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Research Article

Investigation of the Relationship Between of Dependent Personality Trait, Depression, Anxiety, and Stress Levels of Asthmatic and Non-Asthmatic Individuals

Astımlı ve Astımlı Olmayan Bireylerin Bağımlı Kişilik Özelliği ile Depresyon, Anksiyete ve Stres Düzeyleri Arasındaki İlişkinin İncelenmesi

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Abstract

Aim: There is a complex relationship between asthma and psychiatric problems; therefore, it is important to investigate this relationship for optimal treatment. In this cross-sectional and comparative study, it was aimed to examine the dependent personality trait, depression, anxiety and stress levels of asthmatic and non-asthmatic individuals.

Material and Method: 382 individuals with (n=172) and without (n=210) asthma were included in our study. The study data were collected with Identifying Information Form, Personality Belief Questionnaire, and Depression Anxiety Stress Scale (DASS) 21-Short Form. Comparisons between groups were made using the Chi-square test, Mann Whitney-U test, and Pearson correlation test.

Results: The mean age of the participants was 40.80±12.06, 45% of them were asthmatic, and the disease year was 7.92±8.49. It was observed that asthmatic individuals had high dependent personality trait and anxiety levels ($p<0.050$). It was found that there was a weak positive correlation between dependent personality trait and depression, anxiety and stress, and the correlation between dependent personality trait and anxiety and depression was higher in asthmatic individuals.

Conclusion: The incidence of dependent personality trait and anxiety was higher in asthma patients. In asthma management, it is recommended that personality traits and psychiatric symptoms should be handled with care along with pharmacological treatments.

Keywords: Asthma, depression, anxiety, stress, dependent personality

Öz

Amaç: Astım ve psikiyatrik sorunların arasında karmaşık bir ilişki bulunmakta, optimal tedavi için bu ilişkinin araştırılması önem kazanmaktadır. Kesitsel ve karşılaştırıcı desende yapılan bu araştırma ile astımlı olan ve olmayan bireylerin bağımlı kişilik özellikleri, depresyon, anksiyete ve stres düzeylerinin incelenmesi amaçlanmıştır.

Materyal ve Metot: Bu çalışmaya astımlı olan (n=172) ve olmayan (n=210) 382 birey katılmıştır. Veriler Tanıtıcı Bilgi Formu, Kişilik Özellikleri Ölçeği ve Depresyon Anksiyete Stres-21 Ölçeği Kısa Formu ile toplanmıştır. Grupların karşılaştırılmasında Ki-kare testi, Mann Whitney-U testi ve Pearson Korelasyon testi kullanılmıştır.

Bulgular: Katılımcıların yaş ortalaması 40.80±12.06 olup, %45'i astımlı bireylerdir ve hastalık yılı 7.92±8.49'dur. Astımlı bireylerin bağımlı kişilik özelliği ve anksiyete düzeyinin yüksek olduğu görülmüştür ($p<0.050$). Bağımlı kişilik özelliği ile depresyon, anksiyete ve stres arasında zayıf düzeyde pozitif bir ilişki olduğu, astımlı bireylerde bağımlı kişilik özelliği ile anksiyete ve depresyon korelasyonun daha yüksek olduğu bulunmuştur.

Sonuç: Astımlı bireylerde bağımlı kişilik özelliği ve anksiyete daha yüksektir. Astım yönetiminde farmakolojik tedaviler kadar kişilik özellikleri ve psikiyatrik belirtilerin özenle ele alınması önerilir.

Anahtar Kelimeler: Astım, depresyon, anksiyete, stres, bağımlı kişilik

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INTRODUCTION

Asthma is a chronic respiratory inflammatory disease which is affected by psychological, neurological, infectious, environmental and allergic factors (1). Infectious, environmental and allergic factors have been examined in many studies (2,3). In addition, an increasing number of studies have been conducted on psychological factors in recent years (4,5). The symptoms of asthma such as coughing, difficulty in breathing, and mucus secretion have been shown to have worsened in case of suffering from stress, anxiety, and depression. The neurological pathway in stress and psychological diseases occurs through insula, anterior cingulate cortex, and hypothalamic-pituitary-adrenal axis changes. Also, the neuroimmune interactions trigger the asthma exacerbation (6).

