

Validity and Reliability of the Turkish Version of the Mentalization Scale (MentS)



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ABSTRACT

Objective: This study, aims to translate the Mentalization Scale (MentS) into Turkish and investigate the reliability and validity of the Turkish version.

Method: The participants, consisting of 615 (310 female and 305 male) Turkish speaking adults, were asked to complete the MentS and the Emotional Intelligence Feature Scale-Short Form (EIFS) and the Borderline Personality Inventory (BPI).

Results: The factor structure of the scale was investigated by exploratory and confirmatory factor analysis. Similar with the original scale, findings demonstrated a three-factor structure, namely, 'the self,' 'others' and 'motivation'. Corrected total score correlations for each item were between 0.28 and 0.52. The MentS score showed positive correlations with the EIFS score ($r=0.49$; $p<0.001$); and negative correlations with the BPI score ($r=-0.37$; $p<0.001$). Cronbach's alpha internal consistency coefficient was calculated as 0.84 for the total score, 0.78, 0.80, and 0.79 for MentS-S, MentS-O, and MentS-M, respectively.

Conclusion: The findings show that the 25-item MentS Turkish form has sufficient psychometric properties. Our data supports the use of the Turkish version of MentS in future studies for assessment of mentalization capacity.

Keywords: Mentalization, validity, reliability

INTRODUCTION

Mentalization was introduced in 1960's as a psychoanalytic concept to describe mental processes related to symbolization (Freeman 2016). Mentalization is also associated with the Theory of Mind (ToM), which was defined by Premack and Woodruff after an experiment on chimpanzees in 1978. Bateman and Fonagy (2013) defined mentalization as the capacity "to attend to mental states in ourselves and in others as we attempt to understand our own actions and those of others on the basis of intentional mental states." Mentalization develops based on early experiences of secure bonding with primary caregivers, and both clinical experience and research have shown that children who have not developed secure attachment may experience attachment problems extending to their adulthood (Bateman and Fonagy 2013). Studies have

also shown that problems in mentalization may be related to various psychopathologies.

The relationship between mentalization and psychopathology was first studied by Baron-Cohen et al. (1985). In this study, Baron-Cohen et al. (1985) proposed that autism was associated with the Theory of Mind. The problem of mentalization in autism spectrum disorder has been supported by many other studies later (Baron-Cohen 2001). Current literature indicates that problems in mentalization may also account for the increasing incidence of several other disorders. For example, Frith (1992) revealed the limitations of individuals diagnosed with schizophrenia in making sense of mental processes. Studies flag diagnosis-specific anomalies of mentalization in schizophrenia and autism (Chung et al. 2008, Stichter et al. 2010), in eating disorders (Redondo and Luyten 2018), conduct disorder, antisocial personality

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disorder (McGauley et al. 2011), borderline personality disorder (Fonagy and Bateman 2008) and depression (Belvederi et al. 2017). Deficiencies in mentalization capacity are considered as an important indicator, especially for personality disorders (Fonagy and Bateman 2008). Particularly for Borderline Personality Disorder (BPD), deficient mentalization is recognized as a core feature (Fonagy et al. 2015). It has been emphasized that in BPD, symptoms such as emotion regulation difficulties, impulsivity, intense interpersonal difficulties, and problems in reflective capacity and sense of self are related to lack of effective mentalization (Fonagy et al. 2015).

Clinical studies on mentalization in Turkey especially focus on people diagnosed with schizophrenia and bipolar disorders. For example, Bora et al. (2005, 2008) showed that deficiency in ToM may persist in the remission period of bipolar disorder and schizophrenia. Balıkçı et al. (2017) showed that mothers of schizophrenia patients performed significantly worse in the Reading the Mind in the Eyes Test and had lower mentalization capacity. Using the Coding System for Mental State Talk in Narratives, Duman and Oral (2018) have demonstrated that tales contribute to the mentalization ability more than animated films and consequently that they are helpful for improved mentalization.

