

# Validity and reliability of enneagram personality types and subtypes inventory in a Turkish sample



Enneagram kişilik tipleri ve alt tipleri ölçeğinin Türkiye örnekleminde geçerlilik ve güvenilirliği

## Abstract

**Aim:** In this study, we aimed to perform validity and reliability of the Enneagram Types and Subtypes Inventory (ETASI) based on the Enneagram Personality Theory (EPT).

**Methods:** A self-report scale was developed to evaluate personality types and subtypes based on the EPT. After the pilot application, the final form of ETASI (69 items for types, 30 items for subtypes) and five-factor personality inventory short form (5FPI-SF) were applied as an online form on the Internet. 5FPI-SF was utilized for the concurrent validity. For the construct validity of the subscales, confirmatory factor analyses (CFA) were used, and internal consistency reliabilities were determined by Cronbach Alpha coefficients. Also, test-retest reliabilities were assessed within the four weeks period.

**Results:** In this study, there were 3531 participants and most of the participants were females (91.3%) and had a higher education level (14.37±4.33 years). For the CFA model, data fit indices of the scales were found as good and acceptable values. Cronbach Alpha coefficients were calculated between 0.665 (type 5) and 0.865 (type 8) for the type scales, and between 0.748 (social) and 0.783 (self-preservation) for the subtype scales. Concurrent validity of the scales (5FPI-SF and ETASI) was found well established. Satisfactory test-retest coefficients of reliability were also confirmed within the range of 0.289 and 0.512 ( $p<0.05$ ).

**Conclusion:** Psychometric analyses have shown that ETASI is a valid and reliable self-report personality inventory for determining types and subtypes of EPT.

**Keywords:** factor analysis; personality; validation study

## Öz

**Amaç:** Bu çalışmada Enneagram Kişilik Teorisi (EKT)'ne dayanan Enneagram Tip ve Alt Tip Ölçeği'nin (ETAÖ) geçerlik ve güvenilirlik çalışmasını gerçekleştirmeyi amaçladık.

**Yöntemler:** Kişilik tiplerini ve alt tiplerini değerlendirmek için EKT'ye dayalı bir öz bildirim ölçeği geliştirilmiştir. Pilot uygulama sonrasında, ETAÖ ölçeğinin son hali (tipler için 69 madde, alt tipler için 30 madde) ve beş faktör kişilik ölçeği kısa formu (5FKÖ-KF) internet ortamında çevrimiçi formlar olarak uygulanmıştır. 5FKÖ-KF eşzamanlı geçerlik için kullanılmıştır. Alt ölçeklerin yapı geçerliği için doğrulayıcı faktör analizi (DFA) kullanılmış ve iç tutarlılığın güvenilirliği Cronbach Alfa katsayıları ile belirlenmiştir. Ayrıca dört haftalık süre içerisinde test-tekrar test güvenilirlikleri değerlendirilmiştir.

**Bulgular:** Bu çalışmaya 3531 katılımcı dâhil olmuştur ve katılımcıların çoğu kadındır (%91,3) ve yüksek eğitim düzeyine (14,37±4,33 yıl) sahiptir. DFA modeli için ölçeklerin veri uyum indeksleri iyi ve kabul edilebilir değerler olarak bulunmuştur. Cronbach Alfa katsayıları, tip ölçekleri için 0.665 (tip 5) ile 0.865 (tip 8) arasında, alt tip ölçekleri için 0.748 (sosyal) ile 0.783 (kendini koruma) arasında hesaplanmıştır. Ölçeklerin (5FKÖ-KF ve ETAÖ) eşzamanlı geçerliliği iyi olarak belirlenmiştir. Tatmin edici test-tekrar test güvenilirlik katsayıları da 0,289 ile 0,512 ( $p<0.05$ ) aralığında doğrulanmıştır.

**Sonuç:** Psikometrik analizler, ETAÖ'nün EKT'nin tiplerini ve alt tiplerini belirlemek için geçerli ve güvenilir bir öz bildirim kişilik ölçeği olduğunu göstermiştir.

**Anahtar Sözcükler:** faktör analizi; geçerlilik çalışması; kişilik

Omer Yanartas<sup>1</sup>, Cem Malakcioglu<sup>2</sup>, Ismail Acarkan<sup>3</sup>, Erdogdu Akca<sup>4</sup>

<sup>1</sup> Department of Psychiatry, Faculty of Medicine, Marmara University

<sup>2</sup> Department of Medical Education, Faculty of Medicine, Istanbul Medeniyet University

<sup>3</sup> Education consultant in private practice, Istanbul

<sup>4</sup> Department of Psychiatry, Pendik Training and Research Hospital, Marmara University

Received/Geliş : 15.04.2022

Accepted/Kabul: 16.06.2022

DOI: 10.21673/anadoluklin.1104082

Corresponding author/Yazışma yazarı  
Ömer Yanartas

Marmara University, Faculty of Medicine,  
Department of Psychiatry, Istanbul Türkiye  
E-mail: omeryanartas9@gmail.com

## ORCID

Ömer Yanartas: 0000-0003-4427-6116  
Cem Malakçıoğlu: 0000-0002-4200-0936  
İsmail Acarkan: 0000-0003-2751-6851  
Erdogdu Akca: 0000-0002-8067-312X

## INTRODUCTION

Personality is described as individual differences in characteristic patterns of thinking, feeling, and behaving. One of the most detailed and empirically supported personality models is 'the Big five personality model (BFPM)'. BFPM consists of five factors named openness, conscientiousness, extraversion, agreeableness, and neuroticism (1). Factors of BFPM define specific personality traits. Enneagram Personality Theory (EPT) was associated with BFPM in some previous studies (2,3).

The Enneagram is a geometric figure (figure 1) that maps out an ancient system of personality and human growth. Russian Philosopher George Gurdjieff first introduced enneagram to the western society as a symbol and growth model of the human process in 1915 in France, probably after he discovered it in his travels to Turkey or Afghanistan (4-6). Philosopher Oscar Ichazo synthesized this system as a personality theory in Arica Wisdom School and his followers Claudio Naranjo and John Lilly who were psychiatrists adapted and introduced this theory in the U.S. (6). Naranjo wrote books that correlated EPT and DSM (Diagnostic and Statistical Manual of Mental Disorders) and organized workshops about EPT (7). Since then, EPT rapidly spread in the areas of business, education, governmental agencies, and human service fields (8).

EPT is related to the structure of nine different personality types and their development across the lifespan. According to this theory, nine types have distinct coping styles and defense mechanisms. The theory describes core fear, core desire, and probable behavioral response to stressful events for each enneagram type (ETs) (6,7). Motivations of ETs are based on these core fear and core desire. Each person is categorized as one of the ETs, and basic personality types do not alter over time in EPT. According to EPT, the meaning of numbering personalities is symbolic but not numeric. Thus, no personality type is superior or inferior to the other. (i.e., type 8 is not superior to type 5 in personality).

