



Adaptation of Emotional Flexibility Scale: Its Association with Subjective Well Being and Resilience During Covid-19 Pandemic

Yakup İme¹ · Durmuş Ümmet¹

Accepted: 24 July 2022 / Published online: 3 August 2022
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Abstract

The corona virus (COVID-19) pandemic has led to a global health crisis causing fear and negative psychological consequences. In this study, the validity and reliability of the Emotional Flexibility Scale were evaluated in a sample of adolescents in Turkey. A total of 833 high school students from 65 different cities participated in the study. Emotional flexibility, adolescent psychological resilience, and adolescents' subjective well-being Scales were used as data collection tools. For the adaptation of emotional flexibility scale, confirmatory factor analysis, convergent validity, and reliability analyses were used. Also, the mediating role of subjective well-being on the relationship between emotional flexibility and resilience was tested. Emotional flexibility was found to be associated with subjective well-being and resilience. The results of the study show that the Emotional Flexibility Scale is a valid and reliable measurement tool in the sample of adolescents in Turkey.

Keywords Adolescents · COVID-19 · Emotional flexibility · Adaptation · Resilience · Subjective well-being

The pandemic, the increasing number of deaths, quarantine, and strict measures taken against the virus can lead to an increase in people's mental health problems (Kumar & Nayar, 2021). Adolescents are also not indifferent to the psychological effects of the COVID 19 pandemic. They, too, may experience uncertainties, fears, and significant changes in their routine, physical and social isolation. Understanding their feelings and reactions is essential to properly address their needs during this pandemic. Because adolescents can be especially vulnerable to negative situations

✉ Yakup İme
imeyakup@gmail.com

Durmuş Ümmet
dummet@marmara.edu.tr

¹ Marmara University, Fahrettin Kerim Gökay Cd., Kadıköy/Istanbul 34722, Türkiye

as they face many difficulties, including managing negative emotions and acting on the demands of their new environments. Failure to properly cope with all these difficulties might lead to psychological problems. Indeed, researches show that there are symptoms of high levels of depression, anxiety, post-traumatic stress disorder among adolescents during the Covid-19 pandemic (Liu et al., 2020). These difficulties can interfere with the development of adolescents.

Adolescents experience negative emotions during the Covid-19 pandemic (Branje & Morris, 2021) and the healthy development of adolescents depends on their ability to regulate emotions after catastrophes (Galatzer-levy et al., 2012). Deng et al. (2021) stated in their study with adolescents that emotion regulation skills serve as a shield in protecting mental health. Emotion regulation skills have a positive effect on the psychological health of individuals, especially unexpected and sudden health crises such as the Covid-19 pandemic (Panayiotou et al., 2021; Restubog et al., 2020). The effects of emotion regulation skills on the well-being of adults during the pandemic period are widely accepted (Gubler et al., 2020; Yue et al., 2021); however, very few studies have addressed the effects on adolescents' well-being (Schunk et al., 2021). On the other hand, taking into consideration their developmental characteristics, adolescents are especially vulnerable during the COVID-19 pandemic (Gotlib et al., 2020). Therefore, adolescents are in great need of effective methods for regulating their emotions.

The concept of emotional flexibility has been investigated by various researchers (Bonanno & Burton, 2013; Fujimura & Okanoya, 2012; Seivert, 2009). Bonanno et al. (2004) mentioned that the concept of emotional flexibility is the ability to suppress or express emotions according to the demands of changing situations. Coifman (2008) formally defined the concept of "emotional flexibility" and discussed the idea of "emotion as a flexible system". Bonanno and Burton (2013) suggested that regulatory flexibility depends on three basic elements: context-sensitivity, behavioral repertoire, and response to feedback. As can be understood from previous conceptualizations, emotional flexibility has two basic elements, namely sensitivity to situational demands and the ability to regulate emotions accordingly. The concept of emotional flexibility is defined by researchers as the ability to flexibly regulate emotions in accordance with the context and to get rid of the primary emotional response when the context changes, thus creating the best possible match with the ever-changing environment (Aldao et al., 2015; Beshai et al., 2018). As can be understood from all these definitions, emotional flexibility refers to the ability to regulate one's emotions according to the demands of the context and situation.