Psychosomatic illnesses such as asthma can be a risk factor for mental disorders. On the other hand, mental disorders can emerge along with physical symptoms. Considering the worsening effect of somatization on the control of asthma may be useful for optimal treatment of asthma exacerbation and to prevent longer hospitalization durations. Therefore, it is important to investigate depression, anxiety and stress in asthma patients. In previous studies, a higher incidence of anxiety and depression has been shown in asthma patients than in general population (7-9). In another study, the incidence of psychological stress was found to be higher in young individuals and women with asthma (10). It has been determined that psychological problems are prevalent in asthmatic children, and that behavior problems, anxiety, depression, and emotional problems are frequently observed (11).

Regarding the etiology of asthma and the emergence of psychological problems in asthma, it has been reported that asthmatic individuals experience separation problems in the relation they establish with their mothers starting from childhood, that a dependent relation with the mother in early childhood constitutes the basis for asthma, and that these problems are reflected on adulthood period as dependent personality (12). According to the psychoanalytic theory, the quality of early period mother-child relation and maternal attitudes have an effect on the emergence of asthma disease, and that dependent personality trait is associated with asthma (13). In the study he conducted in Australia, Williams (1975) compared asthmatic and non-asthmatic children in terms of the bond they established with their mothers and found that asthmatic children were more dependent on their mothers in comparison to non-asthmatic children (14). Similarly, in the study in which he examined depression and anxiety in asthmatic children through projective tests, Tanik (2011) determined that asthmatic children had a dependent relationship with their mothers, revealed that asthma disease played a role in this relationship, and demonstrated the existence of basic depression, accompanying processive thought, and intense anxiety (15).

The dominant view today is that asthma is a genetic disease in general, and it is explained with triggers such as pollens, mold, moisture, air pollution, and cigarette smoke. However, in addition to the physical factors that cause asthma, it is important to investigate the psychological factors underlying the problem as well as the environmental factors. Moreover, it is known that psychosomatic diseases such as asthma can lead to the development of mental disorders, and that mental problems can be expressed through physical complaints (12). When asthma and psychiatric problems co-exist, or when the contribution of somatization is not considered, patients are unnecessarily examined, their hospital stay can be extended, and the treatments applied can affect one another. Although there are studies in the literature on psychological problems experienced by individuals with asthma (7-9) and on dependent personality trait in asthmatic children (13-15), it has been deemed necessary to examine these variables in adult individuals in a design with control group. Thus, it will be possible to obtain information for optimal treatment and control of asthma, as well as defining the relationship between asthma in adulthood period and dependent personality trait and psychiatric symptoms.

The research questions are:

- Is there a difference between dependent personality trait, depression, anxiety, and stress levels of asthmatic and non-asthmatic individuals?
- Is there a relationship between dependent personality trait, depression, anxiety, and stress levels of asthmatic and non-asthmatic individuals?

MATERIAL AND METHOD

Purpose and design

The study has a cross-sectional and comparative design. It was aimed in the study to investigate the dependent personality trait, depression, anxiety, and stress levels of asthmatic and non-asthmatic individuals.

Population and sample

The population of the study consisted of adult individuals between 18-65 years old who lived in the province of Kırşehir, Turkey. By using the sampling method with known population, the population number (16) of adult individuals living in Kırşehir was determined as 190.000 and asthma prevalence (17) was taken as 4.3%, and the study sample was determined as a total of 340 individuals (170 with asthma, 170 without asthma) with 5% error margin and 99% confidence interval. Individuals with asthma and without asthma were informed about the study during their application to the Chest Diseases Outpatient Clinic of Kırşehir Training and Research Hospital, and the study was completed with 382 individuals who met the inclusion criteria. The inclusion criteria for asthmatic individuals were being diagnosed with asthma, not experiencing an acute asthma attack, being between 18-65 years old, not having a chronic disease other than asthma, being able to communicate in Turkish, being literate, and agreeing

to participate in the study. The exclusion criteria for non-asthmatic individuals were experiencing an acute asthma attack, being pregnant, having another chronic mental or physical disorder, being illiterate, and not agreeing to participate in the study. The inclusion criteria for non-asthmatic individuals were being between 18-65 years old, not having a chronic disease, being able to communicate in Turkish, being literate, and agreeing to participate in the study. The exclusion criteria for non-asthmatic individuals were being pregnant, having a chronic mental or physical disease, being illiterate, and not agreeing to participate in the study.