The main features of core fears and desires of ETs are as described below based on literature (6,7):

- Type 1 (Perfectionist): Principled, organized, responsible, self-controlled, and fastidious type. Core desire of type 1 is to be good and perfect, and core

fear of type 1 is to be bad, defective, and corrupt.

- Type 2 (Helper): Generous, empathetic, and caring people and pleasing type. Core desire of type 2 is to be loved, and core fear of type 2 is to be unwanted and unworthy.
- Type 3 (Achiever): Success-oriented, competitive, adaptable, and image-conscious type. Core desire of type 3 is to be valuable and successful, and core fear of type 3 is to be insignificant and worthless.
- Type 4 (Individualist): Dramatic, sensitive, introspective, and deeply feeling type. Core desire of type 4 is to find themselves and their significance, and core fear of type 4 is to have no identity and personal significance.
- Type 5 (Observer): Cerebral, perceptive, isolated, and overly private type. Core desire of type 5 is to be capable and competent, and core fear of type 5 is to be useless, incapable, and helpless.
- Type 6 (Loyalist): Committed, security-oriented, reliable, and loyal. Core desire of type 6 is to have security and support, and core fear of type 6 is to have no support, guidance, and security.
- Type 7 (Enthusiast): Adventure-seeking, spontaneous, optimistic, and enthusiastic type. Core desire of type 7 is to be happy and satisfied and core fear of type 7 is to be in pain or confined.
- Type 8 (Challenger): Tough, self-confident, decisive, willful, and protector type. Core desire of type 8 is to control their environment and to protect self/others, and core fear of type 8 is to be controlled or harmed by others.
- Type 9 (Peacemaker): Easygoing, peaceful, open-minded, agreeable, and complacent type. Core desire of type 9 is to have stability and peace in their mind and external world, and core fear of type 9 is to be lost, disconnected, and separated.

EPT is a detailed theory and one of the secondary features of this system is the wing effect. Each of the ETs has similar features to one of the neighboring types according to the enneagram symbol. The contribution of this neighbor type on ETs specifies as the wing effect (i.e., type 3 with a type 4 wing is described as 3w4 or type 3 with a type 2 wing is described as 3w2) (6,7) (Figure 1).

In the enneagram literature, it has been demonstrated that one out of three subtypes (also known as instinc-

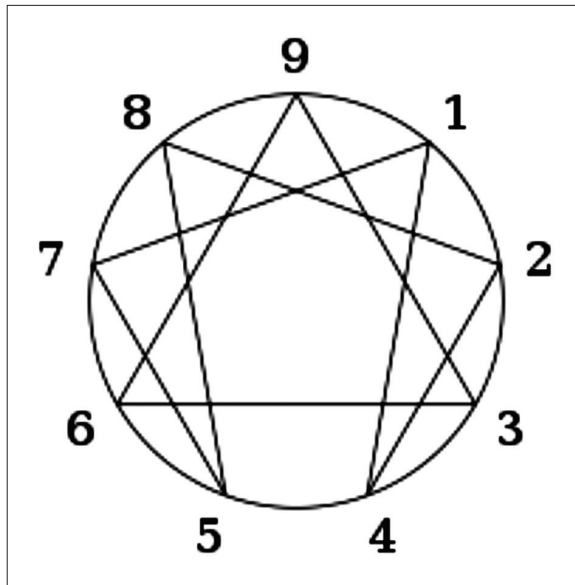


Figure 1. CFA Diagram for the Type 1 (Enneagram) Scale.

tual variants) have dominated each ETs. These subtypes are innate drives and affect the behavioral motivations of ETs. Three subtypes are defined as self-preservation (i.e., feeling safe, having enough resources, and cultivating physical comfort), intimate/sexual/one-to-one (i.e., maintaining the intimate relationship, bonding, and having interpersonal attraction), and social (i.e., being group member, feeling recognized, and social standing) (3,4). These instinctual subtypes are important for human survival, and fundamental for all types and may lead to discrete variations in the same ETs (6,7,9).

Personality has been studied from several perspectives, including attachment and interpersonal relationships (10), psychodynamic theory (11), and psychobiological model (12). EPT is more inclusive and multidimensional than these theories and it may contribute to distinguishing between normal (personality traits) vs. pathological (personality disorders) in terms of personality assessment in clinical practice.

Although academic psychologists/psychiatrists have not been sufficiently interested in this area (13), psychodynamic, cognitive-behavioral, Jungian therapy and developmental studies have been performed in EPT (6, 7, 13-17). Moreover, ETs have been studied in cardiovascular diseases, obesity, chronic pain, and substance use disorders (18-21) in general medicine. For the validation of ETs, some studies have been conducted in different cultures and countries (2,22-28);

however, we could not reach any inventory demonstrating both types and subtypes of EPT. Moreover, these previous studies have some limitations, including study design, methods, small sample size, and having numerous items (2,22,27,28). Thus, we aimed to evaluate the validity and reliability of enneagram personality types and subtypes structure evaluation with our sample. Our second goal is to demonstrate the association between BFPM and EPT.

## MATERIALS AND METHODS

### Study Design and Procedure

Enneagram types and subtypes inventory (ETASI) was developed in this study and based on EPT. The scale development process was in accordance with Hepner et al. (29). We respectively applied structure and concept, reviewed literature, formed and scaled items pools, established content analysis and pilot application, included participants in the study, and analyzed the psychometric properties of ETASI. The inventory, initially, was developed as 120 items for the types and 65 items for the subtypes by the authors. After the revision of three psychiatrists, two psychologists, three guidance and counseling specialists, and three enneagram experts, some questions were excluded, and the pilot form was finalized consisting of 117 items for the types and 45 items for the subtypes.

The pilot form was given to 98 university students; Likert-type scale was adapted to the questions (1: Not at all like me, 2: Not like me, 3: I am not sure, 4: Somewhat like me, 5: Totally like me). The items, which could not have been understood sufficiently by participants, were omitted from pilot form of ETASI by the authors. After the test development process, the final form of ETASI (69 items for the types and 30 items for the subtypes) was applied to the study population (n=3531).

We used a five-factor personality inventory short form (5FPI-SF) to evaluate the concurrent validity of ETASI. ETASI application form, brief socio-demographic form, and 5FPI-SF were given to the participants by using an online platform (<https://docs.google.com/forms>). After checking for the required assumptions and model-data fit, confirmatory factor analyses were utilized to evaluate the construct validity of the subscales for each type and subtype. Cronbach alpha

reliability coefficients were used to determine the internal consistency reliability of each subscale. Finally, test-retest reliability values were calculated within a four-week period ( $n=200$ ).

Our study was approved by Marmara University School of Medicine Clinical Research Ethics Committee (IRB date/number: 08.01.2021/09.2021.12). All participants provided their informed consents via an online platform before including in the study.

### Instruments

**ETASI:** The authors generated the ETASI application form for this study. It consists of 99 items (69 for type subscales and 30 for subtype subscales). The Cronbach alpha internal consistency coefficients of the scales in this study ranged from 0.665 (Investigator/Type 5) to 0.865 (Challenger/Type 8). Test-retest reliability coefficients of the scales in this study ranged from 0.289 (Investigator) to 0.512 (Challenger), and all of them were statistically significant at the level of 0.05.