One of the situations that individuals should be able to manage in everyday life is the ability to adapt in the face of developing situations. While the events may develop spontaneously from time to time, the adaptation of individuals to these situations depends on their emotional adaptation to change. (Bonanno et al., 2004). In order to emotionally adapt to changing situations, it is important that the emotion regulation skills of the individuals are also developed. In other words, the fact that the emotional flexibility levels of individuals are improved is also a sign of their psychological health. Emotional flexibility refers to a person's ability to manage his/her emotions in accordance with the experienced situation. In addition, emotional flexibility refers to the flexible use of different emotion regulation strategies. There

is a negative relationship between emotional flexibility, depressive symptoms, and negative thoughts (Beshai et al., 2018). Emotional flexibility helps adolescents to cope with stressful events. The fact that emotional flexibility helps adolescents cope with stressful situations also indirectly affects their well-being levels. As the emotional flexibility levels of adolescents increase, their psychological well-being levels increase as well. Because being able to manage emotions appropriately in the face of developing events is the basis of psychological wellbeing. As a matter of fact, the proper expression of emotions is important in coping with stressful life events or even experienced traumas (Fu et al., 2018).

Coifman & Bonanno (2010) state that individuals with better emotion regulation skills experience less distress and depression symptoms after catastrophes and negative experiences. Individuals with emotional flexibility do not get stuck in negative emotions and can get rid of them faster. Difficulties in emotion regulation may prevent individuals from adapting to situations in the face of the current pandemic. It is stated that individuals with difficulty in emotion regulation experience intense physiological arousal and distress, and rely on incompatible coping strategies in response to stressors that increase the risk of psychopathology (Cisler et al., 2010).

Regular and systematic psychological assessments of children should be carried out in order to identify individuals at risk during periods of chaos and turmoil (Jia et al., 2010). Assessing emotional flexibility can be an important part of this type of screening. Typically, methods for assessing emotional flexibility include performance-based experiments and qualitative methods (Coifman, 2008). However, it is thought that methods based on self-report will be more suitable for collecting data because they are shorter and easier to score. When the literature is examined, there are similar tools (Burton & Bonanno, 2016; Fu et al., 2018). However, it seems that there is the need for a simple and effective measurement to assess emotional flexibility in adolescents during the pandemic process in Turkey. In this context, it is thought that a scale adapted to Turkish will make an important contribution to determining emotional flexibility in adolescents. From this point of view, there are two objectives of this research. The first is to examine the psychometric properties of the Emotional Flexibility Scale in a sample of adolescents in Turkey. The other aim is to examine the relationship between emotional flexibility, subjective well-being, and resilience.

1 Method

1.1 Participants and Procedure

Research participants, adolescents in Turkey, were reached through social media platforms using the convenience sampling method. The participants were made up of 833 students attending high schools from 65 different cities in Turkey among which there were 423 girls (% 50.8) and 410 boys (% 49.2). The ages of the high school students participating in the study are within the range of 15–17 (Mean = 16.06, SD: 0.66). The demographic characteristics of the sample are presented in Table 1.

Table 1 Demographic characteristics of the sample ($N=833$)

Categorical Variables	Value
Gender, n (%)	
Girls	423 (50.8)
Boys	410 (49.2)
Age, n (%)	
Age 15	157 (18.8)
Age 16	461 (55.3)
Age 17	215 (25.8)

n, frequency

The research was conducted during the COVID-19 pandemic (March–May 2021), so all the data was collected online as it was not possible to collect face-to-face data. The participants completed the data collection tools within a 3-month period. The questionnaires were created using Google Forms and distributed exclusively online. The participants participated in the study through links found on social media platforms (Instagram, Twitter, Facebook, and Whatsapp). Also, the link was distributed and published on online platforms such as various forums. When the participants clicked on the link, they were redirected to an informed consent page to be read and agreed upon before continuing with the survey. Only those with informed consent were included in this study. The informed consent page contained information about the study such as parental consent, study objectives, duration, confidentiality, and voluntary participation. As a criterion for inclusion in the study, the participants were expected to be high school students, be native and Turkish citizens, and be under the age of 18.

