Original article / *Araştırma*

The adaptation of the Triangular Relationship Inventory into Turkish: the study of validity and reliability for university students*

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ABSTRACT

Objective: *The Triangular Relationship Inventory (TRI) assesses different configurations of family triangulation. The current study investigated the psychometric properties of the TRI to disseminate the familiarity of the family-of-origin variables in Turkey for the researchers and practitioners.* ***Methods:*** *The current sample composed of young adults; three hundred and eighty-seven university students completed the measures of TRI, Intergenerational Triangulation Subscale (INTRI), and Marlowe-Crowne Social Desirability Scale (MCSDS). First and high-order confirmatory factor analysis (CFA) was conducted to confirm the TRI's four-factor structure.* ***Results:*** *The first-order CFA findings indicated mediocre evidence for the four-factor structure, but the scapegoat was only the subscale that was significantly not loaded to the higher-order CFA model. Moreover, the scapegoating construct produced no significant correlations with INTRI in convergent validity. Measurement invariance, Cronbach's alpha, McDonald's Omega coefficients, and test-retest reliability were further examined.* ***Discussion:*** *The results revealed that TRI is useable in the Turkish sample. The four-factor structure of the scale needed to be reconsidered in Turkish culture.* ***(Anatolian Journal of Psychiatry 2020; 21(Suppl.2):63-70)***

Keywords: *family triangulation, balanced, mediator, cross-generational coalitions, scapegoat*

Üçgen İlişki Ölçeğinin Türkçeye uyarlanması: Üniversite öğrencileri için geçerlilik ve güvenilirlik çalışması

ÖZ

Amaç: *Üçgen İlişki Ölçeği (ÜİÖ) aile üçgenleşmesinin farklı konfigürasyonlarının değerlendirilebilmesini sağlamaktadır. Çalışmanın amacı, ÜİÖ'nün psikometrik özelliklerinin Türk örnekleminde test edilerek köken aile değişkenlerine ilişkin ölçme araçlarının araştırmacılar ve ruh sağlığı uzmanları tarafından kullanımlarını yaygınlaştırmaktır.* ***Yöntem:*** *Çalışmada 387 üniversite öğrencisine ÜİÖ ve uyum geçerliliği analizlerinde geçerli olmak üzere Aile Sisteminde Kişisel Otorite Ölçeği-Genç Yetişkin Sürümünün Çekirdek Ailede Üçgenleşme (INTRI) alt boyutu ile Marlowe-Crowne Sosyal Beğenilirlik Ölçeği uygulanmıştır.* ***Bulgular:*** *Birinci ve ikinci derece doğrulayıcı faktör analizleri (DFA) dört faktörlü yapı için yeterli uyum iyiliği değerleri ortaya koymuştur. Günah keçisi alt boyutu ile INTRI arasında anlamlı bir ilişki bulunamamış ve boyutun ikinci düzey DFA'da modele anlamlı olarak yüklenmediği görülmüştür. Ölçek, cinsiyete bağlı ölçme değişmezliğini sağlamış olup Cronbach alfa ve omega güvenilirlik değerleri ile test-tekrar test güvenilirliği bulguları incelendiğinde yüksek düzeyde güvenilirliğe sahip olduğu bulunmuştur.* ***Tartışma:*** *Sonuçlar ÜİÖ'nün Türk örnekleminde kullanılabileceğini ortaya koymuştur. Tartışmalı günah keçisi bulguları nedeni ile ölçeğin dört faktörlü yapısının kristalize olabilmesi için Türk kültüründe daha fazla çalışma gerekmektedir.* ***(Anadolu Psikiyatri Derg 2020; 21(Suppl.2):63-70)***

Anahtar sözcükler: *Aile üçgenleşmesi, dengeli, arabulucu, kuşaklar arası koalisyon, günah keçisi*