**5FPI-SF:** 5FPI-SF is a self-report test that evaluates personality types according to the big five-personality model (BFPM). The traits of the 5FPI-SF are extraversion, agreeableness, conscientiousness, emotional stability, and intellect/imagination. This short form consists of 50 items; a validity and reliability study of 5FPI-SF has been conducted in a Turkish sample (30). Cronbach alpha internal consistency coefficients in this study were 0.864 (EX), 0.749 (AG), 0.801 (CO), 0.863 (EM), 0.718 (IN); test-retest reliability coefficients were 0.501 ( $p<0.001$ ) (EX), 0.307 ( $p<0.005$ ) (AG), 0.413 ( $p<0.001$ ) (CO), 0.476 ( $p<0.001$ ) (EM), 0.292 ( $p<0.005$ ) (IN). Therefore, the Big Five Personality test was a measurement tool that yielded reliable results in this study.

**Socio-demographic form:** A brief socio-demographic form was applied for this study. It included questions about age, gender, education (year), and being a student or not.

### Statistical analyses:

SPSS 25 and AMOS 25 programs (Statistical Package for the Social Sciences software for Windows, version 25.0, IBM, Chicago, IL, USA) were used for the statistical analyses. The lowest statistical significance level was determined as 0.01. A small number of extreme values and missing data were discarded, and the dis-

tributions of continuous variables were examined with appropriate tests, and they were found to be suitable for parametric analyses.

## RESULTS

### Descriptive Results

A total of 3531 individuals, 308 men (8.7%) and 3223 women (91.3%), participated in the study. The ages of the participants ranged from 18 to 64 ( $M=29.79$ ,  $SD=7.92$ ). Among all participants, 1403 of them (39.7%) declared themselves university students. When the education level distribution of the participants is considered, it is 14.37 years on average ( $SD=4.33$ ). In other words, the participants had an average of more than 14 years of formal education and the peak value was 16 years ( $n=692$ , 19.6%).

### Psychometric Results

Enneagram personality types consist of nine scales and a total of 69 items, personality subtypes consist of three scales and a total of 30 items. Scale scores are not additive, and do not give a total test score. Each scale represents the set of personality traits pointed out by the theoretical framework. Construct validity was examined by applying confirmatory factor analysis (CFA) to each scale. The model-data fit of the scales was found as sufficient. Table 1 shows the model-data fit indices, and the good and acceptable value ranges. (Table 1)

**Table 1.** CFA Model-Data fit indices ranges for the good and acceptable fit.

Model-Data fit indices	Good fit values	Acceptable fit values
RMSEA <sup>1</sup>	0.00<RMSEA<0.05	0.05<RMSEA<0.10
SRMR <sup>2</sup>	0.00<SRMR<0.05	0.05<SRMR<0.10
CFI <sup>3</sup>	0.95<CFI<1.00	0.90<CFI<0.95
GFI <sup>4</sup>	0.95<GFI<1.00	0.90<GFI<0.95
NFI <sup>5</sup>	0.95<NFI<1.00	0.90<NFI<0.95

<sup>1</sup>RMSEA: Root Mean Square Error of approximation <sup>2</sup>SRMR: Standardized root mean square residual <sup>3</sup>CFI: Comparative fit index <sup>4</sup>GFI: Goodness of fit index <sup>5</sup>NFI: Normed fit index

5FPI-SF was used to examine the concurrent validity of the scales. When the correlation values between the scales were examined, concurrent validity was ensured (Table 2,3).

Table 2. Goodness of fit metrics and internal consistency coefficient of subscales of ETASI

	Cronbach $\alpha$	RMSEA <sup>1</sup>	SRMR <sup>2</sup>	CFI <sup>3</sup>	GFI <sup>4</sup>	NFI <sup>5</sup>
Type 1	0.816	0.058	0.046	0.972	0.982	0.971
Type 2	0.819	0.073	0.027	0.962	0.978	0.961
Type 3	0.809	0.086	0.063	0.954	0.975	0.952
Type 4	0.789	0.061	0.046	0.966	0.983	0.963
Type 5	0.665	0.056	0.054	0.954	0.989	0.950
Type 6	0.812	0.069	0.047	0.958	0.977	0.956
Type 7	0.797	0.092	0.064	0.958	0.974	0.956
Type 8	0.865	0.046	0.039	0.988	0.989	0.987
Type 9	0.809	0.053	0.042	0.976	0.986	0.974
Subtype 1	0.783	0.053	0.051	0.955	0.980	0.951
Subtype 2	0.748	0.047	0.039	0.963	0.987	0.959
Subtype 3	0.764	0.049	0.062	0.951	0.989	0.956

<sup>1</sup>RMSEA: Root Mean Square Error of approximation <sup>2</sup>SRMR: Standardized root mean square residual <sup>3</sup>CFI: Comparative fit index <sup>4</sup>GFI: Goodness of fit index <sup>5</sup>NFI: Normed fit index

Table 3. Product moment correlations between subscales of ETASI and 5FPI-SF

	A	B	C	D	E	F	G	H	I	SP	SO	In	Ex	Ag	Co	ES&I
A	1															
B	0.281**	1														
C	0.490**	0.251**	1													
D	0.235**	0.420**	0.178**	1												
E	0.399**	-0.024	0.240**	0.340**	1											
F	0.500**	0.316**	0.215**	0.373**	0.439**	1										
G	0.086**	0.233**	0.497**	0.053**	0.110**	-0.014	1									
H	0.388**	0.165**	0.630**	0.125**	0.197**	0.061**	0.500**	1								
I	0.046**	0.256**	-0.040*	0.228**	0.293**	0.304**	0.066**	-0.321**	1							
SP	0.278**	-0.115**	0.125**	0.269**	0.555**	0.339**	-0.004	0.118**	0.202**	1						
So	0.343**	0.428**	0.404**	0.269**	0.178**	0.203**	0.280**	0.290**	0.155**	0.003	1					
In	0.171**	0.498**	0.224**	0.376**	-0.031	0.172**	0.191**	0.245**	-0.039*	-0.088**	0.226**	1				
Ex	0.055**	0.208**	0.421**	-0.018	-0.225**	-0.161**	0.429**	0.503**	-0.303**	-0.317**	0.307**	0.220**	1			
Ag	0.061**	0.568**	0.137**	0.247**	-0.156**	0.061**	0.211**	0.066**	0.181**	-0.309**	0.353**	0.259**	0.384**	1		
Co	0.622**	0.179**	0.392**	0.064**	0.212**	0.282**	0.108**	0.282**	0.011	0.078**	0.247**	0.019	0.158**	0.192**	1	
ES&I	-0.062**	-0.199**	0.180**	-0.368**	0.007	-0.272**	0.395**	0.237**	-0.029	-0.173**	0.040*	-0.265**	0.305**	0.052**	0.150**	1
IN	0.185**	0.156**	0.303**	0.314**	0.260**	0.135**	0.242**	0.317**	-0.072**	0.048**	0.233**	0.134**	0.347**	0.296**	0.218**	0.062**

