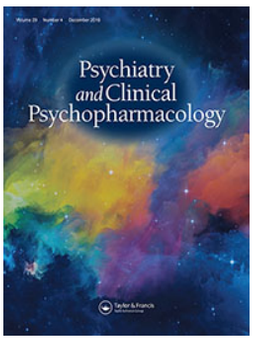

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Resilience and personality in psychiatric inpatients

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ABSTRACT

OBJECTIVE: The aim of this study was to identify relationships between the concept of resilience and the psychobiological model that treats the dimensions of temperament and character as representative of innate and environmental factors, respectively, among psychiatric inpatients whose diseases have acquired chronicity.

METHODS: The study involved 171 psychiatric inpatient volunteers. The Resilience Scale for Adults (RSA), the Temperament and Character Inventory (TCI), and the Symptom Checklist90, revised version, were used. Pearson correlation analyses and multiple regression analyses were performed to identify relationships between resilience and the other variables examined.

RESULTS: We found a negative correlation between resilience and novelty seeking (NS) and harm avoidance (HA), but no correlation was found between resilience and self transcendence (ST) (respectively, r:−0.26, $p < 0.01$; r:−0.45, $p < 0.01$; r:−0.07, $p > 0.05$). There were positive correlations between resilience and the other temperament and character dimensions (respectively, r:0.14, $p > 0.05$; r:0.29, $p < 0.01$; r:0.56, $p < 0.01$; r:0.37, $p < 0.01$). The TCI dimensions of persistence (P), self-directedness (SD), and ST (F:7.3, df:7, $p < 0.01$, adj.R^2:0.16) predicted resilience.

CONCLUSION: There are significant relationships between resilience and personality dimensions in chronic psychiatric patients. Our results indicate that, consistent with Cloninger's model, both environment (i.e. character dimensions) and genetic endowment (i.e. temperament dimensions) contribute to resilience, which involves lower levels of HA and higher levels of P and SD in psychiatric inpatients whose diseases have acquired chronicity.

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Resilience; personality; temperament; character; chronicity

Introduction

Resilience, which is one of the newest concepts in the fields of mental health and psychological well-being, has recently attracted considerable attention and become a focus of research on the prevention of, and intervention in, mental disorders. Resilience is defined as the ability to maintain physical and emotional health and stability [1] under dynamic and stressful conditions [2] and to cope with difficulties and traumatic events via adaptation [3–5]. It is very import to know that the resilience concept relates with both weakness and resistance [6].

Recent studies have shown that resilience is a function of both innate personality traits and environmental factors [7], and Cloninger developed a psychobiological model of personality that includes both. According to this model, there are four temperament dimensions [novelty seeking (NS), harm avoidance (HA), reward dependence (RD), and persistence (P)] and three character dimensions [self-directedness (SD), cooperativeness (C), and self-transcendence (ST)]. It has been thought that temperament derives from genetic predispositions and character develops under the influence of environmental factors [8]. The risk and protective factors related to resilience suggest that this construct has a multidimensional structure that affects its relationships with variables such as temperament, character, and problem-solving abilities [9]. Studies investigating relationships between resilience and personality have generally found negative correlations between resilience and neuroticism and HA and positive correlations between resilience and responsibility, extraversion, P, SD, C, and RD [6,9–12]. In terms of personality traits, responsibility was the best predictor of resilience according to Fayombo [11]; this was followed by agreeableness, neuroticism, and openness. According to Kim et al. [6], P, SD, and HA were significant predictors of resilience after adjusting for the effects of age and gender.

Research on the concept of resilience can clarify how humans cope with chronic illnesses [13]. Although older studies have suggested that resilience is not affected by environmental factors, including stressful conditions [14], research that supports the role of such variables in the development of resilience in the face of chronic illnesses may increase our

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understanding of this concept. However, it is crucial that research on resilience rests on the psychobiological model, which is one of the most widely used approaches to the study of chronic illnesses.

