

TEMPERAMENT AND CHARACTER TRAITS IN PATIENTS WITH CONVERSION DISORDER AND THEIR RELATIONS WITH DISSOCIATION

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SUMMARY

Background: The purpose of this study was to investigate temperament and character traits in patients with conversion disorder and the relation of these traits with dissociative symptoms.

Subjects and methods: Sixty patients (60) diagnosed with conversion disorder according to DSM-IV-TR and 60 healthy volunteers were included in the study. All participants' temperament and character traits were determined using Cloninger's Temperament and Character Inventory (TCI). Patients with conversion disorder were divided into two subgroups using the Dissociative Experiences Scale (DES), dissociative (n=30, 50%) and non-dissociative (n=30, 50%). The two conversion disorder subgroups were compared with the control group in terms of temperament and character traits. Correlation analysis was also performed between TCI and DES scores in the entire conversion group.

Results: Novelty seeking (NS) scores were lower in both the dissociative and non-dissociative groups compared to the control group. Harm avoidance (HA) scores were higher in the dissociative group than in the control group. Reward dependence (RD) scores were lower in the dissociative group than in the non-dissociative and control group. Self-directedness (SD) scores were lower in the dissociative group than in the control group. Self-transcendence (ST) scores were higher in the dissociative group than in the non-dissociative group. DES scores were negatively correlated with RD and SD scores in the entire conversion group and positively correlated with ST scores.

Conclusions: Low NS temperament traits may be associated with conversion disorder. High HA and low RD temperament traits and low SD and high ST character traits may be associated with pathological dissociation in patients with conversion disorder.

Key words: conversion disorder – temperament – character – dissociation - TCI

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INTRODUCTION

Conversion disorder is a psychiatric disorder that cannot be explained by any neurological or medical condition and that leads to symptoms or deficits in voluntary motor or sensory functions (Ballmaier & Schmidt 2005). Dissociative symptoms and dissociative disorders are frequently seen in patients with conversion disorder (Alper et al. 1997, Spitzer et al. 1998, Spitzer et al. 1999, Güz et al. 2003, Tezcan et al. 2003, Güz et al. 2004, Şar et al. 2004, Isaac & Chand 2006, Şar et al. 2009, Stone et al. 2011), while conversive symptoms are frequently seen in dissociative disorders (Bowman 2006, Brown et al. 2007, Stone et al. 2011). Childhood traumas and abuse (particularly emotional and sexual abuse) lie at the basis of dissociative disorders and conversion disorder (Alper et al. 1997, Roelofs et al. 2002, Akyüz et al. 2004, Şar et al. 2004, Bowman 2006, Isaac & Chand 2006, Brown et al. 2007, Özçetin et al. 2009, Stone et al. 2011). One common trait in conversion disorder and dissociative disorders is hypnotic suggestibility (Oakley 1999, Roelofs et al. 2002, Bowman 2006). Some researchers therefore suggest that conversion disorder (and particularly the seizure/convulsion subtype) should be classed among the disso-

ciative disorders (Bowman & Markand 1996, Spitzer et al. 1998, Spitzer et al. 1999, Guz et al. 2003, Bowman 2006, Espirito-Santo & Pio-Abreu 2009, Özçetin et al. 2009, Şar et al. 2009, Brown-Lewis-Fernandez 2011).

Cloninger developed and described a dimensional psychobiological model of personality accounting for normal and abnormal variations in temperament and character, the two basic components of personality (Cloninger et al. 1992). Cloninger's concept of psychobiological personality consists of four dimensions of temperament, Novelty Seeking (NS), Harm Avoidance (HA), Reward Dependence (RD) and Persistence (P). These temperament traits reflect individual differences in perception-based tempers and skills and are genetically homogeneous and independently inherited. Cloninger's model also involves a three-dimensional description of character, Self-directedness (SD), Co-operativeness (C) and Self-transcendence (ST). These components of character mature as age advances, with maturation of personality and with the individual and social effects they produce. In contrast to components of temperament, components of character are believed to be more culturally determined (Köse et al. 2004).

The number of studies investigating temperament and character traits in patients with conversion disorder

is limited. There are two recent studies in Turkish populations (Erten et al. 2013, Güleç et al. 2014). The first of these determined higher HA and lower P temperament traits and lower SD and higher ST character traits in patients with conversion disorder compared to healthy controls (Erten et al. 2013). The second determined a higher HA temperament trait and lower SD character trait (Güleç et al. 2014). We encountered no studies investigating the association between temperament and character traits and dissociative symptoms in patients with conversion disorder.