\*p<0.05 \*\*p<0.001 A: Type 1 B: Type 2 C: Type 3 D: Type 4 E: Type 5 F: Type 6 G: Type 7 H: Type 8 I: Type 9 SP: Self-preservation So: Social In: Intimacy Ex: Extraversion Ag: Agreeableness Co: Conscientiousness ES&I: Emotional Stability and Intellect/Imagination

**Type-1 (Perfectionist) Scale**

The Cronbach alpha internal consistency coefficient of this eight-item subscale, consisting of items 2, 16, 18, 29, 43, 54, 56, 64, was found to be 0.816. The test-retest reliability coefficient was found as 0.406 (p<0.001). All the Pearson correlation coefficient values between items are significant at the 0.005 level. The measurement model fit

indices obtained as a result of CFA also showed that the model data fit was appropriate (RMSEA: 0.058, SRMR: 0.046, CFI: 0.972, GFI: 0.982, NFI: 0.971) (Table 2). Item factor loads were in the range of 0.35 and 0.83 and four modifications (items 2-18, items 2-56, item s18-56, and items 18-64) were required due to high covariances between error terms (Figure 2).

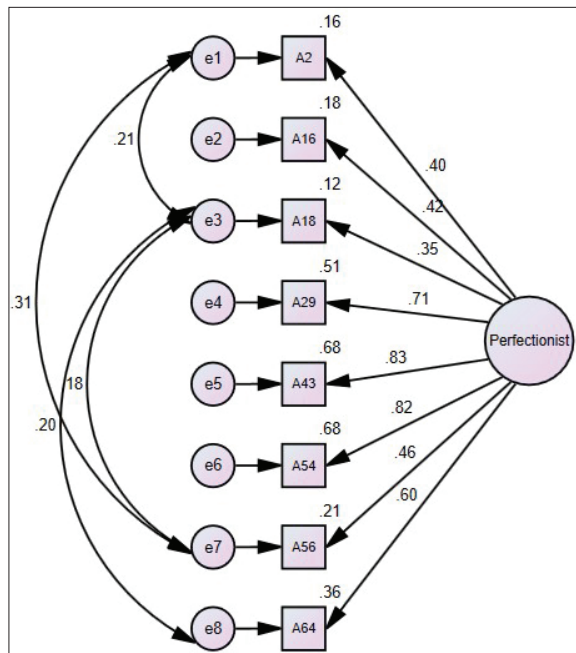


Figure 2. CFA Diagram for the Type 1 (Perfectionist) Scale.

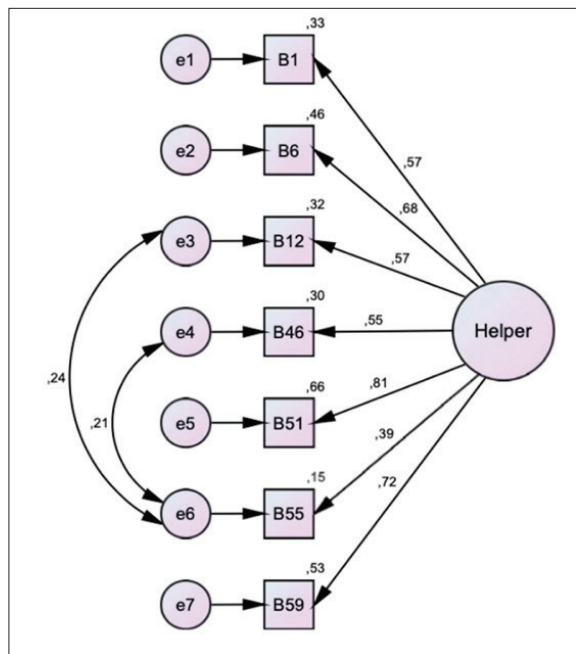


Figure 3. CFA Diagram for the Type 2 (Helper) Scale.

**Type-2 (Helper) Scale**

The Cronbach alpha internal consistency coefficient of this seven-item subscale, consisting of items 1, 6, 12, 46, 51, 55, 59, was found to be .819. The test-retest reliability coefficient was found to be 0.401 ( $p < 0.001$ ). All the Pearson correlation coefficient values between

items are significant at the 0.005 level. The model data fit was appropriate (RMSEA: 0.073, SRMR: 0.027, CFI: 0.962, GFI: 0.978, NFI: 0.961) (Table 2). Item factor loadings ranged from 0.39 to 0.81, and two modifications (items 12-55 and items 46-55) were required due to high covariances (Figure 3).

**Type-3 (Achiever) Scale**

The Cronbach alpha coefficient of this seven-item subscale, consisting of items 5, 17, 34, 38, 48, 60, and 66 was found to be 0.809. The test-retest reliability coefficient was found to be 0.413 ( $p < 0.001$ ). All the Pearson correlation coefficient values between items are significant at the 0.005 level. The model data fit was appropriate (RMSEA: 0.086, SRMR: 0.063, CFI: 0.954, GFI: 0.975, NFI: 0.952) (Table 2). Item factor loads were in the range of 0.47-0.67, and two modifications (items 34-60 and items 48-60) were required due to high covariances (Figure 4).

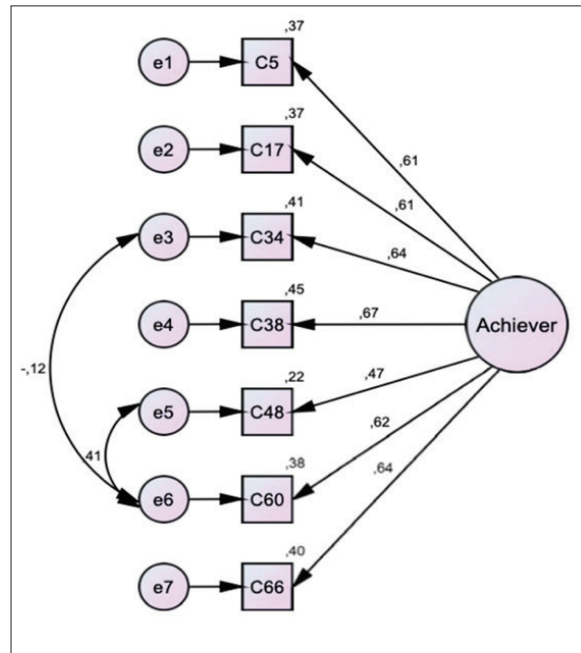


Figure 4. CFA Diagram for the Type 3 (Achiever) Scale.

**Type-4 (Individualist) Scale**

The Cronbach alpha coefficient of this eight-item subscale, consisting of items 8, 20, 25, 30, 37, 39, 41, 53 was found to be 0.789. The test-retest reliability coefficient was found to be 0.352 ( $p < 0.001$ ). All the Pearson correlation coefficient values between items

were significant at the 0.01 level. The model data fit was appropriate (RMSEA: 0.061, SRMR: 0.046, CFI: 0.966, GFI: .0983, NFI: 0.963) (Table 2). Item factor loadings ranged from 0.32 to 0.67, and three modifications (items 20-53, items 37-41, and items 37-53) were required due to high covariances (Figure 5).

