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Psychometric Features of The Turkish Version of the Negative Mood Regulation Scale

Olumsuz Duygu Düzenleme Beklentileri Ölçeği Türkçe Formunun Psikometrik Özellikleri

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ABSTRACT

Negative mood regulation expectancies (NMRE) constitute a construct that explains individual beliefs and degree of confidence in the ability to address negative emotions. The significance of this concept is that it is a meta-emotion regulation variable that functions as a resilience factor. Based on social learning theory (Rotter 1954), scholars proposed that believing that one exerts control over life events (e.g., through thoughts and actions) may be relatively beneficial when addressing difficult emotions. Such expectancies give the impression that one possesses the resources necessary for coping and, thus, alleviate subjectively felt distress. The NMRE scale, which was constructed to measure individual differences in NMRE, has been adapted to different languages and examined in terms of factor structure, reliability, and validity. The current study aims to examine the psychometric characteristics of the NMRE Scale (Catanzaro & Mearns, 1990) in the Turkish context. A total of 399 (female: n = 271, 68%) participants completed the NMRE scale along with measures of emotion regulation, learned resourcefulness, and self-efficacy as well as depression and anxiety. All scales and tests were administered face-to-face. The findings yielded a two-factor structure, namely, positive and negative expectancies, and provided support for the reliability (internal consistency and test–retest reliability with a five-week time interval) of the measure. Additionally, high scores for NMRE were positively associated with emotion regulation, learned resourcefulness, and self-efficacy, whereas they were negatively associated with depression and anxiety. Furthermore, NMRE scores explained the variance in depression and anxiety scores above and beyond emotion regulation, learned resourcefulness, and self-efficacy, which provides support for its incremental validity. Furthermore, the study found that the additional variance explained is due to the subscores for negative expectations. The overall results provided evidence for reliability and validity, which makes the NMRE scale appropriate for use in research settings.

Keywords: Negative mood regulation expectancies, self-efficacy, learned resourcefulness, emotion regulation, psychological distress

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Negative mood regulation expectancies (NMRE) are concerned with the degree of individual confidence in one's ability to address unpleasant emotions (Catanzaro & Mearns, 1990). It is conceptualized based on the social learning model (Rotter, 1954), which suggests that believing that one exerts control over life events (e.g., through thoughts and actions) may be relatively beneficial while addressing difficult emotions. Such expectancies give the impression that one possess the resources necessary for coping and, thus, alleviate the subjectively felt distress. In other words, NMRE are conceptualized as a meta-emotion regulation variable, because mood regulation expectancies require the capacity to perceive and evaluate the levels of the effectiveness of one's emotion regulation strategies (Catanzaro & Mearns, 2016). Furthermore, they appear to be relatively stable across situations (Catanzaro & Mearns, 2016). Catanzaro and Mearns (1990) proposed that NMRE are a resilience factor, because having a strong confidence in one's capacity for coping is considered to make an individual ready to address negative life events and difficult emotions (Wang et al., 2019). According to Catanzaro and Mearns (1990), confidence in the effectiveness of previously existing coping mechanisms is attributable to the selection of adaptive coping strategies, because people tend to perceive a situation as manageable and, thus, do not feel overwhelmed. Specifically, research consistently illustrates that high levels of NMRE were associated with active and problem-focused coping, whereas low levels were related to avoidant coping (Hemenover & Harbke, 2019; Kassel et al., 2000; Kirsch et al., 1990; Shepherd-McMullen et al., 2015; Wang et al., 2019).

Catanzaro and Mearns (1990) developed the NMRE scale to measure individual differences in NMRE. The scale has been translated into various languages, including Turkish (Kaymakçıoğlu, 2001). However, studies that examine the factor structure of the Turkish version of the scale have been lacking. Furthermore, no validity information is available for this version. Given that recent research findings associate NMRE with resilience (Shepherd-McMullen et al., 2015), measuring this variable using reliable and valid instruments is imperative. The current study aims to contribute to the coping literature by examining the psychometric features of the Turkish version of the NMRE scale.

NMRE and Related Constructs

The relationship between NMRE and emotional distress is well established (Catanzaro, 1996; Mazur-Socha & Przepiórka, 2021; Sung et al., 2012). Studies consistently reveal that NMRE are significantly negatively associated with various types of emotional distress such as anxiety (Catanzaro, 1996; Çakar, 2012), job-related stress (Mearns & Mauch, 1998), posttraumatic stress disorder symptomatology (Kulkarni et al., 2013), and depression (Kassel, et al., 2000; Mearns et al., 2016; Wang et al., 2019). These findings indicate that individuals who report high levels of confidence in the effectiveness of their negative mood regulation skills report such problems less frequently. Furthermore, low levels of NMRE were found to predict problem drinking behavior among college undergraduates (Kassel & Unrod, 2000) and poor quality of life among people diagnosed with social phobia (Sung et al., 2012) in addition to suicidal behavior and nonsuicidal self-harm among college students (Tresno et al., 2012). Similarly, therapeutic interventions that improve NMRE appear significantly related to better psychological wellbeing (Backenstrass et al., 2006; Cloitre et al., 2010).