1.2 Measures

In this study, personal information form, Emotional Flexibility Scale Turkish Form, Adolescent Psychological Resilience Scale, and Adolescent Subjective Well-being Scale were used.

1.3 Emotional Flexibility Scale

The emotional flexibility scale was developed by Fu et al. (2018) in order to determine the emotional flexibility levels of adolescents. As a result of the exploratory and confirmatory factor analyses conducted later, an emotional flexibility scale consisting of 10 items and 3 subscales was obtained. Factor loadings of the scale ranged between 0.30 to 0.96. The low scores obtained from the scale with a 7-point Likert structure (1 is never true, 7 is completely true) indicate that the level of emotional flexibility is low, and the high scores indicate that the level of emotional flexibility is high. The Cronbach alpha coefficient was found to be 0.80. The emotional flexibility scale was positively correlated with psychological well-being (Fu et al., 2018).

1.4 Adolescent Psychological Resilience Scale

The scale was developed by Bulut et al. (2013) on high school students in order to determine the psychological resilience levels of adolescents. The scale consists of 29 items in total. Factor loadings of the scale ranged between 0.59 to 0.81. The test–retest reliability of the scale was found 0.087. In the reliability analysis, the Cronbach alpha coefficient was found to be 0.81. The Cronbach alpha reliability coefficient for this study was found to be 83.

1.5 Adolescents' Subjective Wellbeing Scale

It was developed by Eryilmaz (2009) in order to determine the subjective wellbeing of adolescents aged 14–18 years. As a result of the exploratory factor analysis conducted from the 35-item pool created in accordance with the theoretical infrastructure at the development stage, the 4-factor structure accounted for 61.64% of the total variance. The four-factor structure consisting of satisfaction in relationships with family, satisfaction in relationships and with significant others, life satisfaction, and positive emotions are made up of 15 items in total. Factor loadings of the scale ranged between 0.63 to 0.78. The Cronbach alpha coefficient was found to be 0.86 (Eryilmaz, 2009). The Cronbach alpha reliability coefficient for this study was found to be 82.

1.6 Process

The translation of the Emotional Flexibility Scale into Turkish was carried out according to international guidelines (Beaton et al., 2000). Before starting the adaptation study, firstly the people who developed the scale were contacted and were asked for their permission to adapt the scale into Turkish. Then, the scale was translated into Turkish by 6 experts with good knowledge of English and Turkish. A common Turkish form has been created from the obtained forms. The adequacy of the translations was independently assessed through a reverse translation process performed by a professional translator whose native language is English. It was found that the new form does not differ from the original form in terms of meaning and grammar.

1.7 Data Analysis

In order to determine the factor structure of the emotional resilience scale, confirmatory factor analysis method was used. In the framework of confirmatory factor analysis, the following criteria were used to determine the values of the scale adaptation indices. First of all, it is based on the fact that the ratio of the chi-square value to the degrees of freedom is less than 5 (Kline, 2011). In addition, the Comparative Fit Index (CFI, Bentler, 1990), the Tucker-Lewis Index (TLI; Tucker & Lewis, 1973), the Root Mean Square Error of Approximation

(RMSEA; Steiger, 1990), and the Standardized Root Mean Square Residual (SRMR; Jöreskog & Sörbom, 1996) were utilized. The goodness of fit indices was based on the values of GFI > 0.90, CFI and TLI > 0.95, RMSEA < 0.06, and SRMR < 0.08 (Browne & Cudeck, 1993; Hu & Bentler, 1999).

