Journal of Psychopathology and Behavioral Assessment (2019) 41:294–303
https://doi.org/10.1007/s10862-019-09732-3

Psychometric Properties of the Turkish Version of the Interpersonal Emotion Regulation Questionnaire (IERQ)

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Published online: 11 March 2019

Abstract

Despite a vast amount of literature regarding emotion regulation throughout the years, the interpersonal emotion regulation has been underestimated to a large extent until the past few years. With the purpose of encouraging and filling the gap of research on interpersonal emotion regulation, Hofmann et al. (*Cognitive Therapy and Research*, *40*(3), 341–356, 2016) have developed Interpersonal Emotion Regulation Questionnaire (IERQ). The current study aims to conduct the adaptation study of Interpersonal Emotion Regulation Questionnaire (IERQ) into Turkish culture and assess its psychometric properties. To the best of our knowledge, interpersonal emotion regulation as a culture-sensitive construct has not been tested in a non-western culture with distinct interpersonal relationship dynamics. Results revealed that the proposed four-factor model fits the data sufficiently and thus provided support for the original factor structure proposed by Hofmann et al. (*Cognitive Therapy and Research*, *40*(3), 341–356, 2016). Overall, results revealed that the Turkish version of IERQ is a valid and reliable self-report measure which can be used to assess the ways individuals utilize others to regulate their own emotions.

Keywords Emotion · Emotion regulation · Interpersonal emotion regulation · Scale adaptation

Emotional experiences are essential and inevitable parts of our lives. Although we do not have perfect control over our emotions, we all try to modify what we feel by using different strategies such as avoiding unpleasant situations or changing the way we think. This process is known as emotion regulation. In general, successful emotion regulation has been associated with positive outcomes related to physical health, mental health, work and/or academic performance, and social relationships (John and Gross 2004), while emotion regulation difficulties have been associated with a variety of psychological disorders (e.g., Campbell-Sills et al. 2006; Garnefski and Kraaij 2006; Gross and John 2003; Rude and McCarthy 2003; Werner et al. 2011).

A common feature of studies on emotion regulation is that they investigate such regulatory processes from an intrapersonal perspective. For instance, the highly influential intrapersonal model of Gross (e.g., Gross 2002; Gross and John 2003; Gross and Levenson 1997) defines emotion regulation as the processes by which individuals try to control the type, timing, and expression of emotions. Key findings from this model include the idea that antecedent-focused strategies are relatively useful in the short term, whereas response-focused strategies can be maladaptive (Gross 2002; Gross and John 2003; Gross and Levenson 1997), and that reappraisal and acceptance of negative emotions are more effective than suppression for regulating physiological arousal (e.g., Amstadter 2008; Cisler et al. 2010; Berking et al. 2013, 2014; Hofmann et al. 2012; Mennin et al. 2005; Wirtz et al. 2014). Moreover, reappraisal has been found to be more effective for regulating the subjective feeling of anxiety relative to suppression or acceptance (Hofmann 2014).

Although our knowledge of emotion regulation has been improved as a result of contemporary intrapersonal theories and related research, the focus on intrapersonal emotion regulation has left significant gaps in the literature. Emotion regulation is a complex phenomenon which involves the interplay of both intrinsic and extrinsic influences, and it starts early in the developmental process (Calkins and Hill 2007).

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Therefore, to be able to understand the underlying mechanisms of emotion regulation properly, interpersonal emotion regulation should also be investigated. Indeed, recent theories (e.g., Zaki and Williams 2013; Hofmann 2014) highlight the need to examine interpersonal emotion regulation to complement existing theories of intrapersonal emotion regulation. In their framework, Zaki and Williams (2013) proposed that interpersonal emotion regulation can be either intrinsic or extrinsic (i.e., regulation may be performed to alter either the emotional experience of oneself or someone else).

Furthermore, Zaki and Williams (2013) identified two separate processes of interpersonal emotion regulation: response-independent versus response-dependent. This model of interpersonal emotion regulation was adopted to mood and anxiety disorders, providing a theoretical framework to describe how anxiety and mood disorders can be characterized by deficits in interpersonal emotion regulation (Hofmann 2014). Accordingly, it is proposed that interpersonal emotion regulation strategies can be adaptive if they act as a buffer for emotional stress. On the other hand, they can also be maladaptive if they play a part in the maintenance of a chronic disorder such as social anxiety or obsessive-compulsive disorder, in that habitual reliance on other people for reassurance as a form of avoidance (Hofmann 2014).