The literature indicates that NMRE were used with the objective of assessing emotion

regulation capacities (Grant et al., 2018; Hemenover & Habke, 2019). Although high levels of NMREs are associated with the less frequent use of maladaptive strategies for emotion regulation (Brockmeyer et al., 2012) and the more frequent use of adaptive strategies (Berking et al., 2012), studies do not report perfect correlations between NMRE and measures of emotion regulation (Gratz & Roemer, 2004; Pfeiffer et al., 2012). In other words, despite the conceptual overlap, NMRE are distinct from typical emotion regulation strategies that are used to address negative emotions encountered in daily life. Specifically, NMRE emphasize individual differences in the expectations of people in addressing negative emotions instead of the actual emotion regulation strategies being used (Catanzaro & Mearns, 1990; 2016).

Self-efficacy is another construct that bears conceptual similarities with NMRE (Altan-Atalay, 2020; Backenstrass et al., 2006; Laurent et al., 2019), because both concepts refer to the perception of self-competence (Maddux & Kleiman, 2018). Parallel to NMRE, self-efficacy is related to whether or not individuals predict that they can modify certain aspects of their environment and control their lives instead of the actual skills they employ to reach the desired outcomes (Bandura, 1986). Especially, outcome expectancies, which refer to "the belief that certain behaviors will lead to certain outcomes" (Sherer, 1982, p. 663), are similar to the essence of NMRE. Similar to NMRE, high levels of self-efficacy are linked to low degrees of psychological distress, which emphasizes its potential to function as a protective factor (Hoelterhoff & Chung, 2020). Nevertheless, the two concepts can be distinguished from each other on the basis of Bandura's (1986) conceptualization of expectancies. Specifically, according to Bandura (1986), self-efficacy is indicative of one's estimates of the capacity to act in a certain (and desired) manner when necessary. He defines expectancy as confidence in the effectiveness of behaviors performed to reach the desired outcome, which indicates that expectancy also involves anticipation of obtaining a good outcome from engaging in an action. Backenstrass et al. (2010) reported a significantly moderate association between NMRE and self-efficacy, which highlights that the two constructs are conceptually different from each other despite their similarities.

Learned resourcefulness is a resilience-related construct, which poses potential associations with NMRE (Guloglu, 2017). Rosenbaum (2000) defined learned resourcefulness as possessing a repertoire of coping skills, including problem solving, delay of gratification, and positive self-talk in addition to awareness of the difficulty of obtaining change, because it requires excessive effort and commitment. Available research posited that learned resourcefulness is linked to low levels of anxiety and depression (Guloglu, 2017; Guo et al., 2019; Hamamura & Mearns, 2019; Huang et al., 2018). Although none of the existing studies tested the association between NMRE and learned resourcefulness, they are significantly associated with adaptive coping strategies (Ronen & Rosenbaum, 2010) and psychological distress measures (Chen et al., 2014). Thus, assessing this concept is important in testing the validity of the NMRE scale. Given this theoretical background, the subsequent text provides a description of the scale and its psychometric features and adaptation studies in different languages.

The NMRE Scale

The NMRE scale, which was developed by Catanzaro and Mearns (1990), is designed to assess individual differences in the expectations of people in addressing negative emotions. It is a measure of one's belief in the effectiveness of the strategies they use in the down-regulation of negative mood states (Catanzaro & Mearns, 2016). The NMRE scale is composed of 30 items that begin with the phrase ("When I'm upset, I believe that . . . "). The scale involves items for assessing individuals beliefs in the effectiveness of cognitive strategies (e.g., "Telling myself it will pass will help me calm down"), behavioral strategies (e.g., "I can do something to feel better"), and general beliefs (e.g., "I'll be upset for a long time") in their mood regulation skills (Catanzaro & Mearns, 1990). Although the NMRE scale was designed to assess thoughts about one's negative mood regulation skills, it is also used to assess coping self-efficacy (Altan-Atalay, 2020; Bardeen & Fergus, 2019; Clauss et al., 2019) and emotion regulation capacities (Grant et al., 2018; Hemenover & Habke, 2019) in research settings.

Given the significance of NMRE in emotion regulation and robust evidence on the association between NMRE with psychopathology-related variables, scholars have translated and validated the NMRE scale in different languages (e.g., Mearns et al., 2016; Pfeiffer et al., 2012; Schneider et al., 2021). However, the literature reveals certain inconsistencies in its factor structure. In their original paper, Catanzaro and Mearns (1990) proposed a conceptualization of NMRE as composed of cognitive and behavioral–social components and a "general expectancies" subscale that covers overall beliefs regarding one's capacity for mood regulation. However, contrary to the original model proposed by Catanzaro and Mearns (1990), further analyses indicated a unidimensional structure with all subscales loading to the latent construct called generalized expectancies (Kirsch, et al., 1990). In line with this result, further research used the total score for the NMRE scale instead of subscale scores (Catanzaro, 1994; Creasey et al., 1999; Fergus & Bardeen, 2018; Kono & Mearns, 2013; Mearns et al., 2016). The psychometric qualities of the NMRE scale have been examined in different languages, which revealed mixed results regarding its factor structure. Although the Spanish (Pfeiffer et al., 2012), German (Backenstrass et al., 2006; 2010), Japanese (Mearns et al., 2016), and Brazilian (Schneider et al., 2021) versions yielded a unidimensional factor structure, the Polish (Grotkowski, 2022) version indicated the bifactorial structure of the NMRE scale, which are more and less optimistic. Furthermore, the Korean (Mearns et al., 2013) or Chinese (Wang et al., 2019) version did not report the factor structure of the scale. In light of these conflicting findings, one of the objectives of the current study is to evaluate the factor structure of the Turkish version of the NMRE scale.

