Original Article / Orijinal Araştırma

The Relationship Between Type D Personality and Impulsivity in Medicine, Dentistry, and Nursing Students

Tıp, Diş Hekimliği ve Hemşirelik Öğrencilerinde D Tipi Kişilik ile Dürtüsellik Arasındaki İlişki

Mesut Yıldız

Marmara University School of Medicine Department of Psychiatry, Istanbul, Turkey

Abstract

Aim: Type D personality is defined as a type in which negative affectivity (NA) and social inhibition (SI) are prominent. Type D personality is associated with psychiatric symptoms. The present study aims to investigate the relationship between Type D personality and impulsivity in a non-clinical population.

Material and Method: In total, 462 undergraduate health Professional students were recruited for the study. Subjects were evaluated using Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI), Barratt Impulsivity Scale-11 (BIS-11), and Type D Personality Scale (DS-14).

Results: The frequency of type D personality was 39.6%. The BAI, BDI, and BSI scores were higher in participants with Type D personality compared to the group without Type D personality. Correlation analysis demonstrated that Type D personality was positively correlated with the severity of depression and anxiety. Impulsivity scores measured by the BSI was posivitely correlated with Type D personality, depression, and anxiety scores. Regression analysis demonstrated that impulsivity was predicted by male sex and depression scores.

Conclusion: Type D personality was correlated with the severity of depression and anxiety. Depression scores and male sex predicted impulsivity.

Keywords: Type D personality, depression, anxiety, impulsivity

Öz

Amaç: D tipi kişilik negatif afektivite (NA) ve sosyal inhibisyonun (SI) belirgin olduğu bir kişilik tipi olarak tanımlanmaktadır. D tipi kişilik psikiyatrik semptomlarla ilişkilidir. Bu çalışmanın amacı klinik olmayan bir popülasyonda Tip D kişilik ile dürtüsellik arasındaki ilişkinin araştırılmasıdır.

Gereç ve Yöntem: Çalışmaya toplamda sağlık alanında eğitim gören 462 üniversite öğrencisi dahil edilmiştir. Katılımcılara Beck Anksiyete Ölçeği (BAI), Beck Depresyon Ölçeği (BDI), Barratt Dürtüsellik Ölçeği-11 (BIS-11) ve D Tipi Kişilik Ölçeği (DS-14) ile değerlendirilmiştir.

Bulgular: D tipi kişiliğin sıklığı % 39.6 idi. D tipi kişiliği olanlarda olmayanlarda göre BAI, BDI ve BIS ölçek skorları daha yüksek bulunmuştur. Korelasyon analizinde D tipi kişiliğin depresyon ve anksiyetenin şiddetiyle pozitif olarak korele olduğu gösterilmiştir. BIS ile ölçülen dürtüsellik skorlarının D tipi kişilik, depresyon ve anksiyete skorları ile pozitif yönde korele oldukları görülmüştür. Regresyon analizinde ise dürtüselliğin erkek cinsiyet ev depresyon skorları ile predikte edildiği gösterilmiştir.

Sonuç: D tipi kişiliğik depresyon ve anksiyete şiddetiyle koreledir. Depresyon puanları ve erkek cinsiyet dürtüselliği yordamaktadır.

Anahtar Kelimeler: Tip D kişilik, depresyon, anksiyete, dürtüsellik

INTRODUCTION

In clinical practice, evaluation of personality is important in many ways. Type D or distressed personality is defined as a type in which negative affecttivity (NA) and social inhibition (SI) are prominent.[1,2] NA is the tendency to experience negative emotions such as anger, guilt, hostility, and depression across situations and time. NA is manifested in high levels of distress and dissatisfaction regardless of the time or situation. SI is the tendency to inhibit the expression of emotions and behaviors in social interactions to avoid disapproval.[3] Individuals with high levofs on both NA and SI are categorized as having Type D personalities.[4,5]

Type D personality has been widely studied, especially in the field of cardiology. Type D personality was found to be associated with increased mortality and morbidity burden, and poorer health-related quality of life in cardiovascular diseases.[6]