The correlations between emotional flexibility, resilience and subjective well-being were examined to establish the concurrent validity of the scale. Also, the mediating role of subjective well-being on the relationships between emotional flexibility and resilience was tested for incremental validity. Process macro for SPSS developed by Hayes (2018) was used to test the mediation model. Process is a tool that can calculate the effect of observed variable path analysis based on mediator and moderator variables. At the same time, it can create direct and indirect effects with single or multiple intermediaries in models using mediator variables (Hayes, 2018). Five thousand bootstrap replicates were established and coefficients for direct and indirect effects were calculated in the 95% confidence interval. The reliability of the emotional flexibility scale were examined by Cronbach's alpha. For the analysis of the study IBM SPSS Statistics 28.0, Amos Graphics 24 and Mplus version 8 for CFA (Muthen & Muthen, 2017) were used.

2 Results

2.1 Descriptive Data

Before starting the confirmatory factor analysis, the emotional flexibility scale was tested to confirm whether it showed a normal distribution or not. For the normality distribution, it was assumed that the Skewness and kurtosis values for each item should range between -1.5 and +1.5 (Tabachnick & Fidel, 2001). Table 2 provides descriptive statistical information about each item. The results show that the scale items meet the normality distribution. The results of the item analysis for EF are given in Table 2. The skewness and kurtosis values of all items are in the range of ± 1.5 . Mean score of EF was 3.56 (SD = 0.56).

2.2 Confirmatory Factor Analysis

In order to determine whether the emotional flexibility scale was validated in the sample of high school students in Turkey, confirmatory factor analysis method was employed. The obtained CFA result was first evaluated by the ratio of the chi-square value to the degrees of freedom. The ratio of the Chi-square value to the degree of freedom must be less than 5 (Kline, 2011). In this study, this ratio (114.94/32) was found to be 3.59. In the model's goodness-of-fit indices, it is stated that acceptable fit values for TLI, CFI, GFI, and IFI are 0.90 and above; and for RMSEA and SRMR, it is 0.08 and lower (Tabachnick & Fidel, 2001). In accordance with these criteria, it was found that the model shows a good fit. It was found that the fit index values of the scale were at acceptable values and the 3-dimensional structure was valid in this study group. When the fit indices of the confirmatory factor analyses

Table 2 Descriptive statistics of the emotional flexibility scale

EmotionalFlexibility Items	Mean	SD	Skewness	Kurtosis
1. I don't express my feelings when I have positive emotions if the people around me are busy	3.96	0.99	0.129	1.46
2. When I receive good news, I can continue what I have been doing without being distracted	3.89	0.96	0.05	1.22
3. I do not express my feelings when I have positive emotions if the people around me are not in a good mood	3.94	0.95	0.20	1.37
4. I can develop positive emotions even if I am in a bad situation	3.82	1.01	0.09	0.97
5. I face negative emotions if they are within my control	3.58	1.10	-0.47	-0.34
6. I can face negative emotions if I have the courage	3.40	1.13	-0.23	-0.50
7. I avoid negative emotions if I have more important things to do at that moment	3.59	1.02	-0.52	-0.14
8. I feel comforted if those around me try to cheer me up when I'm not in a good mood	3.04	1.00	0.10	-0.04
9. I laugh if those around me try to cheer me up when I'm not in a good mood	3.03	1.03	0.02	-0.06
10. If I'm in a good mood, those around me will know it when they look at my face	3.31	0.97	-0.26	0.41

of the model were examined, it was seen that the three-dimensional model of the scale shows an acceptable level of fit ($\chi^2=114.94$, $df=32$, $p<0.001$; TFI=0.98; CFI=0.98; RMSEA=0.05, SRMR=0.03). Examination of model parameters showed that all factor loads were high and statistically significant, varying between 0.65 and 0.92 information on factor loads are given in Table 3.

Concurrent validity was evaluated by computing Pearson's correlations of the emotional flexibility scale with resilience and subjective well-being as validity scales. Data analysis showed significant positive correlations between emotional flexibility scale and resilience ($r=0.56$, $p<0.001$) and subjective well-being ($r=0.25$, $p<0.001$).