Conduct of the study

After the necessary permissions for the study were taken, individuals who presented to the outpatient clinic of Kırşehir Training and Research Hospital between 24.11.2021 and 28.02.2022 were informed about the study, they were told that participation in the study was on a voluntary basis, and they were allowed some time to think before they made a decision. Since asthma exacerbations increase in the spring months, the winter season with the least seasonal allergens such as pollen, dust and sun were chosen, and the data collection process was terminated before the spring months arrived. Care was taken to observe the precautions taken against infection in the pandemic conditions. The questionnaire took approximately 10 minutes to fill out, and a suitable room was reserved for the participants. The study was completed with 382 individuals who met the inclusion criteria and voluntarily agreed to participate in the study.

Data collection tools

Identifying Information From

In this form including the questions prepared by the researchers by reviewing the literature (7-9), 14 questions were asked in order to collect data regarding the individuals' demographic characteristics and disease process.

Personality Belief Questionnaire- Short Form

The original scale was developed by Beck and Beck (1991) in order to determine whether the individuals taking the test had non-functional beliefs regarding personality disorders defined in The Diagnostic and Statistical Manual of Mental Disorders (DSM), and if they had, to identify the degree of their believing in their existing beliefs. The Personality Belief Questionnaire consists of statements that aim to measure the individual's beliefs about themselves, others, and the world, and each statement is related to avoidant, dependent, passive-aggressive, histrionic, narcissistic, antisocial, obsessive-compulsive, schizoid, and paranoid attitudes that are defined in the personality disorders in DSM. The scale, which tests 9 personality traits, is made up of a total of 65 items. In line with the purpose of the present study, 7 questions of the scale which test dependent personality traits were used. Individuals score the statements between 0 (do not believe at all) and 4 (totally believe) as they fit their personality. The score to be obtained from this subscale ranges between 0-28, and dependent personality trait increases as the score obtained increases. The Turkish validity and reliability study of the short form of the scale in university students was carried out by Taymur et al. (2011) (18), and Cronbach's alpha coefficient of the dependent personality subscale was found to be 0.66, while it was determined as 0.74 in the present study.

Depression Anxiety Stress Scale-Short Form (DASS-21)

The 21-item short form of the scale was developed by Henry and Crawford (2005) and was adapted to Turkish on normal and clinical samples by Saricam (2018), and it was seen in the clinical sample that the scale differentiated between individuals who were diagnosed and not diagnosed with depression, anxiety, and stress (19). The depression subscale of the scale consists of items 3, 5, 10, 13, 16, 17, and 21, the anxiety scale is made up of items 2, 4, 7, 9, 15, 19, and 20, and items 1, 6, 8, 11, 12, 14, and 18 of the scale measure the stress subscale. The score to be obtained from the subscales ranges from 0 to 21. As the score obtained from the subscales increases, the severity of the symptom increases. Also, the severity of symptoms is determined as normal, mild, moderate, severe, and extremely severe according to the scores obtained from the subscales. While in the validity and reliability study of the scale, Cronbach's alpha coefficient was measured as 0.68 for depression, 0.66 for anxiety, and 0.61 for stress (19), it was found in the present study as 0.87 for depression, 0.83 for anxiety, and 0.81 for stress.

Data analysis method

The statistical analyses of the study were performed by using Statistical Package for Social Sciences (SPSS) 25.0 for Windows software. In the analysis of the data, descriptive statistics such as number, percentage, mean, and standard deviation were used, and the data were presented as median and minimum and maximum values. Normality assumption and variance homogeneity tests of the data were determined by Kolmogorov-Smirnov test, and it was determined that there was no normal distribution by examining the dependent and independent variables Comparison of asthmatic and non-asthmatic individuals was made by using Chi-square tests, and non-parametric tests of Mann- Whitney U Test and Spearman Correlation Test were used in the analysis. In determining the reliability of the scale and its subscales, Cronbach's alpha coefficient was calculated. In statistical analyses, $p<0.050$ was accepted as the indicator of significant difference.