Although these models contributed to theoretical knowledge of interpersonal emotion regulation, there has been a relative lack of psychometrically, well-validated instruments that measure this construct. Recently, Hofmann et al. (2016) developed a brief, valid, and reliable self-report questionnaire assessing interpersonal emotion regulation. The Interpersonal Emotion Regulation Questionnaire (IERQ; Hofmann et al. 2016) has 20 items, and four factors with five items in each factor. The factors are *Enhancing Positive Affect* (i.e. looking for others to enhance feelings of happiness and joy), *Perspective Taking* (i.e. utilizing others to be reminded not to worry and that there are people who are in worse conditions), *Soothing* (i.e. looking to others for feelings of comfort and sympathy) and *Social Modeling* (i.e. observing other people to see how they deal with similar situations). Convergent and discriminant validity of the scale was examined by exploring the relationship between the subscales of the IERQ and various measures of emotion regulation, anxiety, depression, coping, attachment styles, and emotional intelligence. The results demonstrated that the IERQ exhibited good psychometric characteristics and validity with related constructs.

The main purpose of the current study is to examine the psychometric characteristics of the IERQ in a Turkish sample. The original validation study was conducted in the United States; therefore, the present study is well designed to address interesting questions regarding cultural differences. One of the essential cultural dimensions that constitute cultural differences in social behavior is that of individualism versus collectivism (Hofstede 2001). Individualistic societies such as the United States are characterized by loose social ties in which every individual in the society is solely assumed to be responsible for himself/herself and his/her immediate family members. On the other hand, collectivistic societies (i.e., Turkey) are distinguished by strong social ties in which all individuals emphasize cohesiveness and demonstrate greater in-group orientation (Hofstede 1991). Furthermore, cultural models of emotion may influence responses to measures of emotion regulation such that responses that are congruent with such models may be more likely to be endorsed, while endorsement of culturally incongruent responses may be more likely to be avoided (Mesquita and Albert 2007). In addition, Hofmann et al. (2016) also emphasized the role of cultural context in their original paper and further posited that there is a relationship between interpersonal emotion regulation strategies and social norms/expectations. Therefore, the investigation of the IERQ in a collectivistic society will open new avenues of research in the area of emotion regulation and contribute to our understanding of the relationship between interpersonal emotion regulation strategies and related constructs such as psychopathology among Turkish individuals.

Method

Participants

A total of 302 participants (54 males, 248 females) between the ages of 19 and 65 were recruited via google forms. The link for the google forms was advertised throughout social media like Facebook and Twitter. Sample size was not predetermined with reference to effect size. Rather, participants had 4 weeks to complete the online survey. The mean age of the sample was 27.86 (SD = 10.76). The majority of the sample (61%) was between the ages of 19–24, followed by the ages of 25–32 (n = 19.8%) and 49–56 (19.2%). The majority of the sample (71.4%) had "Bachelor's degree." The remaining participant endorsed having attained a "Master's degree" (18.8%) or "High school diploma" (9.8%).

All of the participants were contacted to take part in the re-testing phase after two weeks from the data collection phase was stopped. A total of 118 participants responded and took part in the second phase of the study. The sample comprised 90 (76.27%) females. The mean age of the sample was 26.73 (SD = 9.59).

Measures

Interpersonal Emotion Regulation Questionnaire (IERQ)

The IERQ (Hofmann et al. 2016) is a 20-item 5-point Likert type (1 = not true for me at all to 5 = extremely true for me) scale that measures how individuals utilize other people to regulate their own emotions. The scale consists of four factors each

containing five items: *Enhancing Positive Affect* (i.e. inclination to look to others to enhance feelings of happiness and joy), *Perspective Taking* (i.e. using others to be reminded not to worry and that there are people who are in a worse condition), *Soothing* (i.e. looking to others for feelings of comfort and sympathy) and *Social Modeling* (i.e. observing other people to see how they deal with that given situation). The internal consistency of four factors were as follows: 0.87 for the *Enhancing Positive Affect,* 0.85 for the *Perspective Taking,* 0.89 for the *Soothing* and 0.91 for the *Social Modeling* (Hofmann et al. 2016).

In the current study, following the translation of the items to Turkish by a psychology professor, three bilingual professionals from the psychology field back-translated the scale into English. After this procedure, items were reevaluated, and the Turkish version of the scale was finalized. The internal consistency and test-retest reliability scores for the Turkish version of IERQ are presented in the Results section.

Emotion Regulation Questionnaire (ERQ)

The ERQ (Gross and John 2003) is a 10-item, 7-point Likert type (1 = strongly disagree to 7 = strongly agree) self-report measure that assesses respondents' inclination to regulate their emotions through two strategies: Cognitive Reappraisal and Expressive Suppression.

The scale was adapted to Turkish by Yurtsever (2008), and Turkish translations of some items and Likert scale were reevaluated, and new versions of these items were used in a study by Aka and Gençöz (2014). The Cronbach alpha coefficients were 0.85 for Cognitive Reappraisal subscale and 0.78 for Expressive Suppression subscale. In the current study, the Cronbach alpha coefficients were 0.85 for Cognitive Reappraisal and 0.69 for Expressive Suppression subscales.

