



Original Research / Orijinal Araştırma

The Effect of Personality Traits on Health Anxiety in Adults Erişkinlerde Kişilik Özelliklerinin Sağlık Anksiyetesi Üzerindeki Etkisi

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Abstract

Aim: This study aimed to determine the level of health anxiety in adults visiting family medicine clinics and to examine its relationship with individuals' personality traits.

Method: The cross-sectional study included 400 participants aged 18 years and older who visited the family medicine clinic between January 2022 and June 2022. Participants completed a questionnaire specifically designed for the study to assess sociodemographic characteristics, along with the 18-item Health Anxiety Scale and the 24-item Eysenck Personality Questionnaire.

Results: The average age of participants was 38.5±13.2 years, with 64.0% being female. The average health anxiety score of participants was found to be 15.5±9.0. The average health anxiety score was highest among singles and lowest among married individuals. A significant negative correlation was found between age and health anxiety score ($r=-0.139$; $p=0.005$). A statistically significant inverse relationship was observed between participants' perceived general health and their health anxiety scores (Kendall's $\tau = -0.221$, $p < 0.001$). A positive relationship was found between health anxiety level and neuroticism, and a negative relationship was found with extraversion ($r=0.410$, $p<0.001$; $r=-0.229$, $p<0.001$).

Conclusion: Health anxiety in adults presenting to family medicine clinics was associated with personality traits and selected psychosocial factors. Higher neuroticism and lower extraversion scores were associated with higher health anxiety. Younger age, poorer perceived health, and a history of psychiatric illness were also related to higher health anxiety scores.

Keywords: Health anxiety, Neuroticism, Extraversion, Personality traits, Primary care

Özet

Amaç: Bu çalışmada, aile hekimliği polikliniğine başvuran erişkin bireylerde, sağlık anksiyetesi düzeyinin belirlenmesi ve bireylerin kişilik özellikleri ile ilişkisinin incelenmesi amaçlanmıştır.

Yöntem: Kesitsel desende yürütülen çalışmaya, aile hekimliği polikliniğine Ocak 2022-Haziran 2022 tarihleri arasında başvuran 18 yaş üstü 400 katılımcı dahil edilmiştir. Katılımcılara araştırmaya özel olarak hazırlanan sosyodemografik özelliklerin sorgulandığı bir anket formu ile 18 maddeden oluşan Sağlık Anksiyetesi Ölçeği ve 24 maddeden oluşan Eysenck Kişilik Anketi uygulanmıştır.

Bulgular: Katılımcıların yaş ortalaması 38,5±13,2 yıl olup %64,0'ı kadındı. Katılımcıların ortalama sağlık anksiyetesi puanı 15,5±9,0 olarak bulunmuştur. Sağlık anksiyetesi puanı ortalaması bekarlarda en yüksek iken evlilerde en düşük bulunmuştur. Yaş ile sağlık anksiyetesi puanı arasında anlamlı negatif yönde bir korelasyon tespit edilmiştir ($r=-0,139$; $p=0,005$). Katılımcıların genel sağlık algısı ile sağlık anksiyetesi puanları arasında anlamlı bir ilişki saptanmıştır ($\tau=-0,221$; $p<0,001$). Sağlık anksiyetesi düzeyi ile nörotisizm arasında pozitif yönde, dışa dönüklük özelliği ile negatif yönde anlamlı bir ilişki bulunmuştur ($r=0,410$, $p<0,001$; $r=-0,229$, $p<0,001$).

Sonuç: Bu çalışmada, aile hekimliği polikliniklerine başvuran erişkinlerde sağlık anksiyetesinin kişilik özellikleri ve seçilmiş psikososyal faktörlerle ilişkili olduğu görülmüştür. Yüksek nörotisizm ve düşük dışadönüklük puanları daha yüksek sağlık anksiyetesi ile ilişkili bulunmuştur. Genç yaş, düşük sağlık algısı ve psikiyatrik hastalık öyküsü de daha yüksek sağlık anksiyetesi puanları ile ilişkili bulunmuştur.

