

## RESEARCH ARTICLE

# Turkish validation of the Psy-Flex Scale and its association with resilience and social support

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**Abstract:** Psychological flexibility is an important psychological factor influencing various individual and relational outcomes. However, there is a scarcity of evidence about cross-culturally validated measures available. The aim of the present study was to assess the Turkish validation of the Psy-Flex Scale, which is a new and recently developed measure of this construct and test its relationship with resilience and social support. The sample comprised 516 adults (52.3% males) with an age range of 18–60 years ( $M = 27.08$ ,  $SD = 8.53$ ). Results showed that the measure had good construct validity with high internal consistency reliability. The findings also demonstrated that psychological flexibility was positively associated with resilience and social support. Additionally, social support partially mediated the relationship between resilience and psychological flexibility. These results suggest that the Psy-Flex Scale is a reliable and valid tool to measure psychological flexibility in the Turkish cultural context. Intervention programs focusing on social support can also be tailored to promote psychological flexibility by cultivating resilience.

**Keywords:** Psy-Flex Scale; resilience; social support; reliability; validity; Turkish adaptation

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## 1. Introduction

Positive psychology emphasises the importance of human strengths and abilities in the promotion of positive functioning<sup>[1]</sup>. With the recent movement of positive psychology, extensive interest has been paid to positive psychological constructs and their role in the development of individuals and society. In this regard, positive psychological constructs such as resilience, social support, and psychological flexibility have been considered focal points of psychological research.

### 1.1. Psychological flexibility

Psychological flexibility is defined as the ability to be aware of and adapt to changing internal and external stressors with aligned values<sup>[2]</sup>. Also, psychological flexibility is a dynamic and mul-

ti-faceted construct including cognitive, psychological, affective and behavioural dimensions<sup>[3]</sup>. Furthermore, it can be viewed as the capability of being flexible to the present moment depending on the demand of the situation. Psychological flexibility plays a key therapeutic target in acceptance and commitment therapy. Psychological flexibility had been studied with a variety of other related constructs. There is evidence showing the relationships between resilience, social support, and psychological flexibility<sup>[4,5]</sup>. Although the conceptual and empirical links among these variables have been established, to the best of my knowledge, there is no available research that explicitly examines the mediating effect of social support in the association between resilience and psychological flexibility by using the newly developed measure of psychological flexibility described below. It is important to note that earlier research assesses psychological flexibility by using various other measures including the Multidimensional Psychological Flexibility Scale<sup>[6]</sup> and the Acceptance and Action Questionnaire<sup>[7]</sup>. The Psy-Flex Scale was developed and validated on different samples such as community, clinical, and non-clinical<sup>[8]</sup>. However, Turkish validation of this new scale is needed to use for the Turkish sample. As such, this study sought to examine the psychometric properties and dimensionality of the Psy-Flex Scale in the Turkish language. The current study also aimed to examine the mediating role of social support in the relationship between resilience and psychological flexibility using the Psy-Flex Scale.

## **1.2. Resilience**

Resilience is a common phenomenon of fundamental human systems in the field of positive psychology. The positive development of human functioning depends on the protection of these systems in good working order, which would allow individuals to function properly in the face of adversity or unpleasant life situations. In case of major impairments in these systems, it is more likely that people experience a wide range of psychosocial and developmental problems throughout their lives<sup>[9]</sup>. Available evidence in the extant literature revealed that resilience is related to a wide range of positive outcomes such as greater affective experiences and flourishing<sup>[10]</sup>, satisfaction with life<sup>[11]</sup>, forgiveness<sup>[12]</sup>, social support, hope, and feeling belongingness<sup>[13]</sup>. Other research indicated that resilience is associated with diminished levels of mental health problems<sup>[14]</sup>, and psychological adjustment issues<sup>[15]</sup>. These results suggest that resilience is an important psychological factor in fostering positive human functioning. Although a series of empirical research has investigated the direct link between resilience and psychological flexibility<sup>[16]</sup>, evidence regarding the underlying mechanisms between resilience and psychological flexibility by considering the role of social support is limited. Considering all the above-mentioned studies, the current study seeks to address this gap by investigating the mediating role of perceived social support in the relationship between resilience and psychological flexibility.