When mentalization assessment instruments are examined, three paths appear in literature. First, in a wide range of research, constructs like empathic capacity and emotional intelligence are used interchangeably with mentalization. In parallel, it was noteworthy that measurements that were originally developed to assess the level of emotional intelligence (Mayer–Salovey–Caruso Emotional Intelligence Test; Mayer et al. 2002) and empathy (Empathy Quotient, EQ; Baron-Cohen and Wheelwright 2004) were used to assess mentalization but also failed to cover all aspects of mentalization during assessments despite some common aspects (Dimitrijević et al. 2018). The second way of measuring mentalization is by using interview-based techniques. Following a detailed coding system, it is possible to score mentalization capacities of individuals (Rudden et al. 2005). However, such interviews are not ideal for quantitative research with large sample-size (Dimitrijević et al. 2018). As the third way of mentalization assessment, self-report measures seem to provide advantageous alternatives, since they are easy to administer and can be used with larger samples. Ha et al. (2013) developed a measurement for people between the ages of 12-17. Following this measurement for adolescents, some other measurements are developed for adults as well (e.g. Badoud et al. 2015; Fonagy et al. 2016). These measurements indicate that mentalization is positively associated with concepts such as empathy and awareness and have negative associations with various psychopathological symptoms.

The relationship between mentalization and psychopathology has led to an increase in research on the subject. In this context, Dimitrijević et al. (2018) developed an easy-to-administer, reliable, self-report measure of mentalization, namely, the 'Mentalization Scale' (MentS), which they validated on both community and clinical samples. During the validation of the scale, which was developed based on the theoretical definition of the concept of mentalization, Experiences in Close Relationships Inventory-II (Fraley et al. 2000), Empathy Scale (Baron-Cohen and Wheelwright, 2004), Emotional Intelligence Scale (Petrides 2009) and the Five-Factor Inventory (McCrae and Costa 2004) were used. According to results, mentalization is positively related to emotional intelligence, empathy, openness, extraversion, and conscientiousness; and negatively related to anxious and avoidant attachment and neuroticism. That it contributed to the determination of borderline personality disorder was also emphasized.

In the literature, there are also some mentalization-related measurement tools that were adapted to Turkish. One of these is the 'Encoding System of Mind Situations in Narratives' that was adapted by Çorapçı and Bekar (2016) on mother-child pairs. This tool aims to evaluate mentalization skills in narratives (Bekar et al. 2014). 'Reading the Mind from Eyes Test' (Baron-Cohen et al. 2001) is another tool that was adapted to Turkish, revised by Yıldırım et al. (2011). This tool evaluates mind reading-abilities, which is a key component of ToM. In this respect, people are asked to predict the mental states of others from 36 pictures in which only the eyes and their contours are visible.

When related literature in Turkish is examined, one can see that a tool is missing to evaluate mentalization that could be used in large-scale quantitative studies conducted in both population-based and clinical samples. In order to bridge this gap between scientific research and clinical investigation, the present study seeks to adapt the Turkish version of the Mentalization Scale (MentS; Dimitrijević et al. 2018) and to determine its psychometric characteristics as part of the Turkish-speaking community sample.

METHOD

Participants

Data was collected from 615 participants aged between 18 and 65 ($M=35.22$, $SD=10.05$) from various cities of Turkey (e.g. Ankara, Istanbul and Mersin). The sample distribution by gender was 50.4% female ($n=310$) and 58.6% male ($n=305$). Among the participants 321 (52.2%) were single and 294 (47.8%) were married. Of the participants, 8 (1.3%) were primary school graduates, 6 (1.0%) secondary school, and 89 (14.5%) high school graduates with 303 (49.3%) undergraduate and some 209 (34.0%) holding postgraduate degrees.

Data-collection Tools

Socio-demographic Information Form

This form was prepared by authors to collect the demographic information including age, gender and level of education.