The purpose of this study was to determine the relation between temperament and character traits and dissociative symptoms in patients with conversion disorder.

SUBJECTS AND METHODS

Subjects

The study involved 125 volunteers, 65 consecutive patients with conversion disorder and 60 healthy controls, aged 18-65 attending the Ondokuz Mayıs University Faculty of Medicine Psychiatric Department in January-December 2012. Conversion disorder was diagnosed on the basis of Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) criteria. Exclusion criteria for conversion disorder were illiteracy, inability to understand and complete the scales applied, psychotic disorder, factitious disorder, substance use disorder and cognitive impairment associated with neurological and medical diseases. Five patients were excluded due to illiteracy. Healthy controls consisted of age-, sex- and education level-matched individuals selected from social sampling and hospital personnel.

In the first stage, the conversion group and healthy controls were compared in terms of temperament and character traits. Many studies in the literature report that a Dissociative Experiences Scale (DES) score of 30 or over is associated with pathological dissociation (Yargıç et al. 1995, Şar et al. 1996, Tutkun et al. 1998, Yargıç et al. 1998, Akyüz et al. 1999, Şar et al. 2000, Tezcan et al. 2003, Espirito-Santo & Pio-Abreu 2009, Şar et al. 2009, Güleç et al. 2014). We identified 30 patients (50%) with a DES score of 30 or above. This group was determined as the dissociative group. In the second stage, the dissociative and non-dissociative conversion disorder subgroups and the control group were compared in terms of temperament and character traits. Correlation analysis was also performed between DES scores and temperament and character traits in the entire conversion disorder group.

The study protocol was approved by the Local Ethics Committee and all patients gave written informed consent.

Methods

Sociodemographic data form

Using this form, all participants were asked about age, gender, marital status, income level, place of residence and total years of education, and the answers were recorded. Subtype (motor, sensorial, pseudoseizure and mixed), childhood traumas, family type (nuclear, extended) and presence of psychiatric disease in the family were also investigated in the conversion disorder group.

Temperament and Character Inventory (TCI)

This is a 240-item self-report questionnaire, developed by Cloninger et al. (1993) according to a psychological model of temperament and character. The TCI is a self-administered questionnaire that measures the 4 temperament dimensions (NS, HA, RD, and PS) and the 3 character dimensions (SD, CO, and ST). The 240 items are answered "yes" or "no." Novelty seeking (NS) is linked to behavioral system activation and involves an inherited tendency toward exploratory activity in response to novel stimuli, impulsive decision taking, extravagance in the approach to reward cues, quickness to anger and active avoidance of frustration. Harm avoidance (HA) is linked to the behavioral inhibition system and is an inherited tendency regarding preventing or stopping behavior. It manifests itself with passive avoidance behaviors such as a state of pessimism and anxiety regarding future problems, fear of uncertainty, avoidance of strangers and being easily fatigued. Reward dependence (RD) is an inherited tendency linked to the behavioral persistence system and that manifests itself with emotionality, social attachment and dependence on the approval of others. Persistence (P) is a qualitative disposition to continue striving in the face of obstacles and fatigue. Self-directedness (SD) consists of the individual's acceptance of responsibility for his own choices, the determination of significant aims in individual terms and the development of skills and confidence in resolving problems. Cooperativeness (C) consists of social acceptance, empathy, helpfulness and being virtuous and of good conscience. Self-transcendence (ST) consists of being self-forgetful, transpersonal identification and spiritual acceptance.

The patients and controls completed a Turkish version of the 240-item self-administered TCI questionnaire. The Turkish TCI has been validated by Kose et al. (2004).

Dissociative Experiences Scale (DES)

This is a self-report scale used to measure severity of dissociative disorders and their symptoms. It consists of 28 items. Each item is scored between 0 and 100. Higher scores indicate greater dissociation. Scores of 30 and above are significant in indicating pathological dissociation (Yargıç et al. 1995, Şar et al. 1996, Tutkun et al. 1998, Yargıç et al. 1998, Akyüz et al. 1999, Şar et al. 2000, Tezcan et al. 2003, Espirito-Santo & Pio-Abreu

Table 1. Comparison of groups in terms of sociodemographic characteristics

	Conversion Group (n=60)		Control Group (n=60)		χ^2/t	p
		%		%		
Age	33.60±10.67		33.83±10.60		t=-0.12	0.91
Gender						
Female	54	90.0	53	88.3	$\chi^2=0.00$	1.00
Male	6	10.0	7	11.7		
Marital status						
Single	22	36.7	27	45.0	$\chi^2=0.55$	0.46
Married	38	63.3	33	55.0		
Income level						
Low	44	73.3	40	66.7	$\chi^2=0.36$	0.55
Average/High	16	26.7	20	33.3		
Residence						
City	30	50.0	35	58.3	$\chi^2=0.54$	0.46
Town/village	30	50.0	25	41.7		
Total years spent in education	7.40±3.58		8.18±3.28		t=-1.25	0.21
Total	60	100.0	60	100.0		

2009, Şar et al. 2009, Güleç et al. 2014). It was developed by Bernstein&Putnam (1986). The validity and reliability of the Turkish version was investigated by Yargıç et al. (1995).