The incremental validity of the emotional flexibility scale was tested in a process model linking the emotional flexibility to resilience via subjective well-being. Results for the regression pathways and direct and indirect effects calculated for mediation are presented in Fig. 1 and Table 4.

Figure 1 shows the role of emotional flexibility on resilience through subjective well-being. When the direct effects were examined (Table 4) emotional flexibility significantly positively predicted resilience ($B=0.277$, $t=9.75$, $p<0.001$), emotional flexibility significantly positively predicted subjective well-being ($B=0.287$, $t=7.46$, $p<0.001$), subjective well-being significantly positively predicted resilience ($B=0.441$, $t=17.77$, $p<0.001$). Also, bootstrap analysis approved the indirect effects of the emotional flexibility on resilience with 95% CI and did not contain zero. Consequently subjective well-being (bootstrapvalue=0.017, 95% CI=0.093, 0.164) mediated the relationship emotional flexibility on resilience.

2.3 Reliability Estimates

Cronbach alpha internal consistency reliability coefficient for emotional flexibility scale was found to be 0.74. When the internal consistency reliability coefficient is calculated for the sub-dimensions, the values were found to be 0.94 for the regulation of positive emotions, 0.89 for the regulation of negative emotions, and 0.84 for the communication of emotions.

3 Discussion

This research was conducted in order to adapt the "Emotional Flexibility Scale" to Turkish, to test the construct validity, internal consistency, and criterion validity of the scale. First, our hypothesis about whether the factor structure of the scale was in its original structure was confirmed. In addition, the results show that the scale also shows internal consistency and criterion validity. As in our hypothesis, the findings are similar to the original structure of the three-dimensional structure of the scale consisting of regulation of positive emotions, regulation of negative emotions, and communication of emotions (Fu et al., 2018). What is more, the study reveals that the factor loads of all the items are high, and the CFA model fit indices and

Table 3 The factor loads of the emotional flexibility scale

	Factor		
	1	2	3
I don't express my feelings when I have positive emotions if the people around me are busy	0.92		
When I receive good news, I can continue what I have been doing without being distracted	0.89		
I do not express my feelings when I have positive emotions if the people around me are not in a good mood	0.90		
I can develop positive emotions even if I am in a bad situation	0.84		
I face negative emotions if they are within my control		0.90	
I can face negative emotions if I have the courage		0.80	
I avoid negative emotions if I have more important things to do at that moment		0.85	
I feel comforted if those around me try to cheer me up when I'm not in a good mood			0.86
I laugh if those around me try to cheer me up when I'm not in a good mood			0.88
If I'm in a good mood, those around me will know it when they look at my face			0.65

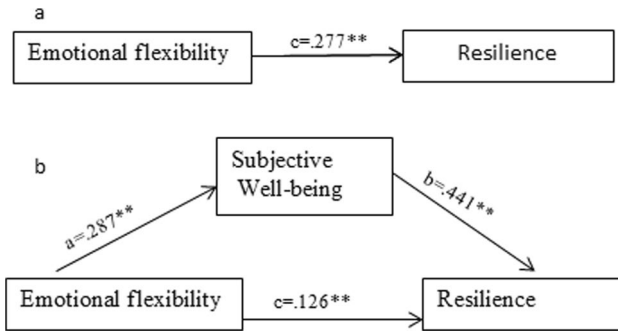


Fig. 1 Mediated outcome on resilience showing indirect of emotional flexibility through subjective well-being

Table 4 Emotional flexibility predicts resilience through subjective well-being

Variable	<i>B</i>	SE	<i>t</i>	<i>p</i>
Direct effect				
Emotional flexibility→resilience	0.277	0.028	9.75	0.001
Emotional flexibility→subjective well-being	0.287	0.038	7.46	0.001
Subjective well-being→resilience	0.441	0.024	17.77	0.001
Emotional flexibility→resilience ^a	0.404	0.032	12.49	0.001
Variable				
Value	SE	LL 95% CI	UL 95% CI	
Bootstrap results for indirect effect				
Emotional flexibility→SBW→resilience	0.126	0.017	0.093	0.164

Bootstrap sample size = 5000; *LL* Lower limit; *UL* Upper limit; *CI* Confidence interval; *SBW*;

^aTotal effect

Cronbach’s alpha values are sufficient for both the general and sub-dimensions of the scale.

