Development of a Scale of Resilience against Terrorism

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The present study describes the development and initial psychometric evaluation of the scale of Resilience Against Terrorism (RAT). An extensive exercise was undertaken to identify specific constructs covering resilience in Pakistani cultural context while using both theoretical and empirical approaches. Initially a fairly large pool of items was generated with the help of the focus groups, interviews with experts, students and literature out of which 74 items were retained. To evaluate it empirically, 276 males and 218 females were contacted from all walks of life and all over the country including people who have witnessed a terrorist attack and those who have heard it but haven't seen it. Principle component factor analysis was conducted to select items for RAT and determine its construct validity which provided four factors solution (Pessimism, Self-efficacy, Optimism & Sanctity and Education). The scale comprised 52 items selected on the basis of factor loading no less than.35. Internal consistency of the scale with 52 items was highly significant (α = .82).

Keywords: resilience, pessimism, self-efficacy, optimism, sanctity and education

The word *resilience* comes from Latin "resilire" which means to spring up. Thus, Davidson et al. (2005) define *resilience* as the ability to spring back from trauma, and Masten (2009) suggests that this resilience consist of coping strategies which help people go back to a previous level of functioning before the negative impact of the traumatic event. Resilience is also defined as the capacity to grow after trauma in which the individual performs better after the stressful event; just like being inoculated with an antibody which defends against disease in the presence of germs (Garmezy, 1973; Garmezy & Streitman, 1974).

The term resilience in psychological literature was used for the first time by Emmy Werner in early 1970s who studied a cohort of 698 children from Kauai Hawaii who grew up in poverty, had experienced pre- or perinatal complications; lived in families troubled by chronic discord, divorce, or parental psychopathology; and were reared by mothers with less than 8 grades of education. However, one out of three of these children grew into competent, confident and caring adults (Werner, 2005). Since then there has been a lot of research work in various fields, especially in studies of children of schizophrenic parents in 1980s, Vietnam War veterans (King, King, et al., 1998).

Bonanno (2004) views resilience much more than just the retrieval of a previous condition so it must not be confused with recovery. He believes that recovery is merely going back to level of functioning previously held as a state of equilibrium. Likewise, coping is going back to previous level of functioning, which ceases after trauma but is not resilience. He suggests that resilient people

also exhibit some symptoms of psychopathology at certain level, and even for many weeks, but ultimately they tend to manage and maintain a healthy level of functioning with the passage of time. He calls it ''the capacity for generative experiences and positive emotions''. Tugade and Fredrickson (2004) suggest psychological resilience is active handling and adaptation after experiencing loss, difficulties, and misfortune. Carle and Chassin (2004) argue that resilient people tend to use more positive emotions to spring back from trauma. Psychological factors that profile resilience are manifestations of deeper mechanisms that include biology (Charney 2004), genes (Caspi et al. 2003; Tannenbaum & Anisman, 2003) and environment (Haskett et al., 2006; King et al., 1998).

Consequently, resilience is a multidimensional build that changes with setting, time, age, and life conditions (Connor, Davidson & Lee, 2003; Garmezy, 1985; Garmezy 1993; Richardson, 2002; Rutter, 1987; Seligman & Csikszentmihalyi, 2000; Wagnild 2003; Werner 1993; Werner & Smith, 1992). In this way it is not astonishing to discover numerous sorts of scales that measure the same construct. Six most as often as possible utilized scales measure flexibility and incorporate "defensive components that bolster strength", "effective anxiety adapting capacity", "focal defensive assets of wellbeing modification", "versatile adapting conduct", and "flexibility as a constructive identity trademark" (Ahern, et al., 2006); particularly, The Resilience Scale (Wagnild & Young, 1993) measures "serenity, persistence, confidence, importance, and existential aloneness", and the Connor Davidson Resilience Scale (Connor, Davidson, & Lee, 2003) measures attributes like "self-viability, comical inclination, tolerance, idealism, and confidence" as subscales.

Most of the scales available on resilience and terrorism are either in English or other languages and when translated do not necessarily carry the same connotation. Also, Impact of Terrorism Scale (ITS) depicted (Malik et al., 2010) resilience as a potential factor of terrorism which lead us to delve deeper into designing a scale that would comprehensively measure resilience resultant of terrorism.

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Method

Participants

A retrospective purposive sample of survivors and sufferers of terrorist attacks in Pakistan was extracted for this study along with cohort of similar individuals minimally exposed to terror. The sample consisted of, 276 men and 218 women (N = 494) with an age range of 16 to 56 years with high and low exposure groups (see Table 1). The size of the sample was three times the total number of initial items (74) insuring assumptions for exploratory and confirmatory factor analyses. The participants of the study belonged to all parts of the country especially those hit by terrorist attacks in the last few years.