INTRODUCTION

The triangulation has characterized by the inclusion of a third party (i.e., child, parent, friend, therapist) in a dyadic relationship to balance the anxiety that becomes chronic in the context.[1] Bowen conceptualized the triangles through his observations (for clinical practice) in individuals with schizophrenia and their families.[2] During periods of crisis (i.e., marriage, having children, losses), anxiety/stress levels significantly increase the triangles in the family system. The determinant is self-differentiation (DoS) because when family members' DoS levels are high, triangles are less experienced, as the construct (DoS) refers to an ability to a healthy balance of individuality and intimacy within close relationships.[1] Typical forms of family triangulation are[3] *balanced*, (parents take their responsibility for relationship problems), the *mediator* (children's feelings of being caught between parents and mediating the relationship), the *coalition* (cross-generationally side-taking or alliance between three) and the *scapegoating* (offspring holds a pushed out position).

The triangulation research mostly focused on the parent-child relationship context, for instance, in eating disorders and a family member with schizophrenia, childhood depression, adolescent ego development, psychological maladjustment, and problem behaviors in children.[3-7] However, research (on triangulation) produces inconsistent findings; most studies claim that the construct is a universal variable, while some studies indicate the opposite. Bresin et al.[8] assumed at least two factors to clarify this inconsistency, namely, (1) the psychometric properties of the measures of triangulation, and (2) the neglect of the various types of triangulation in both theory and measurement' (p.290). Triangulation may develop unconventionally in different family models (i.e., independent, interdependent, and psychologically interdependent) as a characteristic of different self-construals.[9] Investigation of triangulation types could produce further evidence to the literature regarding Bowen's concepts' cultural orientations. Although initial evidence of reliability and validity of Triangular Relationship Inventory (TRI) scores is strong,[8] more culturally based research is needed to support these findings, as no adaptation of TRI to other cultures is found. Simultaneously, short, valid, and reliable measurement tools to assess triangulation in Turkey for both clinical and non-clinical settings were needed.

METHODS

Research sample

By convenience sampling, the survey package was filled out by 387 undergraduate students (Table 1) in a northern university in Turkey, aged between 18-38 years (20.5±2.5) in the second semester of 2018-2019. The majority of the participants were 18-23 years old (93.7%), lived apart from their families (78.8%). However, an independent sample t-test yielded that living with parents or apart was not a significant variable for TRI dimensions.

Table 1. Demographic characteristics of the participants

Variables	n	%
Gender		
Female	268	69.3
Male	119	30.7
Residence		
With my family	82	21.2
Apart from my family	305	78.8
Who lives with		
My friends	262	67.7
My family	80	20.7
Alone	33	8.5
Boy/girlfriend	9	2.3
Relatives	3	0.8

Research instruments

Triangular Relationship Inventory* (*TRI): The scale was developed through three separate studies in assessing the family triangulation.[8] TRI is a 5-point Likert type scale containing 24 items, the scores vary from 6 to 30. Higher scores indicate higher triangulation. The TRI initially revealed a four-factor solution explained 62% of the variance. A single second-order factor (global factor of triangulation) showed 49% of the variance. Cronbach's alpha scores were ranged between 0.86 and 0.93. Test-retest scores were also between 0.58 and 0.80.[8]

Intergenerational Triangulation Subscale (INTRI): It was initially developed to assess the triangulation in adolescents and young adults as a part of the Personal Authority in Family System Questionnaire-Young Adult Version (PAFSQ-VC).[10] The INTRI is a 5-point Likert type scale containing eight items. The subscale was adapted to Turkish[11] along with PAFSQ-VC (with

Cronbach's alpha score of 0.76, and in the current study, 0.82). The subscale was currently used to assess concurrent validity for TRI, a negative relationship between INTRI and TRI subscales expected.

Marlowe-Crowne Social Desirability Scale (***MCSDS):*** The MCSDS was initially developed by Crowne and Marlowe[12] and adapted to Turkish in a short version with seven items, indicating 0.78 of the Cronbach's alpha reliability.[13] Higher scores indicated a higher level of social desirability. The scale was currently used to assess the discriminant validity of the TRI, no relationship between MCDS and TRI expected.

