


Turkish Version of the Revised and Short Indebtedness Scale (ISR-S): Translation, Validity, Measurement Invariance and Reliability Studies for Turkish University Students

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The purpose of this study was twofold: 1) to translate the Revised and Short version of the Indebtedness Scale (ISR-S) into the Turkish language and to assess its psychometric properties, and 2) to use this scale to explore the relationship of indebtedness with gratitude, happiness, and life satisfaction in Turkish culture. Four data sets covering a total of 883 Turkish university students were used. Construct validity of the Turkish ISR-S was assessed by using confirmatory factor and multigroup invariance analyses, and Pearson correlation test between the measure of negative affect and the ISR-S. To examine the reliability of the scale, Cronbach's coefficient alpha was used as an indicator of internal consistency, and also test-retest reliability computed over a period of four weeks. The results indicated that there is psychometric evidence for the unidimensional 9-item structure of the ISR-S in Turkish undergraduate students. Indebtedness was not found to be significantly correlated with gratitude, happiness and life satisfaction.

Key words: indebtedness, gratitude, reliability, validity, multigroup invariance

In recent years, gratitude research, a subject of growing interest in the field of positive psychology, has also attracted attention to the variables that stimulate or inhibit gratitude. Indebtedness has been reported among the variables that have been most closely related to the inhibition of gratitude in western culture (Watkins, 2014), together with narcissism, cynicism, materialism and envy (Solom, Watkins, McCurrach, & Sceibe, 2017).

Additionally, results of correlational studies revealed that people with a higher predisposition to feel indebted tend to show a lesser disposition to feel grateful (Elster, Maleki, McLeod, & Watkins, 2005; Van Gelder, Ruge, Brown, & Watkins, 2007).

As a common ground between gratitude and indebtedness, both of those concepts are referred to in the literature as psychological reactions that people may show when they

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receive favor from others (Mathews & Green, 2010). However, the concepts of indebtedness and gratitude have been distinguished in the literature. The theory of indebtedness states that indebtedness occurs as a result of the norm of reciprocity, which indicates the duty of the beneficiary to repay (Greenberg, 1980). Accordingly, indebtedness stemmed from a need of equality in social exchange (Mathews & Green, 2010) and was identified as a state of obligation to repay another (Gouldner, 1960; Greenberg & Westcott, 1983). It is typically reported to be accompanied by negative emotions (Fisher, Nadler, & Whitcher-Alagna, 1982; Greenberg, 1980) that elicit discomfort in individuals (Goei & Boster, 2005), and that is associated with negative outcomes such as decrease in self-esteem and autonomy (Fisher et al., 1982), and increase in evaluation of the benefactor (Greenberg, 1980). On the other hand, gratitude is identified as a disposition to remark and respond with grateful emotion to positive outcomes received from someone or something (Emmons & McCullough, 2003; McCullough, Emmons, & Tsang, 2002). It is reported to be a positive emotion (Algoe, Gable, & Maisel, 2010), and one which elicits positive outcomes such as positive social relationships (Algoe & Haidt, 2009; Emmons & McCullough, 2003; Wood, Joseph, & Maltby, 2009), and physical health (Emmons & McCullough, 2003).

When people receive something good from others, their emotional response may not be as simple as feeling only one of the indebted or grateful emotional reactions. They may also feel an indebted-grateful combination or neither of those two. Therefore, the determination of the factors affecting the emergence of indebtedness and/or gratitude, and the characteristics of people experiencing those two feelings, are the subject of recent research. For instance, factors such as emotional closeness to the receiver (Algoe et al.,

2010), the size of the gift (Tsang, 2007), and the perceived intention of the giver (Pelsner et al., 2015) are reported to affect whether or not one will feel indebted or grateful. Some personal characteristics reported in the literature, may also be the reason for feeling indebted. For instance, individuals high in self-focused attention (Mathews & Green, 2010), and men are reported to feel more indebted (Algoe et al., 2010) when receiving a gift.

Cultural differences and contextual variations seem to have an important role to play in the experience of and relationship between indebtedness and gratitude (Oishi, Koo, Lim, & Suh, 2019). Several studies that focused on the cultural experience and manifestation of those two features reported that in some eastern societies, such as Japanese society, people feel indebtedness along with gratitude, and this may cause avoidance of receiving favors (Benedict, 1946). Indebtedness is reported as one of the two components of gratitude together with positive feelings in some eastern cultures (Naito, Wangwan, & Tani, 2005). Besides, it is reported that people from East Asian cultures are more likely to have more intense feelings of indebtedness than people from individualistic western cultures when receiving help or a gift (Emmons & Crumpler, 2000; Hitokoto, 2016). Even among eastern cultures, there seem to be differences when it comes to experiencing gratitude and indebtedness. For instance, Thai students reported feeling more gratitude and less indebtedness than Japanese students (Naito et al., 2005).