The Mentalization Scale (MentS)

The MentS consists of 28 items with a 5-point Likert scale (1- Completely incorrect, 5- Completely correct). The MentS has three sub-dimensions: self-based mentalization (MentS-Self, MentS-S), others-based mentalization (MentS-Others, MentS-O), and motivation to mentalization (MentS-Motivation, MentS-M). In the original study, Dimitrijević et al. (2018) reported Cronbach's alpha internal consistency coefficients of the scale as 0.84 for the total score, 0.76 for self (MentS-S), and 0.77 for others (MentS-O) and motivation dimensions (MentS-M) (Dimitrijević et al. 2018).

Trait Emotional Intelligence Questionnaire - Short Form (TEIQue-SF)

The TEIQue-SF was developed by Petrides and Furnham (2001) to assess the level of self-perception about the individual's emotional competency. The scale was adapted to Turkish by Deniz et al. (2013). The Turkish form of the scale consists of 20 items with 7-point Likert type rating (1-Strongly disagree, 7-Strongly agree). In TEIQue-SF studies (Petrides 2009; Petrides et al. 2010), Cronbach's alpha internal consistency coefficients were reported within the range of 0.87 and 0.90. In the Turkish version Deniz et al. (2013) reported Cronbach's alpha internal consistency coefficient as 0.81. In the present study, the Cronbach's alpha internal consistency coefficient of the scale was found as 0.85.

Borderline Personality Inventory (BPI)

The BPI was developed by Leichsenring (1999) and aims to determine borderline personality traits. The scale is a self-information tool that consists of 53 true or false items. The scale was adapted to Turkish by Aydemir et al. (2006). In the original study, the Cronbach's alpha internal consistency coefficient was reported as 0.91 (Leichsenring 1999). Aydemir et al. (2006) reported Cronbach's alpha internal consistency coefficient as 0.92 in the Turkish adaptation of the scale. In the present study, the Cronbach alpha internal consistency coefficient of the scale was calculated as 0.90.

Procedure

Prior to the adaptation of the Mentalization Scale into Turkish, the author of the scale was contacted via e-mail for permission to carry out such a study. Following receipt of permission to continue, items in the scale were translated from English to Turkish. This process was handled by two experts who are proficient in English and have Ph.D. degrees clinical psychology. Then, the two individual translations were

reviewed and merged into a final form, which then was back-translated to English by another expert. After the completion of the back-translation, the scale was sent to its developer for review. Language validation was completed upon developer's approval of the back-translation.

In order to examine the test-retest reliability, Turkish translation of the scale was applied twice with an interval of three weeks to a total of 65 participants (30 male, 35 female) studying in sociology and philosophy departments (first and second grades) of the Faculty of Arts and Sciences at Mersin University. The average age of the participants was 20.58 (SD=1.24). Main data was collected after the test-retest stage. With the onset of COVID-19 measures in Turkey from March 2020 and on, study forms were delivered to the participants via the online survey program (i.e. Google Forms). Survey links were also shared on social media platforms (e.g. Facebook, Twitter).

This study was approved by Baskent University Institutional Review Board and Ethics Committee (Project No: KA20 / 17) and supported by Baskent University Research Fund.

Statistical Analysis

To validate the construct of the Turkish Form of the MentS, exploratory and confirmatory factor analyzes were applied. Related studies about factor analysis (e.g. Henson and Roberts 2006; Worthington and Whittaker 2006) recommend conducting the exploratory and confirmatory factor analyses with two different data-sets. Moreover, Suhr (2006) stated that using the same data for exploratory and confirmatory factor analysis reconfirms an already found result. In line with the recommendations mentioned above, the sample was randomly split into two data-sets with 307 and 308 participants. There was no significant difference between the two data-sets in terms of age ($t(613)=-1.436$, $p=0.152$) and gender ($\chi^2(1)=0.079$, $p=0.778$). In order to determine the criterion-related validity, Pearson Moments Correlation analysis was used to examine the relationship between the MentS, the BPI, and the TEIQue-SF. For reliability, Cronbach's alpha internal consistency coefficients and test-retest methods were used. Finally, an independent sample t-test analysis was conducted to compare the scores obtained from the scale in terms of gender.