Anahtar kelimeler: Sağlık anksiyetesi, Nörotisizm, Dışadönüklük, Kişilik özellikleri, Birinci basamak

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Introduction

Health anxiety is characterized by an individual's preoccupied belief that they have or may have a serious illness due to misinterpreting their somatic symptoms, accompanied by excessive worry about their health. This concept was first defined by Salkovskis and Warwick.¹ Health anxiety is associated with increased psychosomatic complaints and mental comorbidities such as depression or anxiety disorders, persistent somatic symptoms, disability, decreased health-related quality of life, and increased healthcare utilization and costs.² Lifetime prevalence rates are 6% in the general population and up to 20% in outpatients.³ The most common effect of health anxiety on the healthcare system is increased consultation at the primary care level. Since diagnostic investigations are much more expensive at the secondary care level, health anxiety may create an important economic burden. Other economic consequences of untreated health concerns include higher levels of sick leave and early retirement among these individuals.³

Personality can be defined as the totality of an individual's emotional and behavioural characteristics observed in their routine life, and it is generally stable and predictable. Personality traits may influence how individuals perceive bodily sensations, interpret physical symptoms, cope with uncertainty, and seek medical reassurance. In particular, neuroticism may increase vulnerability to health-related worry through emotional instability and a tendency to experience negative affect, whereas extraversion may be associated with more adaptive coping and social engagement.^{4,5} Previous studies have suggested an association between personality-related factors and health anxiety; however, further research is needed to better understand this relationship in primary care populations.^{6,7}

Health anxiety is a major clinical issue that may result in the perception of even minor bodily sensations as dangerous, thus escalating the use of healthcare services and generating an unnecessary diagnostic burden. Although several studies have addressed health anxiety, research investigating the relationship between personality traits and health anxiety among adults attending primary care remains limited. The purpose of this study is to uncover the degree of health anxiety among adults seeking primary care and how this anxiety correlates with personality traits.

Methods

The study population consisted of individuals aged 18 years and older who visited the units affiliated with the Family Medicine Clinic of Kartal Dr. Lütfi Kırdar City Hospital for any health-related reason. This cross-sectional study was conducted between January 2022 and June 2022. The sample size was determined using the standard formula for single-proportion estimation: $n = Z^2 \times p \times (1-p) / d^2$. In the absence of a reliable local prevalence estimate for health anxiety within the target primary care population, the expected proportion (p) was conservatively set at 0.50, as this yields the maximum sample size and minimizes the risk of underpowering. Assuming a 95% confidence level ($Z = 1.96$), a margin of error (d) of 0.05, and an anticipated non-response or attrition rate of 10%, the minimum required sample size was calculated to be approximately 400 participants. The exclusion criteria were having mental and physical disabilities that prevented the ability to provide informed consent and having a diagnosis of somatization disorder or anxiety disorder in the file records. Participants presenting with these diagnoses were excluded a priori to minimise the potential confounding influence of pre-existing, clinically established psychiatric disorders on health anxiety scores. Data were collected using a questionnaire prepared by the researcher, which included questions about participants' sociodemographic characteristics, chronic diseases, and habits, as well as the General Health Perception, Health Anxiety Scale, and Eysenck Personality Questionnaire–Revised Short Form. Data were collected using face-to-face interviews.

The General Health Perception is a measure that shows how a person assesses their health, classified as poor, fair, good, or very good. The Health Anxiety Scale, adapted and validated in Turkish by Aydemir et al., is an 18-item self-report scale. The first 14 items assess current mood, and the remaining 4 evaluate anticipated feelings in the presence of a serious illness. Items are scored from 0 to 3, yielding a total score of 0–54.⁸ Higher scores on the Health Anxiety Scale reflect greater levels of health anxiety. The Turkish adaptation and validation study reported a Cronbach's alpha coefficient of 0.918, indicating excellent internal consistency. In the present sample, the scale also demonstrated acceptable internal consistency, with a Cronbach's alpha coefficient of 0.77.

