International Journal of Assessment Tools in Education

2018, Vol. 5, No. 4, 754-762

DOI: 10.21449/ijate.481162

Published at http://www.ijate.net

http://dergipark.gov.tr/ijate

Research Article

Interpersonal Emotion Regulation Scale (IERS): Adaptation and **Psychometric Properties in a Turkish Sample**

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ARTICLE HISTORY

Received: 29 September 2018 Revised: 05 December 2018 Accepted: 11 December 2018

KEYWORDS

Emotion regulation, Interpersonal emotion regulation, Validity, Reliability

Abstract: This study aims to test the validity and reliability of the Turkish adaption of Hofmann, Carpenter and Curtis' (2016) Interpersonal Emotion Regulation Scale (IERS). The original scale is comprised of four subdimensions; namely, enhancing positive affect, perspective taking, soothing, and social modeling. The study was carried out with 326 students from various departments of Medipol University. Work on adapting the scale began with an attempt to find linguistic equivalence. After ensuring this linguistically equivalence for the scale's original form, a Confirmatory Factor Analysis was launched to examine its construct validity. The results of this confirmatory factor analysis revealed that the four-factor original structure of the scale was also valid for the Turkish sample and the goodness of fit indices of the scale was within acceptable limits. The Cronbach-Alpha internal consistency coefficient was found as .92 for the overall scale. The scale shows outstanding psychometric characteristics.

1. INTRODUCTION

In psychology, understanding of the effects and importance of emotion on personal development, evolution, and psychological health has gained much ground as a subject of research. Emotions play a role in the process of an individual's learning to adapt to their environment and influence their behaviour and decisions (Greenberg, 2011). The subject has been researched in various contexts, including motivation, social interactivity, self-regulation, and mental Health (Berking & Wupperman, 2012; Cote, 2005; Diamond & Aspinwall, 2003; Gross & Munoz, 1995) One of the most important subjects related to emotion, however, is emotion regulation.

In recent years, emotion regulation has become a popular area of psychological research (Hofmann, Carpenter and Curtis, 2016). The concept, first used in the early 1980s (Gaensbauer, 1982), appears to have gained prominence in both developmental and adult psychology (Gross,

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ISSN-e: 2148-7456 /© IJATE 2018

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1999). This study deals with emotion regulation in terms of how it has been approached in the field of adult psychology. According to Thompson (1994), emotion regulation refers to "one's ability to realize one's goals through the control, observation, evaluation, and adaptation of one's inner and outer emotional responses." This definition defines regulation and adaptation of one's emotional responses not only as a strategy of self-regulation, but also refers to it as a means of interpersonal processes involved in participating in relationships.

According to Gross (1998b), emotion regulation is defined as a process which includes awareness of what emotions one is feeling, when these emotions are being experienced, how they are being experienced, and how they express themselves. According to Gross (1999a), this process includes conscious or unconscious strategies such as modifying feelings, behaviour and physiological responses and retaining balance. Gross' emotion regulation model (2001) is founded on the pillars of reappraisal and suppression in the process of emotion regulation. Reappraisal is a cognitive process. Before providing an emotional response to a situation, an individual develops cognitive strategies to deal with it (Garnefski, Kraaij and Spinhoven, 2001) and reevaluates the situation which tiers these feelings as well as the meaning of the situation itself. This evaluation allows for an emotional shift in the individual (Northoff et al. 2006). Suppression, meanwhile, prevents behaviour in which emotions are expressed. Efforts geared toward preventing and suppressing the expression of emotions causes physiological changes in the individual. As an example, it has been shown that those who embark on the path of suppression in regulating their emotions may appear to have more contracted veins than others (Gross, 2001).