Statistical analyses

Statistical analysis was carried out using SPSS 16.0 for Windows. The chi square test was used to compare categorical variables. Student's t test was used for comparison of two groups' data obtained by measurement, and analysis of variance (one-way ANOVA) was used to compare three groups. As variances for the post-hoc test were equal, Tukey's test was used. Cohen's method was used to determine effect size in comparison of two groups. For this index, cutoffs of 0.2, 0.5 and 0.8 are, by convention, interpreted as small, medium and large effect sizes, respectively. Effect size index (as partial eta-squared, η^2) for one-way ANOVA is computed using a general linear model procedure. For this index, cutoffs of 0.01, 0.06 and 0.14 are, by convention, interpreted as small, medium, and large effect sizes, respectively. Pearson correlation analysis was applied to investigate correlation between TCI scores and DES score. The data obtained by measurement were expressed as arithmetical mean \pm standard deviation, and those obtained by counting as %. $p < 0.05$ was regarded as significant.

RESULTS

Comparison of the conversion and control groups in terms of sociodemographic characteristics

No difference was determined between the patient and control groups in terms of age, gender, marital status, income level, residence or total years spent in education ($p > 0.05$) (Table 1).

Various clinical features of the conversion group

Mean age at onset of disease was 26.70±8.97 years, and mean duration of disease 8.97±7.86 years. In the conversion group, 36.7% of cases were pseudoseizure (n=22), 36.7% mixed (n=22), 20% motor (n=12) and 6.7% sensorial (n=4) subtype. In addition, 68.3% of patients reported childhood trauma; 61.7% lived in extended families and a history of psychiatric disease was present in 38.3% of families (Table 2). There was no difference between the conversion disorder subgroups in terms of DES scores (KW $\chi^2=6.48$, $p=0.08$).

Table 2. Various characteristics of the conversion group

Conversion disorder (n=60)	n	%
Subtype		
Motor	12	20.0
Sensory	4	6.7
Seizure	22	36.7
Mixed	22	36.7
Childhood trauma		
Yes	41	68.3
No	19	31.7
Physical	12	20.0
Sexual	28	46.7
Emotional	15	25.0
Family type		
Nuclear	23	38.3
Extended	37	61.7
Psychiatric disease in the family		
Yes	23	38.3
No	37	61.7
Conversion disorder	6	10.0
Depressive disorder	11	18.3
Anxiety disorder	6	10.0

Comparison of the conversion and control groups in terms of TCI scores

The NS temperament trait was lower in the conversion group ($p=0.000$, small effect size). The HA temperament trait was higher in the conversion group ($p=0.001$, small effect size). There was no difference between the two groups in terms of the RD or P temperament traits ($p>0.05$) (Table 3).

The SD character trait was lower in the conversion group ($p=0.003$, small effect size), while there was no difference between the two groups in terms of the C or ST character traits ($p>0.05$)

Comparison of the dissociative and non-dissociative conversion groups and the control group in terms of TCI scores

A difference was determined between the three groups in terms of NS temperament traits ($p=0.001$, medium effect size). NS scores were lower in both the dissociative and non-dissociative conversion groups than in the control group ($p=0.009$ and $p=0.004$, respectively). A difference was also determined in terms of the HA temperament traits ($p=0.002$, medium effect size), with dissociative group scores being higher than those

of the controls ($p=0.002$). A difference was determined between the three groups in terms of the RD temperament trait ($p=0.011$, medium effect size). Dissociative group scores were lower than those in both the non-dissociative group ($p=0.029$) and the control group ($p=0.014$). There was no difference between the three groups in terms of the P temperament trait. (Table 4)

A difference was also determined between the three groups in terms of the SD character trait ($p=0.002$, medium effect size). Dissociative group scores were lower than those of the control group ($p=0.001$). There was no difference between the three groups in terms of the C character trait ($p>0.05$). A difference was determined in the ST character trait between the three groups ($p=0.030$, medium effect size), with dissociative group scores being higher than those of the non-dissociative group ($p=0.022$) (Table 4).