Based on the results of previous studies (Kuranaga & Higuchi, 2011; Naito et al., 2005), gratitude seems more probably to be caused by or co-occur with indebtedness in the case of members of an interdependent society, more than in the case of members of an independent one, since most social relationships

are dominated by mutual obligation in interdependent cultures, whereas they are dominated by mutual liking in independent ones (Oishi et al., 2019). Furthermore, even members of independent cultures may experience gratitude and indebtedness connectedly in the context of close relationships, since these types of relationships include mutual interdependence (Algoe et al., 2010).

Although Turkey has long been considered to be a collectivistic culture (Kağıtçıbaşı, 1997; Kara, 2007), it is also reported in some studies that Turkish culture blends individualistic and collectivistic cultures, with the emphasis on family relationships, especially in rural parts of the country (İmamoğlu, Küller, İmamoğlu, & Küller, 1993; Kara, 2007). Therefore, the relationship between gratitude and indebtedness requires further investigation in Turkish culture.

Gratitude studies have a relatively short history in Turkey. Initial studies have focused on the adaptation of the two most widely-used gratitude measures in the world; the Gratitude Questionnaire (GQ; McCullough et al., 2002) and the short and revised version (S-GRAT; Thomas & Watkins, 2003) of the Gratitude, Resentment, and Appreciation Test (GRAT; Watkins, Woodward, Stone, & Kolts, 2003) into Turkish language and culture (Oğuz-Duran, 2017; Yüksel & Oğuz-Duran, 2012a, 2012b). In these studies, evidence on construct validity and reliability of the GQ was provided for a 5-item version of the scale compared with its original 6-item version (Yüksel & Oğuz-Duran, 2012a, 2012b), whereas evidence on construct validity and reliability of the S-GRAT was provided for its original 16-item and 3-dimensional structure (Oğuz-Duran, 2017). Turkish versions of the GQ and the S-GRAT have been used in various relational and experimental studies (e.g., Işık & Ergüner-Tekinalp, 2017; Oğuz-Duran & Tan, 2013). However, no previous research studied indebtedness on a Turkish population.

A measurement tool to assess indebtedness is required in this regard. The Short and Revised Indebtedness Scale (ISR-S; Bell & Watkins 2016) is the latest version of the Indebtedness Scale (IS), which was originally developed by Greenberg (1980). It has been used in the most recent studies on indebtedness conducted both in individualistic western (Bell & Watkins, 2016) and collectivistic eastern (Lim & Kim, 2018) cultures. Since the earlier version of the scale had poor internal consistency and item-total correlations, first, a 22-item version of the scale was developed (IS-R; Elster, Maleki, McLeod, & Watkins, 2005; VanGelder, Ruge, Brown, & Watkins, 2007) and it showed good psychometric properties. Subsequently, Bell and Watkins (2016) developed the 9-item and unidimensional version (ISR-S) and reported that indebtedness is negatively correlated with self-esteem and satisfaction with life, whereas positively correlated with cynicism and narcissism in American culture. However, the unidimensional structure of the ISR-S was not confirmed in a study on Korean participants. The ISR-S Korean version incorporated 8 items (item 9 is excluded) and two factors (Discomfort with favors and Obligation to repay), and demonstrated high internal consistency (Lim & Kim, 2018).

Preparing a Turkish version of a widely-used indebtedness scale will contribute to cross-cultural research on both indebtedness and gratitude. Additionally, it seems important to understand the role of indebtedness in social relations in Turkish culture because indebtedness is reported to motivate people to avoid, while gratitude is reported to motivate prosocial behaviors (Gray, Emmons, & Morrison, 2001). Finally, since psychological services are based on a helping relationship that may lead to indebtedness in people, in order to ensure that they benefit more from psychological services, it seems important to investigate by whom and under what conditions the feeling of indebtedness is experienced, and what are its consequences.