## **1.3. Social support**

People need social support from others to deal with a wide range of stressors they face in their daily lives. Social support is a multidimensional concept that refers to sources or support received from family, friends, and significant others<sup>[17]</sup>. Much research has examined the relationship between social support with adaptive and maladaptive outcomes. For example, a meta-analysis with two hundred forty-six studies demonstrated that social support shared a significant positive, yet small, correlation with well-being<sup>[18]</sup>. Another meta-analysis study revealed that social support is related to a wide range of outcomes including quality of life, well-being, health status, physical symptoms,

psychological symptoms, stress, depression, coping strategies, psychological adjustment, health beliefs, health-promoting behaviours, and self-actualization<sup>[19]</sup>. It was also found to be positively related to character strengths, self-efficacy, optimism, self-esteem, resilience, positive affect, and satisfaction with life<sup>[20,21]</sup>. Also, a significant positive relationship was reported between social support and psychological flexibility<sup>[22]</sup>. Furthermore, social support was found to be related to reduced levels of mental health problems<sup>[23]</sup>. These results suggest that social support is an important resource that increased positive outcomes and decreases negative outcomes.

#### 1.4. Psy-Flex Scale

The Psy-Flex Scale is a brief measure of contextually sensitive psychological flexibility<sup>[8]</sup>. It is useful in terms of containing items that explicitly refer to Acceptance and Commitment Therapy, therefore, it can be utilised by clinicians to plan treatments that are contextually sensitive to change. The Psy-Flex Scale is a unidimensional scale containing six self-reported items and has been presented to be a highly reliable and valid measure of psychological flexibility<sup>[8,24,25]</sup>. In the original validation study<sup>[8]</sup>, the Psy-Flex Scale was found to be related to dimensions of existing measures of psychological flexibility, emotional well-being, social, well-being, psychological well-being, presence of meaning, search for meaning, somatization, depression, and anxiety. The divergent validity of this scale has been established with non-psychological variables (e.g., age and gender) and comparison between clinical and non-clinical samples. Evidence of incremental validity was provided with the prediction of unique variance in explaining well-being after controlling for the variance explained by overall symptomatology<sup>[8]</sup>.

#### 1.5. Aims of the study

Based on earlier research, the following hypotheses were tested: (i) the Psy-Flex Scale has a one-factor solution with high internal consistency reliability, (ii) resilience has a significant positive impact on social support and psychological flexibility, (iii) social support also has a significant positive impact on psychological flexibility, and (iv) social support serves as a mediator between resilience and social support.

## 2. Method

### 2.1. Procedure

Convenience and snowball sampling techniques were used to recruit participants for this study. Convenience sampling involved selecting easily accessible participants who were willing to contribute to the study, while snowball sampling involved identifying initial participants who met the study criteria and then asking them to refer their friends and acquaintances who may be interested in taking part in the study. This study recruited participants through various social media platforms, including Twitter, Facebook, and WhatsApp. The participants who met the criteria for inclusion were sent the questionnaire, and those who willingly agreed to participate after reading the objectives were included. The survey was anonymous, and participants accessed it through a secure link. Information about the study was presented on the first page of the survey, and before participating, all participants provided online informed consent. The study guaranteed the confidentiality and anonymity of participants' responses. No incentives were offered to participants for their participation in the survey. With regard to the translation procedure, the Psy-Flex Scale was validated in Turkish

using the standard method of forward-backwards translation. The author of this study completed the forward translation of the items from English to Turkish. Another bilingual researcher, who blinds to the original version of the scale, carried out the back translation of the items from Turkish to English. There was high consistency between the translation and back translation of the scale in terms of language equivalency.

## **2.2. Participants**

The inclusion criteria for this study were to be 18 years old or older and fluent in Turkish. A total of 516 participants took part in this cross-sectional study. There were 270 (52.3%) males and 246 (47.7%) females. Their age ranged between 18 and 60 years, with a mean age of 27.08 years ( $SD = 8.53$ ). Concerning their socioeconomic status, 66.7% belonged to average socioeconomic status, followed by below-average (28.3%), and above-average (5.0%). More than two-thirds of participants were single (69.4%) and 30.6% were married.

## **2.3. Measures**

**Psy-Flex Scale**<sup>[8]</sup>. The Psy-Flex Scale is a newly developed unidimensional self-reported scale for evaluating contextually sensitive psychological flexibility. The scale includes six items (e.g., “Even if I am somewhere else with my thoughts, I can focus on what’s going on in important moments”). Responses were given on a 5-point Likert scale ranging from 1 (very seldom) to 5 (very often). In the original paper, the scale yielded good psychometric properties<sup>[8]</sup>. For the purpose of this study, the Psy-Flex Scale was validated in Turkish and a detailed description of its psychometric properties can be found in the results section.