Emotion Regulation Processes

Emotion Regulation Processes (Schutte et al. 2009) is a 28-item, 7-point Likert type measure that assesses emotion regulation strategies proposed by Gross and John (2003) in the process model of emotion regulation. Each of the seven emotion regulation strategies is represented by four items. The Turkish adaptation of this measure was conducted by Aka in 2011. The internal consistency coefficients for antecedent-focused and response-focused strategies were 0.86 and 0.83, respectively. In the current study, the Cronbach alpha coefficients were 0.91 for antecedent-focused strategies and 0.83 for response-focused strategies.

Brief COPE

The Brief COPE (Carver 1997) is a self-report measure that assesses the use of various coping strategies. It consists of 28-items and 14-subscales (2-items for each). The subscales are as follows: active coping, planning, positive reframing, acceptance, humor, religion, using emotional support, using instrumental support, self-distraction, denial, venting, substance use, behavioral disengagement, and self-blame.

The Turkish adaptation of Brief COPE was done by Tuna in 2003, and it consisted of 26-items and13-subscales. The Cronbach alpha coefficients ranged from 0.26 to 0.91. In the current study, the Cronbach alpha coefficients ranged from 0.46 to 0.94. Due to low internal consistency reliability score on Venting subscale, it was omitted from further analyses. Thus, the measure consisted of 26-items and 13 subscales in the current study.

Modified Schutte Emotional Intelligence Scale (M-SEIS)

The M-SEIS (Austin et al. 2004) is the revised version of the 33-item, 4-point Likert scale of Schutte's (1998) Emotional Intelligence Scale (SEIS). The modified version of the scale consists of 41-items and three factors: Optimism/Mood Regulation, Utilization of Emotions, and Appraisal of Emotions. The overall score can be used as an index of emotional intelligence. The Turkish adaptation of the M-SEIS was conducted by Tatar, Tok, and Saltukoglu in 2011. The Cronbach alpha coefficient for the total scale was 0.82. In the current study, the total scale was used, and it exhibited a Cronbach alpha coefficient of 0.88.

Experiences in Close Relationships-Revised (ECR-R)

The ECR-R (Fraley et al. 2000) is a 7-point (1 = totally disagree to 7 = totally agree) Likert measure developed to assess adult attachment styles. It consists of 36 items (18 items for anxiety dimension, and 18 items for avoidance dimension). The Turkish adaptation of ECR-R was done by Selçuk, Günaydın, Sümer and Uysal in Selçuk et al. 2005. The Cronbach alpha coefficients were 0.86 and 0.90 for anxiety and avoidance dimensions, respectively. In the current study, the Cronbach alpha coefficients were 0.92 and 0.90 for the anxiety and avoidance dimensions, respectively.

Liebowitz Social Anxiety Scale

The Liebowitz Social Anxiety Scale (Liebowitz 1987) measures the level of anxiety and avoidance in various social and performance situations. The scale consists of 24-items and uses a 4-point Likert scale for "fear or anxiety" and "avoidance behavior." The Turkish adaptation of the scale was conducted by Soykan et al. (2003) and the Cronbach alpha for the total scale was 0.98. In the current study, the Cronbach alpha coefficient for the total scale was 0.95.

The Revised UCLA Loneliness Scale (R-UCLA)

The Revised UCLA (University of California, Los Angeles) Loneliness Scale is a 20-item and 4-point Likert type (1= I never feel this way to 4= I often feel this way) self-report measure that assesses individual's general subjective feelings of loneliness and social isolation. Originally, the scale was developed by Russell et al. (1978) and later revised by Russell et al. (1980). Demir (1989) investigated the psychometric properties of the Turkish version of the scale, and the Cronbach alpha coefficient was 0.96. In the current study, the Cronbach alpha coefficient was 0.90.

State-Trait Anxiety Inventory (STAI)

The STAI (Spielberger et al. 1970) is a 4-point Likert type, self-report inventory that measures the severity of anxiety symptoms. There are two separate scales within the measure, each consisting of 20-items. State Anxiety (S-Anxiety) evaluates how respondents feel "right now," whereas Trait Anxiety (T-Anxiety) evaluates general "anxiety proneness." The Turkish version of the STAI has been shown to have good reliability and validity (Öner and Le Compte 1998). In the current study, the Cronbach alpha coefficients were 0.93 for S-Anxiety, and 0.89 for T-Anxiety subscales.