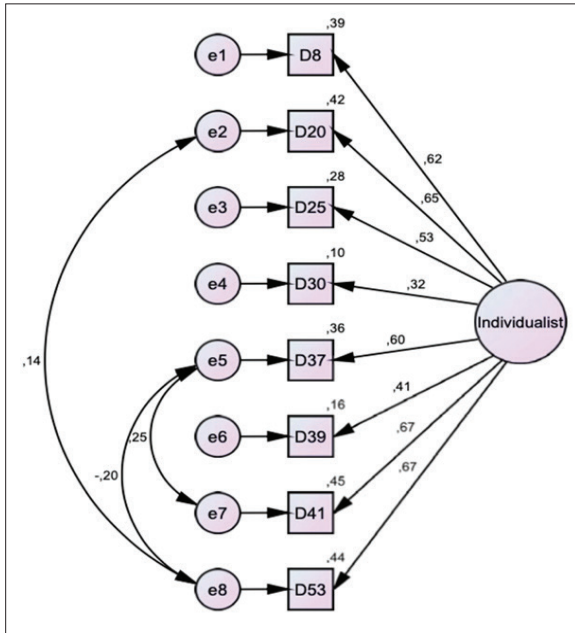


Figure 5. CFA Diagram for the Type 4 (Individualist) Scale.

**Type-5 (Observer) Scale**

The Cronbach alpha internal consistency coefficient of this seven-item subscale, consisting of items 9, 22, 26, 35, 57, 62, and 69 in the questionnaire was found to be 0.665. The test-retest reliability coefficient was found to be 0.289 ( $p < 0.005$ ). All but one of the Pearson correlation coefficient values between the items were significant at the 0.01 levels. The correlation value between items 9-62 was not found statistically significant. The model data fit was appropriate (RMSEA: 0.056, SRMR: 0.054, CFI: 0.954, GFI: 0.989, NFI: 0.950) (Table 2). Item factor loadings ranged from 0.34 to 0.62, and one (items 9-69) modification was required due to the high covariances (Figure 6).

**Type-6 (Loyalist) Scale**

The Cronbach alpha coefficient of this nine-item subscale, consisting of items 3, 13, 15, 19, 24, 27, 45, 50, 61 was found as 0.812. The test-retest reliability coefficient was found 0.408 ( $p < 0.001$ ). All but one of the Pearson

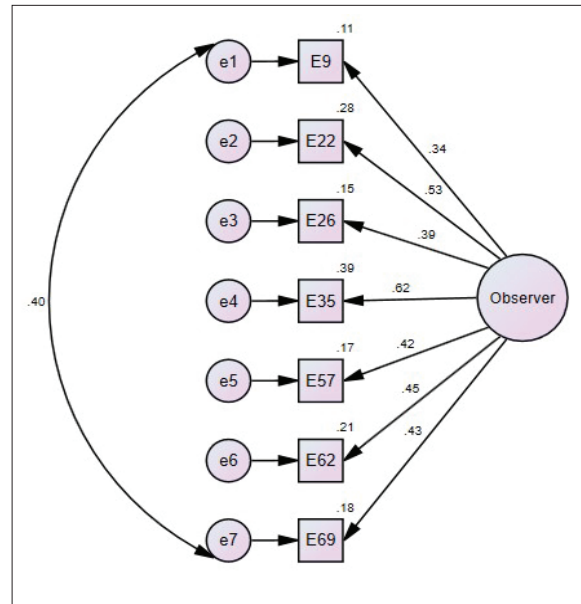


Figure 6. CFA Diagram for the Type 5 (Observer) Scale.

correlation coefficient values between items were significant at the 0.005 levels. The correlation value between items 15-61 was significant at the 0.01 level. The model data fit was appropriate (RMSEA: 0.069, SRMR: 0.047, CFI: 0.958, GFI: 0.977, NFI: 0.956) (Table 2). Item factor loadings ranged from 0.32 to 0.71, and six modifications (items 3-24, items 13-19, items 15-45, items 15-61, items 24-45, items 27-61) were required due to high covariances (Figure 7).

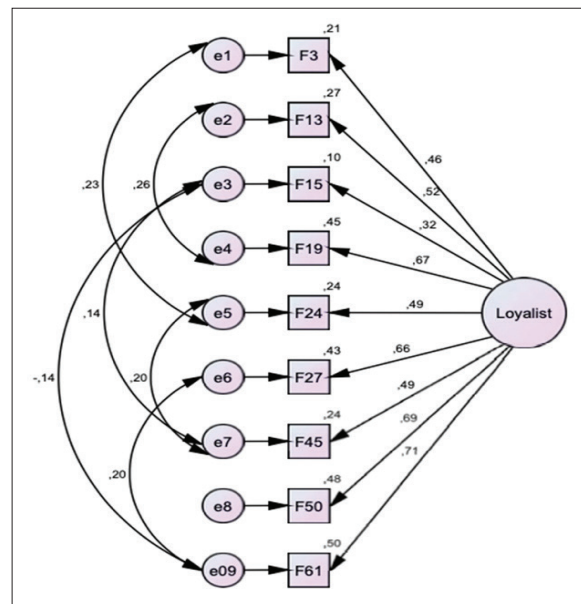


Figure 7. CFA Diagram for the Type 6 (Loyalist) Scale.

**Type-7 (Enthusiast) Scale**

The Cronbach alpha coefficient of this seven-item subscale, consisting of items 11, 14, 28, 33, 40, 42, and 68 was found as 0.797. The test-retest reliability coefficient was found as 0.390 ( $p < 0.001$ ). All but one of the Pearson correlation coefficient values between the items were significant at the 0.001 level. The correlation value between items 33-42 was significant at the 0.01 level. The model data fit was appropriate (RMSEA: 0.092, SRMR: 0.064, CFI: 0.958, GFI: 0.974, NFI: 0.956) (Table 2). Item factor loadings ranged from 0.38 to 0.74, and four (items 11-33, items 28-42, items 33-42, items 40-68) modifications were required due to high covariances (Figure 8).

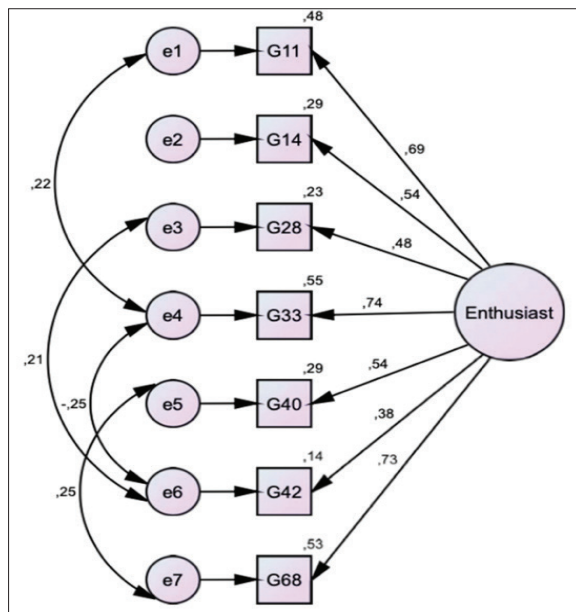


Figure 8. CFA Diagram for the Type 7 (Enthusiast) Scale.