RESULTS

Construct Validity

Exploratory Factor Analysis (EFA)

As a result of the first EFA, an 8-factor structure with an eigenvalue above 1 explained 56% of the variance. Similar to the original structure of the MentS, the scree plot graph

showed that items were distributed into 3 factors. The results of the second EFA, showed that the factor loading of item numbers 15, 17, and 28 were lower than 0.30. After these items were excluded, 3-factor and 25-item final form of scale explained 40.32% of the variance ($KMO=0.775$, $\chi^2(200)=2257.592$, $p<.001$).

Confirmatory Factor Analysis (CFA)

To verify the three-factor structure obtained from the exploratory factor analysis, a confirmatory factor analysis was performed with 'Lavaan' version 0.5-22 (Rosseel 2012) in the R 3.3.1. Results of the CFA revealed that the three-dimensional structure with 25 items was demonstrated acceptable fit indices ($\chi^2[296, N=307]=519.017$, $\chi^2/df=1.75$, $RMSEA=0.05$, $GFI=0.98$, $CFI=0.90$, $AGFI=0.98$, $SRMR=0.06$). According to these findings, it can be said that the three-dimensional structure of the Turkish version of MentS has acceptable fit indices, similar to the three-dimensional structure of the original scale. The factor loading

of the items are shown in Table 1 based on the results of the EFA and the CFA.

Criterion-Related Validity

To determine the criterion-related validity, the relationship between the dimensions of the MentS and other variables was examined. As presented in Table 2, the total score and dimensions of the MentS were statistically associated with the TEIQue-SF and the BPI. Moreover, borderline personality traits were negatively correlated with emotional intelligence traits.

Reliability

To determine the reliability of the MentS, first, test-retest reliability analysis was conducted twice to 65 participants at a three-week interval. The Pearson Moments correlation coefficients between these two applications were 0.73 for the MentS total score, 0.68 for self-dimension (MentS-S), 0.70 for the others dimension (MentS-O), and 0.64 for

Table 1. The factor loadings of the items from the results of exploratory and confirmatory factor analysis

Factor	MentS Items	EFA	CFA
1	4. I often think about other people and their behaviors.	.723	.610
1	24. I have always been interested in the reasons why people behave in certain ways.	.707	.649
1	13. I find it important to understand what happens in my relationship with people close to me.	.670	.716
1	1. I find it important to understand the reasons for my behaviors.	.638	.739
1	7. When someone annoys me, I try to understand why I react in that way.	.621	.695
1	16. I often talk about emotions with people that I am close to.	.567	.573
1	27. Since we all depend on life circumstances it is meaningless to think of other people's intentions or wishes.*	.457	.546
1	9. I do not like to waste time trying to understand other people's behavior in detail.*	.432	.472
2	12. Sometimes I can understand someone's feeling before s/he tells me anything.	.767	.614
2	10. I can make good predictions of other people's behavior when I know their beliefs and feelings.	.719	.553
2	5. Usually I can recognize what makes people feel uneasy.	.693	.679
2	3. I can recognize other people's feelings.	.669	.694
2	20. I can describe significant traits people who are close to me with precision and in detail.	.558	.724
2	2. When I make conclusion about other people's personality traits, I carefully observe what they say and do.	.756	.523
2	6. I can sympathize with other people's feelings.	.487	.430
2	23. People tell me that I understand them and give them sound advice.	.483	.472
2	25. I can easily describe what I feel.	.430	.492
3	21. I am often confused about my exact feelings.*	.741	.610
3	11. I often cannot explain, even to myself, why I did something.*	.729	.459
3	18. I find it difficult to admit that I am sad, hurt, or afraid.*	.679	.625
3	22. It is difficult for me to find the right words to express my feelings.*	.635	.615
3	8. When I get upset, I am not sure whether I am sad, afraid, or angry.*	.615	.524
3	26. While people talk about their feelings and needs my thoughts often drift away.*	.472	.547
3	19. I do not like to think about my problems.*	.467	.567
3	14. I do not want to find out something about myself that I will not like.*	.421	.662
Eigenvalue	Factor 1: 2.237, Factor 2: 4.693, Factor 3: 3.149		
Explained variance	Factor 1: 8.957, Factor 2: 18.772, Factor 3: 12.596		

Note. Factor 1: MentS-M, Factor 2: MentS-O, Factor 3: MentS-S, EFA: Exploratory Factor Analysis, CFA: Confirmatory Factor Analysis; * Reverse items

Table 2. The correlations between the MentS, TEIQue-SF, and BPI scales.

