

# Adaptation and Psychometric Properties of Suicide Resilience Inventory

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## Abstract

*Resilience is the process to adapt successfully after adverse life events. This study aimed to translate/adapt the Suicide Resilience Inventory (SRI) and to establish psychometric properties of translated version in Pakistan. This study was carried out in two phases. The first phase was aimed to translate and adapt the Suicide Resilience Inventory in Urdu language and second was to estimate the validity and reliability of the translated version. The sample for the study comprised 250 students including 100 males, and 150 females. The sample age ranged between 18 to 25 years with mean age of 21.1. The standard procedure of forward and backward translation was followed. Cronbach's alpha coefficient for internal consistency reliability for Urdu version of SRI was found acceptable ranging from .76 to .87. Further, confirmatory factor analysis provides additional empirical support for invariance of the 3-factor model of the SRI. Urdu version of Suicide Resilience Inventory found reliable and valid to check the resilient factors against suicidal behaviors among the Pakistani students.*

**Keywords:** Adaptation, Suicide Resilience, Internal Protective, Emotional Stability, External Protective.

## Introduction

Suicide ranked as 3<sup>rd</sup> leading cause of death among young people, worldwide. In 2016, above 79% of global suicide occurred in low and middle-income countries (World Health Organization, 2019). These estimated rates pointed towards the need to understand the suicide phenomenon and the protective factors accordingly in low-income countries. Suicidal behavior can be understood as a continuum that starts with thoughts about suicide, it may persist in form of suicide planning, threats of suicide attempts, and committing suicide (Suicide Prevention Resource Center, 2004).

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Increase in suicidal rates is alarming for mental health professionals and researchers, thus there is a need to increase knowledge regarding causal and protective factors against suicide and to develop effective suicide prevention strategies. Considering this, studies were conducted over the years suggesting that personal, familial, psychosocial, and cultural factors may contribute to increase the likelihood of suicidal behaviors. For example, lower socioeconomic status (Fakhari, Farahbakhsh, Esmaeili, & Azizi, 2021), sleep problems (Kearns, Kittel, Schlagbaum, Pigeon, & Glenn, 2021), aggression (Hill, Jones, & Haas, 2020) substance abuse (Dendup, Zhao, Dorji, & Phuntsho, 2020), anxiety disorders (Kanwar et al., 2013) and lack of social support (Ekramzadeh, et al, 2012) are empirically recognized factors. As indicated, suicide is a complicated phenomenon associated with multiple socio-demographic, psychiatric and biological problems. However, the consoling aspect of this situation is that suicide is preventable (Bailey et al., 2011). Like risk factors, protective factors influence the outcome of the situation by increasing the resilience against suicidal behaviors. Consequently, suicide prevention efforts are taken into account with protective and resilience factors aimed to minimize the burden of suicidal behaviors. Resilience is an ability that helps to buffer against the development of negative outcomes i.e., by increasing positive adaptation which ultimately attenuates the risk of suicidal behavior during stress (Kim-Cohen, & Turkewitz, 2012; Windle, Bennett, & Noyes, 2011).

Considering suicide as a challenge, number of assessment tools have been developed to identify permeating and resilient factors over the years. Suicide Resilience Inventory (SRI) is 25-item inventory developed to assess a variety of personal and environmental situations that help to reduce the probability to be involved in risky behaviors when facing adversities. The preliminary analysis of SRI-25 has demonstrated that all three factors are internally correlated with high level of alpha for entire items of inventory as well as for subscales (.90 to .95). Likewise, studies have also indicated that SRI-25 can significantly differentiate the responses of normal college students, young adults as well as adolescent psychiatric inpatients (Gutierrez, Freedenthal, Wong, Osman, & Norizuki, 2012; Osman, Gutierrez, Muehlenkamp, & Dix-Richardson, 2004). SRI has also been validated on Chinese and American college students (Fang, Freedenthal, & Osman, 2014). These findings indicate that SRI is a reliable and valid measure as well as equally useful to assess resilience against suicidal behaviors across cultures.

Despite higher rates of suicidal behaviors and the importance to explore protective factors against suicide, empirical evidence on suicide is sporadic in Pakistan. On the one hand, suicide is considered a sensitive topic in social, legal, and religious aspects of Pakistan to discuss, on the other hand, WHO report (2014) indicated that 13,377 people committed suicide in Pakistan during 2012. Moreover, cultural values are also assumed to be highly influential factor particularly in the context of suicidal behaviors (Bhugra, 2013). For example, thwarted belongingness, perceived burdensome and family conflicts in collectivistic societies whereas self-reliance during the period of crisis and reluctance to ask for help from others in individualistic cultures appeared as salient underline mechanisms associated with suicidal behaviors (Eskin, 2013; Park, Baik, Kim, & Lee, 2017; Park, & Moon, 2010). These empirical evidences pointed towards the need to investigate unobservable dynamics to understand the factors associated with suicidal behaviors to design preventive and treatment strategies in ecological and cultural contexts. Besides human and cultural diversity, lack of understanding with language in which test is presented also changes the concept of actual test ultimately change test scores (Laungani, 2007).