Methods

Study participants

Approval for this study was obtained from the Ethics Committee of Health Science University (HSU) Erenkoy Psychiatric and Neurological Diseases Training and Research Hospital (PNDTRH). The study was performed with 190 patients who had been hospitalized at the HSU Erenkoy PNDTRH. The study was cross-sectional and completed in 12 months. Volunteer patients aged between 18 to 65 years were taken into an interview for information about the study and the assesment of diagnosis and eligilibity criteria first. Patients with mental retardation and dementia were not included in the study. All participants were provided written consent. Informed consent for the patients with legal guardians were provided by both the legal guardians and the patients. Participants completed the form soliciting sociodemographic data and filled the self report scales in about 30–40 minutes in seperate rooms in the clinics. The data of 19 patients who pointed "yes" to the sentence that "i lied very much in this questionnaire" in temperament and character inventory were excluded from the study. The study involved 75 female and 96 male patients, yielding a total sample of 171 as a result. The distribution of disorders was as follows: 16 (9.4%) schizophrenia, 34 (19.9%) bipolar disorder, 41 (24.0%) depression, 19 (11.1%) anxiety disorder, 34 (19.9%) alcohol/substance use disorder, and 27 (15.8%) other disorders.

Psychometric measurements

The resilience scale for adults (RSA)

The RSA, which was developed by Friborg, Hjemdal, Rosenvinge, and Martinussen [15], originally consisted of the following five dimensions: structured style, personal strength, social competence, family cohesion, and social resources. However, a subsequent study performed by Friborg, Barlaug, Martunissen, Rosenvinge and Hjemdal [16] found that a six-dimensional structure provided a better explanation of resilience. The later study divided the dimension of personal strength into two separate dimensions, perception of future and perception of self, yielding a sixdimensional structure for this concept. The RSA used in this study is a self-administered instrument consisting of 33 questions, including several that are scored in reverse, addressing the following dimensions: structured style (R1), perception of the future (R2), family cohesion (R3), perception of the self (R4), social competence (R5), and social resources (R6). A validity and reliability study of the Turkish version of this scale was performed by Basim and Cetin [4]. The Cronbach' alpha score of the resilience scale in this study was found 0.89.

Temperament and character ınventory (TCI)

The TCI, a 240-item instrument, was developed [17] based on the model developed by Cloninger [8]; it is used to evaluate four temperament and three character dimensions as well as their 25 subdimensions. There are 12 subdimensions of temperament: exploratory excitability (NS1), impulsiveness (NS2), extravagance (NS3), disorderliness (NS4), anticipatory worry (HA1), fear of uncertainty (HA2), shyness (HA3), fatigability (HA4), sentimentality (RD1), attachment (RD3), dependence (RD4), and persistence (P). There are 13 subdimensions of character: responsibility (SD1), purposefulness (SD2), resourcefulness (SD3), self-acceptance (SD4), congruent second nature (SD5), social acceptance (C1), empathy (C2), helpfulness (C3), compassion (C4), pure-hearted principles (C5), self-forgetfulness (ST1), transpersonal identification (ST2), and spiritual acceptance (ST3). Items are coded as true or false, and several items are scored in reverse. A validity and reliability study of the Turkish version of the scale was performed by Kose et al. [18].

The symptom checklist (SCL-90-R)

This 90-item self-administered inventory for the evaluation of psychiatric symptoms was developed by Derogatis [19]. It is suitable for the general public as well as for medical and psychiatric patients. The SCL-90-R evaluates 10 basic symptom clusters: somatization (SOM), obsessioncompulsion (O-C), interpersonal sensitivity (INT), depression (DEP), anxiety (ANX), hostility (HOS), phobic anxiety (PHOB), paranoid ideation (PAR), psychoticism (PSY), and other symptoms. The validity and reliability study of the Turkish version of the scale was performed [20].

Statistical analysis

We performed Pearson correlation analyses to identify relationships between the dimensions and subdimensions of the TCI and RSA. To determine the predictive power of TCI dimensions on resilience, we treated the total and subdimension scores for resilience as dependent variables and the scores on the TCI dimensions and the total SCL-90-R scores as independent variables. The accepted the severity of psychopathology is total SCL score. After controlling for the effect of psychopathology on these relationships, linear regression analyses were performed. Also, to test the predictive power of the TCI subdimensions for resilience, we controlled for the effect of psychopathology on these relationships and treated the TCI subdimensions and total SCL-90

scores as independent variables. We performed stepwise regression analysis that included all variables. The comparisons were two tailed. Statistical significance was set at $p < 0.05$.

Results

In total, 190 patients voluntarily participated in the study, but data from 19 patients were not included in the analyses. The final sample of 171 participants consisted of 75 female (43.9%) and 96 male (56.1%) patients

According to the results, the NS and C levels were higher in males. Among the subdimensions, the NS3 (extravagance) levels were higher in males and the SD5 (congruent second nature), C4 (compassion), C5 (pure-hearted), and R1 levels were higher in females. There were no significant differences between males and females regarding the other dimensions or subdimensions (Table 1).

