

Dimensionality and Psychometric characteristics of Psychological Resilience Scale

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ABSTRACT

This study was undertaken to determine the psychometric characteristics of Psychological Resilience scale. The sample for this study constitutes the 300 Youths, ensuring homogenous characteristics. The Cronbach's Alpha of the scale was found 0.88, which is satisfactory and the Composite reliability ranges between 0.63 to 0.74. The construct validity ranges between 0.55 to 0.76 of dimensions and in overall, it was found 0.88. Further the convergent validity was in acceptable range. Content (Face and logical) validity of the scale was verified by a number of experts and academicians. Factor analysis was carried out five factors emerged explaining 53.15% of the total variance, which confirmed the high factorial validity. Further, the inter-factorial correlation among sub-dimensions of Psychological Resilience scale was found highly significant. The factors in the present study were named as Self Perception, Single-Mindedness, Task Orientation, Organized and Self Restraint. It can be concluded that the present piece of research work confirms high reliability and validity of Psychological Resilience scale.

Keywords: Psychological Resilience, Self Perception, Single-Mindedness, Task Orientation, Organized, Self Restraint and Youth.

Introduction

Psychological resilience refers to an individual's capacity to withstand stressors and not manifest Psychology dysfunction, such as mental illness or persistent negative mood. This is the mainstream psychological view of resilience, that is, resilience is defined in terms a person's capacity to avoid psychopathology despite difficult circumstances Resilience is the process of adapting well in the face of adversity, trauma, tragedy, threats, or even significant sources of stress - such as family and relationship problems, serious health problems, or workplace and financial stressors. It means, "Bouncing back" from difficult experiences.

The concept of resilience stems from the early psychiatric literature that examined children who appeared to be invulnerable to adverse situations, over time, the term "invulnerable" was replaced by the term "resilience," and a new area of theory and research was born. (Earvolino-Ramirez, 2007). Furthermore, it has also been argued that resilience could be thought of as an innate characteristic each person possesses to some degree, but which can also be enhanced or diminished depending on life circumstances (Wagnild, 2003).

Being resilient does not mean that a person does not experience difficulty or distress. Emotional pain and sadness are common in people who have suffered major adversity or trauma in their lives. In fact, the road to resilience is likely to involve considerable emotional distress. Resilience is not a trait that people either have or do not have. It involves behaviors, thoughts, and actions that can be learned and developed in anyone.

Extensive literature search revealed several measures of resilience which have been developed and used in many the past ; these include: Connor-Davidson Resilience Scale (Connor and Davidson 2003), Brief Resilience Scale (Smith et. al 2008), Resilience Scale for Adult (Friborg et al. 2003), Brief Resilience Coping Scale (Sinclair and Wallston 2004) and Wagnild and Young Resilience Scale (Wagnild and Young 1993). Of all these measures, Wagnild and Young's resilience scale has been accounted for as the best and most generally used (Wagnild 2009; Ahern and Kiehl 2006); the first developed resilience measuring scale (Wagnild 1993); simple to use with focus on psychological qualities rather than deficits (Abiodun 2011) and its applicability cuts across young adults to elderly age groups (Abiola and Udofia 2011).

To date, there are number of instruments few instruments developed and standardized in India to measure the ability of Resilience. Some of them have been developed by the Indian researchers like Kamlesh Singh & Xiao-nan Yu (2010), Oshio, Nakaya, Kaneko; Nagamine (2003), Mihir Mallick & Simranjit Kaur (2016) and Vibhawari B Nikam (2013). The investigator in this programme attempted to revise Psychometric properties on youths developed by Wagnild and Young (1993) in order to adapt by translating it in Hindi and Urdu in addition to English. The secondary purpose of this study is to contribute to the body

of knowledge on the cross-cultural usefulness of the 25-item Wagnild and Young (1993) resilience scale. The assessment and development of resilience in youthful age are important because, at that stage, many young people are faced with many stresses, challenges, and changes that are peculiar to that developmental stage.

Draft Scale

Resilience scale was re-standardised on youths. It was made trilingual (English, Hindi and Urdu) before Administration. The scale initially comprised 25 items with 5-point Likert type responses, viz., 'Strongly Disagree', 'Disagree', 'Uncertain', and 'Agree', 'Strongly Agree'. This scale was administered on representative sample of 300 male and female youths.

After scoring the items of each testee, the scores were arranged in descending order (highest scoring to the lowest). Two separate groups, one of 27% from the highest scoring and other of 27% from the lowest scoring were made. Inter correlation matrix was examined in order to overcome existence of multicollinearity and singularity in the scale. After analysis, four items having the multicollinearity and singularity were rejected and the final draft of the scale comprised of 21 items.