Although various empirical studies (Akkuş & Peker, 2022; Altan-Atalay, 2020; Altan-Atalay & Sohtorik İlkmen, 2020) used the Turkish version of the NMRE scale, which was based on the adaptation by Kaymakçioğlu (2001), its psychometric characteristics and, especially, factor structure require examination. Notably, Kaymakçıoğlu (2001), in addition to translating the scale into Turkish using the translation–back translation method, provided information only on the reliability and validity of the scale without testing its factor structure. Moreover, another study conducted on a Turkish sample (Bahadır, 2006) pointed to a four-factor structure (i.e., avoidance of negative emotions, active effort, confrontation,

and social support) as the best fit for the NMRE scale. Although a number of recent studies (e.g., Onat & Otrar, 2010; Turan et al., 2019) used this factor structure, the fact that it never appeared in other cultures indicated the need to conduct additional studies on the psychometric characteristics and factor structure of the scale. In this respect, the current study aims to investigate the psychometric characteristics of the NMRE scale. Notably, the study will explore the factor structure of the questionnaire using a Turkish sample. The NMRE scale is expected to produce adequate levels of internal consistency and test–retest reliability. Furthermore, the construct-related validity of the scale will be assessed by examining its correlations with the measures of emotion regulation, anxiety, depression, and generalized self-efficacy. Specifically, we expect the NMRE scale to exhibit significant negative correlations with the measures of maladaptive emotion regulation, anxiety, and depression and significant positive correlations with the measures of adaptive emotion regulation strategies, generalized self-efficacy, and learned resourcefulness, which will provide evidence for concurrent validity (Altan-Atalay & Sohtorik İlkmen, 2019; Gratz & Roemer, 2004; Pfeiffer et al., 2012; Ronen & Rosenbaum, 2010). Furthermore, previous studies utilized the scale to assess emotion regulation skills and self-efficacy (Altan-Atalay & Sarıtaş-Atalar, 2020; Hemenover & Habke, 2019), which makes understanding whether or not it can explain the variance in the measures of psychological distress over and above the variance explained by the aforementioned constructs necessary. Thus, the study tests for the incremental validity of the NMRE scale by examining the association between the scores for the NMRE scale and anxiety and depression beyond the variance explained by emotion regulation, self-efficacy, and learned resourcefulness. We expect that the scores will remain significantly associated with depression and anxiety even after controlling for the effects of emotion regulation, self-efficacy, and learned resourcefulness.

The study poses the following hypotheses:

H1: Scores for the NMRE scale will be positively correlated with *(a)* adaptive emotion regulation strategies, *(b)* self-efficacy, and *(c)* learned resourcefulness.

H2: Scores for the NMRE scale will be negatively correlated with *(a)* maladaptive strategies for emotion regulation, *(b)* anxiety, and *(c)* depression.

H3: Scores for the NMRE scale will be continue to be significantly associated with anxiety and depression even after controlling for the effects of emotion regulation strategies (adaptive and maladaptive), self-efficacy, and learned resourcefulness.

Method

Participants

The study recruited a total of 415 adults with ages ranging from 18 to 47 years (M = 21.18, SD = 2.16, N = 280 women, 68%). Among them, 96.7% (N = 401) were single, and 54.1% (N = 225) were living with their families during the data collection phase. Moreover, many were undergraduate students and, thus, completed high school (79.4%, n = 330) and were currently living in one of the big cities in Turkey (73.9%, N = 307). A total of 66 participants completed the scale in the retest phase. These participants were university students (50 women, 16 men) with ages ranging from 18 to 31 years (M = 21.86, SD = 2.65).

Instruments

The NMRE Scale

It is composed of 30 items and designed to measure beliefs regarding mood regulation (Catanzaro & Mearns, 1990). The items were rated using a five-point Likert-type scale with high scores representing high levels of confidence in the effectiveness of mood regulation abilities. Items begin with the same expression, "When I am upset, I believe that . . . " and example items include "I can feel better by treating myself something I like," "Catching up with my work will help me calm down," and "I'll feel okay if I think about more pleasant times." In the original scale, the total score is calculated by summing the items after reverse coding items 3, 5, 8, 9, 10, 11, 14, 18, 19, 21, 22, 24, 25, 27, 28, and 30 (Catanzaro & Mearns, 1990). Based on the total score, high scores indicate high levels of expectations for negative mood regulation. The authors reported good internal consistency and acceptable discriminant validity. The current study used the Turkish translation of the NMRE scale by Kaymakçıoğlu (2001). The translation was conducted using the translation–back translation method, and the items were then evaluated by a psychology professor who is fluent in Turkish and English. This version of the instrument yielded good internal consistency (Cronbach's $\alpha = .88$) and acceptable convergent and divergent validity; however, its factor structure and test–retest reliability were not assessed (Kaymakçıoğlu, 2001).

Generalized Self-Efficacy Scale

Originally developed to measure self-efficacy expectations proposed by Bandura's self-efficacy theory, the Generalized Self-Efficacy Scale (GSES) is a 17-item measure of beliefs regarding the ability to master tasks (Sherer et al., 1982). Each item is evaluated using a five-point Likert-type scale with high scores referring to high levels of self-efficacy beliefs. The original version of the GSES has been documented to possess sound psychometric characteristics. Yıldırım and İlhan (2010) adapted the scale into Turkish, which yielded Cronbach's α of .80 in addition to split half and test–retest reliabilities reported as .77 and .66, respectively. GSES was also able to distinguish between individuals with high and low levels of depression and anxiety, which supports its validity. In the current study, Cronbach's α is .67.

