment prevents the individual from excessively focusing on the past or the future, in which they may experience extremely painful memories and thoughts (Kabat-Zinn, 2003). Excessive CF may reduce one's focus on the present moment, leading to various psychological consequences (Kashdan & Rottenberg, 2010). Indeed, mindfulness-based interventions reduce CF as well as decrease depression and anxiety levels, which is an important finding for this mediating role (Takahashi et al, 2020). EA has been defined as a set of behaviors in which a person labels inner experiences, such as feelings, thoughts, sensations, and images, as negative events (Ciarrochi et al, 2010). Although EA is employed as a self-control strategy in the short term, it may lead to psychological symptoms, including anxiety, when used continuously and rigidly (Ruiz et al, 2013). Some

researchers have suggested that it is crucial to understand psychopathology models by considering the role of EA as a moderator or mediator (Bowen et al, 2009; Chawla & Ostafin, 2007). Interfering with the thought content rather than focusing on the continual psychological process causes one to avoid disturbing experiences and to make an effort to control them (Greco et al, 2008). Therefore, it is generally accepted that CF precedes and strengthens EA (Hayes et al, 1996). As CF has been identified as an important process in the development of anxiety symptoms among adults (Bardeen & Fergus, 2016; Cookson et al, 2020) and EA exhibits positive correlation with social anxiety symptoms (Kashdan et al, 2014; Shimoda et al, 2018; Papachristou et al, 2018), the latter may have a mediating role between CF and SAA.

Although studies have been conducted on SAA and related factors in patients with acne vulgaris in the literature, no study has investigated CF, EA, and mindfulness levels as well as their relationship with SAA in these patients. The present study hypothesized that SAA has a positive correlation with the CF and EA levels and a negative correlation with mindfulness in patients with acne vulgaris. Furthermore, EA and mindfulness have been suggested to have a mediating role between CF and SAA. As these variables are important therapeutic targets in psychological interventions, such as the ACT, research on the relationships of these variables with each other and with psychological outcomes is crucial for an effective treatment planning.

METHODS

Participants and Procedure

This study included patients who were admitted to Tokat Gaziosmanpasa University Faculty of Medicine, Department of Dermatology and Venereal Diseases, and diagnosed with acne vulgaris. The inclusion criteria were aged 18 years and above, at least primary school graduates, and no any other skin or systemic diseases or mental illness. A healthy control group was also included. All the participants underwent a semistructured face-to-face diagnostic interview conducted by a psychiatrist based on the DSM-V (American Psychiatric Association, 2013) diagnostic criteria. Those with concomitant psychiatric disease, skin disease other than acne, or systemic disease were excluded from the study. The study was conducted in accordance with the principles of the Declaration of Helsinki. All the participants have provided an informed consent form, and the study protocol was approved by the institute's committee on human research. Furthermore, the study protocol was approved by the Clinical Research Ethics Committee of Tokat Gaziosmanpasa University (approval number: 20-KAEK-299).

Measures

Experiential Avoidance

AAQ-II was used to measure EA. It is a seven-point Likert-type self-report scale (7=always true, 1=never true) consisting of seven questions. High scores indicate high levels of EA (Bond et al, 2011). The scale's adaptation study in Turkey reported Cronbach's alpha value of 0.84 and test-retest reliability of r=0.85 (Yavuz et al, 2016).

Cognitive Fusion

CFQ is a seven-point Likert-type self-report scale (1=never true, 7=always true) (Gillanders et al, 2014). High scores indicate high levels of CF. The Turkish reliability and validity study of this scale is still ongoing. The preliminary results published indicated Cronbach's alpha value of 0.89 (Kervancioglu et al, 2023). Meanwhile, the present study calculated Cronbach's alpha value of 0.93 for this scale.