	1	2	3	4	5	6
1. MentS-Self	-	.317**	.362**	.697**	.628**	-.463**
2. MentS-Others	-	-	.547**	.701**	.388**	-.124*
3. MentS-Motivation	-	-	-	.796**	.241**	-.125*
4. MentS-Total	-	-	-	-	.528**	-.293**
5. TEIQue-SF	-	-	-	-	-	-.468**
6. BPI	-	-	-	-	-	-

Note 1. ** $p < .001$, * $p < .05$,

Note 2. TEIQue-SF: Trait Emotional Intelligence Questionnaire-Short Form; BPI: Borderline Personality Inventory.

the motivation dimension (MentS-M). Internal consistency reliability of the MentS was calculated with 615 participants. Cronbach's alpha internal consistency coefficient was 0.84 for the total score of the scale, 0.78 for MentS-S, 0.80 for MentS-O, and 0.79 for MentS-M. Item-total correlations of the scale range from 0.28 to 0.52 for the total score, from 0.43 to 0.57 for MentS-S, from 0.38 to 0.57 for MentS-O, and from 0.38 to 0.58 for MentS-M.

Gender-Based Comparison for the Sub-Scales and Total Score of the MentS

This study examined whether or not the scores of the participants from the sub-scales and total score of the MentS differ in terms of gender. Independent sample *t* test analysis revealed that female participants ($M=101.28$, $SD=11.81$) obtained significantly higher scores compared to males ($M=99.29$, $SD=11.98$) in the total scale score ($t(613)=2.07$, $p<0.05$). Similarly, MentS-M scores showed statistically significant difference ($t(613)=2.89$, $p<0.01$), and females ($M=35.52$, $SD=5.80$) got higher scores compared to males ($M=34.15$, $SD=5.92$). There was no significant gender-based difference in the MentS-O ($t(613)=0.85$, $p=0.40$) and MentS-S scores ($t(613)=0.66$, $p=0.51$).

DISCUSSION

Empirical studies carried out in recent years show an increased interest in mentalization studies. The MentS, developed by Dimitrijević et al. (2018), is a comprehensive measurement tool that is frequently used in studies for the evaluation of mentalization capacity (e.g. Seydi et al. 2019). The present study aimed to adapt the MentS into Turkish and determine its psychometric properties on a community-based sample.

Field-literature often recommends the use of both the EFA and the CFA as because structural changes could occur in the Turkish form of the scale due to language and cultural differences for determining the validity in adaptation studies (Orçan 2018). In line with this recommendation, the data set was divided into two, and EFA and CFA were performed. EFA results revealed, first, a scree plot that was distributed over three factors similar to the original structure of the scale.

As a result of the analysis, it was observed that the factor loadings of the three items in the original form of the scale were lower than 0.30. After these items were removed from the analysis, the explained variance of the 3-factor and 25-item structure was 40.32%, and this value was close to the variance (37.51%) reported for the three-factor structure of the original scale (Dimitrijević et al. 2018). Secondly, CFA was performed to confirm the resulting structure from the EFA. The results revealed that the three-dimensional structure of 25 items had an acceptable level of fit indices. Consequently, the EFA and CFA exhibited that the Turkish form could be considered as a three-dimensional structure in line with the three-dimensional structure of the scale in its original language.