Learned Resourcefulness Scale

Rosenbaum (1980) designed the Learned Resourcefulness Scale (LRS) to assess individual capacity to address difficult emotions using various strategies, such as self-instruction, to cope with emotional responses and to anticipate consequences. It is composed of 36 items rated using a six-point Likert-type scale with high scores indicating better learned resourcefulness skills. The scale exhibited adequate psychometric characteristics with Cronbach's alpha values of .78 and .86 (measured on different samples) and moderate correlations with measures of locus of control and dysfunctional beliefs. Dağ (1991) adapted LRS to Turkish, which revealed a Cronbach's α of .78 and concurrent validity evidence indicated by significant negative correlations with locus of control and symptoms of various psychological disorders. Cronbach's alpha in the current study is .79.

Cognitive Emotion Regulation Questionnaire (CERQ)

Developed by Garnefski et al. (2001), the Cognitive Emotion Regulation Questionnaire (CERQ) is composed of 36 items rated using a five-point Likert-type scale and designed to

measure nine distinct strategies for cognitive emotion regulation, which are mainly grouped as adaptive and less adaptive strategies. Alpha reliabilities between subscales ranged from .63 to .83. Adaptive strategies were found to be negatively associated with depression and anxiety symptoms. Tuna and Bozo (2012) adapted the scale to Turkish with Cronbach alpha values ranging from .72 to .83. Similarly, the test–retest reliability coefficients of the CERQ subscales were between .50 and .70. In the current study, Cronbach's alpha values are .85 and .82, respectively. Composite scores for adaptive and maladaptive cognitive emotion regulation were used in the analyses following the procedures outlined by Vanderhasselt et al. (2014) instead of individual subscale scores.

Beck Depression Inventory-II

The study measured depression using the revised version of the Beck Depression Inventory-II (BDI-II) developed by Beck et al. (1996), which includes 21 items. Responses to each item range from 0 (not present) to 3 (severe). Cronbach's alpha values for outpatients and nonclinical samples were .92 and .93, respectively. Test–retest reliability was found to be .93 over a week. The scale was significantly correlated with measures of depression (r =.71) and anxiety (r =.47). Kapci et al. (2008) adapted the Turkish version with internal consistencies of .90 and .89 for nonclinical and clinical groups, respectively. Test–retest reliability was .94. The researchers also reported satisfactory convergent and divergent validity. In the current study, Cronbach's α reached .92.

Beck Anxiety Inventory

This scale is designed to assess the severity of anxiety symptoms and comprises 21 items (Beck et al., 1988). The Beck Anxiety Inventory (BAI) displayed good internal consistency (Cronbach's α = .92) and test–retest reliability (r = .75; with a one-week interval) in addition to good divergent and convergent validity. Ulusoy et al. (1998) adapted the Turkish version, which reached high internal consistency (Cronbach's α = .93) and good convergent and divergent validity. In the current study, the internal consistency measured using Cronbach's alpha is .92.

Procedure

Data collection began after approval from the Yeditepe University Social Sciences Ethics Committee (approval no: 75078252-050.01-047, date: 08.03.2019). Furthermore, permissions were obtained from Catanzaro and Kaymakçıoğlu in October 2019. The study was conducted face-to-face, and all measures were provided in a paper-and-pencil format. The participants were recruited via convenience sampling, such that voluntary psychology students distributed questionnaires among their friends, the majority of whom were university students. After reading and signing the informed consent form, participants completed the questionnaires in approximately 30 min. Participants who agreed to participate in the retest assessment (n = 66) were contacted five weeks after the original administration and completed the NMRE scale only. The participants did not receive any compensation.

Data Analysis

Data analyses were conducted using the IBM SPSS Statistics Version 26 (IBM Corp., 2016). Descriptive statistics were calculated, and variables were examined for normality,

linearity, and outliers. To examine the factor structure of the NMRE scale, the study conducted principal component analysis (PCA) on the 30 item scale with Promax rotation. As previously mentioned, the factor structure of the NMRE scale remains unexamined in the Turkish population, such that the study used PCA to reveal the latent variables in the scale. Promax rotation was implemented as a method of oblique rotation, because it enables correlations between factors/components, and it is a fast procedure for large data sets (Finch, 2006).

Internal consistency reliabilities were calculated after two factors were extracted with a total of 25 items loading significantly on two factors. To assess test–retest reliability, the study calculated Pearson's r between scores for the NMRE scale at two time points with a five-week interval. To examine construct validity, the study also calculated zero-order correlations with measures of cognitive emotion regulation, learned resourcefulness, self-efficacy, anxiety, and depression using Pearson's *r*. The incremental validity of the scale was examined by conducting a series of hierarchical regression analyses separately for depression and anxiety controlling for cognitive emotion regulation, learned resourcefulness, and self-efficacy.

Results

Prior to analysis, data were checked for missing values, normality, and linearity followed by the omission of univariate and multivariate outliers. Data from six participants were excluded due to a large number of missing values (greater than 10% missing based on the criteria set by Cohen and Cohen [1983]). Data from an additional eight were excluded due to their appearance as univariate or multivariate outliers. Thus, analyses were conducted with 399 participants with ages ranging from 18 to 47 years (M = 22.17, SD = 2.98, 271 women, 68%). The normality and linearity of the scores were within acceptable ranges (Tabachnick & Fidell, 2007).