The Eysenck Personality Questionnaire, adapted and validated in Turkish by Karanci et al., is a 24-item scale assessing extraversion, neuroticism, and psychoticism. It includes a lie subscale to assess response validity. Each trait is measured with six yes–no items, with scores ranging from 0 to 6.⁹ Higher scores on the Eysenck Personality Questionnaire–Revised Short Form indicate greater endorsement of the corresponding personality trait. Extraversion reflects sociability, assertiveness, and a preference for interpersonal interaction. Neuroticism denotes emotional instability, a tendency toward worry, anxiety, and negative affect. Psychoticism encompasses traits such as tough-mindedness, impulsivity, and reduced empathy. The Turkish validity and reliability study of the scale reported Kuder–Richardson alpha coefficients (KR-20) of 0.78 for extraversion, 0.65 for neuroticism, 0.42 for psychoticism, and 0.64 for the lie subscale, with corresponding test–retest reliability coefficients of 0.84, 0.82,

0.69, and 0.69. In the present sample, Cronbach's alpha coefficients were 0.69 for extraversion, 0.65 for neuroticism, and 0.71 for psychoticism. (The lie subscale was not analysed in this study.) SPSS 25.0 (IBM ©) software package was used for data analysis. Descriptive data were presented as frequency and percentage for categorical variables. Continuous variables were presented as mean $\pm$ standard deviation or median and interquartile range according to distribution characteristics. The assumption of normal distribution for all variables was assessed using the Kolmogorov–Smirnov and Shapiro–Wilk tests. Student's t-test, ANOVA, and Pearson correlation analysis were used for continuous variables showing a normal distribution; Mann–Whitney U test, Kruskal–Wallis test, and Spearman correlation analysis were used for variables not showing a normal distribution. A multiple linear regression analysis was conducted to identify factors associated with health anxiety scores, which served as the dependent variable. The independent variables entered into the model included the three personality traits (extraversion, neuroticism, psychoticism), age, marital status, perceived general health, and psychiatric history (presence vs. absence of previous psychiatric diagnosis). Unstandardized regression coefficients (B) with 95% confidence intervals, along with corresponding p-values, were reported for each predictor. Model fit was assessed using R^2 and adjusted R^2 . Statistical significance was set at a two-tailed α level of 0.05..

Results

A total of 400 participants were included in the study. The mean age of the participants was 38.5 ± 13.2 years. 64.0% (n=256) of the participants were female, and 36.0% (n=144) were male. The demographic characteristics of the participants are shown in Table 1. 17.3% (n=69) of the participants had a history of psychiatric illness.

Table 1. Participants' sociodemographic characteristics

		% (n)
Gender	Male	36.0 (144)
	Female	64.0 (256)
Marital status	Married	62.2 (249)
	Single	34.3 (137)
	Divorced	3.5 (14)
Educational level	12 years or less	23.8 (95)
	13 years or more	76.2 (305)
Income level	Below minimum wage	9.3 (37)
	Minimum wage and above	39.3 (157)
	Two times the minimum wage and above	51.4 (206)
Living Arrangement	Living alone	10.8 (43)
	Nuclear family	63.2 (253)
	Extended family	26.0 (104)
Having Children	No	39.5 (158)
	Yes	60.5 (242)

*Descriptive Statistics

While 2% (n=8) of the participants perceived their general health as poor, 24.5% (n=98) perceived it as moderate and 57.5% (n=230) perceived it as good. The proportion of participants who perceived their health as very good was 16% (n=64). The mean health anxiety score of the participants was found to be 15.5 ± 9 . The mean health anxiety score was highest among single participants and lowest among married participants ($p=0.037$). There was a significant negative correlation between age and health anxiety score ($r = -0.139$; $p = 0.005$). Participants with a history of psychiatric illness had higher health anxiety scores than those without such a history (19.4 ± 8.1 vs. 14.7 ± 6.4 ; $p < 0.001$). A significant association was also observed between perceived general health and health anxiety score ($\tau = -0.221$; $p < 0.001$).