Therefore, a series of studies have been conducted to translate the ISR-S (Bell & Watkins, 2016) into the Turkish language and to assess its validity, measurement invariance and reliability for Turkish university students. The relationship between indebtedness and negative affect was examined, based on previous studies that reported the relationship between indebtedness and negative emotions (Fisher, Nadler, & Whitcher-Alagna, 1982; Greenberg, 1980), and discomfort (Goei & Boster, 2005). It was hypothesized that the negative affect scores would correlate significantly and positively with the ISR-S scores. One of our aims was to use the Turkish ISR-S to explore the relationship between indebtedness and gratitude in Turkish culture, since this relationship was not examined previously. Besides, happiness and life satisfaction, which are the two most reported variables associated with gratitude (Emmons & McCullough, 2003; McCullough et al., 2002; Wood

et al., 2007), were investigated in terms of their relationships with indebtedness in Turkish culture. It was hypothesized that, if indebtedness shows a significant and negative relationship with gratitude, as it does in western culture (Elster, Maleki, McLeod, & Watkins, 2005; Van Gelder, Ruge, Brown, & Watkins, 2007), then it was expected that there would also be a significant and negative correlation between indebtedness and the two correlates of gratitude. In other words, people with a higher predisposition to feel indebted are expected to tend to feel less happy and less satisfied with life.

Method

Participants

Four data sets were used in a series of studies (See Table 1). A convenience sampling method was used in all studies. Participants were

Table 1 *Sample characteristics and the studies carried out*

Data set	Characteristics	Purpose of study	Instruments used
1	21 (10 female, 11 male) <i>M</i> age = 22.04, <i>SD</i> = .80 English Language Teaching senior students	Linguistic equivalence	ISR-S (English) ISR-S (Turkish)
2	341 (251 female, 90 male) <i>M</i> age = 20.62 <i>SD</i> = 2.89 Counseling and Guidance undergraduate students	Construct validity, Internal consistency; Relationship of indebtedness with gratitude, happiness, and life satisfaction	ISR-S PANAS, GQ, OHQ, SWLS
3	521 (357 female, 164 male) <i>M</i> age = 20.99 <i>SD</i> = 3.21 Faculty of Education students	Internal consistency, Construct validity, Multigroup invariance testing	ISR-S
4	73 (52 female, 21 male) participants of Data set 3 <i>M</i> age = 21.18 <i>SD</i> = 1.03	Test-retest reliability	ISR-S

recruited from a Turkish state-funded university. They received no compensation. Participation was voluntary and anonymous.

Instruments

The participants completed the self-reported indebtedness, positive and negative affect, gratitude, happiness, and satisfaction with life measures.

Dispositional indebtedness was measured by the use of the Revised and Short Indebtedness Scale (ISR-S; Bell & Watkins, 2016). The ISR-S was translated to Turkish for the present study. Originally, the scale is a unidimensional instrument that includes 9 items, which were rated using a 6-point scale format, ranging from (-3) strongly disagree to (+3) strongly agree. In terms of evidence of construct validity, the ISR-S scores were found to be negatively related to self-esteem and satisfaction with life scores, but were positively related to cynicism and narcissism scores. Additionally, ISR-S scores were reported to have a high and positive correlation ($r = .96$) with the 22-item IS-R. Cronbach's alpha was .90, indicating good internal consistency, and test-retest reliability was good ($r = .71$) (Bell & Watkins, 2016).

The Turkish version (Gençöz, 2000) of the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988), composed of two independent measures in the form of Positive Affect (PA) and Negative Affect (NA), was employed to measure positive and negative affections. The 20-items of the PANAS was rated on a 5-point Likert response format from (1) very slightly to (5) extremely. Higher scores on the PA and NA measures denote higher positive and negative moods. The PA and NA dimensions are not opposites. The Turkish version of PANAS has good levels of reliability and validity (Gençöz, 2000).

The Turkish version (Yüksel & Oğuz-Duran, 2012a) of the Gratitude Questionnaire

(GQ; McCullough et al., 2002) was employed to assess dispositional gratitude. Although the original GQ was composed of a single-factor with 6-items, the Turkish version includes 5 items (item 6 is excluded). The GQ measures grateful disposition using a 7-point Likert response format, ranging from (1) strongly disagree to (7) strongly agree. The higher scores obtained from the GQ denote a greater level of gratitude. The Turkish GQ has demonstrated internal consistency across multiple studies on Turkish people (Yüksel & Oğuz-Duran, 2012a, 2012b; Oğuz-Duran, 2017). Additionally, GQ scores reported having a significant and positive correlation ($r = .64$, $p < .01$) with the S-GRAT (Oğuz-Duran, 2017) scores, indicating evidence for criterion validity.