Standardisation of the Scale

The final draft with 21 items was administered on a sample of 300 youths. The total score of the scale varies from 21 to 105 and can be inferred as higher the score higher the Psychological Resilience and vice-versa.

The mean age of the youths participated in the development of scale was 21.59 years with 19 years as minimum and 25 years as maximum.

Table 1
No. of items representing to dimensions of psychological Resilience

Dimensions	Items	No.
1. Self Perception	PRS20,PRS14,PRS13,PRS21,PRS12,PRS18	6
2. Single Mindedness	PRS16,PRS15,PRS17,PRS4,PRS19	5
3. Task Orientation	PRS2,PRS1,PRS3	3
4. Organized	PRS11,PRS10,PRS8,PRS9	4
5. Self Restraint	PRS5,PRS6,PRS7	3
Total		21

The scoring criterion for items is given in table 2.

Table 2.

Scoring System

Scoring	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Positive	1	2	3	4	5

Operational Definition of Psychological Resilience and its Dimensions

Resilience is the ability of an individual to recuperate from the worst and challenging situations, which are very devastating and stressful in nature. It is not just a capacity but also a process through which a person returns to normal as well as positive position.

Dimensions of Psychological Resilience:

There are five factors of psychological resilience and their operational definitions are given in following paragraphs.

Self Perception: The process in which individuals lacks introductory state of mind or passionate reactions, by watching their own particular conduct and arriving at conclusions in the matter of what attitude possibly determined that manner.

Single Mindedness: It describes the individual's ability to have a particular aim or purpose and is determined to achieve it. It is the ability to think for oneself and to take action consistent with that thought.

Task Orientation: Concentrating on the culmination of specific undertakings as a measure of achievement.

Organized: It is a characteristic of a person to plan things carefully and keep things orderly

Self Restraint: It is the strength of will to carry out one's decisions, wishes, or plans.

Instructions

Instructions for administration of the scale were printed on the first page of the scale. The scale can be administered individually or in a group (not more than 30 youths at a time). The youths were assured that their responses will not be disclosed but will be used for the research purpose only. The consent form was also filled by them. They were asked to read each item carefully and give your responses candidly.

Reliability

The consideration of reliability of a scale viewed as essential elements for determining the quality of any standardized test. However, professional and practitioner associations frequently have placed these concerns within broader contexts when developing standards and making overall judgments about the quality of any standardized test as a whole within a given context. Cronbach’s alpha was used for determining the internal consistency reliability of the scale. Table 3 shows descriptive statistics for items and scale with reliability coefficient.

Table 3.

Descriptive statistics of Items Scale and Cronbach’s Alpha

Item No.	Descriptive statistics for item				Descriptive statistics for scale		
	Range	Mean	Variance	SD	Scale Means if item Deleted	*Corrected Item-Total Correlation	Cronbach’s Alpha if Item Deleted
PR1	4	3.37	1.740	1.319	67.53	.533	.874
PR2	4	3.48	0.953	0.976	67.42	.425	.878
PR3	4	3.52	1.481	1.217	67.38	.404	.878
PR4	4	3.54	1.387	1.178	67.36	.463	.877
PR5	4	3.29	1.358	1.166	67.61	.374	.879
PR6	4	3.45	1.419	1.191	67.45	.368	.880
PR7	4	3.15	1.205	1.098	67.75	.419	.878
PR8	4	3.23	1.540	1.241	67.67	.384	.879
PR9	4	3.31	1.431	1.196	67.59	.556	.874
PR10	4	3.14	1.260	1.123	67.76	.384	.879
PR11	4	3.13	1.358	1.165	67.77	.441	.877
PR12	4	3.61	1.328	1.152	67.29	.533	.874
PR13	4	3.47	1.367	1.169	67.43	.472	.876
PR14	4	3.15	1.314	1.146	67.75	.426	.878
PR15	4	3.32	1.290	1.136	67.58	.502	.875
PR16	4	3.37	1.432	1.197	67.53	.518	.875
PR17	4	3.68	1.542	1.242	67.22	.580	.873
PR18	4	3.38	1.394	1.181	67.52	.515	.875
PR19	4	3.40	1.565	1.251	67.50	.564	.873
PR20	4	3.45	1.479	1.216	67.45	.611	.872
PR21	4	3.44	1.705	1.306	67.46	.567	.873

* r=0.19 (p<0.001) two tailed

Table 4.

Descriptive statistics of Scale.

Psychological Resilience scale	Mean	Variance	N	SD	No. of Items
	70.90	183.93	300	13.56	21

Table 5.

Cronbach’s Alpha for Psychological Resilience Scale and its dimensions.