Recent studies have also demonstrated the relationship between Type D personality and psychiatric disorders. It has also been shown that type D personality is associated with symptoms of depression, anxiety, sleep problems, post-traumatic stress disorder, somatic symptoms, mental distress, suicidal ideas, passive coping, and less social support.[7-12]

Impulsivity is a key feature of many psychiatric disorders such as affective disorders, anxiety disorders, personality disorders, alcohol dependence, attention deficit hyperactivity disorder, and bulimia nervosa. Impulsivity is defined as a predisposition to have rapid and unplanned reactions to internal and external stimuli without regard to the negative consequences of these reactions to individuals and others.[13,14] It has been shown that both anxiety and depression are associated with increased impulsiveness.[15] Results of a population study demonstrated that there was an association between Type-D personality and suicidal ideation.[16] Moreover, in patients with major depression, Type D personality was associated with increased impulsivity and SI subscale scores were higher in depressed patients with a history of suicide attempts.[17,18]

So, these findings suggest that there may be a relation between Type-D personality and impulsivity.

Considering that one of the main concepts of Type D personality is social inhibition, increased impulsivity in these individuals is a condition to be investigated. To the best of our knowledge, there is no study investigating the relationship between Type D personality and impulsivity in a non-clinical population. For this purpose, this study aims to investigate the relation relationshipType D personality and impulsivity in a group of university students. As Type D personality is associated with depression and anxiety,[19,20] we also aimed to investigate this relationship by controllthe confounding factors such as depression and anxiety.

MATERIAL AND METHOD

Participants

All participants were from the health campus of our university. There are 1400 undergraduate students in the Faculty of Medicine, 891 students in the Faculty of Dentistry, and 880 students in the Faculty of Nursing. Sampling was calculated by using the quota sampling method. It was aimed to reach 423 people by assuming an alpha error level of 5%, a design effect of 1.5, and a sample power of 80%. Each faculty was accepted as a cluster and it was planned to recruit participants from each cluster according to the number of students. We reached 462 students, but 5 were excluded because of incomplete forms. A total of 457 students, of which 218 were from medical faculties, 114 from dental faculties, and, 125 from nursing departments, participated in the study.

Psychometric Scales

Sociodemographic Data Form: This form was developed by the authors for this research, and the age, sex, faculty, place of residency, level of income, family history of psychiatric disorders, previous psychiatric history, and substance use history of the participants were recorded on it.

Type-D Personality Scale-14 (DS-14): The DS-14 comprises the subscales of negative affectivity (NA) and social inhibition (SI) containing seven items each Individuals scoring greater than the cut-off value (≥10) for both subscales are classified as having a type-D personality.4 The Turkish version of DS-14 was shown to valid and reliable for clinical and research purposes.[21]

Beck Depression Inventory (BDI): This self-report questionnaire consists of 21 items and is indicative of the presence of significant depressive symptoms over a cut-off score of 17.[22] The adapted Turkish version of the inventory was used in this study which was shown to be valid and reliable by Hisli.[23]

Beck Anxiety Inventory (BAI): The BDI is composed of 21 self-assessment items that evaluate the severity of anxiety. depression. Each question inquires about the respondent's anxiety symptoms on a 4-point scale. A score of 22 or higher is indicative of moderate levels of anxiety.[24] The validity and reliability study was performed in Turkey by Ulusoy et al.[25]

Barratt İmpulsiveness Scale (BIS-11): BIS-11 is a 30-item self-report scale that assesses the appearance of impulsivity. There are 3 subscales that do not overlap with each other, such as non-planning, motor impulsiveness, and cognitive impulsiveness.[26] The scale was adapted to Turkish by Güleç et al.[27]

Procedure

After getting permission from the administration, all students were reached at the end of lecture hours at their faculties. After being informed about the study, the subjects filled out the sociodemographic data form,

Type D personality Scale-14 (DS-14), Beck Depression Inventory (BDI), Beck Anxiety Inventory (, BAI), and Barratt Impulsiveness Scale (BIS-11) in their lecture halls.