These studies have shown that emotion regulation is an important factor in allowing individuals to cope with stressful events (Gross, 1998a, 1999b, 2002) and increases wellbeing (Cicchetti, Ackerman and Izard, 1995; Gross & John, 2003). Furthermore, it has been shown that emotion regulation has a positive link with mindfulness (Goldin & Gross, 2010) and social relations (Lopes, Salovey, Côté, Beers and Petty, 2005), and a negative link to variables such as depression (Garnefski & Kraaij, 2006) and vulnerable psychological states (Kashdana, Barrios, Forsyth and Steger, 2006).

Although important from a theoretical and developmental standpoint, when studied in a more personal light, emotion regulation does not seem to address the roles played in interpersonal relations (Hofmann, Carpenter and Curtis, 2016). The experiencing and expression of emotions plays an important role not only in personal but social processes (Hofmann, 2014). This has lead Higgins and Pittman (2008) to claim that emotion regulation is of critical importance to the individual's socialization processes, whilst Einsberg, Fabes, Guthrie and Reiser (2000) stress that in parallel with, the socialization process is one in which individuals are affected by the reactions of others

Interpersonal emotion regulation is a concept describing the interpersonal context of people's emotions being regulated by others (Hofmann, Carpenter and Curtis, 2016). More broadly, it is a process regulated by the scope of social relations in which the emotional response to various stressful situations are experienced in tandem with others. As part of this process, fostering social connections in the reduction of an individual's negative emotions (Berscheid, 2003; Coan, Schaefer and Davidson, 2006), sharing emotional experiences with others (Rime, 2007, 2009), and allowing for emotional calm (Tamir & Millgram, 2017) is important.

The most important aspect of interpersonal emotion regulation is the ability to explore how one can benefit from other individuals when regulating one's emotion. Zaki and Williams' (2013) proposed interpersonal emotion regulation model divides response-dependent and response-independent interpersonal emotion regulation and identifies what sets them apart. Furthermore, it focuses on the difference between internal and external interpersonal emotion regulation.

Internal interpersonal emotion regulation begins when the individual experiences an emotion and set about to modify it. If the individual appeals to others for help in achieving this, and the emotion can be regulated thanks to the support of the other, then this is labelled internal and response-dependent emotion regulation. If an individual can regulate their emotions (identifying, evaluating, and experiencing them) without the assistance of another, then this is a response-independent process. As for external regulation, this refers to processes experienced by another (Zaki & Williams, 2013). In other words, if an individual is required to assist another in their emotion regulation processes, he/she identifies the goals for regulating the other person's emotions and act according to this goal.

One of the most important requirements for future studies related to the subject of interpersonal emotion regulation is to have a valid and reliable means of measuring the phenomena. According to literature on the field, Niven, Totterdell, Stride and Holman (2011) were the first to develop the "Emotion Regulation of Others and Self" scale. The results of a construct validity analysis on some of the items included in sub-divisions of the scale, however, showed that it appeared to be insufficient. In response to this, Hofmann, Carpenter and Curtis (2016) developed a new measure known as the Interpersonal Emotion Regulation Scale. The validity and reliability analyses conducted on this showed it included strong psychometric features. Due to the prior lack of a measuring device for gauging interpersonal emotion regulation in Turkey, this study set out to adapt the Interpersonal Emotion Regulation Scale developed by Hofmann, Carpenter and Curtis (2013) into Turkish and examine its psychometric features. It is hoped that the findings of the study will be used in relevant future research and practical studies employing the scale.

2. METHOD

2.1. Participants

The study was conducted using data attained from 326 students from various departments of Istanbul Medipol University. 223 of the participants were female and 103 were male students. The age of participants varied between 18-53 with the average of 20.95 (SD= 3.22). The students participated in the study voluntarily. Some demographic information regarding the participants is presented in Table 1. A convenient sampling technique was used to determine the sample due to the time and cost benefits of this method to the researcher (Fraenkel, Wallen and Hyun, 2011; Marshall, 1996). The departmental distribution of the sample was 182 students (55.8%) from psychological guidance and counseling program, 59 students (18.1%) from psychology program, 42 students (12.9%) from international trade program, 26 students (8.0%) from math teacher education program, 17 students (5.2%) from business programs.