Correlation of TCI subscale and DES scores in the conversion group

A negative correlation was determined between DES score and the RD and SD subscale scores and a positive correlation with ST subscale score ($p<0.05$). There was no correlation between DES score and NS, HA, P or C scores ($p>0.05$) (Table 5).

Table 3. Comparison of conversion disorder and control group TCI scores

	Conversion disorder (n=60)	Controls (n=60)	t	p	Effect sizes
Novelty seeking (NS)	16.10±4.50	19.43±4.91	-3.88	0.000	-0.33*
Harm avoidance (HA)	22.98±4.89	19.42±6.20	3.50	0.001	0.30*
Reward dependence (RD)	13.68±3.19	14.28±2.67	-1.12	n.s.	
Persistence (PS)	4.78±1.74	4.22±1.81	1.75	n.s.	
Self-directedness (SD)	22.60±5.08	25.83±6.65	-2.99	0.003	-0.26*
Cooperativeness (CO)	28.18±6.00	27.17±5.28	0.98	n.s.	
Self-transcendence (ST)	18.62±5.86	18.55±6.43	0.06	n.s.	

Note: significance $p<0.05$, n.s: non-significant, *small effect size

Table 4. Comparison of conversion disorder patients with or without dissociation in terms of TCI scores

	Controls (n=60) (1)	Dissociative Group (n=30) (2)	Non-dissociative Group (n=30) (3)	F	p	Effect size (η^2)	Post hoc (Tukey)
Novelty seeking(NS)	19.43±4.91	16.27±4.52	15.93±4.55	7.496	0.001	0.11**	1/2,1/3
Harm avoidance(HA)	19.42±6.20	23.70±4.95	22.27±4.80	6.616	0.002	0.10**	1/2
Reward dependence(RD)	14.28±2.67	12.63±3.14	14.73±2.92	4.714	0.011	0.07**	1/2, 2/3
Persistence(PS)	4.22±1.81	4.60±1.77	4.97±1.71	1.840	n.s.		
Self-directedness(SD)	25.83±6.65	21.10±4.57	24.10±5.19	6.572	0.002	0.10**	1/2
Cooperativeness(CO)	27.17±5.28	26.93±5.36	29.43±6.42	1.986	n.s.		
Self-transcendence(ST)	18.55±6.43	20.70±4.25	16.53±6.55	3.623	0.030	0.06**	2/3

Note: significance $p<0.05$, n.s: non-significant, η^2 ; partial eta-squared for ANOVA results, ** medium effect size

Table 5. Correlation of TCI subscale scores with DES score in the conversion group

	NS	HA	RD	P	SD	C	ST
DES	$r=0.107$ $p=0.416$	$r=0.238$ $p=0.066$	$r=-0.280$ $p=0.030$	$r=-0.162$ $p=0.216$	$r=-0.278$ $p=0.032$	$r=-0.208$ $p=0.111$	$r=0.321$ $p=0.012$

DISCUSSION

The number of studies in the literature investigating temperament and character traits in patients with conversion disorder is limited (Erten et al. 2013, Güleç et al. 2014). The first of these studies reported high HA and low P temperament traits and low SD and high ST character traits in patients with conversion disorder compared to healthy controls (Erten et al. 2013). The second determined high HA temperament trait and low SD character trait (Güleç et al. 2014). In our study, too, we determined low NS and high HA temperament traits and low SD character trait in patients with conversion disorder. A high HA temperament trait and low SD character trait are findings common to all three studies. These common findings are suggestive of the temperament and character traits of patients with conversion disorder. Individuals with a high HA temperament trait exhibit passive avoidance behaviors such as a pessimistic anxiety about future problems, a fear of uncertainty, avoidance of strangers and rapid fatigue. Individuals with a low SD character trait do not accept responsibility for their own choices, have no significant aims in individual terms, have inadequate problem solving skills and self confidence and have problems coming to terms with themselves (Cloninger et al. 1993, Köse et al. 2004). In contrast to other studies, we determined low NS temperament traits in our patients. Individuals with a low NS temperament trait are slow tempered, indifferent, unquisitive, unenthusiastic, unemotional, reflective, thrifty, reserved, tolerant of monotony, systematic and orderly (Cloninger et al. 1993, Köse et al. 2004). A low NS temperament trait in conversion disorder patients needs to be confirmed by other studies.