Knowing the importance of these facts, the objective of the present study was to adapt suicide resilience inventory in Urdu language, a national language of Pakistan, in order to have a screening tool to assess the factors that can help to combat suicidal thinking in students. The second objective was to carry out the psychometric analysis of the adapted version to establish reliability and validity on students. To the best of our knowledge, there is no scale available in Pakistan to assess resilient factors against suicidal behaviors. Having this reliable and valid measure in Urdu language, protective factors can be easily and broadly assessed which will help to design early prevention and treatment programs against suicidal behaviors.

## **Methodology**

### **Participants**

A sample of 250 students including 100 males and 150 females was selected by using simple random sampling from The Islamia University of Bahawalpur and University of Karachi to estimate reliability and validity of translated version. The age range was from 18 to 25, with the mean age of 21.1 years.

The study was carried out in two phases.

#### **Phase 1: Translation and Adaptation of Suicide Resilience Inventory**

The standard procedure of translation/adaptation of psychological measures was followed for the translation/adaptation of SRI suggested by Hambleton, Merenda, and Spielberger (2005).

### **Forward Translation**

The scale was translated in Urdu language by three subject experts, proficient in both source and target language. Then, the translated version was given to a panel of language experts to check whether the translation was according to the functional use of the target population or not and to check the appropriateness of translation by considering cultural and functional aspects. A draft of forward translation was produced after detailed discussion and agreement of experts. This final translated version was then given for Backward Translation.

### **Backward Translation**

Backward translation was given to three translators who have expertise in linguistic, moreover, they were not familiar with the original inventory. To improve the precision of the translation, the translated inventory was discussed by using the committee approach and after making necessary amendments in language, the pilot study was conducted. The pilot study was conducted to evaluate any potential difficulty such as any unclear statements, difficult vocabulary, difficulty in answering the question, and suggestions to reformulate any confusing statement. Participants have not reported any confusing and problematic questions. After completing this procedure, Urdu version of SRI-25 was obtained and further ready to establish psychometric properties.

## **Phase II: Establishing the psychometric properties of Suicide Resilience Inventory Measures**

### **Suicide Resilience Inventory**

Suicide Resilience Inventory is 25 item inventories developed to measure the factors that help to be resilient against suicidal behaviors (Osman et al., 2004). This inventory consists of three subscales named as Internal Protective Scale (9 items), External Protective Scale (8 items), and Emotional Stability Scale (8 items). These three subscales of the original version of SRI-25 found to be highly reliable ( $\alpha = .90$  to  $\alpha = .95$ ). Every item is scored on 6-point Likert scale.

### **Procedure**

After seeking permission from concerned authorities of universities, participants were approached. To build rapport with participants, the purpose of the study was clearly described. Confidentiality of their responses was assured, and they were briefed about their right to withdraw participation during study. The research measures were administered after getting consent from participants. Respective authorities and

participants were thanked at the end of the administration, for their time and co-operation.

### Scoring and Statistical Analysis

After data collection, scale was scored according to the standardized procedure. Then obtained data was analyzed by using Statistical Package for the Social Sciences-21.

### Results

Table 1  
*Descriptive Statistics for Demographic Characteristics of Participants (N=250)*

Variables	Category	N	%
Gender	Male	100	40.0
	Female	150	60.0
Mean Age of Total Sample		21.1	1.8
Family Structure	Nuclear	108	43.2
	Joint	142	56.8

Descriptive statistics for selected sample are presented in Table. 1. More females (60%) compared to males living in the joint family system (56%) participated in this study.

Table 2  
*Item-total correlation of Forms Suicide Resilience Inventory (N=200)*

Item	r
1	.56**
2	.73**
3	.57**
4	.46**
5	.69**
6	.56**
7	.51**

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8	.51**
9	.70**
10	.56**
11	.69**
12	.78**
13	.72**
14	.69**
15	.78**
16	.74**
17	.79**
18	.68**
19	.59**
20	.54**
21	.69**
22	.52**
23	.73**
24	.62**
25	.68**

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\*\* $p < .01$

Table. 3  
*Cronbach' Alpha of Urdu version of Suicide Resilience Inventory (N=200)*

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Scale	No of items	Cronbach's Alpha
IP	9	.76
ES	8	.87
EP	8	.78

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Table. 4  
*Test-retest reliability of Urdu version of Suicide Resilience Inventory (N=50)*

Scale	No of items	Test-Retest reliability
IP	9	.77**
ES	8	.59**
EP	8	.72**

*Note:* IP, Internal Protective subscale; ES, Emotional Stability subscale; EP, External Protective subscale

**Reliability of suicide resilience inventory:**

After following standard process of adaptation, item-total correlation coefficients obtained from the scores of each item varied between  $r = .50$  (item 8) and  $r = .74$  (item 10). Obtained values for each item were found to be statistically significant at the 0.01 level which shows the strong correspondence between each item and sum score of subscales, presented in Table.2. Cronbach alpha and test-retest reliability was computed for reliability analysis. The alpha estimates for the Internal Protective ( $\alpha = .76$ ), the Emotional Stability ( $\alpha = .87$ ), and the External Protective ( $\alpha = .78$ ) were acceptable, Table 3. Test-retest reliability was also estimated by administering scale again on 50 participants with one-week interval. Pearson coefficient correlation was computed between the scores of first and second administration. Result showed, Table. 4, that Pearson correlation coefficient for the Internal Protective, the Emotional Stability, and the External Protective is  $r = .77$ ,  $r = .59$  and  $r = .72$  respectively, indicating stability over time for domains of SRI.