2.2. Translation Work

In order to adapt the Interpersonal Emotion Regulation Scale into Turkish, we first set out to contact one of the researchers responsible for its development, Stefan G. Hoffman, to ask for permission to adapt his scale and access all items. Next, Istanbul Medipol University's Social Sciences Ethics Committee was convened in order to be granted ethical permission. With the ethics committee's permission obtained, the scale was then translated into Turkish by six professionals working independently of one another, including 1 staff member of ELT department and 5 staff members of the Psychological Counseling and Guidance department – all of whom possessed a high command of English. The translated forms were then reviewed by the researchers in terms of comprehensibility and a Turkish version of the scale was drawn up. The form was then translated back into Turkish by two research staff from the English Language Teaching department. After these were compared, the final version of the Turkish form was completed. After this, both English and Turkish language versions were given to a group of 20 students in their second year of their English Language Teaching Studies at two

weeks interval. The Pearson Correlation Coefficient between the two tests was found as r=0.82, p<0.01 which refers to positive and significant correlation. Accordingly, it was agreed that the linguistic equivalence had been achieved. After the translation work had been undertaken and satisfying results yielded, the scale was applied to 326 students from various departments of Istanbul Medipol University.

2.3. Instruments

2.3.1. Interpersonal Emotion Regulation Scale. The scale developed by Hofmann, Carpenter and Curtis (2016) measures interpersonal emotion regulation. The scale consists of 20 items and four sub-dimensions set out in a 5-point Likert-type scale. These sub-dimensions refer to enhancing positive affect, perspective taking, soothing, and social modeling. The lowest score to be taken from the scale is 20, whilst the highest score is 100. The results of the confirmatory factor analysis (CFA) showed that the emerged model fit indices support the four-factor structure of the scale (CFI = 0.97, NNFI = 0.97, RMSEA = 0.04). In addition, the internal consistency indicator of Cronbach alpha was .89 for enhancing positive affect, .91 for taking others' perspectives, .94 for soothing and .93 for social modeling sub-dimensions. These results show that the scale possesses strong psychometric validity. The Turkish adaption of the scale and a study of its psychometrics will be included as part of this study.

2.4. Data Analysis

The construct validity was conducted in order to determine the validity of the Interpersonal Emotion Regulation Scale. A confirmatory factor analysis (CFA) was conducted to confirm the scale's construct validity. In interpreting the values produced as a result of the CFA in this study, a Chi-Square Goodness of Fit test, RMSEA (Root Mean Square Error of Approximation), CFI (Comparative Fit Index), GFI (Goodness of Fit Index) and TLI (Tucker-Lewis Index) were used. The reliability of the scale was investigated with an internal consistency coefficient method. In determining the internal consistency, the Cronbach alfa coefficient was used (Kline, 2011). Analysis of data was performed using the SPSS 20 and AMOS 18 programmes.

3. FINDINGS

3.1. Preliminary Analysis

For reviewing the construct validity of the scale, Confirmatory Factor Analysis was used to check evidence over the proposed four-factor structure of Interpersonal Emotion Regulation Scale (Hofmann, Carpenter & Curtis, 2016). First of all, missing values were screened, and mean substitution was conducted due to the fact that the number of empty cells were less than 5% of the total cells. Then, a number of assumptions for CFA were tested before the main analysis. The sufficient sample size in CFA is suggested to be minimum 200 cases along with 5 or 10 units that is 326 for this study satisfying that requirement (Kline, 2011). In addition, univarite outliers were examined based on the ±3.29 criterion for the z scores yielding no data staying out the criterion ranges. Lastly, screening of Skewness and Kurtosis parameters for normality assumption and bivariate scatterplots for the linearity requirement of CFA disclosed that the data has a normal and linear distribution for the sample (Tabachnick & Fidell, 2006).

