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Turkish adaptation of the trait meta-mood scale

İdil Aksöz^a*, Aslı Bugay^a, Özgür Erdur-Baker^a^a*Faculty of Education, Middle East Technical University, Ankara, 06531, Turkey*

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Abstract

This study investigates the reliability and validity of the Turkish version of the Trait Meta-Mood Scale (Salovey, Mayer, Goldman, Turvey & Palfai, 1995). This scale was originally developed to measure the ability to understand one's mood, to find the degree to which individuals moderate their moods, and to find correspondences between feelings and thoughts. The Trait Meta-Mood Scale (TMMS) and Ruminative Response Scale (RRS) were applied to 319 university students. Confirmatory and exploratory factor analyses were used to test the factor structure of the scale. Based on the results, some modifications were made and the modified version of the scale was found to be valid and reliable. Cross-validation of the scale by future studies is suggested.

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1. Introduction

Meta-mood or meta-experience of mood can be defined as a process of an individual's reflecting, monitoring, evaluating and regulating his/her feelings (Mayer & Gaschke, 1988). Meta-mood includes the process of thinking about mood, examining the relation between mood and thoughts, maintaining good moods, and altering bad moods. As soon as an individual starts thinking about his/her own moods, the meta-mood process starts. Simply, being aware of one's current mood, distinguishing amongst different moods, and if needed, changing one's current mood to a better mood is the entire meta-mood process (Mayer, 1986). Salovey, Mayer, Goldman, Turvey and Palfai (1995) indicated that meta-mood has three dimensions: *Attention to Feelings* is the ability to define what one is feeling; *Clarity of Feelings* is the ability to discriminate among emotions; and *Mood Repair* is the ability to change one's emotions when needed.

These three dimensions were found to be related to many different individual variables such as depression, life satisfaction, rumination, and emotion-oriented coping (Extremera, Durán & Rey, 2009; Fernández-Berrocal, Extremera & Ramos, 2004; Fitness & Curtis, 2005; Thompson, Waltz, Croyle, & Pepper, 2007). However, the nature of the relationships of such variables to those three dimensions seemed to be varying. For example, while *life satisfaction* was positively related to clarity of feelings and mood repair (Extremera, Durán & Rey, 2009; Fernández-Berrocal, Extremera & Ramos, 2004), it was not related to attention to feelings (Thompson, Waltz,

* İdil Aksöz. Tel.: +90-312-2104084; fax: +0-000-000-0000

E-mail address: iaksoz@metu.edu.tr

Croyle, & Pepper, 2007). Along the same line, *emotion-oriented coping* was positively correlated to attention to feelings but negatively correlated to clarity of feeling and mood repair (Fitness & Curtis, 2005). Finally, *rumination* was positively correlated to attention to feelings, whereas it was negatively related to mood repair (Fernández-Berrocal, Extremera & Ramos, 2004). All in all, attention to feelings seems to distinguish itself from the other two dimensions regarding its relations to other variables. Therefore, as research findings show that meta-mood is related to many different personality properties, it is important to measure meta-mood properly.

Mayer and Gaschke (1988) developed the *Meta-Mood Experience Scale*. The subscales of this scale were controllability of mood, clarity of mood, acceptability of mood, typicality of mood and changeability of mood. Salovey et al. (1995) thought that in nature moods may have both stable and changeable characteristics but the *Meta-Mood Experience Scale* emphasizes moment-by-moment changes only. Accordingly, they revised the *Meta-Mood Experience Scale* and renamed it the *State Meta-Mood Scale* (SMMS). This revised scale has two main parts (meta-evaluation and meta-regulation scales) with seven subscales (clarity; acceptability; typicality; meta-evaluation influence; repair; maintenance; and, meta-regulation dampening) and a total of 39 items (Mayer & Stevens, 1994). Later, Salovey et al. (1995) developed another scale to measure and monitor rather stable experiences of moods and emotions called the *Trait Meta-Mood Scale* (TMMS) which is the interest of the present study.