Mindfulness

The Turkish version of FFMQ-SF, consisting of 20 questions and five subitems, was used to evaluate the level of mindfulness. Its subitems are observe, nonjudging of inner experience, describe, and nonreactivity to internal experience. FFMQ-SF is a five-point Likert-type self-report scale (1=strongly disagree, 5=strongly agree). The analyses revealed preservation of the five-factor structure in the original form during the Turkish adaptation of the scale's short form. The internal consistency coefficients of the subitems ranged from 0.69 to 0.85, and Cronbach's alpha value expressing the total internal consistency of the scale was 0.71 (Ayalp & Hisli Şahin, 2018; Tran et al, 2013).

Acne Severity

GAGS was used to determine the clinical severity of acne. In this scoring system, the face and upper part of the back and chest were classified into six parts. Furthermore, the density and the size of the region as well the distribution of the pilosebaceous unit in the region were taken into account. Then, a coefficient (nose and chin=1; right cheek, chest, and upper back=3; and forehead and left cheek=2) was given to each region. The acne lesions were also graded as 0–4 based on their type (no lesion=0, one comedone=1, papule=2, one pustule=3, one nodule=4). Each region was separately evaluated, and the highest lesion score in the region was multiplied by the coefficient of the relevant region to score each region. The global acne score was calculated with the sum of the scores of the six regions. The range of the total score was 0–44, and acne severity was determined based on the global acne score (0 points=no acne, 1–18 points=mild acne, 19–30 points=moderate acne, >39 score=very severe acne, and 31–38 points=severe acne) (Doshi et al, 1997). Our study calculated the mean GAGS score of the acne vulgaris group as 19.88±6.14.

Table 1. Demographic characteristics of the participants and group comparisons according to the assessment instruments

	Healthy control group (n=90)	Acne vulgaris group (n=90)	Statistics (t/χ^2)
Age (years)	22.05 (4.43)	21.58 (3.43)	0.789
Sex, female	48 (53.3)	56 (62.2)	1.457
Marital status, married	73 (79.3)	83 (92.2)	5.550
Education (years)	13.6 (2.2)	13.4 (2.7)	0.459
Student ratio	41 (45.5)	51 (56.6)	10.54
Socioeconomic status, low	48 (53.3)	40 (44.4)	3.56
SAAS	26.62 (11.33)	36.30 (15.33)	-4.82***
AAQ-II	16.25 (7.06)	20.83 (10.50)	-3.43**
CFQ	17.31 (8.13)	24.11 (12.02)	-4.45***
FFMQ-SF observe	15.31 (3.27)	13.88 (3.22)	2.96**
FFMQ-SF describe	15.54 (3.05)	14.33 (3.05)	2.67**
FFMQ-SF act with awareness	14.90 (3.84)	12.65 (4.33)	3.68***
FFMQ-SF nonjudging of inner expe-rience	14.03 (3.61)	12.71 (3.64)	2.45*
FFMQ-SF nonreactivity to inner expe-rience	15.03 (3.39)	13.08 (3.10)	4.04***
Mindfulness level	74.82 (12.45)	66.65 (9.79)	4.86***

*: P<0.05; **: P<0.01; ***: P<0.001. Results are expressed as mean (standard deviation) or frequency (percentage). SAAS: Social Appearance Anxiety Scale; AAQ-II: Acceptance and Action Questionnaire-II; CFQ: Cognitive Fusion Questionnaire; FFMQ-SF: Five Facet Mindfulness Questionnaire-Short Form.

Social Appearance Anxiety

The SAAS was used to measure this variable. This scale was developed to measure an individual's anxiety levels about others' negative evaluation owing to their general appearance, including facial features, body shape, and skin color, and to predict the levels of social anxiety beyond the negative body image's indicators (Hart et al, 2008). SAAS includes 16 items and is unidimensional. As the score obtained from the scale increased, SAA also increased. The first item of the scale was reverse-coded. The Turkish reliability and validity study found the internal consistency reliability coefficient of the scale to be 0.93 (Doğan, 2010).