The study procedures were carried out in accordance with the Declaration of Helsinki and written informed consent was obtained from all participants.

Statistical Analysis

Statistical analyses were performed using the SPSS software version 24. The variables were investigated using visual (histograms) and analytical methods (Kolmogorov-Smirnov/Shapiro-Wilk's test) to determine whether or not they are normally distributed. In addition to the descriptive statistical methods (mean, standard deviation, and frequency), for the comparison of the quantitative data, the Chi-square test where appropriate, was used to compare the proportions in different groups. Spearman correlations were used to determine the strength of the relationship between the variables. For the multivariate analysis, the possible factors were identified in the logistic regression analysis to determine independent predictors of type D personality. A multiple linear regression model was used to identify independent predictors of impulsivity. The model fit was appropriate residual and goodness-of-fit statistics. A 5% type-1 error level was used to infer statistical significance.

RESULTS

Sample Characteristics

Of the 457 participants, 197 (42,7 %) were male and 265 (57,3) were female. As mentioned before, 218 of them were from medical faculties, 114 of them were from dental faculties, and 125 of them were from nursing departments. The mean age of all participants was 21.4±2.01 years.

82.6% (n=321) of the participants indicated that they had a past psychiatric history and 11.4% (n=52) stated that they had a family history of psychiatric disorder.

According to BDI and BAI, 18.3% of the participants had moderate to severe depression and 27.9% of the participants had moderate to severe anxiety respectively. As expected, both moderate to severe depression and anxiety were more prevalent in women compared to men (p=0.029 and p<0.001 respectively)

The prevalence of type-D personality in the present sample was 39.6%. The average total impulsivity score was 64±11; the average subscale scores were 17±4 for attention impulsivity, 21±5 for motor

impulsivity, and 25±5 for non-planning impulsivity. The distribution of sociodemographic and clinical variables of the participants with and without Type D personality are shown in **Table 1.**

Table 1. Comparison of demographic and clinical variables between groups.

		Group without type D personality		Group with type D personality		
		n	%	n	%	p
Age, years*		21.39±2.06		21.48±1.95		0.280
Sex	Male	115	59.3	79	40.7	0.786
	Female	158	60.5	103	39.5	
Faculty	Medicine (n=218)	117	53.9	100	46.1	0.001
	Dentistry (n=114)	65	57.0	49	43.0	
	Nursing (n=125)	91	73.4	33	26.6	
Class	1	57	58.2	41	41.8	0.009
	2	81	73.0	30	27.0	
	3	48	49.5	49	50.5	
	4	50	64.1	28	35.9	
	5	28	54.9	23	45.1	
	6	9	45.0	11	55.0	
Place of residence	Youth hostel	80	67.2	39	32.8	0.166
	House (alone)	35	55.6	28	44.4	
	House	157	57.9	114	42.1	
Past psychiatric history	Yes	234	62.1	143	37.9	0.030
	None	37	48.7	39	51.3	
Family history of psychiatric disorder	Yes	24	48.0	26	52.0	0.058
	None	247	61.9	152	38.1	
Alcohol and smoking	None	194	61.0	124	39.0	0.665
	Smoking	56	56.0	44	44.0	
	Alcohol	22	61.1	14	38.9	
Total BAI*		9.88±9.33		15.93±10.93		≤0.001
	Minimal-mild	223	68.0	105	32.0	
	Moderate-severe	50	39.7	76	60.3	
Total BDI*		8.68±7.74		15.81±10.05		≤0.001
	Minimal-mild	244	66.1	125	33.9	
	Moderate-severe	28	33.7	55	66.3	
Total BIS*		61.56±10.85		66.82±10.65		≤0.001
* Mean±standart deviation						

Group Comparisons According to the Presence/Absence of Type D Personality

The group was divided into two groups according to the presence or absence of Type D personality. Comparisons between the group with type D personality and that without type D personality are given in **Table 1**. Faculty and class were different between groups (p=0.001 and p=0.009 respectively). The post-hoc analysis demonstrated that Type D personality was more prominent in the faculty of medicine and dentistry than nursing. It was seen that the difference in the class disappeared when the 2nd grades were removed from the group. The group without Type D personality had more past psychiatric history compared to the group with Type D personality (62.1 vs 37.9, p=0.030). The Total BAI, BDI, and BIS scores were significantly higher in the group with Type D personality compared to the group without Type D personality (p≤0.001 for all).