Initially, the *Trait Meta-Mood Scale* (TMMS) was a 48-item 5-point Likert type scale with three subscales: *Attention to Feelings*, *Clarity of Feelings* and *Repair of Mood*. Later, the authors revised the scale to create a shorter version by deleting items with lower loadings. The final version had 30 items with loadings of $\geq .40$. Salovey et al. (1995) reported that the internal consistency values of the subscales remained as high as the long version which indicated that the short version (30-item version) of TMMS was more efficient. Investigation of the relations among the dimensions of meta-mood and other measures revealed evidence for criterion validity of TMSS. The authors found a positive association between attention to feelings and private and public self-consciousness. Clarity was negatively correlated with ambivalence over emotional expression and depression. And the last dimension, repair, was negatively correlated with depression but positively correlated with optimism and beliefs about negative mood regulation (Salovey et al., 1995). According to the literature, the 30-item version of TMMS was adapted to German (Otto, Döring-Seipel, Grebe & Lantermann, 2001), Spanish (Fernández-Berrocal, Extremera & Ramos, 2004), Portuguese (Queirós, Fernández-Berrocal, Extremera, Carral & Queirós, 2005), Farsi (Bayani, 2009), and Australian (Palmer, Gignac, Bates, & Stough, 2003). These studies reported that despite the fact that the different factorial structures were found for their samples, after the necessary modifications, the reliability and validity values of the scale were satisfactory. For example, in the Spanish version, Fernández-Berrocal and his colleagues (2004) found that the original factor structure was a poor fit for their Spanish sample. After deletion of the items with low loadings, they arrived at a valid and reliable revised version of TMMS with 24 items. Similarly, for the Australian sample, Palmer, Gignac, Bates, and Stough (2003) suggested the possibility of a fourth factor within TMMS. Such results are reminiscent that emotions and expressions of emotions may easily be impacted by cultural factors (Russell, 1991). Thus, the scale appears to need further studies to evaluate equivalency of cross-cultural validation. Therefore, the aim of this study is to adapt the Trait Meta-Mood Scale to Turkish culture and to investigate its cross-cultural equivalency by examining the factor structure, reliability and validity.

2. Method

2.1. Participants

The participants consisted of 319 (171 females and 148 males) university students. Their mean age was 21.3 years ($SD= 2.28$). 131 participants (41.1 %) were freshmen, 45 (14.1%) were sophomores, 62 (19.4 %) were juniors, 46 (14.4 %) were seniors and 21 (6.6 %) were graduate students.

2.2. Instruments

2.2.1. Trait Meta-Mood Scale

Trait Meta-Mood Scale (TMMS) was developed by Salovey et al. (1995) in order to investigate one's ability to understand one's mood, to find the degree to which individuals moderate their moods, and to find correspondences

between feelings and thoughts. TMMS is a 30-item 5-point Likert-type scale ranging from “totally disagree” (1) to “totally agree” (5). TMMS has three subscales; “attention to feelings”, “clarity of feelings”, and “repair of mood”. *Attention to Feelings* is the ability to define what one is feeling; *Clarity of Feelings* is the ability to discriminating between emotions; and *Mood Repair* is the ability to change one’s emotions when needed. The inter-correlations among scales ranged from .82 to .87 (Salovey et al., 1995).

2.2.2. Ruminative Response Scale

Ruminative Response Scale (RRS) was originally developed by Nolen-Hoeksema and Marrow (1991) and translated into Turkish by Erdur (2002). Its basic psychometric properties were examined by Erdur-Baker and Bugay (2009). The scale has 21 items on a 4-point rating scale measuring the responses to depressed mood (sample items include ‘I think back to other times I have been depressed’; ‘I think about how hard it is to concentrate’; and, ‘I go away by myself and think about why I feel this way’). The original factor structure of the scale was confirmed by Erdur-Baker & Bugay (2009) and satisfactory inter-item reliability was reported by Erdur (2002) and Erdur-Baker and Bugay (2009).

