Temperament and Character of Emergency Medicine Physicians; A Sample of Volunteers

Acil Tıp Uzmanlarında Mizaç ve Karakter; Gönüllü Örneklemi

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ÖZ

Amaç

Amaç, Acil Hekimlerinin (AH) mizaç ve karakter özelliklerinin puanlarını ve demografik değişken faktörlerindeki farklılıkları tespit etmektir.

Gereç ve Yöntemler

Gönüllüler Aralık 2016-Nisan 2017 tarihleri arasında değerlendirildi. Çalışma protokolü Üniversite Araştırma Kurulu (KA16 / 352) tarafından onaylanmıştır.

Çalışma grubu Acil Tıp uzmanlık eğitimi olan ve aktif çalışan hekimlerden oluşmuştur. Yenilik arayışı, zarardan kaçınma, ödül bağımlılığı, sebat, kendini yönetme, işbirliği ve kendini aşma ölçütleri ile alt ölçütleri değerlendirildi.

Bulgular

240 soru içeren Mizaç ve Karakter Envanteri çalışmasına toplam 40 AH katıldı. Pozisyon, savurganlık (p = 0.040), çabuk yorulma ve dermansızlık (p = 0.021), zarardan kaçınma (p = 0.037) ve amaçlılık (p = 0.015) için anlamlı bir faktördü. Diğer anlamlı değişkenler şunlardı: Yaş ile keşfetmekten heyecan duyma (p = 0.010), çabuk yorulma ve dermansızlık (p = 0.012), erdemlilik-vicdanlılık (p = 0.041); cinsiyet ile yabancılardan çekinme (p = 0.004), zarardan kaçınma (p = 0.048), beceriklilik (p = 0.009), kendini kabullenme (p = 0.024), uyumlu ikinci huylar (p = 0.001), kendini yönetme (p = 0.001), sosyal onaylama (p = 0.027), acıma (p = 0.006), işbirliği yapma (p = 0.013).

Sonuç

Pozisyon derecesi, yaş ve cinsiyet, AH'lerde mizacın ve karakter özelliklerinin en etkili belirleyicileridir. Bu farklılıklara dayanarak destekleyici planlar yapılabilir.

Anahtar Kelimeler: Mizaç ve Karakter; Acil Tıp Uzmanı; Değişken Psikolojik Faktörler

ABSTRACT

Aim

The aim is to identify the temperament and character traits' scores of Emergency Medicine Physicians (EMPs) and the differences within their demographic variable factors.

Material and Methods

The volunteers were assessed from December 2016 to April 2017. The study protocol was approved by the University Institutional Review Board (no. KA16/352). The study group was patterned on EMPs, completed an Emergency Medicine residency programme and working in an Emergency Department (ED). Novelty seeking (NS), harm avoidance (HA), reward dependence (RD), persistence (P), self-directedness (SD), cooperativeness (C), and self-transcendence (ST) measures and sub-measures were evaluated.

Results

There was total number of 40 EMPs that voluntarily participated the study and completed Temperament and Character Inventory (TCI) which includes 240 questions. Position was a significant factor in extravagance (p=0.040), fatigability (p=0.021), harm avoidance (p=0.037), and purposeful (p=0.015). The other significant variable factors were: Age in exploratory excitability (p=0.010), fatigability (p=0.012), and pure-hearted conscience (p=0.041); Sex in shyness (p=0.004), harm avoidance (p=0.048), resourcefulness (p=0.009), self-acceptance (p=0.024), enlightened second nature (p=0.001), self-directedness (p=0.001), social acceptance (p=0.027), compassion (p=0.006), and cooperativeness (p=0.013).

Conclusion

Position degree, age and sex are the main effective determinants of temperament and character traits of EMPs. Supportive plans can be made based on these differences.

Keywords: Temperament and character; emergency medicine physician; variable physchological factors

Introduction

Personality is the integration of temperament and character features and manages all the components of perspective, attitude, and behaviour. Cloninger's Temperament and Character inventory (TCI) evaluates temperament and character in different dimensions (1). Temperament and Character traits are related with genetic physiological characteristics of cerebellar white matter and cortex volumes of specific brain regions (2) and affected by environmental factors such as living and workplace conditions.