**Brief Resilience Scale**<sup>[26]</sup>. The BRS is a widely used unidimensional self-reported measure for assessing the ability to “bounce back” from adverse situations. The BRS comprises six items (e.g., “I tend to bounce back quickly after hard times”) that are answered using a 5-point Likert-type scale varying between 1 (strongly disagree) and 5 (strongly agree). A total score for BRS can be computed after recoding the negatively worded items (items 2, 4, and 6), with a higher score indicating a greater level of resilience. The Turkish validation of the BRS has satisfactory psychometric properties<sup>[27]</sup>. Cronbach’s alpha was 0.70 in this study.

**Brief Perceived Social Support Questionnaire**<sup>[28]</sup>. The BPSSQ is a unidimensional self-reported scale constructed to measure individual differences in receiving social support from other people. The BPSSQ contains six items (e.g., “I know a very close person whose help I can always count on.”) that are scored on a 5-point Likert-type scale varying between 1 (not true at all) and 5 (very true). All items are added to produce an overall score for the BPSSQ, with a higher score signifying greater levels of perceived social support. Good evidence of reliability and validity in Turkish has been reported by Yıldırım and Tanrıverdi<sup>[29]</sup>. Cronbach’s alpha was 0.85 in this study.

## **2.4. Data analysis**

Descriptive data were reported for individual items and variables of this study. Pearson’s correlation was performed between resilience, social support, and psychological flexibility. Mediation analysis (Model 4) was tested using SPSS PROCESS macro v.3.4 based on the recommendations of Hayes<sup>[30]</sup>. The indirect effect was estimated with a bias-corrected 95% confidence interval (CI) using 5,000 random bootstrap samples. The decision about the statistical significance of the indirect effect

can be obtained when the lower and upper bounds of the 95% CI include 0<sup>[30]</sup>. All analyses were run in IBM SPSS 26 and AMOS 26.

### 3. Results

#### 3.1. Psychometric properties of the Psy-Flex Scale

Using Cronbach's alpha coefficient, we estimated internal consistency reliability for the measure of Psy-Flex. The scale was found to have good internal consistency reliability ( $\alpha = 0.80$ ) by exceeding the conventional acceptable threshold value of  $>0.70$ . There was no issue with the normal distribution of the items on the scale (skewness<sub>range</sub> =  $-0.33$  and  $0.05$ ; kurtosis<sub>range</sub> =  $-0.55$  and  $-0.45$ ). The corrected item-total correlation ranged between  $0.37$  and  $0.62$ . The results of this analysis are presented in **Table 1**.

Exploratory factor analysis with maximum likelihood extraction was conducted to explore the underlying factor structure of the Psy-Flex measure. The results indicated that Bartlett's test for sphericity, [ $\chi^2(15) = 920.479, p < 0.001$ ] and Kaiser's measure of sampling adequacy (KMO =  $0.82$ ) were sufficient for factor analysis. A one-factor structure that accounted for  $50.69\%$  of the total variance (eigenvalues =  $3.04$ ) was found to represent the data. The scree plot also verified a one-factor solution.

Furthermore, confirmatory factor analysis was used to examine if the hypothesised single-factor solution of the Psy-Flex could be confirmed. The evaluation of the hypothesised model was based on the popular data-model indices that include confirmatory fit index (CFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). The cut-off values that present a "good" fit are shown by CFI and TLI  $\geq 0.95$ , RMSEA  $\leq 0.08$  and SRMR  $\leq 0.05$ <sup>[31]</sup>. The measurement model initially provided a poor data-model fit statistic ( $\chi^2(9) = 104.971, p < 0.01, CFI = 0.895, TLI = 0.824, RMSEA = 0.144, \text{ and } SRMS = 0.063$ ). One solution to address the poor data-model fit is to covary error terms of items, which is a statistical technique used to allow modeling of correlated errors, improving estimated factor loadings, and latent variable correlations and correcting measurement errors or biases. This technique is used to obtain more reliable research findings. Following the modification indices, we covaried items 5 and 6 to improve the data-model fit. The final model presented a good data-model fit statistic ( $\chi^2(8) = 35.637, p < 0.01, CFI = 0.970, TLI = 0.943, RMSEA = 0.082, \text{ and } SRMS = 0.041$ ).