The Turkish version (Köker, 1991) of the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985), a unidimensional scale that included 5-items and was rated on a 7-point Likert response format, ranging from (1) strongly disagree to (7) strongly agree, was employed to measure life satisfaction. A higher SWLS score denotes higher life satisfaction. The SWLS has good levels of reliability and validity across multiple studies on Turkish populations (e.g., Köker, 1991; Yetim, 1993).

The Turkish version (Doğan & Çötök, 2011) of the Oxford Happiness Questionnaire (OHS; Hills & Argyle, 2002) was employed to measure the happiness levels of the participants. The OHQ is a unidimensional instrument, rated on a 5-point Likert scale ranging from (1) strongly disagree to (5) strongly agree. A higher OHS score denotes a higher level of happiness. Two items (items 1 and 7) are reverse coded. Although the original OHQ was composed of 8 items, the Turkish version includes only 7 items (item 4 is excluded). The Turkish OHQ has good levels of reliability and validity (Doğan & Çötök, 2011).

Procedure

To develop a Turkish version of the ISR-S, first, permission to adapt the scale into Turkish was obtained from Philip Watkins (Bell & Watkins, 2006) by e-mail correspondence. The English version of the ISR-S was translated into Turkish by four independent faculty members, who had graduated from or had worked at English-medium universities. All experts met the criterion of having sufficient combined knowledge of the language, culture, content, and general principles of testing (ITC, 2018) for this exercise. Four versions were discussed and combined into one by other three Faculty members from the Department of Psychological Counseling and Guidance. A bilingual Turkish philologist revised the translation, and a faculty member of the English Language Teaching Department of the author's university translated the revised Turkish version back into English. The back-translated version and the original version was compared by the researcher and a bilingual faculty member. Finally, to ensure the linguistic equivalence of the two forms with a bilingual answers method, the final Turkish translation and the original versions of the ISR-S were administered to English Language Teaching senior students (Data set 1). All the participants completed the English version of the ISR-S first. Participation in the study was voluntary and anonymous. The Pearson coefficients of the total scores and the individual equivalent items for Turkish and English versions of the ISR-S were calculated. The relationship between the two measures was significantly high and positive ($r = .80, p < .001$), indicating good convergence. Additionally, correlations between the individual equivalent items ranged from .66 (item 1) to .75 (item 7), except the correlation for item 9 ($r = .40$).

After the translation procedures of the scale were completed, data were collected by

the researcher in February and March 2019 using the Turkish ISR-S in a classroom setting. The participants gave their informed consent to be involved in the study. Enough time was given to them to read and respond to each item.

Data Analyses

First, the convergence between the Turkish version of the ISR-S and the original was measured by the Pearson Product Moment Correlation analysis. Then, to see whether the structure of the ISR-S is unidimensional, as in the original model, this structure was tested on Data set 2, using Confirmatory Factor Analysis (CFA). CFA was conducted utilizing the Robust Maximum Likelihood estimator since the performance of the chi-square difference test is affected by non-normality (Cheung & Rensvold, 2002). The unidimensional model was confirmed by a second CFA on Data set 3. Multigroup CFAs were performed to test the measurement invariance of the ISR-S factor structure across gender, based on the steps suggested by Meredith (1993). Measurement invariance testing includes four hierarchical levels: 1) configural invariance, which requires the same structure across groups; 2) weak factorial (metric) invariance, which requires the same factor loadings across groups; 3) strong (scalar) invariance, which requires the same item intercepts across groups; and 4) strict invariance, which requires the same residual variances across groups (Meredith, 1993). However, since the fourth level represents a highly constrained model and is rarely achieved in practice (Bialosiewicz, Murphy, & Berry, 2013), the first three levels of measurement invariance were tested in this study. Goodness-of-fit indices used to assess model fit were the Chi-square, degrees of freedom, the comparative fit index (CFI), the Tucker-Lewis index (TLI), the

root mean error of approximation (RMSEA), and the standardized root-mean-square residual (SRMR). Acceptable fit index cutoffs are CFI, TLI \geq .90, SRMR \leq .05 (Byrne, 2010; Hu & Bentler, 1998) and RMSEA \leq .10 (Schermele-Engel, Moosbrugger, & Müller, 2003). For the Δ CFI, the robust statistic for testing the between-group invariance, the acceptable value to assume invariance is $-.01 \leq \Delta$ CFI \leq .01 (Cheung & Rensvold, 2002).

