

A Preliminary Psychometric Evaluation of the Type D Personality Construct in Turkish Hemodialysis Patients

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ÖZET:

D tipi kişilik yapısının Türk hemodiyaliz hastalarında ön psikometrik değerlendirilmesi

Amaç: Olumsuz duygulanım (OD) ve sosyal inhibisyon (Sİ) birlikteliği ile tanımlanan D tipi kişilik, kardiyak hastalarda istenmeyen etkilerle ilişkilidir. D Tipi Kişilik Ölçeği'nin (DÖ_14) geçerlilik ve güvenilirliği çeşitli ülkelerde ve özellikle kardiyak hastalarda ortaya konmuştur. Bu çalışmanın amacı, DÖ_14'ün Türk hemodiyaliz hastalarında geçerliliğini tespit etmektir.

Yöntem: 3 aydan uzun süredir Türkiye'nin kuzey batısında bir şehirdeki bir merkezde idame hemodiyaliz tedavisi altında olan 101 hasta, DÖ_14'ün Türkçe versiyonunu doldurdu. Ölçeğin diskriminant geçerliliğini tespit etmek amacıyla Hastane Anksiyete ve Depresyon Ölçeği (HAD) de uygulandı. Ölçeğin stabilitesini değerlendirmek için DÖ_14 yüz hastaya, 1 ay sonra yeniden uygulandı.

Bulgular: DÖ_14'ün iki faktörlü yapısı ve OD ($\alpha = 0.82$) ve Sİ ($\alpha = 0.81$) alt ölçeklerinin iç tutarlılığı doğrulandı. Hem OD'nin hem de Sİ'nin anksiyete ve depresyon skorları ile pozitif korelasyon gösterdiği saptandı. DÖ_14'ün 1 aylık sürede stabil olduğu bulundu ($r = 0.84/0.78$; $p < 0.01$). D tipi kişilik yaygınlığı %27,7 idi. D tipi olmayan hastalarla karşılaştırıldıklarında, D tipi kişiliği olan hastaların ortalama anksiyete ($p < 0.01$) ve depresyon ($p < 0.01$) skorlarının daha yüksek olduğu bulundu.

Sonuç: Bu ön çalışmanın bulgularına göre, DÖ_14 Türkçe formu, D tipi kişiliği tespit etmek için geçerli ve güvenilir bir ölçektir. Ölçeğin uygunluğunun farklı hasta gruplarında değerlendirilmesi gereklidir.

Anahtar sözcükler: çapraz geçerlilik, hemodiyaliz, olumsuz duygulanım, sosyal inhibisyon, D tipi kişilik

Journal of Mood Disorders 2012;2(1):1-5

ABSTRACT:

A preliminary psychometric evaluation of the type D personality construct in Turkish hemodialysis patients

Objective: Type D personality, which is defined by both negative affectivity (NA) and social inhibition (SI), is associated with adverse outcomes in cardiac patients. The validity and reliability of the Type D Scale (DS_14) have been confirmed in various countries, particularly among cardiac patients. The purpose of the present study was to cross-validate the DS_14 in Turkish hemodialysis patients.

Method: One hundred one patients, who had received maintenance hemodialysis for more than 3 months at a center in north-west region of Turkey, completed the Turkish version of the DS_14. Hospital Anxiety and Depression Scale (HAD) was administered to establish discriminant validity. The DS_14 was re-administered 1 month after first administration in order to examine the stability of the DS_14 in 100 patients.

Results: The two-factor structure of the DS_14 and the internal consistency of the NA ($\alpha = 0.82$) and SI ($\alpha = 0.81$) subscales were confirmed. Both NA and SI were found to correlate positively with anxiety and depression scores. The DS_14 was stable over a 1-month period ($r = 0.84/0.78$; $p < 0.01$). The prevalence of Type D personality was 27.7%. Type D individuals had significantly higher mean scores on anxiety ($p < 0.01$) and depression ($p < 0.01$) subscales of the HAD when compared with non-Type D individuals.

Conclusion: Preliminary evidence suggests that the Turkish DS_14 is a valid and reliable tool for identifying Type D personality. Future studies are warranted to evaluate the utility of the scale in different groups of patients.

Key words: cross-validation, hemodialysis, negative affectivity, social inhibition, type D personality

Journal of Mood Disorders 2012;2(1):1-5

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Kabul tarihi / Date of acceptance: 7 Mart 2012 / March 7, 2012

Bağıntı beyanı:

A.A., O.Y., F.C., M.E., G.A., H.Ş.: Yazarlar bu makale ile ilgili olarak herhangi bir çıkar çatışması bildirmemişlerdir.

Declaration of interest:

A.A., O.Y., F.C., M.E., G.A., H.Ş.: The authors reported no conflict of interest related to this article.