The concurrent validity analysis showed significant positive correlations between emotional flexibility and subjective wellbeing. Emotional flexibility was found positively correlated with resilience. Also, emotional flexibility was shown to increase subjective well-being and resilience. Several studies showed that emotional flexibility positively correlated psychological wellbeing and resilience. For example, Fu et al., (2018) state that there is a positive relationship between emotional flexibility and psychological wellbeing. As a matter of fact, emotional flexibility is also a part of psychological resilience (Waugh et al., 2011). These results suggested that emotional flexibility helps adolescents cope with stressful events and therefore affects their subjective wellbeing and resilience.

Cronbach alpha technique was used for reliability analysis. In the original study, the Cronbach’s alpha internal consistency reliability coefficient was found to be 0.80 (Fu et al., 2018). In the current study, this value was calculated as 0.74. The findings show that the scale meets the criterion of acceptable reliability Nunnally

(1978) value of 0.70 and above. Therefore, we can say that the scale is a reliable measurement tool.

We conducted our research during the Covid-19 pandemic period, in the middle of a global crisis that affects adolescents' daily routines, relationships, and school lives. Due to the pandemic process, there could not be a better time to understand how important emotional flexibility is for adolescents in order to adapt to constantly changing conditions and uncertainties. One of the most important features of life in this period of time is that adolescents must adapt to changing conditions.

Emotionally flexible individuals may be able to calm themselves down and take an optimistic approach that helps in finding solutions to problems as they are able to generate positive emotions in stressful situations. In addition to creating positive emotions in stressful events, the ability to express and suppress positive emotions is also an essential element of emotional flexibility in terms of comprehensive concepts. There are times when individuals need to control their positive emotions. For example, when people around them are upset, it may be better for an individual to avoid or suppress positive emotions in order to focus on the current situation.

4 Limitations

There are some limitations of this research. Firstly, the test–retest reliability of the scale was not tested. Secondly, the adaptation study of this scale was conducted during the Covid-19 pandemic period, but the participants in the study were not adolescents who had been clinically diagnosed with Covid-19. The development of the original structure of the scale was carried out on adolescents who survived the earthquake (Fu et al., 2018). In this context, a validity study of the scale might be conducted in different and wider samples with adolescents who have received a clinical diagnosis or have survived trauma. Thirdly, the results of this study were obtained depending on the self-assessments of adolescents, but it may not be possible to cancel out social desirability and prejudices in their answers. This might have also affected the answers of the participants. Therefore, for the validity of the scale, a parallel assessment of emotional flexibility can be made using more objective methods such as experiments and interviews. Lastly, this study was carried out at a time of pandemic and it is known that data collection through social networks has its limitations. It would be interesting, in the future, to carry out new evaluation, using another method of data collection.

5 Conclusion

The findings of this study provide evidence that the Turkish version of the Emotional Flexibility Scale is a reliable and valid tool for assessing the emotional flexibility of adolescents. The Turkish Emotional Flexibility Scale can be used in practices and researches with adolescents. In this study, a positive relationship was found between emotional flexibility and subjective wellbeing. These findings emphasize the importance of emotional flexibility for subjective wellbeing during the pandemic.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s12187-022-09959-9>.

Data Availability The datasets analyzed during the current study are available from the corresponding author upon request.

Declarations

Ethical Statement All procedures followed in accordance with the ethical standards of the responsible committee on human experimentation and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all participants included in the study. Also, Research eligibility approval was obtained from the Ethics Committee of Marmara University Institute of Educational Sciences.

Conflict of Interest The authors declare no competing interests.

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