In addition to CFA and Multigroup CFAs, to examine the construct validity of the Turkish ISR-S, Pearson correlation coefficients were calculated (Messick, 1995) to examine the relationship between ISR-S scores and PANAS scores. Pearson correlations were also calculated to examine the relationship of indebtedness with gratitude, happiness, and life satisfaction (Data set 2). Cohen's (1988) criteria for effect size (.10–.30 = small; .30–.50 = medium, and $>.50$ = large effect size) were used to interpret correlation coefficients.

The internal consistency (Cronbach's α) and test-retest methods (Data set 4) were used to test reliability. The recommended .70 cut-off criteria (Nunnally & Bernstein 1994) were used for internal consistency. Finally, for investigating the relationship of indebtedness with gratitude, happiness, and life satisfaction Pearson coefficients were calculated.

Mplus 7.4 was used for CFA and Multigroup CFAs. For all other data analyses, the Statistical Package for Social Sciences (SPSS) Version 23.00 software was used.

Results

Construct Validity and Internal Consistency

To provide the first evidence of construct validity of the Turkish ISR-S, CFA was applied to Data set 2 to test the unidimensional 9-item structure (Bell & Watkins, 2016). CFA results ($\chi^2 = 1052.63$, $df = 36$, CFI = .90, TLI = .87, RM-

SEA = .10) indicated a relationship between the error variances of items 5–7, and items 6–8. Since these items measure the same trait under the same factor, an error covariance added to the model and the CFA was repeated. The modified model revealed better fit indices ($\chi^2 = 74.249$, $df = 25$, CFI = .95, TLI = .93, RMSEA = .08, SRMR = .04). All parameters were significant ($p < .001$). These fit indices confirmed the appropriateness of the unidimensional 9-item model devised by Bell and Watkins (2016). The path diagram for the model is presented in Figure 1.

To provide further evidence for the construct validity of the Turkish ISR-S, the scale was administered along with the PANAS (Data set 2). Results are presented in Table 3. There was no significant correlation between the ISR-S score and the PA ($r = -.08$, $p > .05$) scores. On the other hand, as hypothesized, a significant and positive correlation was found between the ISR-S and the NA scores ($r = .24$, $p < .01$), indicating that students reporting higher indebtedness also reported higher negative emotions. However, based on Cohen's (1988) criteria, the size of the effect for this correlation is small.

The reliability of the Turkish ISR-S was assessed using the internal consistency method. The Cronbach's α coefficient calculated for the scale was .79, higher than the recommended cut-off of .70 (Nunnally & Bernstein 1994), indicating good internal consistency.

Internal Consistency, Construct Validity, and Multigroup Invariance

The Cronbach's α value was also calculated for the ISR-S scores on Data set 3. The α coefficient calculated for this data ($N = 521$) was .80, indicating good internal consistency. Next, to test the unidimensional factor structure of the Turkish ISR-S, CFA was applied to the same data set. Additionally, to