Research process

The forward translation process (from English to Turkish) by four experts in psychological counseling was followed without any modification on the number of items and content (Table 2). The content validity index (S-CVI) was computed (with the other seven experts' scoring) based on Davis's[14] scaling suggestion. The scores that were higher than 0.80 of S-CVI were considered sufficient,[14] in which S-CVI ranged from 0.86 to 1.00 in the current study. Ethical permission was granted (date: May 07th 2018, number: 12).

Data analysis

Confirmatory Factor Analyses (CFA) in first and higher-order (because a global factor of triangulation emerged in the original study) were conducted. The data screening, assumptions, descriptive statistics, bivariate correlations (for the concurrent validity), reliability evidence of Cronbach's alpha and test-retest scores, and measurement invariance (based on the gender) were checked via SPSS 22,[15] and JASP Team.[16]

Table 2. Item examples of the Triangular Relationship Inventory

Item   2. My parents handle tension between one another without including me.
Item   9. Both of my parents use me to communicate with the other.
Item 12. I am a 'messenger' between my parents.
Item 14. I find myself distant from one parent when I am close to the other.
Item 20. My parents are more invested in my talents than their relationship with one another.

RESULTS

Data screening and assumptions

The amount of missingness was less than 2%; Little's MCAR test was non-significant (χ^2=22.55, df=20, p>0.05), and the data was accepted as MCAR, in which the expectation-maximization (EM) algorithm was applied.[17] The sample size (n=387) was fitted as required by about 200 cases to get enough power to run the CFA.[18,19] Skewness (highest value was 1.84) and kurtosis (highest value was 2.40) values were found lower than 3,[19] where the univariate distribution could be concluded as normal. Mardia's[20] coefficient (with multivariate kurtosis) indicated (730.75, p<0.01) that the multivariate normality assumption was not met, the Bootstrapping method was utilized as suggested by Byrne[21] to be a superior remedy. Univariate and multivariate outliers, multicollinearity, and linearity assumptions were also satisfied.

First-order factor analysis

The four-factor TRI indicated a mediocre model fit in CFA (Table 3). Chi-square fit statistic was significant (χ^2=580.10, p<0.001, 242, n=387), however, the normed chi-square value (2.40) was less than the suggested value of 3.[22,23] CFI=0.94 was higher than the recommended of ≥0.90.[24] NNFI=0.93 was also produced as a model-fit of NNFI≥0.93.[25] SRMR produced an accepted value of 0.07.[26] RMSEA=0.06 was also an indicator of a mediocre fit.[24] Factor loadings (Figure 1) were ranged between 0.47 and 0.92 with no cross-loadings except item 21 (My parents seem to work together only when they are dealing with my behavior) that exhibited a weak loading with 0.29. Through modification indices (items 2-3; 9-12; 13-14 and 19-20), the four-factor structure satisfied the model fit (with item 21). Moreover, the scapegoating subscale was differentiated itself from other dimensions that produced weakly (with balanced -0.12, p<0.05; with coalition 0.12, p<0.05) or nonsignificant (with mediator 0.09, p>0.05) correlations.