Statistical Analysis

The IBM SPSS 26 software was used to analyze the data in the study, and a p-value <0.05 was accepted for significance. The descriptive statistics (mean and standard deviation or frequency and percentage calculations) were determined for each group in the study. The coefficients of kurtosis and skewness for the scores obtained from the scales were examined to determine whether the participants' scores had a normal distribution. These coefficients were found in the range of±1.5, suggesting that the scores obtained from the scales had a normal distribution (Tabachnick et al, 2013). For this reason, parametric tests were conducted while analyzing the scale scores. Independent groups t-test was employed for paired comparisons. Furthermore, the Pearson product-moment correlation was used to analyze the association between the scores of the acne vulgaris group. The bootstrapping method was employed to analyze the multiple mediating role of mindfulness and EA in the association between CF and SAA (Hayes, 2012; Hayes, 2013).

RESULTS

The Participants' Information and Comparison of Scale Scores

This study included 90 patients with acne vulgaris and 90 healthy controls. The patients' mean age was 21.58±3.43 years, whereas that of the control group was 22.05±4.43. The numbers of women were 56 (62.2%) and 48 (53.3%) in the acne vulgaris and control groups, respectively. The disease duration in the acne vulgaris group was 44.6±37 months. Considering the participants' mean scores from the scales, a significant difference was observed in the SAAS (t=-4.82, p<0.001), AAQ-II (t=-3.43, p<0.01), CFQ (t=-4.45, p<0.001), FFMQ-SF observe (t=2.96, p<0.01), describe (t=2.67, p<0.01), act with awareness (t=3.68, p<0.001), nonjudging of inner experience (t=2.45, p<0.05), and nonreactivity to inner experience (t=4.04, p<0.001) subdimensions and the total score they got from the FFMQ-SF (t=4.89, p<0.001) according to the presence of acne. Based on these findings, the SAA, EA, and CF levels of the acne vulgaris group were higher, whereas their mindfulness levels were lower (Table 1).

Table 2. Pearson product-moment correlation results

	1	2	3	4	5	6	7	8	9
1. SAAS	–								
2. CFQ	0.568*	–							
3. AAQ-II	0.601*	0.750*	–						
4. FFMQ-SF observe	-0.274*	-0.074	-0.063	–					
5. FFMQ-SF describe	-0.509*	-0.407*	-0339*	0.254*	–				
6. FFMQ-SF act with awareness	-0.499*	-0.513*	-0.451*	0.137	0.374*	–			
7. FFMQ-SF nonjudg-ing of inner experience	-0.481*	-0.513*	-0.492*	0.16	0.322*	0.486*	–		
8. FFMQ-SF nonreac-tivity to inner experience	-0.357*	-0.298*	-0.243*	0.410*	0.418*	0.354*	0.225*	–	
9. Mindful-ness level	-0.615*	-0.546*	-0.491*	0.549*	0.682*	0.742*	0.665*	0.703*	–

*: P<0.01. SAAS: Social Appearance Anxiety Scale; AAQ-II: Acceptance and Action Questionnaire-II; CFQ: Cognitive Fusion Questionnaire; FFMQ-SF: Five Facet Mindfulness Questionnaire-Short Form.

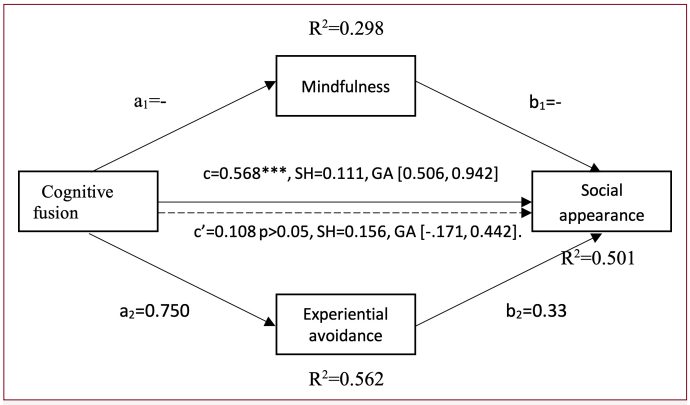

Figure 1. The multiple mediating role of mindfulness and experiential avoidance in the relationship between cognitive fusion and social appearance anxiety in the acne vulgaris group.