In terms of the relationships between resilience and TCI, with the exception of RD and ST, we found negative correlations with temperament and positive correlations with the character dimensions of the TCI (rNS: −.26, $p < 0.01$; rHA:−.45, $p < 0.01$; rRD:.14, $p > 0.05$; rP:.29, $p < 0.01$; rSD:.56, $p < 0.01$; rC:.37, $p < 0.01$; rST: −.07, $p > 0.05$). Detailed data on the relationships between resilience and the TCI are presented in Table 2. There were negative correlations between almost all the SCL-90-R psychopathology types and the resilience dimensions (data not shown).

According to the multiple regression analyses, ST had a negative and P had a positive effect on the R1 dimension. HA had a negative effect and P and SD had positive effects on R2. NS had a negative effect on R3. HA had a negative effect and P and SD had positive effects on R4. P had a positive effect on R5, and RD and SD had positive effects on R6. ST did not have an effect on the resilience dimensions, but it did exert a positive effect on the total resilience scores; P and SD had a positive effect on total resilience scores, and C had no effect on total resilience scores and resilience dimensions (F:7.3, df:7, $p < 0.01$, adj. R^2:0.16). The severity of psychopathology (SCL-90-R) is total psychopathology score (130.58 ± 66.309). The severity of psychopathology had a negative effect on all resilience dimensions except R1 and R3. These results are presented in Table 3. SD5, SD1, ST2, RD3, and C5 had the strongest effects on the total scores for resilience (Table 4).

Table 1. Comparison of temperament and character ınventory and resilience between genders.

	Female	Male	
	mean ± SS	mean ± SS	*t*
Temperament			
NS	17.35 ± 5.21	19.68 ± 4.76	−3.05**
NS3	4.56 ± 2.33	5.50 ± 2.14	−2.74**
Character			
SD5	7.91 ± 2.09	7.18 ± 1.86	2.41*
C	29.57 ± 5.70	26.99 ± 5.51	3.00**
C4	7.67 ± 2.48	6.75 ± 2.57	2.35*
C5	7.00 ± 1.38	6.24 ± 1.50	3.40**
Resilience			
R1	14.97 ± 3.33	13.83 ± 3.70	2.09*

*$p < 0.05$, **$p < 0.01$.
NS; novelty seeking, NS3; extravagance, SD5; congruent second nature, C; cooperativeness, C4; compassion, C5; pure- hearted principles, R1; structured style.

Discussion

We investigated relationships between the dimensions of the TCI and resilience and examined the predictive power of such dimensions for resilience among psychiatric inpatients whose diseases have acquired chronicity.

Consistent with previous studies [8], the NS levels were higher in men, and the C levels were higher in women. The NS3 subdimension (extravagance) was higher in men, and the SD5 (congruent), C4 (compassion), C5 (pure-hearted), and R1 (structured style) subdimensions were higher in women. There were no significant differences between men and women with regard to the other dimensions and subdimensions.

The correlation analyses detected positive correlations between resilience and P, SD, C, and ST and a negative correlation with HA. These results are compatible with those of previous studies [9–12]. In contrast to a previous study, we found a negative correlation between resilience and NS [6]. Substance dependence, which is related to high NS levels [21], has also been associated with low resilience scores [22]. P, which refers to waiting before acting or not giving up in difficult situations, is similar to resilience [1,2,8]. Indeed, we found that P predicted resilience and that they were positively correlated with each other. Unlike P, HA protects individuals from acting in difficult situations, whereas resilience enables them to cope with such situations [3–5]; thus, we were not surprised at the negative correlation between HA and resilience.

The strongest positive correlation in this study involved SD. Because of its importance in personality disorders, SD, which refers to autonomy and self-sufficiency, was a particular focus of Cloninger [8]. People with higher levels of SD tend to take responsibility; be purposeful, talented, good-natured, and resilient in response to difficulties; and show selfacceptance. Of the SD subdimensions, SD5 (congruent second nature) and SD1 (responsibility) had the strongest effects on resilience. Research has shown that individuals with lower levels of SD and a personality disorder have likely been exposed to trauma and abuse and lack resilience, which renders them especially vulnerable to the development of mental health disorders [8,23]. Resilience is not merely a

Table 2. Correlations between resilience dimensions and total resilience score (R) and TCI dimensions and subdimensions.