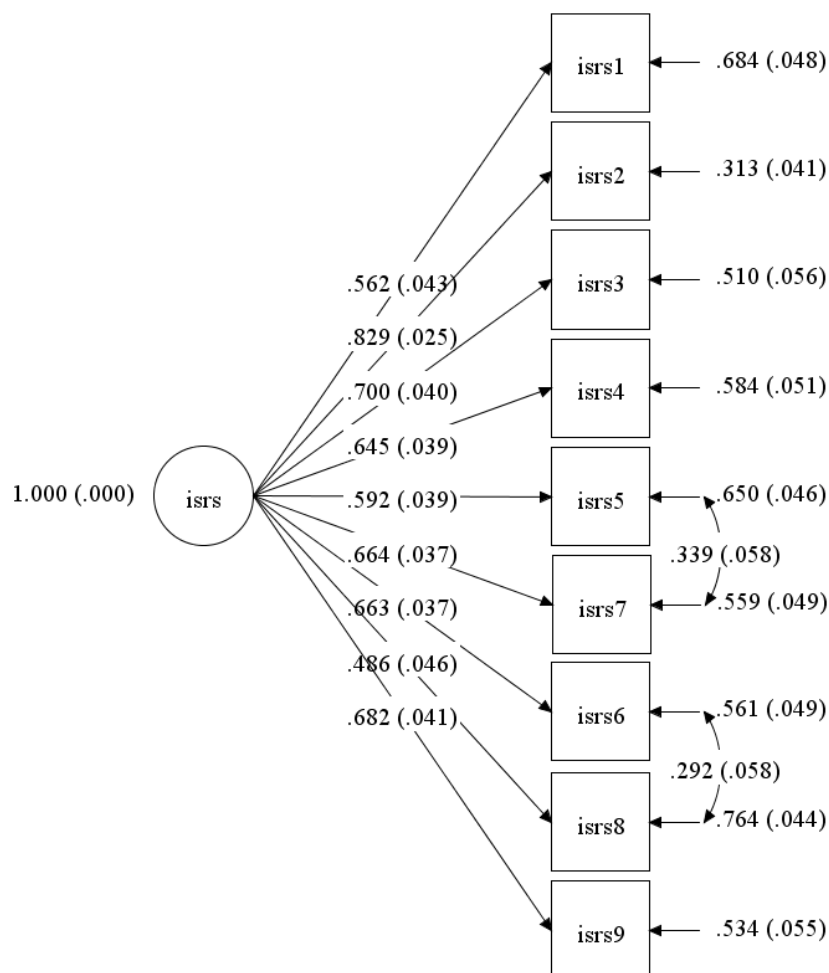


Figure 1 Path diagram of the model with standardized values ($N = 341$)

test the multigroup invariance of the ISR-S across gender, Multigroup CFAs were conducted.

CFA results ($\chi^2 = 124.281$, $df = 27$, $CFI = .90$, $TLI = .87$, $RMSEA = .10$, $SRMR = .05$) indicated a relationship between the error variances of items 5–7, and items 6–8. Therefore, an error covariance added to the model and the CFA was repeated. The modified model revealed

better fit indices ($\chi^2 = 107.914$, $df = 25$, $CFI = .94$, $TLI = .92$, $RMSEA = .08$, $SRMR = .04$). All parameters were significant ($p < .001$). These fit indices confirmed the appropriateness of the original model devised by Bell and Watkins (2016). The path diagram of the hypothesized model is presented in Figure 2. The results of multigroup CFAs are presented in Table 2.

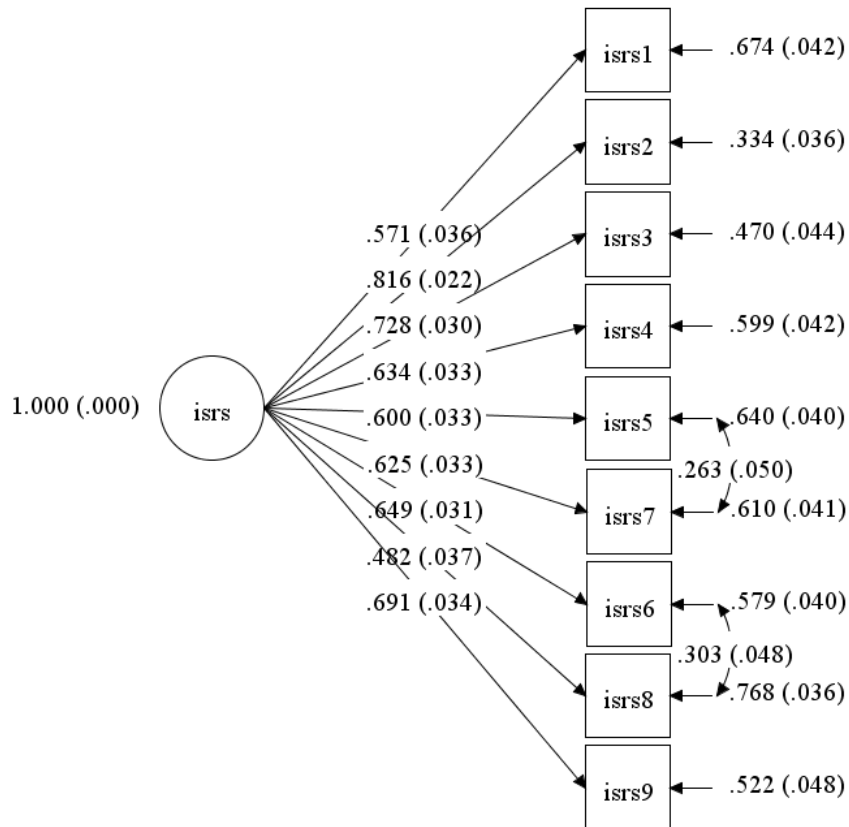


Figure 2 Path diagram of the model with standardized values ($N = 521$)

Additionally, as seen in Table 2, based on the fit indices, CFI, TLI $\geq .90$, SRMR $\leq .05$ (Byrne, 2010; Hu & Bentler, 1998) and RMSEA $\leq .10$ (Schermelel-Engel, Moosbrugger, & Müller, 2003), it was concluded that configural, metric, and scalar invariance exists across gender subgroups. When the metric invariance model is compared with the configural invariance model, and the scalar invariance model is compared with the metric invariance model, Δ CFIs were within acceptable values, $-.01 \leq \Delta$ CFI $\leq .01$ (Cheung & Rensvold, 2002), indicating that the ISR-S is scalar invariant. In other words, the ISR-S shows the same structure, the same factor loadings, and

the same item intercepts across gender (Meredith, 1993).