Table 5

*Factor Loading Matrix for the Three Identified Factors using Factor Analysis*

Items	Rotated Component Matrix		
	Factor-I	Factor-II	Factor-III
1			.630
2			.701
3			.656
4	.692		
5			.748
6		.364	.588
7		.344	.385
8			.380
9			.736

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10	.446		
11	.432	.479	
12	.779		
13	.717		
14	.674		
15	.798		
16	.655		
17	.773		
18		.619	
19		.593	
20		.537	
21		.646	
22		.536	.315
23	.347	.669	
24	.434	.461	
25	.384	.536	

*Extraction Method: Principal Component Analysis.*

*Rotation Method: Varimax with Kaiser Normalization.*

*Factors loadings > 0.30*

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Principal component analysis was performed by using principal component analysis. The factor loading of each item in extracted factor, as shown in Table 5. Extraction of factor-I the main role was defined by item numbers 4, 10-17, and 23-25, among them items 12, 13 and 17 found with loadings more than 70%, similarly in the extraction of factor –II, item number 5, 6, 11 and 18-25 give the main contribution, among them item 18, 21, and 23 observed with more than 60% loadings. Results show last factor mainly depends on item numbers 1, 2, 3, 5-9 and 22, where items 2, 5, and 9 are the main contributor with more than 70% loadings.

## **Discussion**

The objective of this study was translation/adaptation of suicide resilience inventory (SRI) in Urdu language, a national language of Pakistan, and to develop psychometric properties of adapted version as well. For translation and adaption of SRI, standard procedures of translation and cross-cultural adaption were followed. Furthermore, obtained results of the pilot study also indicated that Urdu version of SRI is comprehensible and appropriate for targeted sample.



Having preliminary support of the adapted version of SRI, factor analysis further suggested that items are fit together to assess each factor which is distinct yet interrelated to investigate the domains of resilience against suicide. Cronbach's alpha coefficients demonstrated that each factor has good internal consistency like the original version indicating SRI as a reliable tool to assess resilience factors against suicide. Taken as a whole, the obtained result suggested that SRI in Urdu language is equally reliable and valid tool to measure suicide resilience among Pakistani university students. Another study found that three subscales of the SRI-25 were similarly interpreted by Chinese and US students, indicating that the SRI-2 is an effective cross-cultural inventory (Fang et al., 2014).

### **Implications**

Indeed, it is important to have knowledge about causal factors of suicidal behaviors, nonetheless, on-time screening and appropriate interventions cannot be repudiated. This study offers contribution in the field of psychology in Pakistan by having reliable and valid measure in Urdu language to assess risk factors and protective factors simultaneously in less threatening way during suicide assessment. Considering resilience as a trainable process to face the adverse situation, it would be helpful for the clinician to enrich assessment by determining risk factors and individual's internal and external facets of resilience at once while conceptualizing and planning treatment interventions. By administering SRI-25, mental health professionals can explore interplay of internal and external resources (e.g social support) and further contextualized auxiliary skills to understand how adolescents can face adversities, bring positive change in their personalities, and reinforce the strengths. This adapted version can be used in future research to further validate and examine invariance due to demographic or other factors to determine relevant factors that protect against suicide in local culture. Taken as a whole, obtained results suggested that SRI in Urdu language is equally reliable and valid tool to measure suicide resilience among Pakistani university students.

### **Limitations**

Present study has certain limitations. The reliability and validity of SRI was assessed with university students that limits its generalizability. Thus, this study needs to extend other clinical and non-clinical populations. Further studies are needed to examine psychometric characteristics such as predictive and concurrent validity. Studies also needed to be conducted on people who have history of suicidal behaviors or are at risk of suicidal behaviors.

## **Conclusion**

As psychologists have stated, a person's interpretation of a traumatic incident and reaction to it are influenced by cultural mores, despite the fact that the majority of research is premised on a western-centric cultural framework that emphasizes individualism (Afana et al., 2010; Ungar 2017). Thus, it is recommended to take cultural values into account while analyzing resilience, particularly in traditional societies such as Pakistan. With this reliable and valid adapted version of the SRI-25 for the Pakistani population, clinicians can focus on culturally relevant components of resilience in conjunction with risk factors, and preventative programs may benefit from strengthening resilient factors as well. Moreover, resilient factors against suicidal behaviors would be identified by using this adapted version which is an important theoretical contribution.

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