State-Trait Depression Inventory (STDI)

The STDI (Spielberger et al. 2003) is a 4-point Likert type self-report inventory that measures two distinct forms of depressive mood: depression as a state (i.e., transient emotional condition) and trait (i.e., general depression proneness). Two subscales (S-Depression and T-Depression) each consist of 10 items (i.e., five items measuring dysthymia and five items measuring euthymia). The Turkish adaptation of STDI has been carried out by Özer and Özer (2009). The Cronbach alpha coefficients were 0.82 for S-Depression scale and 0.83 for T-Depression scale, respectively (Özer and Özer 2006, 2009). In the current study, the Cronbach alpha coefficients were 0.90 for S-Depression and 0.92 for T-Depression subscale.

Difficulties in Emotion Regulation Scale (DERS)

DERS (Gratz and Roemer 2004) measures six dimensions of self-regulatory difficulties. These dimensions are *awareness*, *clarity*, *non-acceptance*, *strategies*, *impulse*, and *goals*. The scale contains 36-items, and all of the items are rated on a 5-point (1 = Almost Never to 5 = Almost Always) Likert scale. The Turkish adaptation of the DERS was conducted by Rugancı and Gençöz (2010), and the Cronbach alpha coefficient for the total scale was 0.94. In the current study, the Cronbach alpha coefficient for the total scale was .94.

Results

Data Analytic Strategy

To examine the factor structure of IERQ, confirmatory factor analysis was conducted using LISREL 8.51 (Jöreskog and Sörbom 1993). The raw data was used as input, and maximum likelihood estimation was employed in the analysis.

Normal theory weighted least squares $\chi 2$ was used for the evaluation of model fit. Besides, we used the Comparative Fit Index (CFI), the Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI), Non-normed Fit Index (NNFI), and the Root-mean-square-error of approximation (RMSEA) following Hu and Bentler's two-index presentation strategy. Values close to 0.06 for RMSEA and values larger than 0.85 for other indices are indicative of good fit.

Confirmatory Factor Analysis

A four-factor model consisted of *Enhancing Positive Affect*, *Soothing*, *Perspective Taking*, and *Social modeling* was hypothesized. The proposed four-factor model provided good fit to the data χ^2 (163, N = 302) = 399.402, p<0.001, GFI = 0.89, AGFI = 0.85, NNFI = 0.90, CFI = 0.92, RMSEA= 0.07). The standardized path coefficients of four-factor IERQ varied between 0.65 and 0.72 for *Enhancing Positive Affect*, 0.68 and 0.81 for *Soothing*, 0.54 and 0.73 for *Perspective Taking*, and 0.59 and 0.86 for *Social Modeling*, respectively (See Fig. 1).

Internal Consistency Reliability Analysis

The Turkish version of the IERQ demonstrated excellent psychometric properties with high Cronbach alpha coefficients for all subscales as well as the total scale. The internal consistency coefficients for every four subscales and total scale were as follows: 0.81 for *Enhancing Positive Affect,* 0.86 for *Soothing*, 0.77 for *Perspective Taking*, 0.87 for *Social Modeling*, and 0.90 for the total scale.

Test-Retest Reliability Analysis

The test-retest reliability coefficients of the subscales were as follows; 0.58 for *Enhancing Positive Affect* (p<0.01, N = 118), 0.79 for *Soothing* (p<0.01, N = 118), 0.76 for *Perspective Taking* (p<0.01, N = 118), and 0.76 for *Social Modeling* (p<0.01, N = 118) across a two-week time interval.