Health anxiety scores were significantly negatively associated with extraversion ($r = -0.229$, $p < 0.001$) and significantly positively associated with neuroticism ($r = 0.410$, $p < 0.001$), but showed no significant association with psychoticism ($r = -0.044$, $p = 0.383$; Table 2).

Table 2. Correlations between personality traits and health anxiety score

	Health Anxiety Scores
Extraversion	$r = -0.229$, $p < 0.001$
Neuroticism	$r = 0.410$, $p < 0.001$
Psychoticism	$r = -0.044$, $p = 0.383$

*Spearman Correlation Analysis

Multiple linear regression analysis was performed to identify factors associated with health anxiety scores. The model was statistically significant and explained 51.2% of the variance in health anxiety scores ($R^2=0.512$, adjusted $R^2=0.398$). In the model, higher neuroticism scores ($B=1.443$; 95% CI: 1.097 to 1.789; $p<0.001$), lower extraversion scores ($B=-0.507$; 95% CI: -0.836 to -0.179 ; $p=0.003$), younger age ($B=-0.101$; 95% CI: -0.160 to -0.044 ; $p<0.001$), poorer perceived general health ($B=-2.336$; 95% CI: -3.332 to -1.339 ; $p<0.001$), and psychiatric history ($B=1.824$; 95% CI: 0.111 to 3.537; $p=0.037$) were significantly associated with higher health anxiety scores. Marital status was not significantly associated with health anxiety score in the regression model ($B=-0.438$; 95% CI: -1.648 to 0.771 ; $p=0.476$) (Table 3).

Table 3. Results of Multiple Regression Analysis Predicting Health Anxiety Score

	B	95% CI for B	p
Extraversion	-0.507	-0.836 to -0.179	0.003
Neuroticism	1.443	1.097 to 1.789	<0.001
Marital Status	-0.438	-1.648 to 0.771	0.476
Age	-0.101	-0.160 to -0.044	<0.001
Perceived General Health	-2.336	-3.332 to -1.339	<0.001
Psychiatric history	1.824	0.111 to 3.537	0.037

* Multiple linear regression analysis. Model summary: $R^2=0.512$; adjusted $R^2=0.398$.

Discussion

This study showed that health anxiety among adults presenting to family medicine clinics was associated with both personality traits and selected sociodemographic and clinical characteristics. The main finding was that higher neuroticism scores were positively associated with health anxiety, whereas higher extraversion scores were negatively associated with health anxiety. In addition, younger age, poorer perceived general health, and a history of psychiatric illness were associated with higher health anxiety scores. These findings suggest that health anxiety in primary care should be considered within a broader psychosocial framework rather than being interpreted only through current physical complaints.

Consistent with existing literature, the positive relationship between neuroticism and health anxiety reflects the well-documented links between neuroticism and greater negative affect, emotional lability, elevated symptom reporting, and lower self-assessed health status.^{4,5} Similar findings have also been reported in studies examining the relationship between personality traits, health anxiety, and psychological distress.^{10,11} Individuals with higher neuroticism may be more prone to reporting somatic symptoms, and cognitive models of health anxiety suggest that ordinary bodily sensations can be misinterpreted as indicators of serious illness.^{5,12} This may partly explain why neuroticism remained significantly associated with health anxiety in the regression model.