3.2. Item Analysis

An item analysis was conducted in order to investigate the distinctiveness of each item. Table 2 provides the mean, standard deviation, and item-total correlation of the scores of participants on the Interpersonal Emotion Regulation Scale. The results of the item analysis showed that the item-total correlation ranged between 0.48 and 0.80.

Table 2. Descriptive statistics regarding the Interpersonal Emotion Regulation Scale

Item Number	Mean	Standard Deviation	Item-Total Correlations		
1	3.67	0.99	0.60		
2	3.55	1.03	0.66		
3	4.26	0.89	0.48		
4	3.60	1.21	0.70		
5	3.56	1.10	0.77		
6	4.27	0.91	0.55		
7	2.92	1.27	0.57		
8	4.17	0.90	0.57		
9	3.73	1.17	0.70		
10	2.99	1.20	0.62		
11	3.51	1.14	0.76		
12	3.66	1.18	0.77		
13	3.81	1.07	0.51		
14	2.76	1.22	0.59		
15	3.30	1.18	0.80		
16	3.11	1.22	0.65		
17	3.09	1.11	0.70		
18	4.19	0.96	0.50		
19	3.24	1.22	0.77		
20	3.35	1.21	0.68		

3.3. Construct Validity

3.3.1. Model fit indices and standardized parameter estimates for IERS

Following to obtain satisfactory results for the requirements of CFA, a Maximum likelihood estimation method was used to validate the four-factor framework of IERS by running AMOS 18 program (Byrne, 2001). In the first step, the model fit indicators were checked. The results of these indices are shown in Table 3.

Table 3. Model fit indices from measurement models of IERS

Goodness of	Measurement Model of	Criterion Ranges
Fit Indexes	IERS	
χ2/df	2.53	$\chi^2/\mathrm{df} < 3$
CFI	.94	.90 < CFI or close to 1
TLI	.93	.90 < TLI or close to 1
RMSEA	.07	.05 < RMSEA <.08
GFI	.90	.90 < GFI

As presented in Table 3, the normed chi square indicator of 2.53 is satisfactory due to being lower than criterion value of 3 (Kline, 2011). Likewise, both CFI (.94) and TLI (.93) and GFI (.90) values stay out the acceptable ranges of .90-1.00 (Bentler, 1990; Tucker & Lewis, 1973). Likewise, the RMSEA indice of .05 indicates a satisfactory value by remaining between .05-.08 interval. As a result, it can be stated that the goodness of fit indices emerged meet the model fit requirements for the four-factor IERS.

At the next step, both standardized and unstandardized estimates for the 20 items of four-construct IERS were examined. Results of these estimates along with the standardized errors, t values and the variance explained are exhibited in Table 4.

Given the parameters presented in Table 4, it can be stated that the standardized factor loadings change between .57 and .88 for the individual items of the scale and all values are greater than .30 that is the minimum value for the factor loading (Brown, 2006). The explained variance comes from the items has the range of .33 to .77 that are all statistically significant (p< .001).

Table 4. Unstandardized and standardized parameter estimates for IERS

Construct	Item	Unstandardized	Standardized	SE	T	\mathbb{R}^2
		Factor	Factor			
		Loadings	Loadings			
Enhancing	Item 3	.68	.77	.04	15.73	.55
Positive Affect	Item 6	.77	.85	.04	18.31	.77
	Item 8	.75	.84	.04	17.86	.67
	Item 13	.70	.65	.06	12.58	.65
	Item 18	.69	.75	.05	15.26	.37
Perspective	Item 2	.69	.67	.05	12.88	.66
Taking	Item 7	.73	.57	.07	10.61	.44
	Item 10	.71	.60	.06	11.09	.77
	Item 14	.72	.59	.07	10.92	.65
	Item 17	.77	.69	.06	13.34	.62
Soothing	Item 4	.95	.79	.06	16.53	.48
•	Item 9	.95	.81	.06	17.18	.35
	Item 12	1.03	.88	.05	19.63	.35
	Item 16	.81	.67	.06	13.13	.33
	Item 19	.99	.81	.06	17.35	.45
Social	Item 1	.60	.61	.05	11.74	.56
Modeling	Item 5	.88	.81	.05	17.25	.42
	Item 11	.93	.82	.05	17.69	.70
	Item 15	1.03	.88	.05	19.57	.72
	Item 20	.90	.74	.06	15.27	.59

Note: All t values were significant, p < .001.