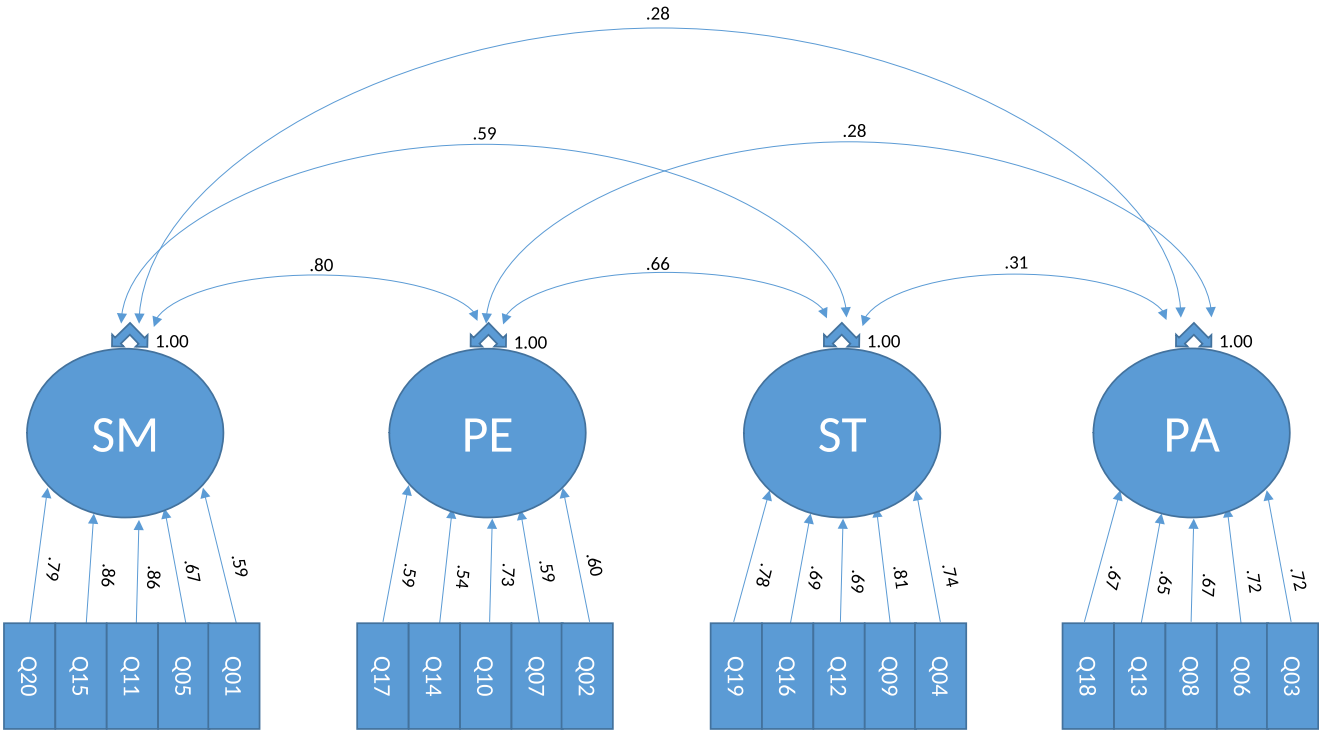

Fig. 1 The CFA solution with standardized values. PA = Enhancing Positive Affect, ST = Soothing, PE = Perspective Taking, SM = Social Modeling

Convergent and Discriminant Validity

Convergent and discriminant validity was assessed by testing the relationships between the subscales of the Turkish version of IERQ and measures of intrapersonal emotion regulation, state/trait anxiety, social anxiety, state/trait depression, loneliness, coping styles, attachment styles, and emotional intelligence. The means, standard deviations, and correlations between the subscales of IERQ and other measures are shown in Table 1.

As shown in Table 1, all the subscales of IERQ significantly and positively correlated with each other ($r = 0.21$–0.61, p's < 0.01). Specifically, *Enhancing Positive Affect* showed weak correlations with *Soothing* ($r = 0.26$, $p < 0.01$), *Perspective Taking* ($r = 0.21$, $p < 0.01$) and *Social Modeling* ($r = 0.23$, $p < 0.01$). On the other hand, the other three subscales (i.e., *Soothing*, *Perspective Taking*, and *Social Modeling*), which focus on the regulation of negative affect, exhibited moderately strong correlations with each other. Specifically, *Soothing* showed significant correlations with *Perspective Taking* ($r = 0.53$, $p < 0.01$) and *Social Modeling* ($r = 0.52$, $p < 0.01$), whereas *Perspective Taking* was significantly correlated with *Social Modeling* ($r = 0.61$, $p < .001$).

With regard to intrapersonal emotion regulation measures, all four subscales of IERQ showed significant correlations with the *Antecedent-focused Strategies* subscale ($r = 0.23$–0.36, $p < 0.01$) and the *Response-focused Strategies* subscale ($r = 0.21$–0.32, $p < .01$) of the Emotion Regulation Processes scale. The strength of relationships ranged between small to moderate. With regard to the DERS, only *Soothing* ($r = 0.18$, $p < .01$) and *Social Modeling* ($r = 0.14$, $p < .05$) were found to be significantly related to difficulty with emotion regulation. For the ERQ, only the *Enhancing Positive Affect* ($r = 0.13$, $p < .05$), *Perspective Taking* ($r = 0.20$, $p < .01$), and *Social Modeling* ($r = 0.15$, $p < .01$) subscales of IERQ were related to *Reappraisal*. Furthermore, the results also indicated negative associations between *Suppression* and the *Enhancing Positive Affect* ($r = -0.21$, $p < .01$) and *Soothing* ($r = -0.19$, $p < .01$) subscales of IERQ.

With regard to anxiety, depression and loneliness measures, the *Enhancing Positive Affect* subscale of IERQ showed the most consistent significant relationships. Specifically, *Enhancing Positive Affect* was significantly negatively associated with state anxiety ($r = -.18$, $p < .01$), *state depression* ($r = -.18$, $p < .01$), *trait depression* ($r = -.23$, $p < .01$) and *loneliness* ($r = -.22$, $p < .01$). *Soothing* was also positively associated with trait anxiety ($r = .14$, $p < .05$), while *Perspective Taking* ($r = -.14$, $p < .05$) was negatively related to *state depression*. For social anxiety, on the other hand, all subscales of IERQ except *Enhancing Positive Affect* were shown to be significantly associated with social anxiety ($r = .14$–$.18$, p's $< .05$ for *Perspective Taking*, *Soothing* and $p < .01$ for *Social Modeling*).