TCI includes four temperament and three-character traits. Within temperament dimensions; high scores in novelty seeking is explained as being curious and enthusiastic, while harm avoidance is being pessimistic and doubtful. Reward dependence is sentimentality and dedication. Persistence includes diligence and ambitiousness. Character traits are self-directedness, which is having maturity, responsibility and being trustworthy; cooperativeness, which provides the habits congruent with empathy and achieving long term goals; and self-transcendence, which is derived from wisdom and patience (3).

Also, TCI reveals the key points that determine how physicians manage themselves in their lives and behave towards patients. Besides, Emergency Department, being crowded, busy, stressful and requires working with frequent shifts, is a tough working environment and this affects attitude of Emergency Medicine Physicians (EMPs). Differentiation of personality traits of EMPs can provide essential suitable support and development for EMPs during their professional business process (1). While there are reports on the Temperament and Character Inventory (TCI) for physicians, only a few of them have been studied on Emergency Medicine Physicians (EMPs).

The aim is to identify the temperament and character traits' scores of Emergency Medicine Physicians (EMPs) and the differences within their demographic variable factors.

Material and Methods

The study was conducted during December 2016 - April 2017. The study protocol was approved by Baskent University Institutional Review Board (no. KA16/352). The study group included EMPs that were actively working in Emergency Department (ED). All of them had attended a residency programme on Emergency Medicine (EM). The TCI was applied via a Google Drive questionnaire. Invitation to participate in the survey was distributed via a link emailed to the group address of EMPs in Turkey: aciltipuzmanlari@yahoogroups.com. Additionally, the test included demographic questions without asking for name. Consent was required for participation.

The English version of TCI (version 9), which includes temperament and character in 7 different dimensions as in four temperaments, including novelty seeking (NS, NS1, NS2, NS3, NS4), harm avoidance (HA, HA1, HA2, HA3, HA4), reward dependence (RD, RD1, RD3, RD4) and persistence (P) and three character traits, including self-directedness (SD, SD1, SD2, SD3, SD4, SD5), cooperativeness (C, C1, C2, C3, C4, C5) and self-transcendence (ST, ST1, ST2, ST3), and also in their sub-dimensions, consisted of 240 questions, was translated into Turkish by Kose and it was translated back into its original language by Sayar; afterwards, the final version of the inventory was approved by Cloninger and published (4).

There are two types of items for each trait and sub-trait in TCI. Each question was defined as positive or negative in the scale. These were stated on scoring guide. Each trait had several questions. The TCI scale includes only two answers: true or false. For items scored as positive; if the answer is checked as true, it is 1 point, if it is false, it is zero points. For the negative scored item, the answer of false provides 1 point, true gives zero points. The total score of any trait is the sum of the points of related items(4).

There are 11, 10, 9, 10 items related with NS1, NS2, NS3, NS4, respectively. NS has a total of 40 items. There are 11, 7, 8, 9 items related with HA1, HA2, HA3, HA4, respectively. HA has a total of 35 items.

There are 10, 8, 6 items related with RD1, RD3, RD4, respectively. RD has a total of 24 items. There was not a RD2 sub-trait in our study. RD has 8 items. There are 8, 8, 5, 11, 12 items related with S1, S2, S3, S4, S5, respectively. S has a total of 44 items. There are 8, 7, 8, 10, 9 items related with C1, C2, C3, C4, C5, respectively. C has a total of 42 items. There are 11, 9, 13 items related with ST1, ST2, ST3, ST has a total of 42 items. The remaining 14 items are not scored(4).

The SPSS 17.0 package program was used for statistical analysis of the data. Categorical measurements were summarized in terms of number and percentage and mean and standard deviation for continuous measurements. For comparing continuous measurements between groups, the distributions were checked and, when the parametric distribution assumption could be made, they were evaluated by one-way ANOVA; otherwise, Kruskal-Wallis and Mann-Whitney tests were used. The statistical significance level was <0.05.

Results

There was total number of 40 EMPs that voluntarily participated the study and completed Temperament and Character Inventory (TCI) which includes 240 questions.

Position was a significant factor in extravagance (p=0.040), fatigability (p=0.021), harm avoidance (p=0.037), and purposefulness (p=0.015). The other significant variable factors were age in exploratory excitability (p=0.010), fatigability (p=0.012), and pure-hearted conscience (p=0.041); sex in shyness (p=0.004), harm avoidance (p=0.048), resourcefulness (p=0.009), self-acceptance (p=0.024), enlightened second nature (p=0.001), self-directedness (p=0.001), social acceptance (p=0.027), compassion (p=0.006), and cooperativeness (p=0.013).