Dissociative symptoms and dissociative disorders are frequently seen in conversion disorder (Alper et al. 1997, Spitzer et al. 1998, Spitzer et al. 1999, Güz et al. 2003, Tezcan et al. 2003, Güz et al. 2004, Şar et al. 2004, Isaac & Chand 2006, Şar et al. 2009, Stone et al. 2011). Conversive symptoms are also frequently seen in dissociative disorders (Bowman 2006, Brown 2007, Stone et al. 2011). Some researchers therefore propose that conversion disorder should be classified among the dissociative disorders (Bowman & Markand 1996, Spitzer 1998, Spitzer 1999, Guz 2003, Bowman 2006, Evren&Can 2007, Espirito-Santo& Pio-Abreu 2009, Özçetin et al. 2009, Şar 2009, Brown-Lewis-Fernandez 2011). Some researchers suggest that only the seizure/convulsion subtype (Bowman & Markand 1996, Harden 1997, Prueter et al. 2002, Guz et al. 2003, Akyüz et al. 2004, Evren & Can 2007) is associated with dissociative disorders. On the other hand there are also studies suggesting that conversion disorder subgroups are not different in terms of dissociation (Spitzer et al. 1999, Tezcan et al. 2003, Şar et al. 2004). In our study we determined no difference between subgroups in terms of DES scores. On the basis of the

information in the literature we classified patients with a DES score of 30 or above as the dissociative group. When we compared the dissociative and non-dissociative subgroups with the controls, the NS temperament trait was lower in both the dissociative and non-dissociative subgroups than in the controls. This finding suggests that a low NS temperament trait is correlated with conversion disorder but not with dissociation. We determined a higher HA temperament trait in the dissociative group than in the control group. There was no difference in terms of the HA temperament trait between the non-dissociative and control groups. This finding suggests that a high HA temperament trait may be correlated with dissociation. One study reported higher HA in patients with depersonalization disorder compared to healthy controls. The authors suggested that HA may be associated with dissociation (Simeon et al. 2002). We determined no difference in terms of the RD temperament trait between the entire conversion group and the control group. However, the RD temperament trait was lower in the dissociative group than in the non-dissociative and control groups. RD temperament scores also exhibited a negative correlation with DES scores in the conversion disorder group as a whole. These findings suggest that low RD may be associated with dissociation. We encountered no information in the literature concerning a correlation between low RD and dissociation. Individuals with a low RD temperament trait are practical, tough-minded, cold and socially insensitive (Cloninger et al. 1993, Köse et al. 2004). The SD character trait in our study was lower in the conversion disorder group than in the controls. However, when we compared the dissociative and non-dissociative subgroups with the controls the SD character trait was lower in the dissociative group than the controls, but there was no difference between the non-dissociative group and the controls. This finding therefore suggested that a low SD character trait may be correlated with dissociation. A negative correlation was also determined between SD and DES scores in the entire patient group. Grabe et al. also suggest that a low SD character profile may be a predictor of dissociation (Grabe et al. 1999). We determined no difference in terms of the ST character trait between the conversion disorder group and the controls. However, when we compared the dissociative and non-dissociative subgroups with the controls, the ST character trait was higher in the dissociative group compared to the non-dissociative group. We also determined a positive correlation between ST scores and DES scores in the entire patient group. These findings suggest that a high ST character trait may be related with dissociation. Similarly, Grabe et al. suggest that a low SD and high ST character profile is a predictor of dissociation (Grabe et al. 1999). Anderson et al. reported that a high ST character trait is correlated with dissociation in bulimic women (Anderson et al. 2002). Individuals with a high ST character trait are patient, creative and self-forgetful,

and at one with the world (Cloninger et al. 1994) However, according to Cloninger's theory of character, high ST leads to mature creativity and spirituality in the presence of high SD and CO. High ST being accompanied by low SD and low CO is an indicator of immaturity (Cloninger et al. 1994). In our study, low SD accompanied high ST in the dissociative group. This finding suggests that dissociation may be associated with immature character.

Cloninger et al.'s new study notes the clinical significance of the determination of multidimensional temperament and character profile by investigating the interactions of temperament and character traits (Cloninger et al. 2012). Bearing in mind our study findings, the determination of multidimensional temperament and character profiles in conversion disorder patients with pathological dissociation (particularly regarding interactions between high HA, low RD, low SD and high ST) may be important in the monitoring and treatment of these patients. This should be a point of focus in future studies.

CONCLUSION

In conclusion, low NS temperament traits may be associated with conversion disorder. High HA and low RD temperament traits and low SD and high ST character traits may be associated with pathological dissociation in conversion disorder patients.

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