**: p<0.01; ***: P<0.001. Total Effect: n=90, k=5000, R2=0.322, F=41.84, p<0.001.

Correlation Between the Scale Scores in the Acne Vulgaris Group

We used the Pearson product-moment correlation to determine the significant association between the scale scores of the acne vulgaris group. Table 2 presents a positive and significant correlation between the CFQ (r=0.568, p<0.01) and AAQ-II (r=0.601, p<0.01) scores from the SAAS, whereas it shows a moderately negative significant correlation between FFMQ-SF observe (r=-0.274, p<0.01), describe (r=-0.509, p<0.01), act with awareness (r=-0.499, p<0.01), nonjudging of inner experience (r=-0.481, p<0.01), and nonreactivity to inner experience (r=-0.357, p<0.01) and the FFMQ-SF total scores (r=-0.615, p<0.01).

The Multiple Mediating Role of Mindfulness and EA in the Association Between CF and Social Appearance Anxiety of the Acne Vulgaris Group

The bootstrapping method proposed by Hayes (2012, 2013) was employed for this analysis. In total, one model was prepared and tested (Fig. 1). The FFMQ-SF total score was used for mindfulness (Meng et al, 2020). The analysis results indicated that mindfulness (β=0.219, SH=0.076, 95% GA [0.126, 0.426]) and EA (β=0.248, SH=0.111, 95% GA [0.094, 0.531]) had a full mediating role. When mindfulness and EA were included in the relationship between CF and SAA, the relationship between CF and SAA became insignificant (β=0.108, SH=0.156, %95 GA [-0.171, 0.442]). The overall model was at a significant level (F(1-88)=41.84, p<0.001) and explained 32.2% of the total variance in SAA.

DISCUSSION

The results of this study indicated that the acne vulgaris group had higher SAA, CF, and EA levels but lower mindfulness level than the control group, which is consistent with the research hypotheses. The psychological flexibility model showed association between many forms of psychopathology and an elevated level of maladaptive affect or behavior regulation, such as thought suppression or avoidance, and with a lack of value-oriented behaviors (Hayes et al, 2006). The relevant data in the literature indicated an inverse relationship between psychological flexibility and anxiety (Kashdan et al, 2006), depression (Bond & Bunce, 2000), and overall psychological distress (Tull et al, 2004; Masuda et al, 2011). There has been a positive association between mindfulness and psychological well-being (Howell et al, 2010) and inversely correlated with depression (Roemer et al, 2009), rumination (Coffey & Hartman, 2008), anxiety (Roemer et al, 2009), and overall distress (Coffey

& Hartman, 2008; Masuda et al, 2010). The biopsychosocial model proposed for acne development suggested that acne arises as a result of the interaction between genetic factors and stress and that an individual's assessments of acne and the resulting social difficulties enhance psychosocial tension. This, in turn, affects stress levels, which alters the functioning of the immune system. As a result, more acne lesions emerge (Kellett & Gilbert, 2001; Nichols & Grossbart, 2014). From this point of view, the lower psychological flexibility in the acne vulgaris group may have contributed to the development of lesions by increasing stress levels.