**Type-8 (Challenger) Scale**

The Cronbach alpha internal consistency coefficient of this eight-item subscale consisting of items 4, 7, 10, 23, 32, 52, 65, 67 in the questionnaire was found to be 0.865. The test-retest reliability coefficient was found to be 0.512 ( $p < 0.001$ ). All the Pearson correlation coefficient values between items were significant at the 0.001 level. The model data fit was appropriate (RMSEA: 0.046, SRMR: 0.039, CFI: 0.988, GFI: 0.989, NFI: 0.987) (Table 2). Item factor loadings ranged from 0.37 to 0.82, and two modifications (items 23-52 and items 23-65) were required due to high covariances (Figure 9).

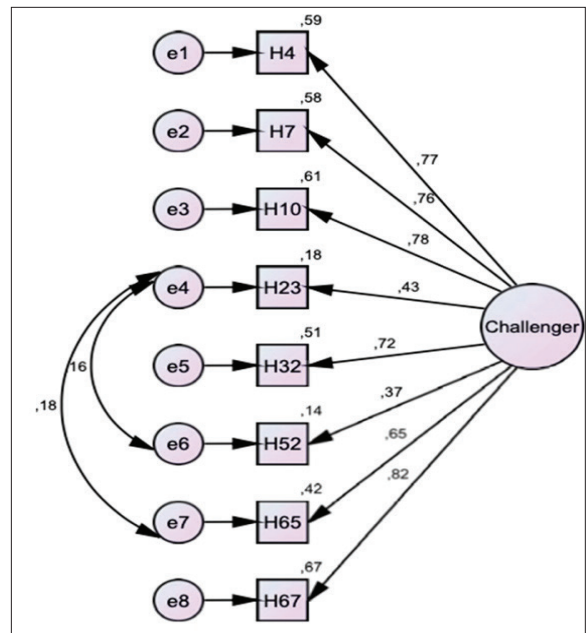


Figure 9. CFA Diagram for the Type 8 (Challenger) Scale.

**Type-9 (Peacemaker) Scale**

The Cronbach alpha coefficient of this eight-item subscale, consisting of items 21, 31, 36, 44, 47, 49, 58, 63 was found to be .809. The test-retest reliability coefficient was found to be 0.398 ( $p < 0.001$ ). All the Pearson correlation coefficient values between items were significant at the 0.01 level. The model data fit was appropriate (RMSEA: 0.046, SRMR: 0.039, CFI: 0.988, GFI: 0.989, NFI: 0.987) (Table 2). Item factor loadings ranged from 0.27 to 0.73, and two modifications (items 23-52 and items 23-65) were required due to high covariances (Figure 10).

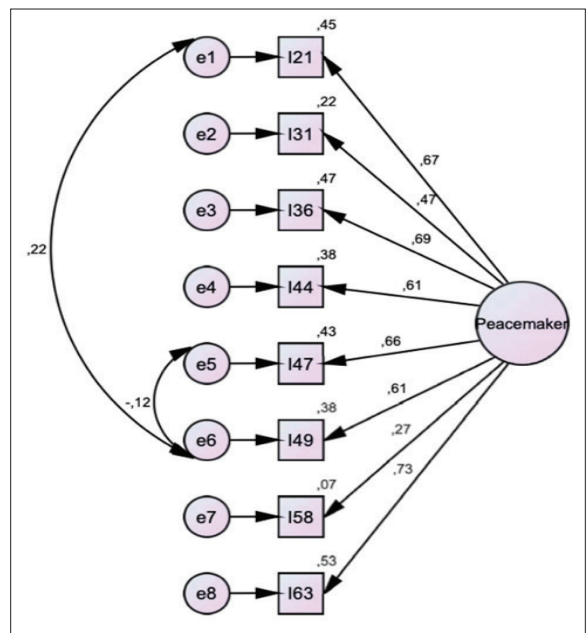


Figure 10. CFA Diagram for the Type 9 (Peacemaker) Scale.



appropriate (RMSEA: 0.053, SRMR: 0.042, CFI: 0.976, GFI: 0.986, NFI: 0.974) (Table 2). Item factor loads were in the range of 0.27-0.73, and two modifications (items 21-49 and items 47-49) were required due to high covariances (Figure 10).

**Subtype-1 (Self-Preservation) Scale**

The Cronbach alpha coefficient of this 10-item subscale, consisting of items 1, 3, 12, 16, 18, 19, 22, 25, 27 and 29 was found to be 0.783. The test-retest reliability coefficient was 0.359 (p<0.001). All the Pearson correlation coefficients between items were significant at the 0.01 level. The model data fit was appropriate (RMSEA: 0.053, SRMR: 0.051, CFI: 0.955, GFI: 0.980, NFI: 0.951) (Table 2). Item factor loadings ranged from 0.25 to 0.68, and three modifications (items 3-29, items 18-27, and items 22-29) were required due to high covariances (Figure 11).

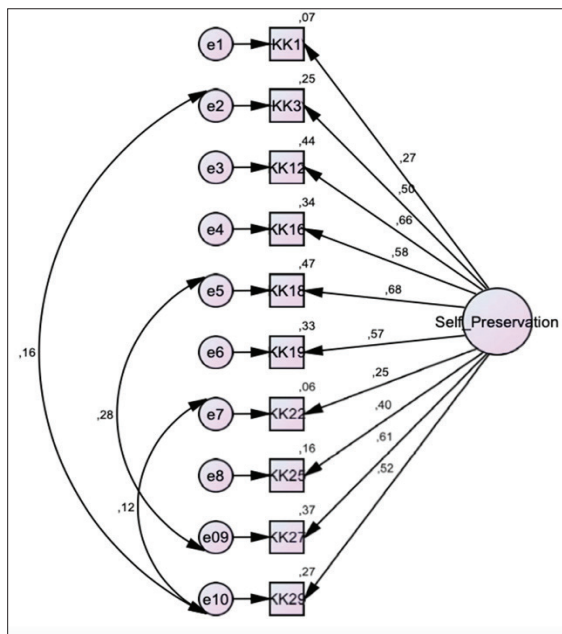


Figure 11. CFA Diagram for the Sub-Type 1 (Self-Preservation) Scale.