3. Results (Findings)

3.1. Descriptive analysis and Reliability of TMMS

Table 1 shows the results of the descriptive analysis of the TMMS. The internal consistency coefficients (Cronbach alpha) were calculated for the subscales of TMMS. For Attention subscale $\alpha = 0.42$. For clarity of feelings subscale $\alpha = 0.43$. For Repair of Mood subscale $\alpha = 0.28$. All subscales did not achieving the criterion of $\alpha > .70$ (Kline, 2000).

Table 1. Descriptive statistics of the TMMS

	Mean	SD	Min	Max	Kurtosis	Skewness	α
Rumination	48.11	10.04	26	81	-0.02	0.87	0.87
Attention	37.97	6.08	13	59	1.16	0.14	0.42
Clarity	34.25	5.31	11	50	0.96	-.33	0.43
Repair	18.12	3.85	6	27	-0.25	-.31	0.28

3.2. Criterion-related validity

In order to examine the criterion-related validity of the scale, a Pearson correlation coefficient between the participants’ TMMS scores and RRS scores was calculated. In the current study, there were not any significant correlations between Ruminative Response Style and the subscales of TMMS: Attention of Feelings ($r=.03$, $p=.55$), Clarity of Feelings ($r=.04$, $p=.48$) and Repair of Mood. ($r=-.05$, $p=.34$), suggesting inadequate evidence of criterion-related validity. Further, there were positive correlations between Attention and Clarity ($r=.40$, $p=.00$), Attention and Repair ($r=.21$, $p=.00$) and Clarity and Repair ($r=.32$, $p=.00$).

3.3. Confirmatory factor analysis (CFA)

The original three factor model proposed by Salovey et al. (1995) were assessed by Confirmatory factor analyses (CFA) using the AMOS Version 4.1 software. Missing data were handled with the full information maximum-likelihood method as implemented in AMOS. The goodness-of-fit index (GFI, value above 0.90), the comparative fit index (CFI, value above 0.80), and the root mean square error of approximation (RMSEA, value smaller than .10) as suggested are used to assess the adequacy of model fit (Browne & Cudeck, 1993; Schumacker & Lomax, 1996). According to Browne and Cudeck (1993) in this study, results of the confirmatory factor analysis for the three factor confirmatory models indicated an inadequate model fit for the three-factor structure [χ^2 (402) = 1026.21, $p=.00$; χ^2/df - ratio= 2.55; GFI= .78, CFI=.63 and RMSEA= .07]. The variances of the error terms were analyzed through the Modification Indices (MIs) as suggested by Kaplan (1989), determining that some variables are abnormally correlated and correlations were added between the error terms. The new results still showed an inadequate model fit for the Turkish university students sample with χ^2 (396) = 922.158, $p=.00$; χ^2/df - ratio= 2.32; GFI= .81, CFI=.69 and RMSEA= .06. The slightly modified three factor model still showed an inadequate model fit for our sample.

3.4. Exploratory Analysis

Since the results of the CFA revealed an inadequate model fit for the original three-factor structure, Principal Components Analysis with a Varimax rotation was performed in order to determine the better factor structure for the sample of this study. The resulting factor loadings are shown in the Table 2.