#### 3.2. Testing mediation effect

Pearson product-moment correlation (see **Table 2**) indicated that psychological flexibility was

**Table 1.** Factor loadings and descriptive statistics for the six items of the Psy-Flex Scale

Item	M	SD	Skew	Kurt	$r_{it}$	$\alpha_{iid}$	EFA loadings
Psy-Flex 1	3.15	1.10	-0.15	-0.55	0.60	0.76	0.67
Psy-Flex 2	2.87	1.09	0.05	-0.45	0.37	0.81	0.40
Psy-Flex 3	3.10	1.08	-0.06	-0.54	0.61	0.76	0.67
Psy-Flex 4	3.11	1.06	-0.03	-0.49	0.59	0.76	0.64
Psy-Flex 5	3.36	1.11	-0.33	-0.54	0.62	0.76	0.75
Psy-Flex 6	3.37	1.10	-0.33	-0.53	0.56	0.77	0.68

Note. M = mean; Skew = skewness; Kurt = kurtosis;  $r_{it}$  = Corrected item-total correlation;  $\alpha_{iid}$  = Cronbach's alpha if item deleted

significantly positively correlated with resilience ( $r = 0.31, p < 0.01$ ) and social support ( $r = 0.41, p < 0.01$ ). Also, there was a significant positive correlation between resilience and social support ( $r = 0.36, p < 0.01$ ). More importantly, a simple mediation analysis was carried out to test the mediating effect of social support on the relationship between resilience and psychological flexibility (see **Table 3**). The results showed that resilience was a positive predictor of social support ( $\beta = 0.36, p < 0.01$ ) and explained 13% of the variance in social support. Resilience ( $\beta = 0.19, p < 0.01$ ) and social support ( $\beta = 0.34, p < 0.01$ ) were found to significantly positively predict psychological flexibility by accounting for 13% of the variance in psychological flexibility (see **Table 3** and **Figure 1**). The indirect effect of resilience on psychological flexibility through social support was significant [effect = 0.14, 95% CI (0.09, 0.19)] (see **Table 3**). Social support had a partial mediating role in the relationship between resilience and psychological flexibility (see **Table 3**).

**Table 2.** Descriptive statistics and correlations among variables

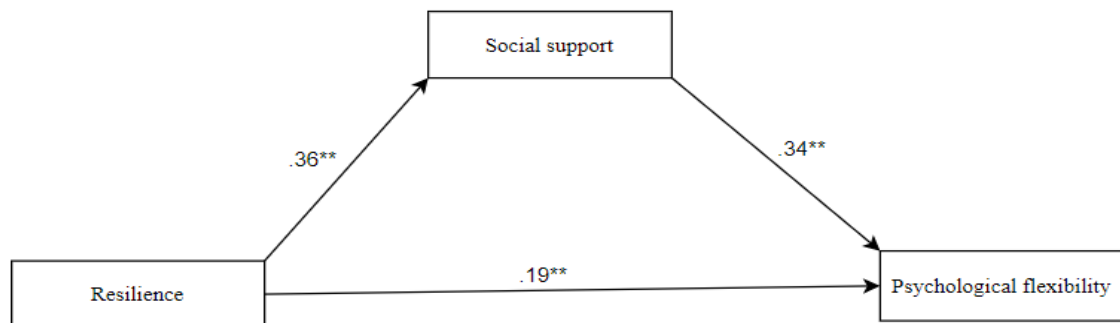
Variable	Descriptive statistics				$\alpha$	Correlation					
	Mean	SD	Skewness	Kurtosis		1.	2.	3.	4.	5.	6.
1. Age	27.08	8.53	1.31	1.10	-	-	-0.10*	0.15**	0.02	0.14**	0.14**
2. Gender	-	-	-	-	-	-	-	-0.04	-0.02	-0.16**	0.02
3. Socioeconomic status	-	-	-	-	-	-	-	-	0.13**	0.16**	0.11**
4. Psy-Flex	18.97	4.64	-0.08	0.33	0.80				-	0.31**	0.41**
5. Resilience	18.80	4.09	-0.04	1.54	0.70					-	0.36**
6. Social support	19.57	5.70	-0.07	-0.78	0.85						-

**Table 3.** Unstandardized coefficients for the proposed mediation model

Antecedent	M (Social support)				Y (Psychological flexibility)			
	Coeff.	SE	t	p	Coeff.	SE	t	p
X (Resilience)	0.50	0.06	8.62	<0.001	0.21	0.05	4.42	<0.001
M (Social support)	-	-	-	-	0.28	0.03	8.11	<0.001
Constant	10.26	1.11	9.28	<0.001	9.53	0.93	10.24	<0.001
	$R^2 = 0.13$ $F = 74.34; p < 0.001$				$R^2 = 0.20$ $F = 63.41; p < 0.001$			
Path	Effect	BootSE	BootLLCI	BootULCI				
Total indirect effect	0.35	0.05	0.26	0.44				
Social support	0.14	0.03	0.09	0.19				

Note 1: SE = standard error.  $\beta$  = standardized coefficient. X = independent variable; M = mediator variable; Y = dependent variable.