Variable		N(%)
Position	Resident (EMR)	5 (12,5%)
	Physician (EP)	15 (37,5%)
Emergency Medicine	Attending Phy. (EMAP)	3 (7,5%)
	Ass.Prof (EMASP)	6 (15,0%)
	Asc.Prof (EMACP)	8 (20,0%)
	Prof (EMProf)	3 (7,5%)
Experience	<5 years	3 (7,5%)
	5-10 years	19(47,5%)
	> 10 years	18 (45%)
Age	25-30	2 (5%)
	31-35	13(32.5%)
	36-40	9(22.5%)
	41-45	14(35%)
	> 45	2 (5%)
Sex	Female	16 (40%)
	Male	24 (60%)
Marital status	Single	5 (12.5%)
	Married	35 (87.5%)
Number of kids	0	8 (20%)
	1	12(30%)
	2	18(45%)
	3	2(5%)
Institution	State General Hospital	3(7.5%)
	State University Hospital	19 (47.5%)
	State Training Research Hospital	8(20%)
	Private Hospital	1(2.5%)
	Foundation University Hospital	9 (22.5%)
Daily number of patients in the ED	Less than 100	4 (10%)
	100-250	12 (30%)
	251-500	13(32.5%)
	Over 500	11(27.5%)

Table 1. Demographic features of participating Emergency Medicine Physicians (EMPs).

The demographic information of participating EMPs are shown in Table 1. Table 2 describes the comparison of TCI traits of EMPs by position degree, experience, age, sex, marital status, number of kids, and institution.

The scores of TCI Traits which only have significant differences between EMPs are shared in Table 3.

Discussion

When compared with general population, healthcare professionals were found highly self-directed and cooperative in TCI(5,6). However, only a few TCI studies have been carried out specifically on Emergency Physicians (EMPs).

In one study, all physicians in residency or fellowship programme working in the hospitals of a university were asked to participate in TCI-Revised (TCI-R) by e-mail. Emergency Medicine physicians had high self-directedness, cooperativeness, novelty seeking, persistence, and self-transcendence scores and had very low harm avoidance scores (7). In a study reported by Vaidya et al, novelty seeking (22.90-7.28) was the highest, harm avoidance was the lowest (8.48-4.90) scales in medical students who preferred EM as a speciality (8).The main features of an EMP were reported as being reformer, brave, facing up to difficulties, managing life-threaten situations with stability and having communicative competence, which differentiates them from other medical specialties.

However, our study involved EMPs only, and the comparisons were made according to their demographics. Even though position has an influence on extravagance, novelty seeking, fatigability, harm avoidance, and purposefulness; in particular, scores of the first 3 decreased in higher satisfactory positions and tolerable working pressure conditions.

The confounding results were that the harm avoidance (HA) scores were the highest one both in residents, as of the frequent working shifts in overcrowded EDs, and in professors, as of their responsibilities in the clinic of EM. The purposefulness score was high in Attending Physicians and Associated Professors with an increased passion and pickiness in target-specific working. Understandably, anticipatory worry and fatigability decreases with years of experience, but attachment increases over time.

Age was found to be effective in exploratory excitability, fatigability, and pure-hearted conscience. Pure-hearted conscience was the lowest scored trait in young EMPs, feelings preceded in conscience presents with increased age. Resourcefulness, self-acceptance, enlightened second nature, self-directedness, social acceptance, compassion, and cooperativeness were higher in females and forms characteristics of them, however, unexpectedly, shyness and harm avoidance were higher in males who were clearly the first open targets for the physical violence of a patient's