3.3.2. Convergent validity

In order to get more evidence over the construct validity of Interpersonal Emotion Regulation Scale, Interpersonal Competency Scale (Buhrmester, Furman, Wittenberg and Reis, 1988) was used as the convergent validity assessment. Results of the correlation analysis showed that IERS and ICS are significantly and positively correlated with each other (r=.39, p<.001).

3.3.3. Internal consistency

The internal consistency indicator Cronbach Alpha was calculated .92 for the overall scale yielding satisfactory evidence for the reliability of IERS. In addition, Cronbach alpha was found .86 for enhancing positive affect, .80 for taking others' perspectives, .88 for soothing and .87 for social modeling sub-dimensions.

4. DISCUSSION and CONCLUSION

In this study, the Interpersonal Emotion Regulation Scale developed by Hofmann, Carpenter and Curtis (2016) was adapted into Turkish. In order to ensure the validity of the scale, a confirmatory factor analysis was then conducted. The results of confirmatory factor analyses showed that the emerged model fit indices support the four -factor structure of the scale. In other words, the unique construct of the scale was validated by the sample of Turkish university students. The results of a reliability analysis conducted using the internal consistency coefficient method proved the scale's reliability. The scale is composed of four sub-dimensions. The first of these relates to enhancing positive emotion, with the second relating to perspective taking, the third soothing, and the last social modeling.

Interpersonal emotion regulation stresses the importance of social relations on the experiencing and expressing of emotions (Hoffmann, 2014). Skill in interpersonal emotion regulation enables one to handle stressful situations in an effective way and increases wellbeing. University is an

important stage in a young person's life and is a period in which one encounters various hardships, both academic and personal. These problems can lead to the experiencing of emotional ups and downs. The ability to temper such fluctuations may enable students to enjoy a more relaxed and secure academic and personal life.

With this in mind, in the first year especially, it seems that aside from orientation projects, it is very important for universities to develop and promote psycho-educational programmes geared towards encouraging students to develop skills in emotional regulation. For example, Kuzucu (2006) states that psycho-educational programme which he developed to increase awareness and expression of emotions have been effective in increasing skills in the expression of emotions. Similarly, those who express emotions are proven to have a high level of psychological and subjective well-being. Thus, it can be said that activities and workshops organized at counseling centers in universities can hold a plethora of real benefits for students.

Upon an examination of the current global literature, it seems that interpersonal emotion regulation has been studied in the context of social support and depression (Marroquin, 2011); performance of athletes (Tamminen & Crocker, 2013); close relations (Debrot, Schoebi, Perrez and Horn, 2013) affective disorder and anxiety disorder (Hofmann, 2014). The scale, adapted for use in the Turkish cultural context, makes it possible to examine a variety of concepts in regard to personal emotion regulation and identify the factors which contribute to its development.

In conclusion, it is safe to say that Interpersonal Emotion Regulation Scale-Turkish Form is a valid and reliable scale in measuring the interpersonal emotion regulation of university students. It must be stated, however, that there are a number of limitations to this study. Primarily, the study group was made up exclusively of university students. The examination of sample groups made up of participants from various age-groups and professions would be beneficial in terms of psychometrics. Another limitation of the study was that test re-test reliability was not calculated. A suggestion for further studies would be to consider the stability and reliability of the instrument as it would yield more generalisable results. Furthermore, sample groups from different universities and students of various faculties would contribute to more in-depth results.

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