With regard to attachment, emotional intelligence and coping, it was shown that all subscales of IERQ except for *Enhancing Positive Affect* had significant positive correlations with *anxious attachment* dimension of ECR-R ($r = .17$–$.22$, p's

Table 1 Correlations between IERQ and other self-report measures

Variable	Mean	SD	1.	2.	3.	4.
Age	27.86	10.76	−.03	−.24**	−.03	−.13*
Interpersonal emotion regulation (IERQ)						
1. Enhancing positive affect	22.04	2.72	1.00	.26**	.21**	.23**
2. Soothing	16.36	4.52	.26**	1.00	.53**	.52**
3. Perspective taking	14.80	4.04	.21**	.52**	1.00	.61**
4. Social modeling	17.16	4.21	.23**	.52**	.61**	1.00
Intrapersonal emotion regulation						
DERS-total	86.26	23.26	−.05	.18**	.11	.14*
Schutte Emotion Reg. Processes						
Antecedent-focused	82.55	14.54	.36**	.27**	.23**	.26**
Response-focused	60.13	10.15	.32**	.26**	.26**	.21**
ERQ						
Reappraisal	29.38	6.58	.13*	.10	.20**	.15**
Suppression	13.56	4.87	−.21**	−.19**	−.01	−.05
Anxiety, depression and loneliness						
STAI						
STAI-state	33.87	11.20	−.18**	.02	−.08	.02
STAI-trait	44.19	10.52	−.09	.14*	.01	.11
STDI						
STDI-state	19.44	6.62	−.18**	−.04	−.14*	.00
STDI-trait	19.09	6.20	−.23**	.01	−.11	−.00
Liebowitz-total	90.77	24.00	−.04	.14*	.18*	.15**
R-UCLA-total	36.27	10.15	−.22**	−.07	−.09	−.04
Attachment, emotional intelligence and coping						
ECR-R						
Anxious	3.33	1.15	−.03	.22**	.13*	.17**
Avoidant	2.93	1.05	−.18**	−.07	−.00	−.00
M-SEIS-total	159.63	17.01	.35**	.03	.01	.08
Brief COPE						
Self-distraction	6.58	1.34	.20**	.16**	.06	.11
Active coping	6.38	1.32	.26**	.01	.16**	.09
Denial	3.49	1.43	.05	.11	.18**	.11
Substance abuse	3.11	1.66	−.07	.03	−.12	−.07
Emotional support	5.70	1.65	.29**	.57**	.30**	.38**
Instrumental support	5.82	1.64	.34**	.52**	.40**	.48**
Behavioral disengagement	3.40	1.52	−.06	.16**	.09	.14*
Positive reframing	6.03	1.46	.23**	.05	.25**	.15*
Planning	6.89	1.02	.25**	.08	.04	.17**
Humor	5.28	1.77	.01	.10	.02	.02
Acceptance	6.40	1.23	.04	.06	−.03	.12*
Religion	4.89	2.16	.17**	.09	.29**	.13*
Self-blame	5.69	1.46	.07	−.03	−.10	−.00

* $p < .05$; ** $p < .01$

< .01 for Soothing and Social Modeling and $r = .13$, $p < .05$ for Perspective Taking). A distinct pattern was demonstrated for *avoidant attachment* dimension; as such only *Enhancing Positive Affect* subscale ($r = -.18$, $p < .01$) was significantly related to *avoidant attachment* dimension of ECR-R. Similarly, only *Enhancing Positive Affect* subscale ($r = .35$, $p < .01$) was associated with *emotional intelligence* as measured by M-SEIS. Finally, for *coping* as measured by the Brief COPE Inventory, the subscales of IERQ demonstrated consistently significant positive relationships with the majority of the coping styles.

Specifically, *Emotional Support* ($r = .29–.57$, $p < .01$) and *Instrumental Support* ($r = .34–52$, $p < .01$) demonstrated significant relationships with all subscales of IERQ, whereas *Substance Use*, *Humor*, and *Self-blame* were shown to be unrelated to the IERQ. The strongest correlations among the subscales of IERQ and coping strategies were between *Perspective Taking* and *Emotional Support* ($r = .57$, $p < .01$), *Soothing* and *Instrumental Support* ($r = .52$, $p < .01$), *Social Modeling* and *Instrumental Support* ($r = .48$, $p < .01$) and *Social Modeling* and *Emotional Support* ($r = .38$, $p < .01$).