Ethical Considerations

Before conducting the study, institutional permission from Kırşehir Research and Training Hospital and Kırşehir University Non-interventional Ethics Committee Approval (dated 23.10.2021, numbered 2021-13/188) were taken.

The data were collected in line with the principles of the Helsinki Declaration. Accordingly, each participant was informed with voluntary consent form and their written consent was taken.

RESULTS

The asthmatic group constituted 45% of the study sample and they were mostly older than 35 years (40.80±12.06, min=18, max=65). The demographic data of the participants are presented in Table 1. The participants were mostly female, married, employed, and had college-graduate or higher education status. Their expenses were equal to their income. The participants were also mostly non-smokers. They tended to describe their health status mostly as "moderate" (Table 1).

There were no significant differences in terms of the demographic data such as age, gender, education status, marital status, economic status and employment status (p>0.05). Moreover, in the context of the comparison of socio-demographic data of participants in asthmatic and non-asthmatic groups, it was found that there was no statistically significant difference in socio-demographic data of participants, and hence, the groups were similar. The asthmatic group had been diagnosed for a median 7.92±8.49 (min=1, max=30) of years.

Table 1. Demographic data of asthmatic and non-asthmatic group (N=382)

	Total group		Asthmatic group		Non-asthmatic group		p value
	n	%	n	%	n	%	
Age							
≤ 35	135	35.4	63	36.6	72	34.2	0.634
>35	247	64.6	109	63.4	138	65.8	
Gender							
Male	159	41.6	65	37.8	94	44.8	0.169
Female	223	58.4	107	62.2	116	55.2	
Education Status							
Primary school	103	27.0	51	29.7	52	24.8	
High school	131	34.3	61	34.5	70	33.3	0.075
University or higher	148	38.7	60	35.8	88	41.9	
Economic status							
Income<expenses	75	19.6	30	17.4	45	21.4	
Income=expenses	218	50.1	102	59.3	116	55.2	0.489
Income>expenses	89	23.3	40	23.3	49	23.4	
Marital status							
Single	90	23.6	47	27.3	43	20.5	0.117
Married	292	76.4	125	72.7	167	79.5	
Employment status							
Employed	218	57.1	93	54.0	125	59.5	0.308
Unemployed	164	42.9	79	46.0	85	40.5	
Smoking status							
Smoker	122	31.9	55	32	67	31.9	0.296
Non-smoker	260	68.1	117	68	143	68.1	
Health status							
Bad	94	24.6	45	26.2	49	23.3	
Moderate	188	49.2	92	53.5	96	41.7	0.289
Good	100	26.2	35	20.3	65	35.0	
Total	**382**	**100**	**172**	**100**	**210**	**100**	
Chi-square test							

Table 2. Dependent personality and DASS levels of asthmatic and non-asthmatic groups

	Asthmatic group		Non-asthmatic group			
	Median	(Min-Max)	Median	(Min-Max)	p value	
Dependent personality	6	0-26	4	0-21	<0.001	U:12.900.500
DASS- Depression	5	0-20	4	0-16	0.055	U:16.007.000
DASS- Anxiety	6	0-20	3	0-20	<0.001	U:9.225.500
DASS- Stress	6	0-21	6	0-19	0.130	U:16.439.000
Mann-Whitney U Test, p<0.001						

When the median scores obtained from DASS-21 scale were examined, it was seen that while the anxiety levels of asthmatic individuals were at a moderate level, those of the non-asthmatic individuals were at a mild level. It was also observed that the depression levels of asthmatic individuals were mild, while individuals in the non-asthmatic group had a normal level of depression. As for stress, both groups were found to have normal levels of stress. It was determined that dependent personality trait characteristics of the asthmatic individuals and their anxiety levels were higher compared to the non-asthmatic individuals (p<0.001) (Table 2).