Higher-order factor analysis

As in the original study,[8] a higher-order factor analysis was conducted through CFA to confirm the global factor of triangulation. The results produced relatively weaker fit indices (Table 3) with χ^2/df=2.43, CFI=0.93, NNFI=0.92, RMSEA=
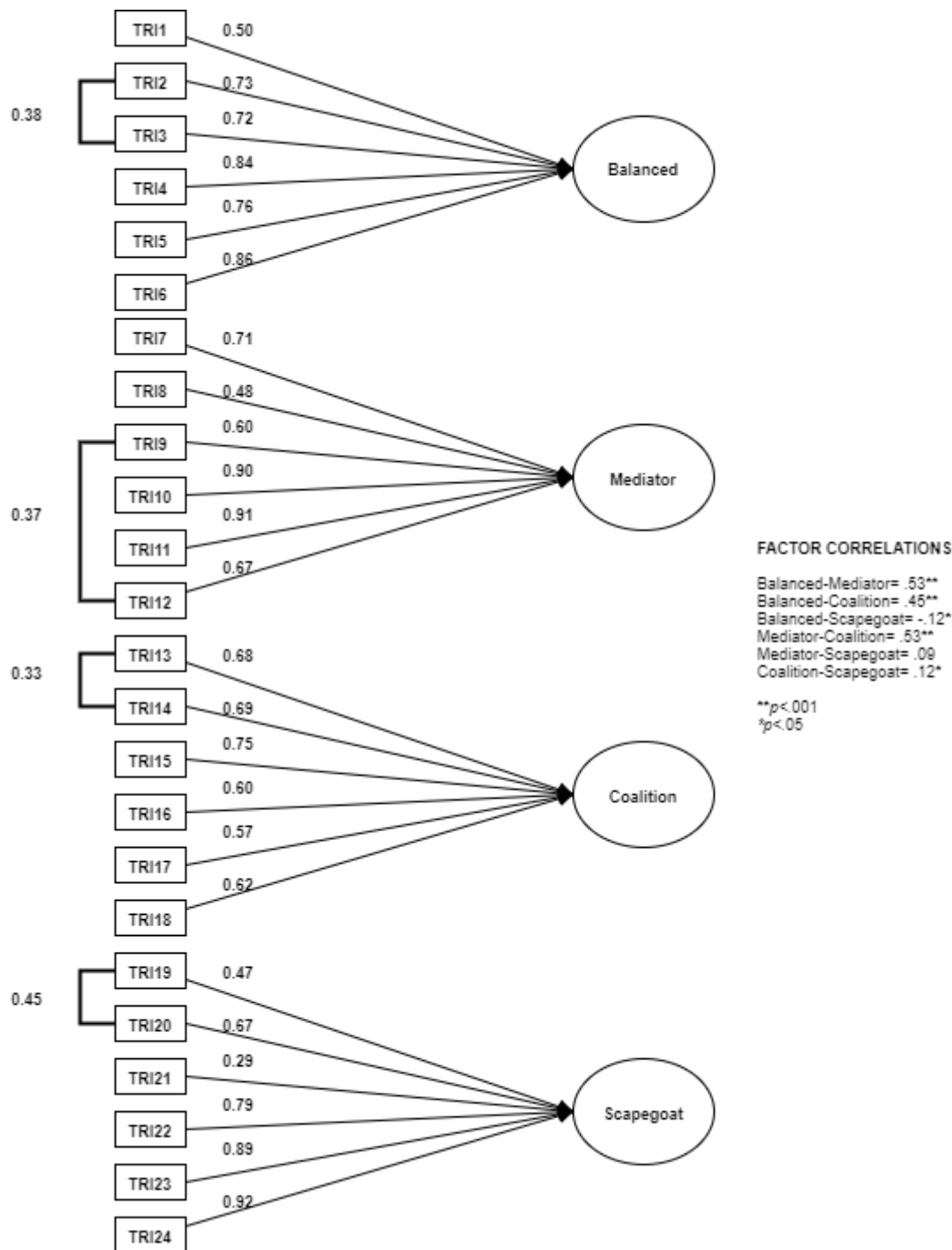
Figure 1. First-order factor analysis (CFA) of Turkish Triangular Relationship Inventory

0.06, and SRMR=0.08, and almost the same factor loadings with first-order factor analysis. However, the main problem here was that the scapegoating subscale was not significantly loaded (0.00, p>0.05) to higher-order CFA. The mediator produced the highest factor loading (0.81, p<0.001), the balanced (0.77, p<0.001), and coalition (0.70, p<0.001), dimensions were also strongly loaded to the TRI (Figure 2).