Correlation analyses conducted on patients with acne revealed that SAA is positively correlated with CF and EA. Individuals may give psychological responses, including low self-esteem and social anxiety, to stressors (i.e., acne) that affect their body image (Moss, 1997; Koff & Sangani, 1997). While body image responds to stressors, individuals use behavioral and cognitive methods to cope with distressing experiences (Cash et al, 2005). Behavioral avoidance methods, such as avoiding stressful situations or attempting to change or hide appearance, provide short-term relief for these individuals; however, social anxiety and body-related distress are negatively reinforced by these methods (Cash & Smolak, 2011). Disturbing thoughts in cognitive content may be observed in individuals who appear to be objectively different from those who are in line with the social norms, as is the case with individuals having acne vulgaris. An individual who believes that this difference is socially undesirable may adopt coping strategies that modify their appearance to prevent negative social evaluations (Kent, 2000). Recognizing negative inner evaluations regarding appearance as they are and observing them only as temporary thoughts have been shown to reduce the discomfort caused by the thoughts (Mandavia et al, 2015). To the best of our knowledge, no study has evaluated the aforementioned variables in patients diagnosed with acne vulgaris. Regarding other disorders affecting appearance, one study reported that both CF and EA have a positive association with appearance anxiety in patients with burn (Shepherd et al, 2019). A study on a group of dermatology patients reported that CF partially mediates the association between body image assessment and behavioral avoidance shows that CF may be a particularly significant cognitive process for those with noticeable differences in the management of the body image stressors (Zucchelli et al, 2020). Another finding was that the level of mindfulness was negatively correlated with the SAA, EA, and CF levels. In the literature, a study conducted on a group of patients with various dermatological diseases reported that an increase in mindfulness level was related to a decrease in the level of embarrassment, depression, and social anxiety as a result of skin disease (Montgomery et al, 2016). These results indicate that individuals with high levels of social anxiety focus on the present moment to a lesser extent. The results also suggest that interventions based on mindfulness may be useful for individuals with acne who experience psychosocial distress.

The obtained data indicate that decreased levels of CF, EA, and mindfulness, which are components of psychological rigidity, may provide distinctive theoretical pathways about how individuals evaluate their appearance. In the mediation analysis, it is indeed an important finding that EA and mindfulness play a full mediating role between CF and SAA. Individuals with acne who repetitively think about the negative aspects of their appearance may fuse their distressing thoughts. Moreover, avoidance strategies that emerge to control these experiences may further intensify their SAA. The relevant findings in the literature indicate that avoidance of undesirable experiences is a common approach to psychopathology (Cookson et al, 2020) and exacerbates emotional distress (Bond et al, 2006). Considering the mediating role of mindfulness between CF and SAA, excessive CF with thoughts about one's social appearance may reduce the contact with the present moment and exacerbate SAA. The fact that a person does not see their thoughts as mental events may reduce the level of dissociation from them by evaluating the thoughts from a perspective (Moss, 1997). Based on these findings, it can be concluded that the use of cognitive diffusion alone in clinical practice is not enough to reduce SAA in individuals with acne vulgaris.

Limitations and Implications

The cross-sectional design of the study, the relatively small size of the study population, the lack of a structured scale to exclude psychiatric diagnoses, and the inclusion of an acne vulgaris group consisting of individuals with moderate acne according to the GAGS limit the generalizability of the results. Furthermore, the results cannot be generalized to other skin conditions that affect physical appearance. Longitudinal studies are warranted to further explore the interactions between SAA, CF, EA, and mindfulness. Considering larger samples with different acne severities and the average age of the acne vulgaris group, further research is warranted in the adolescent population. In addition, as the aforementioned variables are measured using self-report scales, the results may be affected by subjective responses. However, unveiling the relationship between psychological flexibility and SAA in a population with acne by the clinician is among the strengths of the study. Future studies should focus on the evaluation of interventions targeting CF, EA, and mindfulness individually or in combination in a population with acne as well as testing of these variables as mediating factors of psychological and/or behavioral outcomes. Moreover, it would be useful to examine the etiological role of psychological flexibility in the development of SAA in future studies.

CONCLUSION

Psychological flexibility plays a crucial role in SAA in individuals with acne vulgaris. SAA was found to be associated with low mindfulness level and high CF and EA levels. In addition, EA and mindfulness play a mediating role between CF and SAA. To the best of our knowledge, this is the first study to examine the association between SAA and psychological flexibility in patients with acne vulgaris. As social avoidance is a widespread problem for individuals with visible differences in their appearance, the current study temporarily support the applicability of approaches improving experiential acceptance, including the ACT.

Ethics Committee Approval: The Tokat Gaziosmanpaşa University Institute of Social Sciences Ethics Committee granted approval for this study (date: 22.02.2021, number: 20-KAEK-299).

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