Principal Component Analysis

The study conducted PCA with Promax rotation to explore the factor structure of the NMRE scale (KMO =.89, χ^2 = 3912.39, p <.001). The initial analyses based on eigenvalues yielded an eight-factor solution. However, an examination of the scree plot and parallel analysis revealed that a three-factor explanation would be more suitable for the dataset. Thus, the same analysis was once again conducted by inducing a three-factor solution. The results of the items loading to different factors indicated that only two items (items 16 and 19) were loading to Factor 3. Given the item contents and the fact that the third factor lacked sufficient markers (only two items), we opted to conduct factor analysis by inducing a two-factor solution. The results of the third PCA indicated that the factors explained 31.66% of variance (23.99% and 7.67% for negative and positive expectancies, respectively). The factor loadings indicated that three items (i.e., 5, 17, and 22) lacked significant loadings to any of the factors (highest loadings of .25, .27, and .23, respectively). Thus, they were excluded on the basis of the recommendations of Tabachnick and Fidell (2007). We also omitted three other items (items 16, 19, and 20) to protect the conceptual clarity of the factors, because they exhibited significant loadings to both factors.

A second PCA was run following the exclusion of the aforementioned items (KMO =.88, χ^2 = 2986.18, p <.001) with two factors explaining 35.65% of variance (26.93%

and 8.72% for Factors 1 and 2, respectively). Examination of the items loading to Factor 1 indicated that they are positively worded and corresponded to positive beliefs regarding the consequences of using previously existing regulation strategies. Alternatively, the second factor is related to the belief that one's strategies for addressing with difficult situations will be ineffective. Thus, the factors are named positive and negative expectancies, respectively. Table 1 presents the scale items, item–total correlations, and factor loadings.

Table 1. *Factor Loadings, Common Variance and Item Total Correlations of the Scale Items*

	Factor loading		Common Variance	r_{it}
Factors and Items	**NE**	PE		
Negative Expectancies (Eigenvalue = 6.90, Variance Explained = 26.93)				
24- Uzun süre kötü hissedeceğim. R	**.76**	-.05	.63	.66
14- Bu gidişle gerçekten depresyona gireceğim. R	**.75**	-.04	.59	.62
27- Kendim hakkında gerçekten kötü hissetmeye başlayacağım. R	**.73**	-.09	.62	.67
25- Bunu aklımdan çıkaramayacağım. R	**.71**	-.01	.51	.55
11- Beni gerçekten anlayan birini bulmak zor olacaktır. R	**.70**	.35	.37	.34
30- Eğer bir grup insanla berabersem kendimi kalabalık içinde yalnız hissedeceğim. R	**.65**	.09	.39	.46
8- Bu durumla ilgili bir şey yapmak için kendimi ikna edemeyeceğim. R	**.54**	.07	.32	.47
28- Sonunda her şeyin daha iyi olacağını düşünmek daha iyi hissetmeme yardımcı olmayacaktır. R	**.51**	.04	.22	.36
21- Problemi kafamda çözmeye çalışmak yalnızca daha kötü görünmesine neden olacaktır. R	**.50**	.01	.25	.37
3- Tüm yapabildiğim aynı sıkıntı içinde yuvarlanmaktır. R	**.46**	-.19	.37	.53
18- Arkadaşların vereceği öğütler daha iyi hissetmeme yardımcı olamayacaktır. R	**.36**	.04	.21	.27
Positive Expectancies (Eigenvalue = 2.11, Variance Explained = 8.72)				
2- Daha iyi hissetmek içim bir şeyler yapabilirim.	-.06	**.73**	.54	.58
6- Kendimi hoşlandığım bir şeylere yönlendirerek, daha iyi hissedeceğim.	.13	**.72**	.45	.44
1- Genellikle kendimi neşelendirecek bir yol bulabilirim.	-.08	**.70**	.51	.57
26- Yaratıcı bir şeyler yaparak kendimi daha iyi hissedebilirim.	-.04	**.58**	.33	.46
29- Durumda mizahi bir yan bulabilir ve daha iyi hissedebilirim.	.07	**.58**	.29	.36
9- Durumun iyi yanını bulmaya çalışmakla kendimi daha iyi hissedeceğim. R	-.04	**.56**	.35	.46
7- Neden kötü hissettiğimi anladığım zaman kendimi daha iyi hissedeceğim.	.14	**.55**	.25	.28
15- Olayları nasıl ele alacağımı planlamak yardım edecektir.	.02	**.55**	.27	.37
23- Arkadaşlarla yemeğe çıkmak yardımcı olacaktır.	.14	**.54**	.23	.29
4- Daha güzel zamanları düşünürsem kendimi daha iyi hissedeceğim.	-.01	**.51**	.25	.37
10- Uzun bir süre geçmeden kendimi sakinleştirebilirim. R	-.16	**.48**	.30	.45
13- Başka biri için güzel bir şey yapmak beni neşelendirecektir.	-.03	**.46**	.21	.36
12- Kendi kendime, geçeceğini söylemek sakinleşmeme yardımcı olacaktır.	.12	**.44**	.26	.43
5- Başka insanlarla beraber olmak can sıkıcı olacaktır.				.32
16- Beni üzen şeyi kolayca unutabilirim.				.38
17- Geri kaldığım işlerimi yetiştirmeye çalışmak sakinleşmeme yardımcı olacaktır.				.29
19- Genelde zevk aldığım şeylerden zevk alamayacağım. R				.56
20- Rahatlamanın bir yolunu bulabilirim.				.60

Note. r_{it}*: item-total correlations, PE: Positive expectancies, NE: Negative expectancies; Reverse items are indicated as R; items 5, 17, 22, 16, 19 and 20 were deleted.*

Reliability

The study investigated the internal consistency of the NMRE scale and the Cronbach's alpha values of the factors to assess reliability. Cronbach's α values were .89 and .83 for the total NMRE scale and positive and negative expectancies, respectively. This result indicated that the scale achieved satisfactory levels of reliability. Moreover, test–retest reliability reached .76, .71, and .72 for total scores in the NMRE scale and negative and positive expectancies, respectively (with a five-week interval). This finding illustrates that scores in the NMRE scale are stable across time (N = 66).