**Subtype-2 (Social) Scale**

The Cronbach alpha internal consistency coefficient of this nine-item subscale, consisting of items 2, 5, 7, 10, 14, 20, 24, 26, and 30 in the subtype's questionnaire was found to be 0.748. The test-retest reliability coefficient was found to be 0.309 (p<0.005). All the Pearson correlation coefficient values between items were significant at the 0.01 level. The model data fit was appropriate (RMSEA: 0.047, SRMR: 0.039, CFI: 0.963, GFI: 0.987, NFI: 0.959) (Table 2). Item factor loadings ranged from 0.33 to 0.68, and three modifications (items 2-7, items 2-24, and items 10-14) were required due to high covariances (Figure 12).

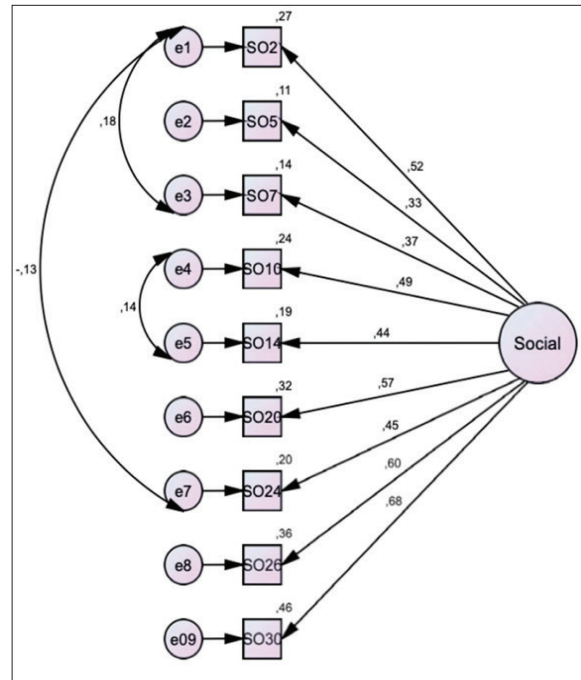


Figure 12. CFA Diagram for the Sub-Type 2 (Social) Scale.

appropriate (RMSEA: 0.047, SRMR: 0.039, CFI: 0.963, GFI: 0.987, NFI: 0.959) (Table 2). Item factor loadings ranged from 0.33 to 0.68, and three modifications (items 2-7, items 2-24, and items 10-14) were required due to high covariances (Figure 12).

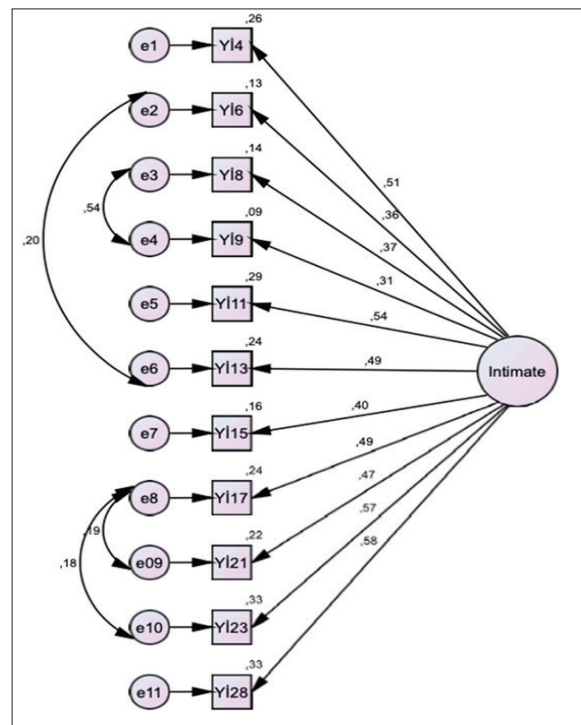


Figure 13. CFA Diagram for the Sub-Type 3 (Intimate) Scale.

### Subtype-3 (Intimate) Scale

The Cronbach alpha internal consistency coefficient of this 11-item subscale consisting of items 4, 6, 8, 9, 11, 13, 15, 17, 21, 23, and 28 in the subtype's questionnaire was found to be 0.764. The test-retest reliability coefficient was found to be .322 ( $p < 0.001$ ). All but three of the Pearson correlation coefficient values between items were significant at the 0.01 level. The correlations between items 4-9, items 6-,8 and items 6-9 were not statistically significant. The model data fit was appropriate (RMSEA: 0.049, SRMR: 0.062, CFI: 0.951, GFI: 0.979, NFI: 0.946) (Table 2). Item factor loadings ranged from 0.31 to 0.58, and four modifications (items 6-13, items 8-9, items 17-21, and items 17-23) were required due to high covariances (Figure 13).

## DISCUSSION AND CONCLUSION

Our study confirmed that ETASI is a reliable and valid inventory in determining personality types and subtypes based on EPT. According to CFA results, the model data fits of the scales was found within the good and acceptable value ranges. These findings approve the construct validity of the scales. This ETASI study has a better design, methods, and sample size than previous validity and reliability studies of EPT. Some researchers didn't perform test-retest reliability (2,3,22,27,28), and others didn't conduct concurrent validity (3,25,27) in their studies, however, we studied both methods. A higher sample size (2,3,22,25,27,28), and a lower number of items (2,3,22) than other tests were other strengths of ETASI. Moreover, ETASI is the first test, which demonstrates the subtypes of EPT. Subtypes are the instinctual variants of ETs and give direction to the motivation of each ETs. Subtypes are quite important, give comprehensive information about EPT, and there was very little written related to subtypes in most available books (7,31). Thus, ETASI may contribute to EPT literature by determination of types, and especially subtypes.

Although we were able to reach a large participant number, most of our participants were females (91.3%), and at higher education levels (39.7% were university students). The rate of female participants was slightly higher than in previous enneagram studies in which above 70% of participants were female

(7,8,27). These results can be interpreted as some people with lower levels of education, and males might not be able to access the online form via the Internet and/or have no interest in this study. Thus, our results may not be generalized to the whole population.

Cronbach alpha coefficients ranged from 0.665 (type 5) to 0.865 (type 8) for type scales, and from 0.748 (social) to 0.783 (self-preservation) for subtype scales. According to previous findings, the authors stated that Cronbach alpha values between 0.70 and 0.95 are acceptable (32). Newgent et al. determined the lowest Cronbach Alpha coefficient for type 5 (0.56) similar to our study (2). The authors discussed the ipsative nature of the items (2). Since type 5 is emotionally cold, introverted, and indifferent to relations, these personality characteristics may lead to lower levels of test scores.

We investigated the relations between BFPM and EPT by applying the 5FPI-SF and ETASI, respectively. We determined that conscientiousness was the most associated with type 1 ( $r = 0.622$ ,  $p = 0.000$ ). This was similar to previous findings (2,33). Despite different theoretical backgrounds, both conscientiousness and type 1 have similar personality characteristics such as being principled, idealistic, dutiful, well organized, and self-disciplined (2,33).

Moreover, social subtype scale scores were most linked with agreeableness scores ( $r = 0.353$ ,  $p = 0.000$ ). People with higher agreeableness scores tend to be more trustful, sympathetic, altruistic, compliant, and cooperative (1). Those personality characteristics are like social subtype motivations. We want to emphasize that this is the first study, which demonstrates the association between subtypes and BFPM in the literature.