INTRODUCTION

Type D (distressed) personality is defined as the co-occurrence of negative affect (NA) and social inhibition (SI) (1). NA refers to a tendency to experience negative emotions such as hostility, depression, and anger. SI connotes the tendency to hold back the expression of these emotions in social interaction (1). Type D personality

has been receiving a lot of attention as an indicator of adverse clinical outcome (2-4). Type D patients are reported to experience decreased levels of social support and to be less likely to engage in positive health related behavior (5). They also fail to consult for increased symptom levels, although they experience more symptoms than non-Type D patients (6).

Type D Personality Scale (DS_14), which is a

standardized, brief, and reliable tool, was developed to evaluate Type D personality construct (1). The validity and reliability of the DS_14 has been established in various countries, among patients with cardiac diseases (7-11) and chronic pain (12), and healthy individuals (13). To date, we believe, no study has been designed to assess the validity and reliability of the DS_14 among Turkish speaking individuals. The aim of this study was to apply a Turkish version of the DS14 to hemodialysis patients and test the psychometric properties of the scale.

METHODS

Procedure and Subjects

In order to adapt the DS_14 for the Turkish population, the author's permission was obtained. The scale was translated independently into Turkish by two research assistants fluent in English and was then back-translated by an instructor fluent in English. English and Turkish versions of the scale were given to bilingual individuals at two different time points to verify the consistency between the original and translated versions.

The center chosen for this study was a community-based hemodialysis center (Oray Dialysis Center) in Duzce province, in the north-west region of Turkey. All required permissions were obtained. One hundred one patients receiving conventional hemodialysis (4 h/day, 3 times/week) were selected to participate in this study after being fully informed of the study purpose and after signing written informed consent to participate. The approval was obtained from the Local Ethics Committee for Clinical and Laboratory Studies. The study was conducted in accordance with the Helsinki Declaration.

The DS_14 was administered to 101 patients in the treatment center; 100 patients completed the scale a second time a month later. One patient was not present at the second administration of the DS_14 and therefore was excluded from the test-retest correlation analysis.

Measures

Type D Scale (DS_14)

Type D personality was assessed with the DS_14 (1). The DS_14 is a 14-item questionnaire and measures two stable

personality traits, that is negative affectivity (7 items; e.g. "I often feel unhappy" and "I am often in a bad mood") and social inhibition (7 items; e.g. "I am a closed kind of person" and "I would rather keep other people at a distance"). Subjects rate these aspects of their personality on a 5-point Likert scale ranging from 0=false, 1=rather false, 2=neutral, 3=rather true to 4=true. The NA and SI scales are then scored as continuous variables (range 0–28). A cutoff of 10 on both scales is used to classify subjects as Type D ($NA \geq 10$ and $SI \geq 10$). Emons et al. (14) have found that the items of the DS_14 had the highest measurement precision around this cut-off of 10. The DS_14 is an internally consistent (Cronbach's alpha: NA/SI=0.88/ 0.86) and stable (3-month test-retest reliability: NA/ SI=0.72/0.82) measure.

Hospital Anxiety and Depression Scale

The Hospital Anxiety and Depression Scale (HAD) (15), was used to examine the discriminant validity of the DS_14. It has 14 items in total, 7 for anxiety and 7 for depression. Each item is evaluated on a 4 point scale. The total scores can range between 0 to 21 both for anxiety and depression, with a higher score indicating a more intense negative affect. The Turkish version of HAD was validated by Aydemir et al (16) and has been used in several studies (e.g. 17,18).

Statistical Analyses

Data were analyzed using the SPSS 16.0 package program. Student's t test was used in making comparisons between the two groups. Cronbach's alpha coefficients and item total score correlations were computed for the reliability of the scale. Test-retest correlation was calculated with Spearman-Brown correlation method. For the validity of the scale, correlations between the scales were calculated with Pearson's correlation method. Principle components factor analysis (varimax rotation) was used to evaluate the factor structure of the Turkish DS_14 scale. The significance level was accepted as $p < 0.05$ throughout the analyses.

RESULTS

The mean age of the study sample was 59.3 ± 12.6 years (range: 22–78 years). Among the patients, 50 (49.5%)

were women and 51 (50.5%) were men. The prevalence of Type D personality was 27.7%. Although statistically insignificant, the prevalence of Type D was higher in women compared to men [36% (18/50) vs 19.6% (10/51); $p = 0.066$]. Type D and non-Type D patients did not differ in respect to mean age (years) (58.3 ± 10.8 vs 57.53 ± 5.31 ; $p = 0.639$) and duration of hemodialysis (months) (34.5 ± 34.1 vs 39 ± 46.4 ; $p = 0.641$).

Structural Validity and Internal Consistency

The internal consistency of the DS_14 negative affectivity and social inhibition subscales, as measured by Cronbach's alpha, were 0.82 and 0.81, respectively (Table 1), which suggests that the internal validity of the Turkish version of the DS_14 is acceptable.