Finally, age was found to be negatively and significantly linked with *Soothing* ($r = -.24$, $p < .01$) and *Social Modeling* ($r = . -13$, $p < .05$) while *Enhancing Positive Affect* and *Perspective Taking* subscales were remained to be unrelated.

Discussion

Although there have been many studies and theories in the field of intrapersonal emotion regulation, our knowledge about interpersonal emotion regulation is limited. To fill this gap, Hofmann et al. (2016) developed a brief and valid measure to assess interpersonal emotion regulation. The aim of this current study was to examine the psychometric properties of the Turkish adaptation of IERQ and provide a valid tool for interpersonal emotion regulation research in Turkey and cross-cultural studies.

As indicated in the original study (Hofmann et al. 2016) the proposed model for IERQ consisted of four factors; namely *Enhancing Positive Affect*, *Soothing*, *Perspective Taking*, and *Social Modeling*. The findings of confirmatory factor analysis (CFA) in the present study showed that the specified four-factor model fits the data sufficiently, and thus provides support for the original factor structure (Hofmann et al. 2016). Accordingly, findings supported that the general concept of interpersonal emotion regulation and its sub-strategies are represented in the minds of individuals regardless of the culture (the U.S. vs. Turkish). Furthermore, results also showed that the Turkish version of IERQ has an excellent level of internal consistency as a total scale, and IERQ subscales ranged between acceptable to excellent. Test-re-test reliability analysis also showed high levels of test-retest reliability. Thus, the present study demonstrates that the Turkish IERQ is a reliable self-report questionnaire that can be used to measure interpersonal emotion regulation strategies in the Turkish population.

With respect to relationships between IERQ subscales and intrapersonal emotion regulation measures, a similar pattern of results was demonstrated in the present study considering the direction and magnitude of the relationships. In other words, current findings indicate that individuals who have more difficulties with emotion regulation are more likely to use seek out others for comfort and sympathy and to learn how others might cope with a specific situation. However, those with greater emotion regulation difficulties do not appear to be more likely to use others for perspective taking, a finding that contrasts with Hofmann et al. (2016), or for enhancing the positive effect.

All four IERQ subscales were significantly correlated with *antecedent-focused* and *response-focused processes,* broadly suggesting that the use of different interpersonal and intrapersonal emotion regulation strategies is linked. When examining specific intrapersonal regulation strategies, findings showed that greater use of *cognitive reappraisal* was related to greater use of *Perspective Taking* and *Social Modeling.* These results are in the expected direction, since by definition cognitive reappraisal involves the modification of the way individual thinks about the emotion-eliciting situation and/or his/her coping abilities (Gross 2008; Gross and Thompson 2007; Werner and Gross 2010), while *Perspective Taking* and *Social Modeling* involve getting others' perspectives on how to think about or deal with a situation. Therefore, it may be that both intrapersonal and interpersonal emotion regulation strategies are used together in a way that supporting each other. This inference is in line with Zaki and Williams's (2013) notion that these two distinct types of emotion regulation (intrapersonal and interpersonal) might be used concurrently in real life. We also found that *expressive suppression* was negatively correlated with *Enhancing Positive Affect* and *Soothing*, which is a contrast to the insignificant link between *suppression* and all four subscales of interpersonal emotion regulation in the original study (Hofmann et al. 2016). In other words, the present study showed that individuals who tend to suppress their emotions are less likely to seek out others to enhance their positive affect or receiving comfort and soothing.

With regard to symptom measures of anxiety, depression, and loneliness, as well as emotional intelligence, attachment, and coping significant relationships emerged with the IERQ subscales. In general, findings were in line with the original results with few exceptions. Higher levels of state/trait depression and loneliness were associated with lower scores on of *Enhancing Positive Affect*, which is consistent with the notion that depressed individuals have difficulty experiencing positive emotion. Interestingly, this finding is in contrast to Hofmann et al. (2016), which found no relationship between depression and *Enhancing Positive Affect* in a U.S. sample but did find depression to be positively correlated with the other three IERQ subscales. Of note, however, is that Hofmann et al. (2016) did use a different measure of depression (the Center for Epidemiological Studies Depression Scale; Radloff 1977) than the current study.