TCI Traits	Mean±SD (min-max)		Position degree	Experience	Age	Sex	Marital status	Number of kids	Institution	Number of daily patients in ED
Exploratory excitability (NS1)	6,15±2,202	(1-10)	,056	,798	,010	,005	,488	,702	,682	0,783
Impulsiveness (NS2)	3,70±2,198	(0-9)	,206	,715	,807	,488	,037	,101	,010	0,014
Extravagance (NS3)	4,40±2,134	(0-8)	,040	,060	,065	,256	,042	,137	,784	0,522
Disorderliness (NS4)	3,88±1,870	(1-8)	,094	,214	,912	,395	,090	,479	,234	0,803
Novelty seeking (NS)	18,10±5,153	(5-33)	,012	,271	,295	,113	,006	,196	,067	0,097
Anticipatory worry (HA1)	5,00±2,407	(1-9)	,058	,040	,266	,355	1,000	,343	,128	0,666
Fear of uncertainty (HA2)	3,40±1,429	(0-6)	,099	,492	,660	,894	,095	,350	,537	0,861
Shyness(HA3)	3,18±2,385	(0-8)	,222	,803	,157	,004	,571	,234	,762	0,912
Fatigability (HA4)	2,68±2,223	(0-8)	,021	,002	,012	,062	,579	,037	,975	0,971
Harm avoidance (HA)	14,25±6,558	(3-27)	,037	,086	,055	,048	,707	,090	,474	0,898
Sentimentality (RD1)	6,45±2,183	(2-10)	,417	,327	,158	,908	,872	,991	,347	0,467
Attachment (RD3)	4,08±1,859	(0-7)	,935	,025	,357	,892	,875	,238	,615	0,689
Dependence (RD4)	2,63±1,148	(0-5)	,869	,550	,693	,406	,959	,757	,906	0,207
Reward dependence (RD)	13,18±4,006	(6-21)	,613	,550	,153	,740	,895	,625	,417	0,325
Persistence (P)	5,63±1,735	(0-8)	,144	,053	,166	,139	,396	,293	,493	0,856
Responsibility (SD1)	5,45±1,974	(1-8)	,084	,708	,903	,077	,208	,879	,388	0,918
Purposeful (SD2)	6,23±1,732	(1-8)	,015	,228	,373	,321	,160	,520	,145	0,395
Resourcefulness(SD3)	4,00±1,013	(2-5)	,259	,184	,172	,009	1,000	,558	,356	0,616
Self-acceptance (SD4)	6,45±2,726	(2-11)	,947	,284	,593	,024	,763	,470	,273	0,409
Enlightened second nature (SD5)	9,70±1,786	(5-12)	,702	,230	,605	,001	,693	,620	,965	0,581
Self-directedness (SD)	31,80±6,268	(16-41)	,237	,732	,783	,001	,453	,428	,383	0,866
Social acceptance (C1)	6,35±1,688	(1-8)	,355	,912	,516	,027	,364	,314	,913	0,223
Empathy (C2)	4,53±1,281 (1-6)		,248	,239	,121	,097	,382	,036	,826	0,806
Helpfulness (C3)	4,68±1,559	(0-8)	,251	,300	,276	,515	,307	,595	,935	0,423
Compassion (C4)	7,38±3,279	(0-10)	,515	,546	,246	,006	,462	,814	,574	0,480
Pure-hearted conscience (C5)	7,35±1,051	(4-9)	,606	,921	,041	,468	,433	,971	,778	0,480
Cooperativeness (C)	30,20±6,719	(8-40)	,362	,531	,120	,013	,675	,557	,937	0,589
Self-forgetful (ST1)	6,00±2,460	(2-10)	,735	,149	,100	,797	,080	,422	,625	0,695
Transpersonal identification (ST2)	5,38±2,145 (1-9)		,868	,284	,234	,373	,259	,906	,901	,452
Spiritual acceptance (ST3)	8,00±3,203	(1-12)	,212	,185	,208	,843	,770	,246	,853	,727
Self-transcendence (ST)	19,38±6,720	(8-30)	,469	,118	,117	,637	,257	,411	,975	,779

Table 2. TCI Traits of EMPs and comparison by position degree, experience, age, sex, marital status, number of kids, and institution.

relatives. Impulsiveness, extravagance and novelty seeking scores were higher in singles. Responsibilities and giving priority to their children and spouse might repress the selfishness in non-singles.

Fatigability and empathy were related with being a parent and the numbers of children, as deep, strong, unrequited feelings for a child brings an aspect of empathy to parents, however the lowest empathy scores were found in childless EMPs.