Test-Retest Reliability

To examine the test-retest reliability of the Turkish ISR-S, 73 participants (Data set 4) were asked to complete the scale two times in a four-week interval. A high and positive correlation between the two measurements was hypothesized as an indicator of the test-retest reliability of the scale. Correlations between the measurements at two points in time were calculated. The stability over time was sufficient ($r = .75, p < .01$).

Table 2 Model fit indices for invariance tests (N= 521)

Model	χ^2	df	p	RMSEA	CFI	TLI	SRMR	Δ CFI
Baseline	107.914	25	<.001	.08	.94	.92	.04	-
Baseline (female)	96.921	25	<.001	.09	.93	.90	.05	-
Baseline (male)	40.336	25	<.001	.06	.97	.95	.04	-
Configural	136.518	50	<.001	.08	.94	.91	.04	-
Metric	148.155	58	<.001	.08	.93	.92	.05	.00
Scalar	180.481	66	<.001	.08	.92	.91	.05	-.01

Note. χ^2 = chi-square statistic; RMSEA = robust root-mean-square error of approximation; CFI = comparative fit index; TLI = Tucker-Lewis index; SRMR = standardized root-mean-square residual; Δ CFI = robust statistic.

Table 3 Descriptive statistics and bivariate correlations among variables (n = 341)

Scale	M (SD)	1.	2.	3.	4.	5.	6.	α
1. ISR-S	.055 (11.71)	-						.87
2. GQ	25.83 (5.14)	-.02	-					.74
3. OHS	23.46 (4.07)	.14	.41*	-				.74
4. SWLS	21.88 (5.83)	-.10	.45*	.64*	-			.82
5. PA	34.81 (5.83)	-.08	.15*	.47*	.28*	-		.79
6. NA	22.56 (6.66)	.24*	-.20*	-.46*	-.35*	-.21*	-	.81

Note. ISR-S = The Revised and Short Version of Indebtedness Scale; GQ = Gratitude Questionnaire; OHS= Oxford Happiness Scale; SWLS = Satisfaction with Life Scale; PA = Positive Affect subscale of PANAS; NA = Negative Affect Subscale of PANAS; α = Cronbach's alpha.

* $p < .01$

The Relationship of Indebtedness with Gratitude, Happiness and Life Satisfaction

Using Data set 2, Pearson Product Correlation analysis was conducted to test the relationships among the ISR-S, the GQ, the OHS, and the SWLS scores. Cronbach's alpha values for all measures and descriptive statistics are presented in Table 3.

As seen in Table 3, all measures have good levels of internal consistency, with alphas ran-

ging between .74 and .87. ISR-S scores were not found to be significantly correlated with GQ, OHS and SWLS scores. Therefore, indebtedness was not significantly correlated with gratitude and its two correlates, happiness and life-satisfaction, in Turkish undergraduate students. On the other hand, GQ scores were found to be significantly correlated with all measures, except ISR-S scores. There was a significant correlation between GQ scores and OHS ($r = .41, p < .01$), and SWLS ($r = .45, p < .01$) scores in a positive direction.

Discussion

This study is the first to examine the psychometric properties of the Turkish version of the ISR-S (Bells & Watkins, 2016). For this purpose, the authors first translated the ISR-S into Turkish. Then, the 9-item unidimensional model devised by Bell and Watkins (2016) was tested and showed an acceptable fit. The results are in agreement with the findings obtained in the original study. Therefore, the unidimensional model tested in the “western” sample was adequate in the Turkish sample as well.

To evaluate the reliability of the scale, Cronbach’s coefficient alpha was used as an indicator of internal consistency, and also test-retest reliability computed over a period of four weeks. The Turkish ISR-S has shown good internal consistency since the calculated Cronbach’s alpha coefficients were over the recommended .70 cut-off criteria (Nunnally & Bernstein 1994). In addition, the results showed good test-retest reliability ($r = .75, p < .01$). In other words, the Turkish ISR-S showed sufficient internal consistency for the Turkish sample, as was previously reported for American sample (Bell & Watkins, 2016) and Korean sample (Lim & Kim, 2018), and test-retest reliability.