Construct Validity

The study evaluated the construct validity of the scale by verifying its correlations with related constructs, including cognitive emotion regulation, learned resourcefulness, self-efficacy, anxiety, and depression. The results (Table 2) revealed that the NMRE scale exhibits significant positive associations with self-efficacy, learned resourcefulness, and adaptive emotion regulation strategies (such as accepting emotions, reappraisal, and positive refocusing), which support *H1a*, *H1b*, and *H1c*. These results indicate that people who are confident of their mood regulation capacities are likely to address negative emotions using healthy strategies. In addition, they possess a rich repertoire of behaviors that can be used to regulate difficult emotions; they believe that they have control over their environments, as indicated by high scores in learned resourcefulness and self-efficacy. High scores in the NMRE scale were also significantly associated with less frequent reliance on maladaptive strategies for cognitive emotion regulation (e.g., catastrophizing, rumination, and self-blame), which supports *H2a*. Lastly, regarding measures of anxiety and depression, the results displayed significant negative correlations, which demonstrates that individuals with high levels of NMRE are less likely to report high levels of anxiety and depression, which is consistent with *H2b* and *H2c*.

However, the factor scores of NMRE indicated that negative expectancies were significantly associated with low levels of self-efficacy, learned resourcefulness, and the tendency to use more adaptive strategies for emotion regulation. Conversely, this factor is positively correlated with anxiety, depression, and the inclination to use maladaptive strategies for emotion regulation. The results of the subscale of positive expectancies pointed to positive associations with self-efficacy, learned resourcefulness, and the adaptive use of strategies for emotion regulation. This subscale displayed a significant negative association with depression scores in addition to significant but weak negative correlations with maladaptive strategies for emotion regulation and anxiety. As presented in Table 2, age and sex are negatively correlated with negative and positive expectancies, respectively. Specifically, negative expectancies decreased with the increase in age, and being female was associated with positive expectancies.

Incremental Validity

The study tested the incremental validity of the NMRE scale through a series of hierarchical regression analyses. In both analyses, generalized self-efficacy, learned resourcefulness, and adaptive and maladaptive cognitive emotion regulation were included in the analyses in the first step followed by the entry of the factors of the NMRE scale (positive and negative expectancies) in the second step. The results of the first regression

Table 2. *Descriptive Statistics, Reliability Coefficients and Zero-Order Correlations of NMRE Scale Scores with Other Constructs*

		M	*SD*	*α*	2	3	4	5	6	7	8	9	Age	Sex
1	NMRE Scale	55.95	14.16	.89 (.76)	.86**	-.87**	.47**	.59**	.52**	-.39**	-.56**	-.32**	-.03	-.09
2	Negative expectancies	27.11	8.40	.83 (.72)		-.49**	-.44**	-.47**	-.43**	.49**	.58**	.38**	-.11*	.09
3	Positive expectancies	49.14	7.97	.83 (.71)			.38**	.57**	.53**	-.14*	-.37**	-.11*	.08	-.13*
4	Generalized self-efficacy	58.25	8.51	.67				.63**	.33**	-.28**	-.41**	-.17**	-.11*	-.06
5	Learned resourcefulness	112.85	17.29	.79					.53**	-.26**	-.43**	-.23**	.09	-.16**
6	ACER	69.77	12.41	.85						-.09	-.34**	-.12*	-.11*	-.05
7	MCER	45.12	9.96	.85							.45**	.42**	-.08	.04
8	Depression	12.97	10.47	.92								.53**	-.14**	.07
9	Anxiety	13.13	11.36	.92									-.10	-.13*

Note. $*p < .05$, $**p < .001$; Sex: 1 = female, 2 = male; NMRE = Negative mood Regulation Expectancies; ACER = Adaptive Cognitive Emotion Regulation; MCER = Maladaptive Cognitive Emotion Regulation; Numbers in parentheses are test-retest reliabilities.

analysis, which was performed with depression scores as the outcome variable indicated that the variables entered in the first step explained 34% of variance with all scores exhibiting significant associations with scores for depression. Notably, although the frequent use of maladaptive strategies for emotion regulation appeared linked to high scores in depression, the other variables (generalized self-efficacy, learned resourcefulness, and adaptive emotion regulation) pointed to significant associations with scores for depression in the opposite direction. Lastly, among the factors of the NMRE scale, only negative expectancies continued to produce a significant positive association with depression, which indicates that the connection between NMRE and depression complaints exists even after controlling for the other variables. The findings for positive expectancies were nonsignificant (Table 3).