Correlation Analysis

Correlation analysis showed that there was a moderate positive correlation between BDI points with DS-14 scale points (p ≤0.001, r=.58) . There was also a weak positive correlation between BAI points with DS-14 scale points (p ≤0.001, r=.444) The BIS scores were positively but weakly correlated with BAI, BDI and DS-14 scale points (p ≤0.001 for all, r=.205, r=.318, r=.220). The results of the correlation analyses are shown in **Table 2**.

Table 2. The correlations between BAI, BDI, BSI and DS-14 scale scores of participants. (n=457)

		BAI	DS-14	BDI
DS-14	rho	0.444		
	p	≤0.001		
BDI	rho	0.497	0.548	
	p	≤0.001	≤0.001	
BIS	rho	0.205	0.220	0.318
	p	≤0.001	≤0.001	≤0.001

Regression Analysis

As there was a positive correlation between BIS scores with BDI, BAI, and DS-14 scale scores linear regression analysis was performed to determine independent predictors for impulsiveness. Linear regression analysis was performed taking the BSI score as the dependent variable and sex, age, BAI, BDI, and DS-14 scores as independent variables. The results showed that being male and the BDI scores were the predictors of BSI. In other words, the DS-14 was not a predictor of the BSI score. The results of the regression analyses are shown in **Table 3**.

Table 3: Linear regression analysis when BIS score was taken as dependent variable and sex, age, BAI, BDI and DS-14 scores as independent variables (n=457)

	Standardized coefficients (β)	t	OR	95% CI	p
Age. years	-0.005	-0.105	0.000	(-0.004-0.003)	0.916
Sex (ref. female)	0.135	2.773	0.021	(0.006-0.035)	0.006
BAI	0.096	1.654	0.019	(-0.004-0.042)	0.099
BDI	0.387	6.468	0.078	(0.055-0.102)	≤0.001
DS-14	-0.068	-1.182	-0.025	(-0.067-0.017)	0.238

CI: confidence interval

DISCUSSION

The objective of the present study was to investigate the relationship between Type D personality and impulsivity by controlling depression and anxiety in a group of health profession students. Participants with Type D personality had higher scores on BAI, BDI, and BSI scales. Correlation analysis demonstrated that Type D personality was positively correlated with the severity of depression (moderate) and anxiety (weak). Impulsivity scores measured by the BSI were positively but weakly correlated with Type D personality, depression, and anxiety scores. Regression analysis demonstrated that impulsivity was predicted by male sex and depression scores.

The participants of the present study were health profession students. Training in medicine and other health professions is associated with high levels of stress and psychological morbidity.[28] Our study showed that 18,3% of the participants had reported moderate to severe depression and 27,9% of the participants had reported moderate to severe anxiety. Health professions students report higher levels of depression and anxiety compared to their age-matched controls.[29,30] The symptoms of depression were reported to be between 8% and 70% in students of medical faculty in different studies.[31]

It was shown that other healthcare professional students were stressed similarly to medical students; even some groups could be in more mental distress compared to medical school students.[32,33] In line with this, but interestingly our study group reported a high level of past psychiatric history (82.6%) Since the question about psychiatric admission was not only limited to depression but involving all admission; this high percentage can be better understood. Of course, past psychiatric referral does not necessarily mean that the person has suffered from a mental disorder. Even so, this high level should be explored more. Both depression and anxiety were more prevalent in women compared to men in the present study. This gender difference was also reported in similar studies.[29,31]

The prevalence of type-D personality in the present sample was almost 40%. When it is taken into account that the prevalence of Type D personality is 21% in the general population 4; we can say that Type D personality is more common in health professional students compared to the general population. Studies investigating the prevalence of Type D personality in university students reveal different results from 31% to 43.3%.[20,34] The results were thought to vary according to the selected student groups