TCI	R1	R2	R3	R4	R5	R6	R
NS	−.431**	−.211**	−.275**	−.144	−.053	−.088	−.259**
NS 1	.132	.198**	−.041	.317**	.373**	.216**	.264**
NS 2	−.560**	−.292**	−.224**	−.344**	−.261**	−.208**	−.407**
NS 3	−.296**	−.217**	−.187*	−.125	−.050	−.055	−.199**
NS 4	−.358**	−.210**	−.239**	−.213**	−.206**	−.182*	−.312**
HA	−.198**	−.503**	−.047	−.546**	−.439**	−.275**	−.445**
HA 1	−.174*	−.516**	−.032	−.526**	−.339**	−.201**	−.393**
HA 2	−.098	−.223**	.056	−.222**	−.295**	−.109	−.191*
HA 3	−.145	−.365**	.002	−.373**	−.426**	−.246**	−.342**
HA4	−.175*	−.364**	−.148	−.464**	−.260**	−.256**	−.380**
RD	.127	−.012	.038	.009	.181*	.269**	.140
RD1	.067	−.179*	−.160*	−.228**	−.101	−.014	−.174*
RD3	.204**	.260**	.207**	.327**	.450**	.424**	.432**
RD4	.121	−.081	.061	−.044	−.014	.077	.027
P	.311**	.221**	.104	.273**	.240**	.170*	.287**
SD	.350**	.522**	.264**	.538**	.400**	.399**	.557**
SD1	.267**	.375**	.376**	.465**	.335**	.398**	.515**
SD2	.337**	.489**	.168*	.443**	.334**	.323**	.462**
SD3	.300**	.437**	.110	.487**	.300**	.224**	.408**
SD4	.051	.103	−.008	.076	.073	.076	.080
SD5	.302**	.451**	.281**	.454**	.375**	.372**	.508**
C	.279**	.298**	.133	.275**	.301**	.365**	.368**
C1	.254**	.244**	.004	.260**	.264**	.196**	.261**
C2	.137	.280**	.011	.265**	.282**	.300**	.283**
C3	.205**	.149	.050	.255**	.220**	.257**	.253**
C4	.126	.198**	.138	.092	.114	.230**	.204**
C5	.254**	.139	.213**	.129	.202**	.278**	.277**
ST	−.038	−.091	−.090	−.076	.039	−.020	−.065
ST1	−.121	−.240**	−.146	−.237**	−.124	−.129	−.226**
ST2	.089	.131	−.013	.171**	.192**	.089	.144
ST3	−.013	−.045	−.040	−.064	.060	.025	−.018

**$p < 0.01$; *$p < 0.05$.

TCI; temperament and character inventory, NS; novelty seeking, NS1; exploratory excitability, NS2; impulsiveness, NS3; extravagance, NS4; disorderliness, HA; harm avoidance, HA1; anticipatory worry, HA2; fear of uncertainty, HA3; shyness, HA4; fatigability, RD; reward dependence; RD1; sentimentality, RD3; attachment, RD4; dependence, P; persistence, SD; self directedness, SD1; responsibility, SD2; purposefulness, SD3; resourcefulness, SD4; self-acceptance, SD5; congruent second nature, C; cooperativeness, C1; social acceptance, C2; empathy, C3; helpfulness, C4; compassion, C5; pure-hearted principles, ST; self transcendence, ST1; self-forgetfulness, ST2; transpersonal identification, ST3; spiritual acceptance, R1; structured style, R2; perception of the future, R3; family cohesion, R4; perception of the self, R5; social competence, R6; social resources, R; resilience.

psychological gift; it involves proactive efforts to use familial, social, and environmental support systems to cope with stress effectively [15]. The positive correlations among the character dimensions SD, C, and ST underscore the relationships between environmental factors and resilience. Indeed, the predictive power of SD for resilience was attributable primarily to the use of social resources (R6) and personal strength (R2 + R4), which Friborg et al. [15] defined as the coexistence of the perception of a future (R2) and a perception of a self (R4), respectively.

There was a negative correlation between NS and structured style (R1) and family cohesion (R3). As structured style (R1) refers to planning and organization [15], individuals who have higher levels of novelty seeking and are therefore impulsive, extravagant, and disorganized, tend to have lower R1 scores. It is known that individuals who have higher NS levels and who are extravagant and adventurous tend to have unstable lives and to be prone to substance use disorders [21] These findings suggest that NS has a disruptive effect on family cohesion.

Table 3. Multiple regression analyses amongst resilience, TCI and SCL-90-R.