Table 3. The relationship between dependent personality trait and DASS levels in asthmatic and non-asthmatic individuals

		DASS-Depression	DASS-Anxiety	DASS-Stress
Dependent personality (Asthmatic group)	r	0.361	0.312	0.376
	p	<0.001	<0.001	<0.001
Dependent personality (Non-asthmatic group)	r	0.298	0.278	0.375
	p	<0.001	<0.001	<0.001

Pearson Correlation Test, p<0.001

A weak and positive relationship was found between the dependent personality trait and depression, anxiety, and stress levels of asthmatic and non-asthmatic individuals (p<0.001) (Table 3). In the analysis performed, it was seen that the asthmatic individuals had a higher correlation coefficient in terms of the relationship between their dependent personality trait and depression and anxiety levels in comparison to the non-asthmatic individuals.

DISCUSSION

It is known that there is a complex relationship between asthma and psychiatric problems, and that according to the psychoanalytic theory, dependent personality trait has an effect on the emergence of asthma (12). 382 asthmatic and non-asthmatic individuals participated in the present study which aimed to examine the relationship between these variables in adults. In the comparisons made, it was seen that asthmatic and non-asthmatic individuals displayed similarities in terms of descriptive characteristics such as age, gender, education status, economic status, marital status, end employment status (p>0.05).

It was determined in the study that asthmatic individuals' anxiety level was moderate, while non-asthmatic ones had a moderate level of anxiety, that asthmatic individuals had a mild level of depression, while non-asthmatic individuals had a normal level of depression, and that both groups had a normal level of stress. In addition, when the anxiety level of the asthmatic individuals was compared with that of the non-asthmatic individuals, it was seen that the asthmatic group had a higher level of anxiety (p<0.001) (Table 2). Clinical research conducted on asthmatic patients have shown that asthma presents a significant comorbidity with mental health problems (7-9). In a study in which anxiety and depression were examined in asthma patients, it was determined that 44.5% of the patients met anxiety disorder criteria, and that 24.5% met depression disorder criteria, and it was reported that asthma patients with anxiety and depression symptoms had weaker pulmonary function compared to those without these symptoms (20). In a systematic compilation of asthma and anxiety comorbidity 19 studies covering 106.813 participants were included. It was reported that anxiety symptom and anxiety disorders were prevalent in asthmatic individuals, and that anxiety symptom accompanying asthma was 1.89 times higher and comorbid anxiety disorder was 2.08 times higher (21). In another study, 11.2% of 65.342 patients were found to have anxiety, 5.5% depression, and 7.7% both anxiety and depression (22). Although there are studies which reported that depression was a prevalent mental problem in asthmatic patients (23), there are also studies which reported that there was no relationship between asthma and depression (5). It is seen that the study findings are consistent with the literature. While it was seen in the present study that anxiety in asthmatic individuals created a statistical difference, there was no significant difference in the severity of depression, though it was higher compared to non-asthmatic individuals. Anxiety disorder is the only disorder that is significantly related with asthma, and it has been emphasized that asthma symptoms and anxiety have a two-way relationship, which suggests that one can originate from the other, or one can result in the other (25). In studies conducted in recent years by using magnetic resonance imaging, regions of the brain that could play a mechanistic role in asthma and mental health disorders have been investigated. Asthmatic patients displayed abnormal structural connections in bilateral frontal gyri, right temporal and parietal cortices and limbic regions with respect to healthy controls, which suggests that brain region functions change depending on emotions (5). In addition, it has been reported that cytokine levels change especially in depression symptoms (24). It can be stated that in a disorder with a somatic dimension such as asthma, a subconscious coping strategy is used in conflicts experienced by individuals, and that psychiatric symptoms develop more as a result of mitigation of the anxiety that basically emerges with the conflict and expression of mental problems through physical symptoms.