Bolger et al. (2000) and Hofmann et al. (2016) argued that receipt of social support and use of interpersonal emotion regulation could be related to negative mental health outcomes as a result of beliefs about one's inability to effectively regulate one's own emotions. Given the absence of strong relationships between symptoms of psychopathology and use of interpersonal emotion regulation strategies in the present study, however, it

may be that such processes are less relevant to Turkish individuals. Turkish society has been characterized as giving much more importance to interpersonal relationships, closeness and social agreement as well as strong family ties and group memberships (Imamoğlu 1987; Kagitcibasi 1984). Thus, seeking out others for regulating own emotions could be one phenomenon that is taken for granted, and not associated with beliefs about one's inability to deal with negative emotions. Furthermore, the present findings also demonstrate that social sharing of positive emotions such as joy and happiness is negatively related to symptom measures. In other words, when one can share his/her happiness, he/she is less anxious and/or depressed. This notion could be related to the importance of being "connected" to other people in Turkish culture, as emotions in collectivistic cultures are more firmly described in social relationships (Mesquita 2001). On the other hand, capitalization described as sharing positive events with others as a similar mechanism have potential to explain the relationship between enhancing positive affect and symptoms measures (see Peters et al. 2018 for review). Therefore, while examining the moderating roles of individual differences variables as capitalization and contextual variables as cultural values is an important future direction to shed light on the nature of these present findings. Also, in contrast to the insignificant link between *religion* as a coping strategy and IERQ subscales in the original study, the current study found positive relationships between *religion* and *Enhancing Positive Affect*, *Perspective Taking*, and *Social Modeling* subscales. This finding may reflect cultural differences regarding the use of religion as a mechanism of interpersonal emotion regulation. Since no information was collected on religious identity, future studies might focus on the nature and mechanism of the relationship. Together, in line with the literature, these findings support that coping styles, and interpersonal emotion regulation is two conceptually related but distinct constructs.

Overall, the results of the current study were in line with the original findings with noteworthy differences. The underlying mechanism of those differences requires future research. One possible explanation which has the potential to shed light on those differences is the cultural norms on the nature of interpersonal relationships. With regard to the results, it seems that individuals from a collectivist culture or with an interdependent self-construal seek others to regulate their emotions regardless of subjective evaluation intrapersonal emotion regulation success. Indeed, the findings are parallel to the notion that in collectivistic cultures, the self is associated and embedded in its social environment and roles (e.g., Markus and Kitayama 1991). Furthermore, those individuals might utilize others to regulate emotions without necessarily experiencing psychological problems since establishing close ties to receive support or regulate emotions is a goal set by culture. In other words, using others to regulate emotions might be a predefined goal instead of an instrument to deal with problems (De Leersnyder et al. 2013). It should be noted that the self-construals and/or cultural orientations of the participants were not tested. However, Turkish cultural context is assumed to be collectivist in general (Hofstede 2001). Besides, recent theorizing on cultural differences showed that Turkey is a non-WEIRD country which is akin to collectivist culture. Accordingly, countries were evaluated on each component of WEIRDness in terms of being Western, educated, industrialized, rich, and democratic, then an index of WEIRDness is created to classify countries (see Klein et al. 2018 for details).

Although the present study contributes to the emerging research on interpersonal emotion regulation, several limitations should be noted. Firstly, due to the limited number of male participants, gender differences regarding the use of interpersonal emotion regulation strategies could not be investigated. Therefore, a replication study with an equal number of male and female participants is warranted for future studies. Secondly, this study used an unselected sample, and thus the present findings may not be generalized to individuals who experience clinical levels of anxiety disorders and depression. Investigating the interpersonal emotion regulation strategies of clinical samples has the potential to further the understanding of those strategies. Third, though significant, a considerable number of relationships were low in strength which makes generalizability and replicability of the results questionable. Further attempts to validate the results of the current study would clarify the relationships reported in the current study. Finally, our study was limited to self-report data, with no assessment of interpersonal behavior in the context of experiencing strong emotions. To further validate the Turkish IERQ, future research should examine whether self-reported interpersonal emotion regulation use predicts how individuals use others to modulate their emotions in a controlled laboratory setting.

Overall, the current study provided additional proof for the universality of emotion regulation strategies provided by the original work by confirming the factor structure on a different cultural setting. Furthermore, relationships of interpersonal emotion regulation strategies with relevant constructs were in line with the previous work. Moreover, slight differences concerning strength and direction on the relationship between interpersonal emotion regulation strategies and psychological symptoms such as anxiety and depression. Further studies might shed light on the mechanism behind possible culture-specific relationships.

Acknowledgements Parts of this work comprised the first author's M.A. thesis conducted under the third author's supervision at Bahçeşehir University.

Compliance with Ethical Standards

Ethical Approval Ethical approval for the data was granted by the Bahçeşehir University Scientific Research and Publications Ethics Committee. All procedures performed in studies involving human

participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Conflict of Interest Melisa Sevi Koç, Başak Türküler Aka, Burak Doğruyol, Joshua Curtiss, Joseph Kevin Carpenter and Stefan G. Hofmann declare that they have no conflict of interest.

Experiment Participants All participants provided written informed consent. Experimental protocols in this study were approved by the university's institutional review board and all procedures met the guidelines of the institutional and/or national research committees.

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