Measurement invariance

The four-phase process (configural, metric,

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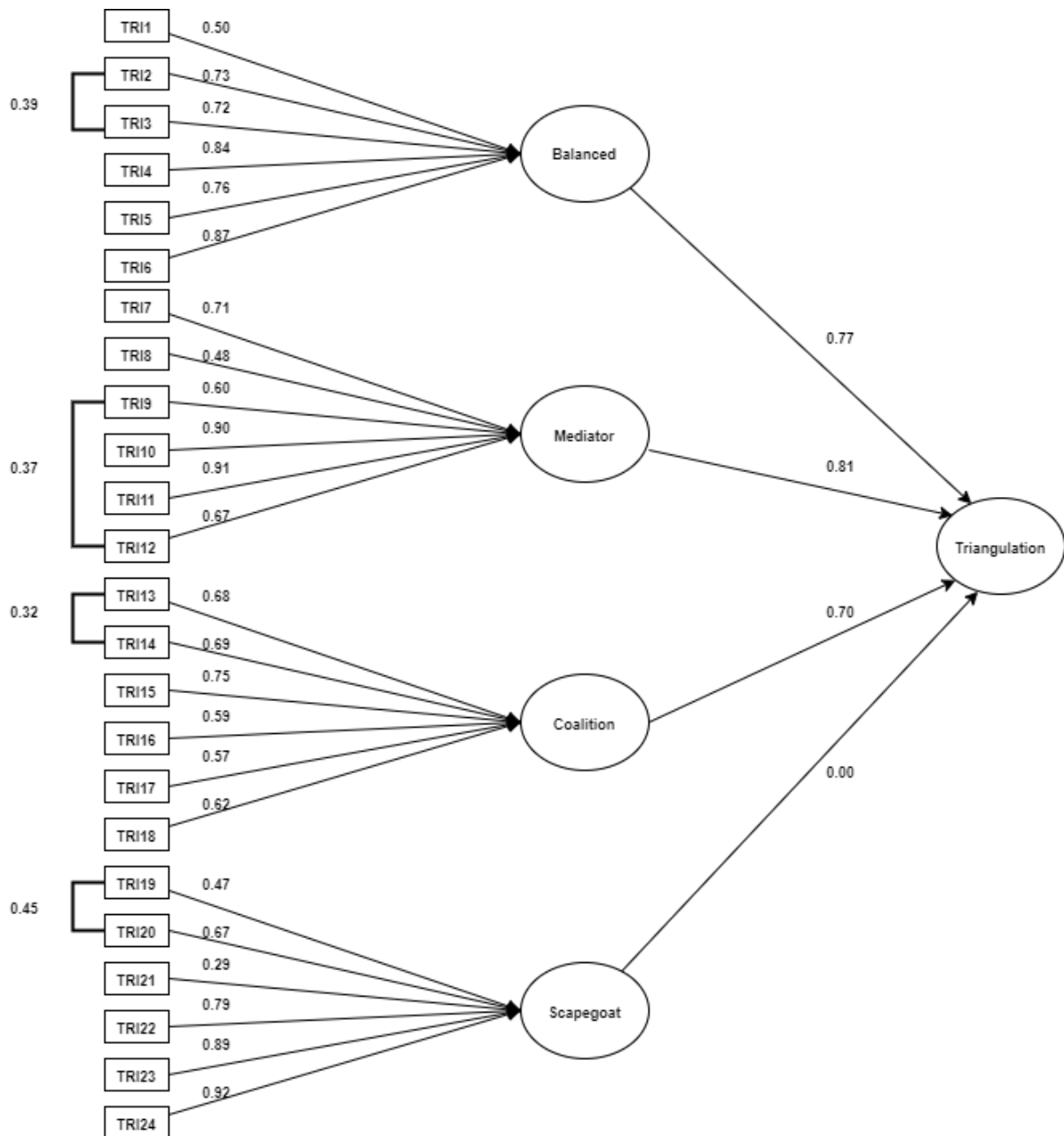**Table 3.** Model fit indices in confirmatory factor analyses

	χ^2/df	CFI	NNFI	SRMR	RMSEA
First-order	2.40	0.94	0.93	0.07	0.06
Higher-order	2.43	0.92	0.92	0.08	0.06

scalar, and error variance invariance) was conducted (on gender) as suggested by Milfont and Fischer[27] in the software program of the JASP Team.[16] The changes in the four-steps of CFI, TLI, and RMSEA were smaller than 0.01, which means that the measurement invariance across groups (women/men) was met. The highest change between steps belonged to TLI with 0.008, and the lowest belonged to RMSEA with 0.003.