The principal components factor analysis revealed the expected two factors with Eigen values exceeding 1, explaining 58.7% of the total variance. Items' loadings, factors' internal consistencies, and mean inter-item correlations are shown in Table 1. The Turkish DS_14 was found to consist of two factors, one consisting of items

pertaining to NA and the other consisting of items pertaining to SI. Hence, Turkish version of the DS_14 was found to exhibit good structural validity within the current sample.

Temporal Stability

The 4-week test-retest correlation measured by Spearman-Brown correlation coefficient was found to be $r = 0.84$ ($p < 0.01$) for NA, and $r = 0.78$ ($p < 0.01$) for SI. Type D patients had significantly higher mean scores on anxiety and depression subscales of the HAD when compared with non-Type D patients [12.2 ± 3.4 vs 7.53 ± 5.31 ($p < 0.01$); 10.2 ± 4.3 vs 7 ± 4.2 ($p < 0.01$), respectively]. These results confirm the temporal stability of the DS_14 during a period of 4 weeks.

Construct Validity

The Type D subscales were closely related to HAD subscales. NA was correlated positively with anxiety subscale of HAD ($r = 0.68$; $p < 0.01$). The correlation

Table 1: Structural validity and internal consistency of Turkish DS_14

DS14 items	Factor I*	Factor II*	Internal consistency†
Negative affectivity			
(2) I often make a fuss about unimportant things	0.51	-0.14	0.54
(4) I often feel unhappy	0.73	0.07	0.67
(5) I am often irritated	0.62	0.24	0.44
(7) I take a gloomy view of things	0.71	0.09	0.42
(9) I am often in a bad mood	0.59	-0.11	0.62
(12) I often find myself worrying about something	0.68	0.56	0.55
(13) I am often down in the dumps	0.75	0.63	0.64
Eigen value = 5.54			
Internal consistency (Cronbach's α) = 0.82			
MICC=.38			
Social inhibition			
(1) I make contact easily when I meet people‡	0.03	-0.73	0.61
(3) I often talk to strangers‡	-0.08	-0.45	0.39
(6) I often feel inhibited in social interactions	0.11	0.43	0.68
(8) I find it hard to start a conversation	0.23	0.56	0.58
(10) I am a closed kind of person	0.31	0.61	0.59
(11) I would rather keep other people at a distance	0.19	0.69	0.50
(14) When socializing, I don't find the right things to talk about	0.26	0.55	0.51
Eigen value = 2.67			
Internal consistency (Cronbach's α) = 0.81			
MICC=.39			

MICC: Mean inter-item correlation

*Items assigned to a factor are presented in bold

†Corrected item-total correlations

‡Items need to be reversed before calculating the subscale score

between NA and depression subscale of HAD was mild ($r = 0.43$; $p < 0.01$). There was a mild correlation between SI and HAD anxiety ($r = 0.37$; $p < 0.01$) and between SI and HAD depression ($r = 0.31$; $p < 0.01$).

DISCUSSION

This is the first study to evaluate the psychometric properties of the Type D construct in Turkish speaking individuals. The present study confirms the validity and reliability of the DS_14 in Turkish hemodialysis patients.

According to the findings of this preliminary study, the Turkish version of the DS_14 scale is a reliable and valid measure for the detection of Type D personality. The two factor structure and internal consistency of the DS_14 was replicated in this culturally different patient population. The NA and SI subscales were found to have adequate internal consistency, with each item converging well with the subscale it belongs to and distinguishing itself from the alternative subscale. The DS_14 was also shown to be a stable measure over a four-week period. The results of the current study are consistent with those of previous validation studies of the Type D construct in other countries such as Denmark (7) China (8), Norway (17), Korea (10), Israel (11), and Ukraine (13), showing that the Type D construct is valid and reliable.

The DS_14 was found to correlate with the HAD, and discriminated well between distressed and non-distressed patients. NA subscale was correlated strongly with anxiety

and mildly with depression. SI subscale was significantly but mildly associated with anxiety and depression. These findings are in line with previous studies revealing that the Type D personality is related with elevated levels of depression and anxiety (7,19,20).

In concordance with prevalence rates found in other studies in general population and cardiac patients (7,8,12,13,21), the prevalence of Type D personality was found to be 27.7% in our study population. However, the prevalence of Type D personality in several clinical samples varied widely from 5.3% (11) to 53% (1).

Some limitations of this study are worth noting. First, the study sample was relatively small. Thus, the results should be replicated in a larger population. Second, the validity and reliability of the Turkish version of the DS_14 was evaluated in hemodialysis patients, and findings may not be generalized to other clinical and non-clinical samples. Third, the test-retest reliability of the Turkish version of the DS_14 was established only after a 4-week period, which is relatively short.

To conclude, the findings of the current preliminary study in a Turkish sample of hemodialysis patients suggest that the Type D personality is also a valid construct in Turkish speaking population. Future studies are warranted in order to assess the prevalence of the Type D personality in Turkey. Additionally, further studies are needed to evaluate the psychometric properties of the Type D personality construct in different patient populations.

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