In contrast, extraversion was negatively associated with health anxiety. Extraversion is generally characterized by sociability, positive emotionality, and greater interpersonal engagement. Previous studies have suggested that extraversion may be associated with more positive health-related cognitions and lower levels of anxiety-related outcomes.^{4,12} Although the strength of this association was weaker than that observed for neuroticism, the inverse relationship between extraversion and health anxiety supports the view that personality traits may influence how individuals perceive and respond to health-related concerns.

In the present study, younger age was associated with higher health anxiety scores, whereas gender was not a statistically significant predictor. The existing literature on sociodemographic correlates of health anxiety has yielded inconsistent findings: some studies have highlighted the role of gender and other demographic variables, while others have reported no clear associations.^{13,14} This may reflect differences in illness perception, health-related information exposure, and uncertainty tolerance across age groups; however, because these mechanisms were not directly assessed, this interpretation should be considered cautiously.

Perceived general health was also significantly associated with health anxiety. Participants who perceived their health more negatively had higher health anxiety scores. This finding is clinically meaningful because perceived health reflects not only objective disease status but also the individual's subjective interpretation of physical well-being. Previous evidence suggests that health anxiety is associated with increased somatic concerns, impaired quality of life, and greater healthcare use.^{2,3} In primary care, patients with poor perceived health may present repeatedly with somatic complaints even in the absence of severe physical illness. Therefore, assessment of perceived health may help family physicians identify individuals who are more vulnerable to health anxiety.

A history of psychiatric illness was another factor associated with higher health anxiety scores. This finding is compatible with previous evidence indicating that health anxiety frequently overlaps with psychological distress and psychiatric symptoms.^{3,15-17} However, this result should be interpreted with caution because individuals with a documented diagnosis of anxiety disorder or somatization disorder were excluded from the study. Therefore, the

psychiatric history variable in this study does not represent the full spectrum of psychiatric morbidity. Nevertheless, the finding suggests that previous psychiatric problems may be relevant when evaluating health-related worries in primary care.

From a clinical perspective, these findings emphasize the importance of considering personality traits and psychosocial characteristics when evaluating health anxiety in family medicine settings. Health anxiety may present as repeated consultations, persistent reassurance seeking, or disproportionate concern about benign symptoms. Since health anxiety may increase healthcare utilization and costs, early recognition of associated factors in primary care may contribute to more appropriate patient management.^{2,3,18} Recognizing the role of neuroticism, perceived health, age, and psychiatric history may help primary care physicians approach these patients in a more comprehensive and patient-centred manner.

The main strengths of this study include its relatively large sample size for a primary care-based study, the use of validated Turkish versions of standardized scales, and the simultaneous evaluation of personality traits, perceived health, psychiatric history, and sociodemographic characteristics. In addition, the study contributes to the limited literature on the relationship between health anxiety and personality traits among adults presenting to primary care.

This study also has several limitations. First, its cross-sectional design does not allow causal inferences between personality traits and health anxiety. Second, the study was conducted in a single center, which limits the generalizability of the findings to the broader adult population. Third, participants with documented anxiety disorder or somatization disorder were excluded to reduce the confounding effect of clinically established psychiatric disorders; however, this may have limited the representation of individuals with more severe health anxiety. Fourth, health anxiety and personality traits were assessed using self-report scales, which may be affected by response bias. Finally, although health-related information seeking may be relevant to health anxiety, this variable was not directly assessed in the present study.

Conclusion

In this primary care-based cross-sectional study, health anxiety was positively associated with neuroticism and negatively associated with extraversion. Younger age, poorer perceived general health, and a history of psychiatric illness were also associated with higher health anxiety scores. These findings indicate that health anxiety in adults presenting to primary care is related to both personality traits and psychosocial characteristics. Further multicentre and longitudinal studies are needed to confirm these findings and clarify their clinical implications.

Ethical Statement: Approval was obtained from the Health Sciences University Kartal Dr. Lütfi Kırdar City Hospital Clinical Research Ethics Committee (No. 2021/514/208/7, dated 25.08.2021).

Conflict of Interest: The authors declare no conflict of interest.

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