Another method for the assessment of construct validity is to examine the relationship between the dimensions of the scale and the total score. Accordingly, in our study we found that the correlations of each dimension of the scale with the total score were high and their correlations with each other were moderate. In order to determine criterion-related validity, the relationship between emotional intelligence and borderline personality traits was examined. Consistent with the literature, the self (MentS-S), others (MentS-O), and motivation (MentS-M) sub-dimensions and total scores were positively related to emotional intelligence and negatively related to borderline personality traits. These findings are consistent with clinical observations (Allen et al. 2008) and empirical studies (Dimitrijević et al. 2018), and point out that mentalization is related to emotional intelligence. Hence, Fonagy and Bateman (2008) stated that mentalization is a developmental success related to understanding one's own and others' mental states and developmental failure in this regard is a crucial element in the formation of borderline personality patterns. In other words, the lack of mentalization ability may amplify borderline personality traits, which our findings also confirm.

The reliability of the scale was examined by test-retest analysis and calculation of Cronbach's alpha internal consistency coefficients. As a result of the two applications performed three weeks from one another, the test-retest reliability analysis revealed that the stability of the scale over time was at the desired

level in terms of both the total score and its sub-dimensions. The Cronbach's alpha internal consistency coefficients of the total score and sub-dimensions of the MentS were higher than 0.70 and the sub-dimensions of the scale had acceptable internal consistency coefficients ($\alpha_{\text{MentS-S}}=0,76$, $\alpha_{\text{MentS-O}}=0,77$ and $\alpha_{\text{MentS-M}}=0,77$). The results indicate that the internal consistency of the scale is good and similar to the original scale's (Dimitrijević et al. 2018). In addition, the item-total correlation coefficients were found to be higher than 0.25. The item-total correlations calculated for the total score of the scale ranged from 0.28 to 0.52 and are similar to the item-total correlations reported in the original study (0.26-0.51). To sum up, the Turkish version of the MentS consisting of 25 items was found reliable measurement tool.

Finally, the total score of the scale and the scores of the sub-scales were compared in terms of gender. The scores obtained from the self (MentS-S) and others (MentS-O)-based mentalization dimensions did not differ in terms of gender. However, in terms of the motivation (MentS-M) sub-dimension and the total score, the scores of the female participants were significantly higher than those of male participants. The finding that total mentalization skills are higher in female compared to male participants is consistent with previous studies (e.g. Dimitrijević et al. 2018, Krach et al. 2009). According to Rutherford et al. (2012), higher scores on mentalization in female participants are associated with their higher intrinsic motivation (social interaction motivation) to understand the mental states of others from the early developmental periods. In addition, studies indicate that women score significantly higher in terms of emotional intelligence (Joseph and Newman 2010) and empathy (Ibanez et al. 2013), which are both related to mentalization. These results may also be linked to women's motivation to empathize rather than their ability to empathize (Ickes 1997). In the current study, higher scores of female participants in the motivation dimension of mentalization can be explained within the framework of such findings in the literature.

The current study also has limitations. First, all data was obtained from self-reported measures. Since the participants may have answered the items with a tendency to behave in the direction of social desirability, it is recommended to control such bias in future studies. Second, the data was collected through online surveys due to COVID-19 pandemic regulations. Although this method is advantageous in terms of providing data from participants living in different cities and from a larger sample, it may also hold adverse effects in terms of not being able to reach a homogeneous sample, standardizing the level of education of participants and lack of information on the kind of environment people participated in the study. Third, since the majority of the participants were university and postgraduates, cognitive status was not considered as an exclusion criterion, assuming no impairment

in cognitive functions. In further studies, taking the cognitive functions of the participants as an inclusion/exclusion criterion and/or examining the relationship between the level of intelligence and mentalization capacity are recommended. Another limitation of the study is that, due to the difficulty of reaching the same sample twice, the test-retest reliability analysis, which was conducted to determine the consistency of the answers over time, was carried out with 65 university students, while other validity and reliability analyses were carried out with 615 participants forming the entire sample of the study. Finally, only data collected from the community sample were used in this study. The inclusion of the clinical sample in future studies and the examination of disorders related to mentalization capacity, especially in individuals with borderline personality disorder, is recommended for future studies in Turkey.

In conclusion, the MentS (Dimitrijević et al. 2018) was adapted into Turkish and our findings confirm it is a valid and reliable measure. This study indicates that the Turkish form of the MentS is suitable for evaluating the level of mentalization in future studies based on population samples.

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