Table 3. *Summary of Hierarchical Regression Analyses on the Association of NMRE and Other Variables with Depression and Anxiety*

	Depression						Anxiety					
	R^2	ΔR^2	β	*t*	*p*	*pr*	R^2	ΔR^2	β	*T*	*p*	*pr*
Step 1	.34*						.19*					
Generalized self-efficacy			-.17	-3.19	.00	-.16			-.02	-.31	.76	-.02
Learned resourcefulness			-13.	-2.17	.03	-.11			-.13	-1.98	.01	-.10
Adaptive cognitive emotion regulation			-.19	-3.88	.00	-.19			-.02	-.34	.74	-.02
Maladaptive cognitive emotion regulation			.35	8.18	.00	.38			.39	8.07	.00	.38
	$F(4, 395) = 48.62$**						$F(4, 395) = 23.99$**					
Step 2	.41**	.07**					.22**	.03*				
Positive expectancies			-.07	-1.26	.21	-.06			-.09	-1.46	.14	-.07
Negative expectancies			.33	6.10	.00	.29			.25	4.00	.00	-.20
	$F(6, 393) = 21.74$*						$F(4, 393) = 8.53$**					

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

Table 3 indicates that when the same analysis was performed with anxiety scores as the outcome variable, the results indicated that parallel to the scores for depression, only negative and not positive expectancies were significantly associated with scores for anxiety after controlling for the other variables. These results indicate that negative expectancies

are associated with depression and anxiety over and above emotion regulation, self-efficacy, and emotion regulation, which supports *H3*.

Discussion

The main objective of the study was to test the factor structure of the Turkish version of the NMRE scale in a group of Turkish-speaking individuals in addition to confirming its concurrent validity and reliability, which was reported by Kaymakçioğlu (2001). Based on the current findings, the Turkish version of the NMRE scale yielded a two-factor structure, namely, positive and negative expectancies. Four items did not load on any factor, and two loaded on both factors and, thus, were omitted. The resulting 24-item scale displayed good reliability with both factors yielding satisfactory internal consistency scores. Furthermore, the two factors provided distinct information on the negative and positive beliefs of the effectiveness of one's mood regulation strategies. Consequently, researchers can use the scores of individual factors and the total NMRE scale of the Turkish version.

The factor negative expectancies mainly assesses individual beliefs regarding the ineffectiveness of one's existing mood regulation skills. Specifically, the items loading to this factor involve the idea that negative moods will prevail and even worsen, because one's efforts do not lead to improvement in the current mood state, which increases hopelessness and the sense of being stuck in a negative mood state. Alternatively, the factor positive expectancies taps into one's confidence in the idea that he/she will very easily address difficult emotions and eventually lead a peaceful life with limited interference from negative emotions. An assessment of the items loading to positive expectancies also involves a hopeful attitude toward the possible consequences of one's efforts at improving a negative mood state. Furthermore, examination of the variances explained by each factor revealed that negative expectancies explain a large portion of the NMRE scale than did positive expectancies. In other words, items that measure negative expectancies in one's ability to regulate unpleasant emotions are better indicators of the NMRE scale than those that reflect positive expectancies about negative mood regulation skills. The total score in the NMRE scale is indicative of general beliefs in the effectiveness of strategies used to address unpleasant emotions.

The bi-factor explanation indicated by the current results was also reported in the Polish adaptation of the NMRE scale (Grotkowski, 2022). A review of the factor loadings in the Polish scale reveals that the distribution of items among two factors overlaps with those in the current study. Grotkowski posited that the two factors supported by their data reflect the high and low ends of the construct of optimism, namely, low and high levels of optimism. Compared with the current study, low levels of optimism coincide with negative expectancies, while high levels of optimism coincides with positive expectancies. Taken together, these results imply that the positive and negative contents of the items are not mere reversals of the same statements. Instead, they represent distinct mood regulation expectancies. This finding regarding the two-factor structure of the scale was unexpected given that majority of its versions across languages, as well as the original English version, yielded a one-dimensional measure (Catanzaro & Mearns, 1990). In the original study, although Catanzaro and Mearns (1990) constructed the scale as consisting of three subscales, namely, general, behavioral, and cognitive emotion regulation strategies,

they concluded that the scale depicts a unidimensional factor structure, and the total score is a useful measure of mood regulation expectancies. In further works, they no longer referred to these three subscales (e.g., Mearns, 1991; Mearns et al., 2009). Further research with versions of the scale in various languages also yielded a single-factor solution (Backenstrass et al., 2008; Pfeiffer et al., 2012; Schneider et al., 2021; Wang et al., 2019). Whether or not this result offers a cultural underpinning needs exploration; however, authors adapting the scale in diverse cultures, including, German (Backenstrass, et al., 2008), Spanish (Pfeiffer et al., 2012), Chinese (Wang et al., 2019), and Brazilian (Schneider et al., 2021), report the unidimensional factor structure.

The results suggested that the NMRE scale is a reliable instrument for assessing expectancies of one's mood regulation skills among Turkish-speaking individuals. The results indicate satisfactory evidence for the internal consistency and test re–test reliability of the total score of the NMRE scale and its subscales. These findings on reliability are similar to those reported for the English version and for adaptation studies with German, Spanish, Chinese, Japanese, Korean, Brazilian, and Polish samples. These results demonstrate that the Turkish version of the NMRE scale displays adequate levels of reliability similar to the versions in other languages.

The present findings also provide evidence for the construct validity of the NMRE scale through its significant correlations with adaptive and maladaptive emotion regulation, self-efficacy, learned resourcefulness, anxiety, and depression. Notably, confirming the hypotheses, individuals with high levels of confidence in their mood regulation skills reported using adaptive emotion regulation skills more frequently in daily life when confronted with emotionally charged situations. In addition, in line with the expectations, the study observed an inverse relationship between NMRE and maladaptive strategies for cognitive emotion regulation, which indicates that the tendency to ruminate, blame the self and others, and catastrophize are less observed in individuals who believe that they can use various strategies to help them undergo negative emotions. Examining the factors separately, the correlations were also in the expected direction.