Impulsiveness is management of thoughts and presenting the behaves by personal impulses without overthinking. Scores were the highest in EMPs working in State Hospitals with increased daily numbers of patients, as it was related to being in an excessively crowded and busy ED Limitations; This research was based on only a sample of group of volunteers. Also, there was not a control group.

Exploratory excitability (NS1);
5.73±2.01, 7.90± 1.28, and 5.40 ±2.32 in <35 , 35-40, >40 years old.

Impulsiveness *(NS2)*;
5.60 ±2.40 and 3.43± 2.06 in single and married groups.
5.18 ±2, 31, 3.5±2.09, and 2.40± 1.26 in state hospitals, state university hospital, private hospitals.
2.5±1.67, 4.38±2.36, 4.64±2.01 in EDs with a daily patient admition <250, 250-500, >500.

Extravagance *(NS3)*;
6.60 ± 0.89, 4.67±1.54, 6.00± 2.00, 3.33± 1.96, 3.38 ± 1.99, 2.67 ±3.78 in EMR, EP, EMAP, EMASP, EMACP, EMProf.
4.08± 2,30, 4.88± 1,82 in male and female**.**

Novelty seeking (NS);
22.40± 3,57, 19.67± 4.48, 19.00± 2.64, 14.50± 7.31, 17.25± 2.86, 11.67±3.51 in EMR, EP , EMAP , EMASP , EMACP, EMProf.
23.80±5,21, 17.29± 4.66 in single and married ones.

Anticipatory worry (HA1);
8.33±1.15, 4.74±2.53, 4.72±2.05 in participants experienced <5, 5-10, >10 years.

 Shyness (HA3);
4.04±2.44, 1.88±1.62 in male, female**.**

Fatigability (HA4);
5.20± 2.16, 3.07±1.90, 1.00±1.00, 2.50±2.25, 0.88±1.35, 3.33±2.51 in EMR, EP, EMAP , EMASP , EMACP, EMProf .
6.33±2.08, 2.89±1.96, 1.83±1.88 in participants experienced <5, 5-10, >10 years.
3.80±2.39, 1.20±1.03, 2.53±2.10 in <35,35-40,>40 years old groups.
4.50±2.82, 2.08±1.92, 2.11±1.77, 4.00±1.41 in the groups with a number of 0,1,2,3 kids.

Harm avoidance (HA);
20.40± 4.27, 13.47± 5.73, 9.67±5.68, 16.50±6.97, 9.50±5.18, 20.67± 5.13 in EMR, EP, EMAP , EMASP, EMACP, EMProf .
15.92± 6.89, 11.75±5.28 in male, female**.**

Attachment (RD3);
1.33±1.52, 4.32±1.29, 4.28±2.10 in the groups of participants experienced <5, 5-10, >10 years.

Purposeful (SD2);
5.00± 2.44, 5.60± 1.88, 7.67± 0.57, 6.33±0.81, 7.63± 0.51, 6.00± 1.00 in EMR , EP , EMAP, EMASP, EMACP, EMProf .

Resourcefulness (SD3);
3.67±1.12, 4.50±0.51 in male, female.

Self-acceptance (SD4);
5.67±2.61, 7.63±2.52 in male, female.

Enlightened second nature (SD5);
8.96±1.87, 10.81±0.83 in male, female.

Self-directedness (SD);
29.80±4.43, 32.09±6.48 in male, female.

Social acceptance (C1);
7.00±1.73, 6.26±1.68 in male and female**.**

Empathy *(C2)*;
3.50±1.19, 5.17±1.19, 4.56±1.19, 4.50±0.70 were in the groups with a number of 0,1,2,3 kids.

Compassion *(C4)*;
6.25±3.72, 9.06±1.28 in male, female.

Pure-hearted conscience (C5);
6.93±1.16, 8.00± 0.94, 7.33± 0.81 in the groups of <35,35-40,>40 years old.

 Cooperativeness (C);
28.08± 7.55, 33.38±3.46 in male, female.

Table 3. The scores of TCI Traits which only have significant differences between EMPs

Conclusion

Consequently, position degree, age and sex are the effective determinants of temperament and character features in Emergency Medicine. These could directly affect the performance, success, and sustainability of an EMP in the busy, hard, and life-threatening professional business of medicine. A new formal process could be constituted to protect and strengthen EMPs' personality features.

Conflict of Interest: The authors declare no any conflict of interest regarding this study.

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