An examination of the Eigenvalues and Scree test suggested a three-factor solution. Examination of factor loadings over 0.3 suggested each scale loaded on a single factor. According to Varimax rotation results, these three factors accounted for 31.64% of the variance in the data set with factors 1 through 3 accounting for 13.81%, 9.05%, and 8.76% of the variance respectively. The three factors of the present data were different than the original factors of the TMMS reported by Salovey et al. (1995). In the current study, two items (6 and 24) had correlated errors. For example, item 6 loaded significantly not only on factor 2 but also factor 3. Further, item 14 failed to load on any factor. The remaining 27 items were loaded on different factors as reported by Salovey et al. (1995). In the current study, the first factor contained TMMS Items 2, 5, 8, 10, 11, 12, 19, 21, 23, 25 and 27. The second one contained TMMS Items 4, 15, 17, 20, 26, 28 and 30. The final one contained TMMS Items 1, 3, 7, 9, 13, 16, 18, 22 and 29. According to the highest loadings items, we interpret that the first factor corresponded to the Attention to Feelings subscale which also appeared to be including the majority of the original attention items. The second factor replicated the Clarity to Feelings subscale; including the majority of the original clarity items. Finally, the third factor was tentatively named Mood Repair based on the relatively high loading mood repair items as well as some of the items' resemblance to Mood Repair such as item 18 ("I never give into my emotions"). According to the new factor structure, the internal consistency estimates (Cronbach's alpha) were found to be $\alpha = .79$ for Clarity, $\alpha = .63$ for Attention, and $\alpha = .59$ for Mood Repair. Two sub-factors of the new model significantly correlated with the Ruminative Response Scale: Attention of Feelings ($r = -.20$, $p = .00$), Repair of Mood ($r = .36$, $p = .00$), but not correlated with Clarity of Feelings ($r = .01$, $p = .86$).

Table 2. Results of Principal Component Analysis

	Component		
	1	2	3
mm1	.194	-.193	.620
mm2	.467	-.081	-.075
mm3	-.199	.065	.386
mm4	.043	.389	.090
mm5	.503	-.170	-.135
mm6	-.106	.380	.307
mm7	-.024	.066	.439
mm8	.620	.047	-.082
mm9	-.174	.043	.279
mm10	.652	.084	-.029
mm11	.606	-.092	-.179
mm12	.466	.011	-.077
mm13	-.329	.245	.408
mm14	.169	.288	.006
mm15	-.124	.519	-.134
mm16	-.122	.254	.572
mm17	-.022	.526	.332
mm18	.171	-.284	.545
mm19	.658	.049	.186
mm20	-.202	.565	.097
mm21	.428	-.155	.233
mm22	-.023	.030	.479
mm23	.568	.121	-.117
mm24	.325	.327	-.275
mm25	.667	.001	.039
mm26	.188	.424	.030
mm27	.559	-.226	.220
mm28	-.226	.640	-.026
mm29	.293	-.083	.422
mm30	-.067	.592	-.145

4. Discussion

This study examined the reliability and validity of the Turkish version of the TMMS. Salovey et al. (1995) identified three factors for the 30 TMMS items. The fit of the three factors model was evaluated using a Confirmatory Factor Analysis (CFA). The results suggested that the original three factor model was an inadequate for our sample. According to Modification Indices (MIs) as suggested by Kaplan (1989), some items were abnormally correlated. Therefore, correlations were added between the error terms. However, the new results still showed an inadequate model fit for our sample.

Therefore, Principal Components Analysis with a Varimax rotation was performed. After modification, better internal consistency reliability and better correlation with Ruminative Response Style were observed.

In fact, the previous studies also reported poor fit for other international samples. For example, for the Spanish version of TMMS (Fernández-Berrocá, Extremera & Ramos, 2004), some items failed to load on any factors and some other items loaded on different factors. Further, in the Australian sample Palmer, Gignac, Bates, and Stough (2003) suggested the possibility of fourth factor and the need of establishing TMMS into sub-population and cross-cultural norms. Therefore, these findings point out that TMMS may be used in a very wide range of populations, but the factorial structures should be tested beforehand. It is known that emotions are related to the culture and the culture has an important role on experiences with emotions (Russell, 1991). In this perspective, the results may be effected from the sample of the study, thus, in future research, the original three factor model and the new Turkish model of TMMS needs to be cross-validated with different samples.

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