Scale & Dimensions	Alpha Coefficient
Self perception	0.76
Single mindedness	0.73
Task Orientation	0.63
Organized	0.63
Self Restraint	0.55
Overall Psychological Resilience	0.88

r=0.19 (p<.001) two tailed

Cronbach's Alpha for overall psychological resilience scale was 0.88 and its dimensions 0.76, 0.73, 0.63, 0.63 and 0.55 for Self-perception, Single mindedness, Task Orientation, Organized and Self Restraint respectively and are significant at 0.001 level. The internal consistency of the scale and sub-scales are quite high and this gives a support that the scale has excellent reliability (George & Mallery, 2003).

Composite Reliability

Composite reliability of the scale was calculated using the following formula.

Where, λ is the value of factor loading for respective item and δ is the error time. The values of composite reliabilities for factors are varying from 0.63 to 0.74 and are given in table 6. To be in acceptable range the value of composite reliability needs to be in and around 0.70.

$$CompositeReliability = \frac{(\sum_{i=1}^n \lambda)}{2}$$

Validity

A. Content (Face and logical) validity of the scale was verified by number of experts and academicians. There are various methods to establish construct validity of the tool. Data screening was carried out in order to overcome existence of multicollinearity and singularity in the scale. For testing multicollinearity and singularity 'Determinant' of the R-matrix was estimated and it was greater than 0.00001. Sampling adequacy was also carried out and found to be greater than 0.50, both parameters are in acceptable range.

Factor analysis with principal component analysis as extraction and varimax as rotation methods were used to establish the factorial validity of the tool.

Table 6.

Factor structure of the Psychological Resilience Scale (PRS)

Item No	Factors				
	Self perception	Single mindedness	Task orientation	Organized	Self Restraint
PR20	.689				
PR14	.610				
PR13	.599				
PR21	.598				
PR12	.536				
PR18	.452				
PR16		.655			
PR15		.609			
PR17		.593			
PR4		.574			
PR19		.432			
PR2			.742		
PR1			.629		
PR3			.620		
PR11				.706	
PR10				.628	
PR8				.559	
PR9				.427	
PR5					.723
PR6					.548
PR7					.536
Percent of Variance	13.689	12.952	9.905	9.079	7.523
Cum. Percent of Variance	13.689	26.641	36.546	45.624	53.147

Item No	Factors				
	Self perception	Single mindedness	Task orientation	Organized	Self Restraint
Average Variance Extracted	0.34	0.33	0.44	0.35	0.37
Composite Reliability	0.74	0.71	0.70	0.67	0.63

The percent of variance accounted by factors varies from 7.523 to 13.689%. In summing up, all five factors explained 53.147% of the total variance. The factorial validity of the scale is excellent and established.

B. Convergent Validity

The average variance extracted by each factor shall be calculated using the formula:

$$Ave. VarianceExtracted = \frac{\sum_{i=1}^n \lambda}{n}$$

Where, λ is the factor loading or correlation of item with respective sub-construct. To confirm the convergent validity, this value needs to be around 0.50 and in our case it confirms the convergent validity of the psychological resilience scale.

C. Inter-Factorial Validity

The inter-factorial validity of the scale was estimated as shown in table 7 to confirm all factors as correlated to each other and measuring the same construct.

Table 7.
Descriptive Statistics and Inter-factorial Validity

Dimensions	Mean	SD	Dimensions					
			X1	X2	X3	X4	X5	X6
Self Perception (X1)	20.51	4.864	1					
Single Mindedness(X2)	17.31	4.176	.641**	1				
Task Orientation (X3)	10.38	2.685	.487**	.498**	1			
Organized (X4)	12.80	3.264	.503**	.565**	.404**	1		
Self Restraint (X5)	9.89	2.507	.479**	.400**	.344**	.341**	1	
Psychological Resilience (X6)	70.90	13.56	.862**	.846**	.687**	.738**	.630**	1

** r=0.19 (p<.001) two tailed

Inter-factorial correlations indicate that all factors are significantly correlated with each other and measuring the same construct.

Conclusion

The psychological resilience scale has excellent internal (Cronbach’s Alpha) consistency, composite reliability and inter-factorial reliability. The face/content, factorial (construct), convergent and inter-factorial validities are also high and are in acceptable range. It can be concluded that the scale is highly reliable and valid for measurement of psychological resilience.

Implication

The objective of this research program was to re-standardize a comprehensive, reliable and valid scale of psychological resilience. This scale is designed to help self-analysis, researchers and practitioners to measure the overall ability of psychological Resilience and on its sub-domains on self-perception, single-mindedness, and task-oriented, organized and self-restraint. Psychological resilience scale serves as a measure of the individual ability of him/her. The scale can be used by students, medical professionals, psychologists, and counselors. The resilience scale is also a helpful tool in the organizational setting as an important measure of positive psychology.

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