Furthermore, negative expectancies were associated with anxiety and depression over and above the actual emotion regulation strategies, which confirms the notions that, at the least, the negative expectancies dimension of NMRE is a metacognitive emotion regulation variable. It can remain associated with psychological distress independent of the actual strategies for emotion regulation habitually used by individuals. In other words, one's tendency to perceive one's emotion regulation repertoire as inadequate may be a robust predictor of psychological distress over and above other resources related to emotion regulation.

The differential contribution of negative versus positive expectancies for the NMRE scale provides several implications for researchers. Separately investigating the associations of negative and positive expectancies to the variables of mental health and psychological dysfunction is imperative. Based on the current findings, one may argue that the perceived lack of effective mood regulation strategies exerts an impact on one's vulnerability in psychopathology instead of one's confidence in the effectiveness of previously existing mood regulation strategies. In summary, the current findings put forward the idea that

negative expectancies represent the core of NMRE, and individuals with high levels of negative expectancies are at increased risk of anxiety and depression.

Moreover, high levels of confidence in the effectiveness of previously existing coping skills, as indicated by high scores in the NMRE scale, also emphasized significant connections with other variables associated with coping resources and confidence in the effectiveness of these skills. Notably and as expected, generalized self-efficacy and learned resourcefulness are positively associated with NMRE in general and positive expectancies in particular, which indicates that individuals with high levels of NMRE also perceive themselves as competent (high self-efficacy) and possess a wide variety of coping skills (high levels of learned resourcefulness). Conversely, the lack of confidence in one's capacity to lessen negative emotions, that is, negative expectancies, was significantly related to low levels of self-efficacy and learned resourcefulness. Especially, the significant association between NMRE and self-efficacy is in line with the previous research on and conceptualization of NMRE (Altan-Atalay, 2020; Backenstrass et al., 2006; Laurent et al., 2019), which highlights similarities between NMRE and coping-related self-efficacy.

Although previous studies did not assess any conceptual connections between NMRE and learned resourcefulness, the current results demonstrate that they are significantly associated with each other. Specifically, high levels of positive expectancies were associated with high levels of learned resourcefulness, while the opposite pattern was true for negative expectancies. This significant association between NMRE and learned resourcefulness becomes meaningful when considering the results of previous research on the link between NMRE and coping (Catanzaro & Mearns, 1990). Although the causal nature of this relationship is unclear, scholars proposed that NMRE are predictors and outcomes (Mearns & Cain, 2003) of adaptive coping strategies.

The finding on the relationship of NMRE with depression and anxiety being independent of other variables replicates the results of previous studies (Catanzaro et al., 2014; Davis et al., 2005). Moreover, the significant association of negative expectancies to the intensity of depressive symptoms and anxiety continued to exist over and above the impact of the other variables (self-efficacy, learned resourcefulness, and adaptive and maladaptive cognitive emotion regulation), which emphasizes that negative perceptions regarding the use of one's mood regulation skills may continue to be crucial even when individuals are generally equipped with the necessary coping skills and confidence in their skills. However, the effect size of NMRE in the prediction of anxiety scores is relatively low.

In conclusion, the current study indicates that the Turkish version of the NMRE scale is a reliable and valid instrument for assessment of expectancies regarding the outcomes of previously existing resources for coping with negative mood states. In addition to testing the internal consistency of the scale, which was translated by Kaymakçıoğlu (2001), the current study builds up on it and provides evidence regarding the factor structure, test–retest reliability, and validity. However, the current study has its limitations in which the major one is the characteristics of the participants. The majority were university students in Istanbul and mainly aged in their early 20s. Although a few of them spent the early years of their lives in the rural and eastern provinces of Türkiye, caution should be practiced when generalizing the findings to the entire population. Similarly, an examination of the gender

distribution of the sample revealed that the total number of female participants was twice as many as that of the male participants (N_{women} = 280, N_{men} = 135), which restricts the external validity of the results. Future studies may assess measurement invariance across genders and age-related changes in the NMRE scale and its contribution to the development and maintenance of anxiety and depression. Further studies may also examine the factor structure obtained in the current study on other populations using confirmatory factor analysis. Moreover, the current study used healthy participants from the community, which may differ significantly from clinical populations; thus, future studies should test the validity of the NMRE scale on clinical populations. Furthermore, although within the acceptable range, the internal consistency coefficients are lower for generalized self-efficacy and learned resourcefulness, which may weaken the conclusions drawn from analyses. Thus, further studies may utilize the other adaptations of generalized self-efficacy scales (Özalp Türetgen & Cesur, 2007) that exhibit more sound psychometric characteristics. Finally, although the current study aimed to test the factor structure of the Turkish version of the NMRE scale, it made no further attempts to adapt it to the Turkish culture. Thus, future studies, following the footsteps of Mearns et al. (2013; 2016) can add other culture-specific items to better understand the aspects of NMRE specific to the Turkish culture.

In summary, the current findings provide evidence of the psychometric characteristics of the Turkish version of the NMRE scale, which is composed of 25 items. The findings indicate that the scale can be used in mainly research settings to assess confidence in one's capacity to address negative emotions. However, in contrast to the other versions of the NMRE scale, the results indicate that using the subscores for negative and positive expectancies in addition to the total score can yield detailed information regarding the separate contributions of positive and negative expectancies to mental health and wellbeing.

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