Finally, test-retest reliability of all scales within a four-week period was calculated for types [between 0.289 (type 5) and 0.512 (type 8)] and subtypes section [between 0.309 (social subtype) and 0.359 (self-preservation subtype)] ( $p = 0.05$ ). Assessment of test-retest reliability determines if measured personality styles were either traits or states. Thus, our results have confirmed that ETASI demonstrated trait structure and repetitive personality patterns. This is another strength of our study.

This study has also some limitations. First, most of the participants were females and have higher educa-

tion levels. Second, the study was performed by using online forms. Thus, participants with no access to the Internet couldn't have been included in this study. Third, external validation of ETASI was evaluated by only one test. Fourth, we couldn't make interviews for the assessment of ETs. Our study design is based on self-report data gathering, this may be limited our results to reflect the actual personality styles.

To the best of our knowledge, this is the first study that demonstrates both types and subtypes of EPT. ETASI is an effective self-report inventory for determining enneagram types and subtypes of personality. Knowing the enneagram type may give insight into the behavioral, cognitive, or emotional tendencies of clients/patients to the professionals in clinical practice. Thus, further studies should be performed for the assessment of personality types and subtypes based on enneagram with ETASI in psychology, psychiatry, psychological counseling and guidance, social work, and other scientific disciplines in the future.

### Conflict-of-interest and financial disclosure

The author declares that she has no conflict of interest to disclose. The author also declares that she did not receive any financial support for the study.

### REFERENCES

- McCrae RR, Costa PT. Personality trait structure as a human universal. *Am Psychol.* 1997;52(5):509-16.
- Newgent RA, Parr PH, Newman I, Wiggins KK. The Riso-Hudson enneagram type indicator: estimates of reliability and validity. *Meas Eval Couns Dev.* 2004;36(4):226-37.
- Sutton A. Implicit and explicit personality in work settings: an application of enneagram theory. (Unpublished doctoral dissertation). University of Leeds, England. 2007
- Dameyer JJ. Psychometric evaluation of the Riso-Hudson enneagram type indicator (Unpublished doctoral dissertation). California Institute of Integral Studies, US. 2001
- Petsche JJM. The sacred dance of the enneagram. *Fieldwork in Relig.* 2016;11(1):53-75.
- Riso RD, Hudson R. *The wisdom of the enneagram.* New York, NY: Bantam Dell Publishing Group; 1999.
- Naranjo C. *Character and neurosis: An integrative view.* Gateways Books&Tapes; 1994.
- Bland AM. The enneagram: A review of the empirical and transformational literature. *J Humanist Couns Educ Dev.* 2010;49(1):16-31
- Choucroun PM. An exploratory analysis of the enneagram typology in couple counseling: A qualitative analysis (Unpublished doctoral dissertation). University of Texas at San Antonio, San Antonio, TX. 2012
- Bowlby J. (Attachment and loss, Vol 1: Attachment. London: Vintage. 1997 (Original work published 1969).
- Luyten P, Fonagy P. Integrating and differentiating personality and psychopathology: A psychodynamic perspective. *J Pers.* 2022;90(1):75-88.
- Cloninger CR, Dragan MS, Przybeck TR. A psychobiological model of temperament and character. *Arch Gen Psychiatry.* 1993;50(12):975-90.
- Hook JN, Hall TW, Davis DE, Van Tongeren DR, Conner M. The enneagram: a systematic review of the literature and directions for future research. *J Clin Psychol.* 2021;77(4):865-83.
- Tolk LS. Integrating the Enneagram and schema therapy: bringing the soul into psychotherapy (Unpublished doctoral dissertation). The Wright Institute Graduate School of Psychology, Berkeley. 2006
- Wagner J. Enneagram styles and maladaptive schemas: a research inquiry. *The Enneagram J.* 2008;1(1):52-64.
- Siegel DJ. Attachment and self-understanding: parenting with the brain in mind. *Prenat Perinat Psychol Health.* 2004;18(4): 273-85.
- Daniels D, Saracino T, Fraley M, Christian J, Pardo S. Advancing ego development in adulthood through study of the enneagram system of personality. *J Adult Dev.* 2018;25(4):229-41.
- Komasi S, Zakiei A, Ghasemi SR, et al. Is enneagram personality system able to predict perceived risk of heart disease and readiness to lifestyle modification? *Ann Card Anaesth.* 2019;22(4):394-9.
- Lee JW, Seong KS, Eom, HJ. Prediction of obesity by Sasang Constitutions and enneagram in university students. *J Korean Med Obes Res.* 2009;9(2):21-32.
- Saeidi M, Komasi S, Amiri MM, Azizi M, Alikhani M. Is the enneagram personality system an effective approach to explaining drug addiction. *Middle East J. Rehabil. Health Stud,* 2020;7:e98710.
- Whillans PP. Applying the enneagram to the world of chronic pain. *The Enneagram J.* 2009;2(1):81-103.
- Wagner J. Reliability and validity study of a sufi personality typology: the enneagram. *J Clin Psychol.* 1983;39(5): 712-7.

23. Youn YS. The enneagram personality type scale: its development and validation. *Journal of Educational Psychology*. 2001;15(3):131–61.
24. Scott SA. An analysis of the validity of the enneagram. (Unpublished doctoral dissertations). The College of William and Marry, Virginia. 2011
25. Demir A, Rakhmanov O, Dane S. Validity and reliability of the Nile personality assessment tool based on enneagram for English-Speaking people. *J Res Med Dent Sci*. 2020;8(4):24–32.
26. Hoseinian S, Azimipour P, Karami A, Yazdi SM, Keshavarz GG. Study of the psychometrical features of enneagram personality types. *Journal of Career & Organizational Counseling*. 2012;4(12):125–44.
27. Núñez Galvez C, Ramos-Vera CA, Barrientos AS, Ogundokun RO. Adaptation of the personality type inventory based on enneagram in Peruvian University students of health sciences. *J Res Med Dent Sci*. 2021;9(5):10–5.
28. Tastan K. Development and validation of a personality type inventory based on enneagram. *Konuralp Tıp Deg*. 2019;11(1):112-8.
29. Heppner PP, Wampold BE, Owen J, Wang TK, Thompson NM. *Research design in counseling* (3rd ed.). Belmont: Thomson Brooks/Cole. 2008
30. Tatar A. Büyük Beş-50 Kişilik Testinin Türkçeye çevirisi ve Beş Faktör Kişilik Envanteri Kısa Formu ile karşılaştırılması. *Anadolu Psikiyatri Dergisi*. 2017;18(1):51-61.
31. Chestnut B. *The complete enneagram: 27 paths to greater self-knowledge*. She Writes Press. 2013
32. Nunnally JC, Bernstein IH.. *Psychometric theory*. New York: McGraw-Hill Higher, INC. 1994
33. Sutton A. But is it real? A review of research on the enneagram. *The Enneagram J*. 2012;5(1):5-20.