Note 2: Number of bootstrap samples for percentile bootstrap confidence intervals: 5,000.



**Figure 1.** The schematic diagram in the mediational effect of social support in the relationship between resilience and psychological flexibility.

Note: All standardised paths are significant at  $**p < 0.01$ .

## 4. Discussion

In this paper, I evaluated the validity and reliability of the Turkish version of the Psy-Flex Scale in a sample drawn from the Turkish general population. The paper also examined the mediating role of social support in the relationship between resilience and psychological flexibility. The current results present evidence for a unidimensional structure of the six-item on the Psy-Flex Scale. This suggests that the Psy-Flex Scale is a valid tool for the assessment of the psychological flexibility construct in the Turkish population. This is consistent with previous research, which reported a good fit obtained by a one-factor model<sup>[8]</sup>. Concerning reliability, the results of this study are also similar to the results of the original validation study<sup>[8]</sup>.

Results from this study yielded that resilience was significantly positively related to social support. This result suggests that individuals who have the ability to “bounce back” from adverse situations appeared to experience more perceived social support in their personal and social lives. These findings are similar to the findings reported on healthy and unhealthy individuals showing that resilience may foster social support<sup>[4]</sup>. Indeed, there is a reciprocal relationship between resilience and social support<sup>[29,32]</sup>. That is, a high level of perceived social support may help individuals to gain more confidence in coping with difficulties. A high level of resilience can also cultivate an increased perceived social support. In this study, resilience and social support were significantly positively related to psychological flexibility. Previous research has demonstrated that higher levels of resilience and social support may directly lead to an increased level of psychological flexibility. For example, a study found that resilience is found to contribute to adjustment via an increased level of psychological flexibility<sup>[16]</sup>. Social support contributes to higher levels of psychological flexibility<sup>[22]</sup>. Despite the direct relationships between the above-mentioned variables, limited studies explored the underlying relationships between resilience and psychological flexibility by considering the role of social support. In the present study, we found that social support partially mediated the association between resilience and psychological flexibility. These results suggest that those who have a high level of resilience seemed to receive more social support, which in turn leads to greater psychological flexibility. These findings improved our understanding of the underlying psychological mechanisms between resilience and psychological flexibility. Studies indicated that people with lower levels of resilience, social support, and psychological flexibility tend to experience greater psychological distress and poor psychological well-being<sup>[5]</sup>. Therefore, more attention should be paid to the psychological status of young adults, and social support can be used to improve the positive impact of resilience on psychological flexibility.

## 5. Implications

The current research has important implications not only for theory but also for practising well-being and mental health practitioners. With regard to the theory, the current results could further the available literature by giving an explanation of how resilience might promote greater psychological flexibility through social support. The findings might also be fruitful to advance the research by investigating the factors that could uncover the relationships of resilience to a variety of outcomes. As for practice, psychologists, counsellors, and other well-being and mental health professionals could benefit from the current findings since it might potentially help them in tailoring, designing, and implementing interventions aimed to enhance positive psychological resources that

people have to achieve optimal levels of positive mental health and well-being alongside the related development of functioning in different life domains.

## 6. Limitations

This study is not without limitations. A potential limitation of this study compared to the original study<sup>[8]</sup> is that I did not compare the Psy-Flex Scale with other available measures of psychological flexibility such as the Acceptance and Action Questionnaire<sup>[7]</sup> and Multidimensional Psychological Flexibility Scale<sup>[6]</sup>. Further psychometric properties of the Psy-Flex Scale (e.g., discriminant validity, incremental validity, and test-retest reliability) should be reported across different cultures, samples and over time to improve its utility for research and practice. Also, this study was cross-sectional in nature to examine the relationships between the analysed variables using self-report questionnaires. Causal relationships between the analysed variables cannot be drawn. Longitudinal studies are needed to address this limitation.

## 7. Conclusion

In summary, the Psy-Flex Scale is a measurement of contextually sensitive psychological flexibility and has good psychometric properties. The current findings supported the reliability and construct validity of the Psy-Flex Scale in Turkish. Future directions for improving the cross-cultural adaptation of psychological flexibility measure may include the validation of this measure on different samples, contexts and over time. Investigation of psychological flexibility in relation to resilience and social support further advanced the knowledge and understanding of empirical links between these three variables.

## Conflict of interest

The authors declare that there is no conflict of interest.

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