In addition, ISR-S scores were found to be positively and significantly correlated with the negative affect measure, consistent with research indicating that indebtedness is associated with negative emotions (Fisher et al., 1982; Greenberg, 1980) and causes discomfort on the part of individuals (Goei & Boster, 2007). But, the size of the effect for this correlation was small. Therefore, further studies are needed to provide evidence for the construct validity of the scale.

Moreover, this study contributed to the research on the ISR-S by examining the gender invariance of the Turkish version of the scale.

The Multigroup CFAs demonstrated that the configural, metric, and scalar invariance of the Turkish ISR-S held across gender groups. These findings suggest that there was no evidence of differences in the structure of the ISR-S or understanding of the individual items across genders.

In addition to the scale adaptation studies conducted in this research, by using the Turkish version of the ISR-S in Turkish culture for the first time, the relationship between indebtedness and gratitude, happiness, and life satisfaction were also tested. Previous studies reported a significant relationship between gratitude and well-being indicators (Emmons & McCullough, 2003; McCullough et al., 2002; Wood et al., 2007). This finding was replicated in the present study, as well as in the earlier studies on gratitude in the Turkish culture (Yüksel & Oğuz-Duran, 2012a, 2012b). However, although it was expected that indebtedness would be significantly and negatively correlated with gratitude, as is the case in western culture (Elster, Maleki, McLeod, & Watkins, 2005; Van Gelder, Ruge, Brown, & Watkins, 2007), no significant relationship was found. Similarly, indebtedness was not found significantly related with the two correlates of gratitude, happiness and life satisfaction. Therefore, these findings were not only contrasting somewhat with the findings obtained from individualistic western samples, but were also inconsistent with previous research findings obtained from collectivistic eastern samples. Because, considering the research findings from the collectivistic eastern culture, a positive relationship could have been expected between indebtedness and gratitude in Turkish culture. It was previously reported that gratitude more probably caused by or co-occurred with indebtedness in the case of members of an interdependent society, more than in the case of members of an independent one (Kuranaga & Higuchi,

2011; Naito et al., 2005), since most social relationships are dominated by mutual obligation in interdependent cultures, whereas they are dominated by mutual liking in independent ones (Oishi et al., 2019). As a result, it is thought that the findings of this study could be explained by the complex nature of Turkish culture, which shows both individualistic and collectivist cultural characteristics. The urbanization hypothesis proposes that traditionally collectivist cultures adopt individualistic values as their people become more lettered and more urban (Reykowski, 1994). In the present study, the participants recruited from a Turkish university were located in the most industrialized region of the country. Therefore, although these students represent a “more lettered” and “more urban” population in Turkish culture, they may also have some collectivistic characteristics, since some of them came from more traditional regions of Turkey for their university education. Therefore, in order to compare the relationship between indebtedness and gratitude in Turkish culture in terms of similarity to western or eastern culture, it may be suitable to conduct research in which individualistic and collectivistic features are measured and controlled. Additionally, future studies on other populations in Turkey seem necessary to clarify the findings on the relationship between indebtedness and gratitude in Turkish culture.

To sum up, the results of this study show that there is psychometric evidence for a unidimensional structure of the 9-item ISR-S in Turkish undergraduate students. However, in spite of the contributions of the study to the existing literature, this study has limitations that need to be considered. Initially, the participants of this study were Turkish university students, recruited from only one Turkish state-funded university. To enhance the generalizability of the findings to all university students in Turkey, further validation studies

could be done using more diverse samples. Besides, future studies should continue to examine ISR-S in other samples in Turkey. Since only the gender invariance was examined in this study, further studies should also examine measurement invariance across other groups. Other factors such as age, education level, socio-economic status, place of residence (urban or rural populations), etc., may also influence indebtedness in Turkish culture. Additionally, since indebtedness was not found to be significantly correlated with gratitude and other well-being indicators in this study, future studies could focus on, and clarify the cultural determinants of this result. Finally, one or more relevant criterion variables to the Turkish version of the ISR-S are needed to confirm the validity of the target scale in future studies, since the only criterion validity evidence was the relationship between ISR-S scores and NA scores (with a small effect size) in the present study. Examining the relationship between indebtedness and sense of responsibility, which refers to an awareness of one’s duties and obligations, could be used to obtain further evidence for the construct validity of the scale in future studies.

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