Reliability

Cronbach's alpha and McDonald's Omega coef-

Figure 2. Higher-order factor analysis (CFA) of Turkish Triangular Relationship Inventory

ficients were computed as presented in Table 4, and the results showed strong coefficients.

Test-retest reliability

Bivariate correlations among the scores were calculated at Time 1 and Time 2 (with a one-month interval) to assess the test-retest reliability. The data were gathered from a different sample of 73 university students (at the same university and exhibiting similar demographic characteristics with the main sample), and calculated within a 95% confidence interval (CI), as presented in Table 4.

Convergent validity

The INTRI produced mediocre correlations with

Table 4. Reliability evidence of Triangular Relationship Inventory

	Cronbach's alpha	Omega	Test-retest	95% CI
Balanced	0.88	0.89	0.63	0.47-0.75
Mediator	0.86	0.87	0.80	0.70-0.87
Coalition	0.82	0.83	0.75	0.63-0.84
Scapegoating	0.83	0.85	0.63	0.47-0.75
TRI total	0.88	0.88	0.80	0.70-0.87

balanced (r=-0.45, p<0.001), mediator (r=-0.34, p<0.001), coalition (r=-0.47, p<0.001), and TRI total (r=-0.46, p<0.001), but no significance with scapegoating (r=-0.02, p>0.05) based on Cohen's[28] criteria. The scapegoating was also the subscale that produced a weak correlation coefficient (-0.22) with INTRI, in the original study of TRI.[8] Furthermore, the MCSDS produced no significant correlations with mediator (r=-0.09, p>0.05), and scapegoating (r=0.03, p>0.05) or weak significant correlations with balanced (r=-0.15, p <0.05), coalition (r=-0.23, p <0.001), and TRI total (r=-0.16, p<0.05), indicating that the TRI was relatively free from the social desirability.

DISCUSSION, CONCLUSION, AND RECOMMENDATION

The first-order factor analysis revealed strong evidence for the four-factor structure, but the scapegoat was only the subscale that was significantly not loaded to the higher-order model. This can be described as the most distinct difference (to findings) between the original study and the Turkish TRI. Furthermore, the scapegoat produced weak evidence of convergent validity in both studies (original and current). The first possible explanation might be the items' structural characteristics as Bresin et al.[8] also suggested further examination. The wording of the scapegoat items theoretically intersects with (another Bowenian construct of) 'focus on the child' (FC). Both constructs emphasize that parents are too focused on children's problems, and the FC was considered as 'the behavioral mani-

festation of this process may be difficult to measure'.[29] Hence, scapegoat might share a similar fate due to FC's theoretical conjunctions despite its good reliability scores in the current study. The second can be related to the worldviews of Turkish young adults. Participants might not have perceived these items as symptomatic or dysfunctional as expected because children seemed to not be the main figures in Turkish families that maintain the 'outsider' position. In Turkey, mediator and coalition configurations were more prominent, and fathers also hold scapegoating (outsider) positions, whereas children maintain 'shoulder to cry on,' 'wailing wall,' or 'emotional supporter to parents' positions.[30] The TRI supported good criterion-related evidence of validity through correlations with the INTRI was in predicted directions, except the scapegoat that exhibited nonsignificant or weak correlations. Based on the criteria that excess of 0.60 indicates 'a high degree of continuity',[31] test-retest reliability scores were also similar to the original study of TRI[8] and presented strong stability over time. Large Cronbach's alpha and McDonald's' Omega coefficients showed that scores have small amounts of random error and consistently measure the TRI dimensions, indicating strong internal consistency. The non-probabilistic convenience sampling methodology, a limited sampling to university students, and predominantly female formation of the sample limit the applicability and generalizability of the current results. In future research, more demographically, gender-balanced and clinical samples can be preferred. Bowenian constructs are increasingly drawing the attention of Turkish

researchers and practitioners that psychiatrists and family therapists may want to use the TRI to

assess how triangulation dimensions affect the family and young adults' functioning.

Authors' contributions: M.A.K.: conception, design, literature review, data collection, analyses, writing manuscript; Ş.B.: design, literature review, data processing, writing the manuscript, critical review.

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