In the study, it was determined that dependent personality trait of the asthmatic individuals was higher compared to non-asthmatic individuals (p<0.001) (Table 2). Studies with children have also been examined, since personality development begins in early childhood and the foundations laid in this period manifest itself as a personality pattern during adulthood. In a study in which asthmatic and non-asthmatic children were examined in terms of the relationship they established with their parents, it was reported that the bond between asthmatic children and their mothers had a dependent quality (14). Similarly, in another study, it was revealed that a relationship of dependent quality between asthmatic children and their mothers existed in early childhood period, and that this relationship had an effect on the development of asthma (15). Although

no personality structure specific to asthmatic individuals has been reported in the literature, it has been argued that asthmatic individuals are generally avoidant, sensitive, and obsessive people who cannot express their feelings, and it has been observed that the families of asthmatic children are more aggressive, anxious, perfectionist, depressive, and worried people (26). In a population-based study conducted in Iran with the participation of 3.175 individuals, a high degree of neuroticism (needing extreme compassion, having difficulty in showing one's feelings to others, lacking self-confidence, restlessness, and hesitation towards social activities, etc.) was shown to increase the risk of anxiety and depression (27). Dependent personality trait is characterized by a personality type which is sensitive towards disruption of interpersonal relations, has exaggerated fears about loss and being abandoned, feels a strong need for love and attention, and has an increased tendency to seek help and support from others especially when encountered with stress. It can be stated that this personality type involves the feelings of loneliness, weakness, and hopelessness, and that these feelings have an important effect on increasing anxiety and depression.

In the correlation analysis performed in the study, a weak and positive relationship was found between dependent personality trait of asthmatic and non-asthmatic individuals and their levels of depression, anxiety and stress, and it was determined that asthmatic individuals had higher correlation coefficients for depression and anxiety ($p<0.001$) (Table 3). When the literature is reviewed, it is seen that there is a positive relationship between asthma and depression, that depression is more prevalent in asthmatic patients (23,24), and that similarly there exists a positive relationship between asthma and anxiety (20,21,28). In a study in which asthma, stress, anxiety, and depression were examined, asthma symptom severity was found to be associated with perceived stress and anxiety, and it was reported that the asthmatic group represented a population who were defenseless against stress and anxiety (29). In another study conducted on patients with bronchial asthma, it was determined that asthmatic individuals were less dominant, more introverted, more worried, and more depressive individuals compared to the control group, and that low dominance or dependent social attitude was associated with low forced vital capacity (30). In a study in which depression and anxiety in children were examined, the presence of a dependent mother-child relation, depression, and extreme anxiety mood were shown in asthmatic children (15). In another research that examined the relationship between the mental status of parents of asthmatic children and asthma symptoms, parent and child depression symptoms were found to be associated with worse asthma control (31). In a community-based study conducted with the participation of 2.168 individuals, it was reported that 13.4% of the participants had been diagnosed with asthma, and that asthma diagnosis and depressive symptoms were interrelated (32). In a systematic compilation study which included 27 studies, a weak correlation was found between somatic symptoms and dependent personality traits and depression (33). In another study conducted on asthma patients, asthma patients were compared with both healthy control groups and psoriasis patient group in order to exclude the effect of chronic process. The asthma patients were found to have a high level of avoiding harm, low scores of searches for innovation and self-regulation, and it was determined that depression and anxiety symptoms were associated with both asthmatic individuals' personality and character dimensions (34). It can be claimed that in understanding the comorbidity of asthma and psychiatric diagnosis, the stress of having a chronic disease additionally increases the likelihood of the development of anxiety and depressive symptoms (35). The research results are compatible with the literature. It can be thought that this is due to the fact that individuals with asthma use somatization more when they are under stress and express themselves, and that anxiety and depression are related to introversion, low dominance or dependent social attitude, which is a natural result of dependent personality traits.

CONCLUSION

There is a close interaction between respiratory system and psychic condition. It was seen that dependent personality trait and anxiety were significantly higher in asthmatic individuals in comparison to non-asthmatic individuals. It was also determined that there was a weak and positive relationship between dependent personality trait and depression, anxiety, and stress, and that the correlation between dependent personality trait and anxiety and depression in asthmatic individuals was high. Dependent personality trait and presence of psychiatric symptoms can negatively affect behavioral factors such as adaptation to treatment, self-assessment, and environmental triggers in the optimal treatment of asthma. Therefore, along with pharmacological treatment, providing supportive treatments for personality characteristics and psychiatric symptoms is recommended.

The limitations of the study can be mentioned as being based on self-report, accessing the sample through a certain hospital, and having a cross-sectional design.

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