Participants with Type D personality reported more anxiety, and depression and they were more impulsive compared to participants without Type D personality. Type D personality was shown to be associated with depression, anxiety, and other psychiatric disorders.[7,9] Moreover, it was also shown that depressed individuals with Type D personalities were more impulsive and vulnerable to suicidality.[8] Type D personality was more prevalent in the faculty of medicine and dentistry compared to the faculty of the nursery. It is well known that personality traits are important in career choice. Relatively, it can be said that medicine and dentistry have more difficult entry conditions than nurseries in many faculties. Therefore, it can be argued that those who choose these difficult faculties have different personality traits than the normal population. Interestingly, past psychiatric history was more prevalent in the group without Type D personality. From this, it can be concluded that those with Type D personality traits are less likely to apply for psychiatry, even if they experience psychological distress.

The present study showed that Type D personality was positively correlated with the severity of depression (moderate) and anxiety (weak). Patients with type D personalities had an increased risk for both depression and anxiety.[19,35] In a study evaluating the effect of Type D personality in university students, it was demonstrated that Type D personality was associated with higher depressive symptoms. Type D personality was also correlated with depression and anxiety scores in addicted individuals.[36]

Impulsivity scores measured by the BSI were positively but weakly correlated with Type D personality, depression, and anxiety scores. Both depression and anxiety are associated with increased impulsiveness.[15] Positive correlations between depression, anxiety, and impulsivity is a well-known topics.[37] There is scarce knowledge about the relationship between type D personality and impulsivity. Similar to the present study, Park et al found a positive correlation between Type D personality scores and impulsivity scores measured by BIS-11 in depressed individuals.[17] There was no other study looking for an association between Type D personality and impulsivity in a non-clinical sample.

Regression analysis also demonstrated that impulsivity was predicted by male sex and depression scores. Men are generally thought to be more impulsive compared to women.[38] In the present study, while depression scores were associated with impulsivity, Type D personality and anxiety had no value for predicting impulsivity. Although Type D personality and impulsivity are correlated, the fact that Type D personality does not appear to have a role in predicting impulsivity can be interpreted as other factors that may play a role in this relationship. Park's study was conducted in a group with major depression and it was also shown that suicidal ideation was related to the NA subscale of Type D personality. [17,18] Therefore, studies in different clinical and non-clinical groups are needed to better understand the relationship between impulsivity and Type D personality.

To the best of our knowledge, this is the first study investigating the relationship between Type D personality and impulsivity in a non-clinical sample. The results of the present study must be interpreted in light of certain limitations. First of all, this study was conducted in a single center and in a subgroup of university students, which were generally shown to be more stressed compared to other university students. Additionally, the past psychiatric admission rate of our participants is very high. So, these make it difficult to generalize the study findings to the general population.

Although the lack of clinical interviews seems to be another limitation, the main purpose of the study is to investigate the findings in a non-clinical group. The cross-sectional design of the study can be mentioned as another limitation because we don't know if these participants will go on to experience these symptoms. But, it is the classical limitation of similar studies. It is not completely understood how class differences and the incidence of Type D personality change in student groups or what factors play a role in these findings. Probably, a small number of our study in a non-clinical sample and the fact that it was conducted in a special group of university students may have affected this result. Despite these limitations, the present study is valuable in terms of exploring the relationship between Type D personality and impulsivity while controlling for anxiety and depression.

CONCLUSION

We found that participants with Type D personality had more depressive, anxious, and impulsive compared to non-type D personality. there was a moderate positive correlation between BDI points with DS-14 scale points. Type D personality was positively correlated with the severity of depression and anxiety. Impulsivity was positively correlated with depression, anxiety, and Type D personality. Lastly, male sex and depression were predictors of impulsivity. Different studies including clinical and non-clinical samples in a follow-up design should provide better results to understand this topic.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was carried out with the permission of Marmara University Clinical Research Ethical Committee (Date of approval: 12.04.2019, Approval Number: 09.2019.376)

Informed Consent: All patients signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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