	R1	R2	R3	R4	R5	R6	R
ANOVA	$F = 8$ d.f. = 7 $p < .001$	$F = 5.4$ d.f. = 7 $p < .001$	$F = 2.2$ d.f. = 7 $p < .05$	$F = 7.1$ d.f. = 7 $p < .001$	$F = 4.8$ d.f. = 7 $p < .001$	$F = 4.3$ d.f. = 7 $p < .001$	$F = 7.3$ d.f. = 7 $p < .001$
Adjusted-R^2	.23	.13	.08	.15	.14	.13	.16
NS	−.336***	−.078	−.177*	−.002	.057	.054	−.094
HA	−.001	−.175*	.159	−.195*	−.148	.027	−.062
RD	−.005	−.119	−.008	−.073	.089	.166*	.019
P	.229**	.142*	.077	.199**	.159*	.095	.195**
SD	.128	.207*	.189	.236**	.153	.214*	.263**
C	.090	.057	−.009	−.003	.054	.134	.068
ST	.110	.116	.070	.116	.139	.084	.142*
SCL	−.145	−.347***	−.200	−.370***	−.308**	−.259**	−.375***

The results are presented as standardized regression coefficients β. *$p < .05$; **$p < .01$; ***$p < 0.001$.

TCI; temperament and character inventory, SCL-90-R; symptom checklist 90 revised, NS; novelty seeking, HA; harm avoidance, RD; reward dependence; P; persistence, SD; self directedness, C; cooperativeness, ST; self transcendence, SCL; symptom checklist, R1; structured style, R2; perception of the future, R3; family cohesion, R4; perception of the self, R5; social competence, R6; social resources, R; resilience.

Table 4. Stepwise multiple regression analyses amongst resilience, TCI and SCL-90-R.

ANOVA	*R*-total $F = 5.4$ d.f. = 1 $p < .05$
Adjusted R^2	.02
SCL	−.353***
SD5	.172**
SD1	.227***
ST2	.160**
RD3	.150*
C5	.133*

The results are presented as standardized regression coefficients β. *$p < .0.05$; **$p < .0.01$; ***$p < 0.001$.

TCI; temperament and character inventory, SCL-90-R; symptom checklist 90 revised, SCL; symptom checklist, SD5; congruent second nature, SD1; responsibility, ST2; transpersonal identification, RD3; attachment, C5; pure-hearted principles, R; resilience.

Although RD predicted R6 (social resources), it was also positively correlated with R5 (social competence) and R6. Reward dependence, which involves a genetic predisposition, refers to the expression of emotion in relationships, social attachment, and a need for the approval of the others. Therefore, people with higher RD need the approval of others and are more extroverted, well-adjusted, and sociable. Thus, it is not surprising that they would have higher R5 scores and use social support and that RD would be positively correlated with R6.

Whereas the negative correlations between resilience and RD1 (sentimentality), personal strength, and family cohesion suggest that emotional individuals are prone to develop psychopathological conditions, the positive correlation between RD3 (attachment) and all the dimensions of resilience, and the predictive power of RD3 for resilience, suggest the opposite. It is known that secure attachment develops as a result of early childhood experiences and protects against psychopathology [24]. We found that HA had a negative predictive power for the perception of a future and of the self, which are the components of personal strength. People with higher levels of HA, which includes anticipatory worry, fear of uncertainty, shyness, and fatigability, would not be expected to be self-confident, selfsufficient, decisive, and hopeful, which are also contributors to personal strength. We found that C5 (pure-hearted) and ST2 had predictive power for resilience. A negative association of ST1 (self-forgetfulness) and personal strength (R2 + R4) with R was also found, and ST2 (transpersonal identification) was positively correlated with R4 and R5.

This study has several limitations. We used self report scales that may result reporting bias and shared method varience. Also excluding data of 19 patients may lead bias. Although resilience is affected by health status, we did not compare our sample of psychiatric patients with healthy controls. We also used a relatively small sample, which contained unequal distributions of individuals with different mental conditions and levels of severity. Moreover, we did not evaluate depression and anxiety despite their possible effects on the results. Because only inpatients with severe psychopathological conditions were studied, it may not be possible to generalize the results to society as a whole.

Despite these limitations, we found a significant relationship between resilience and the dimensions of temperament and character among chronic psychiatric inpatients whose diseases have acquired chronicity. Research with larger samples and healthy controls will be needed to enable generalization of the results to the society as a whole.

Disclosure statement

No potential conflict of interest was reported by the authors.

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