Table 1.
Characteristics of the Participants (*N* = 494)

Characteristics	Category	N (%)
Gender	Men	276 (55.87)
	Women	218 (44.12)
Profession	Student	173 (35.02)
	Elite Force/Police	62 (12.55)
	Teachers	45 (9.10)
	House wives	60 (12.14)
	Self employed	45 (9.14)
	Rescue 1122	62 (12.55)
	Govt. Employee	47 (9.51)
Education	Matric/Below	105 (21.25)
	Graduate	222 (44.98)
	Masters	136 (27.53)
	Higher education	31 (6.27)
Marital Status	Married	215 (43.52)
	Single	272 (55.06)
	Divorced	07 (1.41)
City	Lahore	140 (28.34)
	Sargodha	82 (16.59)
	Rawalpindi/ISB	81 (16.39)
	Bhakkar	60 (12.14)
	DI Khan	26 (5.26)
	Quetta	45 (19.10)
	Peshawar	60 (12.14)

Step I: Construct Identification

The initial step in developing RAT was to get the construct clarity on resilience by comprehensively reviewing previous and present literature, and other scales. We found that different researchers and investigators measured this construct in different ways. The type of items and contents of the scale depended upon the way they defined the resilience. Many viewed resilience as a multidimensional construct comprising various character traits of persons such as "feeling of individual skill, resistance of negative effect, positive acknowledgment of progress, trust in one's impulses, feeling of social support, profound confidence, and an activity arranged in a way to deal with critical thinking" (Connor & Davidson, 2003). Another approach for construct identification was to get the opinion of local experts in the field of psychology as they would define resilience. To this, a primary open-ended

questionnaire was distributed to a number of PhD scholars at Psychology Department, GC University Lahore, who identified optimism, self-reliance, internal locus of control, religion, social support, part of family, associate gathering and diversion as conceivable qualities of resilience.

Three focus groups for the deliberation and construct clarification were conducted at various times and with different people. The first focus group included an attorney, a world class compel officer, a politician, an officer of Punjab Police, observer to an impact at Police Training School in Sargodha; a Rescue Officer of 1122, an amputee, injured in a suicide attack in Lahore, a religious researcher and a news columnist from Lahore. Second focus group included six under graduate students and four employees from different bureaus of University of Sargodha, and the third comprised of eyewitnesses and survivors of suicide terroristic attack in Lahore.

The main themes and constructs which emerged through these focus groups and interviews encompassing psychological resilience against trauma were scrutinized for final scale.

Step II: Item formulation

The themes from literature review, scales on resilience and thematic constructs from the three focus groups were converted into sentences which resulted in a sizable pool of more than 120 items in Urdu. These items were screened by the researcher, her supervisor and other experts in order to select the most appropriate items defining resilience. Redundant and overlapping statements were discarded leaving a final pool of 74 items in Urdu.

With a specific end goal to ensure the exactness of the item pool and to markdown any typographic mistakes or other linguistic errors, 74 items were administered to 25 individuals including under graduates and draduates, businesspeople, instructors and housewives. No real errors were demonstrated amid the tryouts aside from few minor accentuations and writing mistakes. Subsequently all items were retained and the pool was prepared for the underlying scale concluded for data collection.

Step III: Empirical Item Evaluation

The underlying size of 74 Urdu items included 16 negative and 58 positive items, and with a 4-point rating scale, unequivocally agree (4), agree to some degree (3), fairly disagree (2) and emphatically disagree (1) reactions were gathered. Reverse scoring was utilized for negative items. After the data collection was completed, the data were subjected to Exploratory Factor Analysis in order to finalize the scale using SPSS Version 20.0 (SPSS Inc., Chicago, IL, USA).

Item analysis

In order to find out the internal consistency of the scale item total correlation was calculated (See Table 2). The cut off score of the scale was determined by calculating the median of the sample score indicating that above median score were the highly resilient people and below that point were the less resilient people (Ilyas & Malk, 2010).

Results

Item-total correlation was (r = .80) indicating the fairly reliable nature of the scale. All items which did not load high on factor analysis and were reducing *r* significantly were excluded from the item list.

Table 2

Factor loadings of the items for RAT obtained from Principal Component Factor Analysis with Varimax Rotation

Item	Component			
	1	2	3	4
Item 42	**.65**	-.16	-.20	-.13
Item 49	**.61**	-.16	-.01	.03
Item 68	**.61**	-.03	-.26	.19
Item 54	**.59**	.10	-.26	.19
Item 41	**.59**	-.08	-.16	-.08
Item 20	**.58**	.13	-.06	-.28
Item 66	**.57**	-.01	-.33	.18
Item 72	**.57**	.09	-.08	-.11
Item 48	**.55**	-.18	.07	.15
Item 23	**.54**	.06	-.10	-.21
Item 31	**.54**	-.00	.08	-.30
Item 15	**.49**	.29	-.10	-.30
Item 60	**.48**	-.11	-.03	.17
Item 38	**.39**	.00	-.12	-.05
Item 30	**.39**	-.07	.04	-.09
Item 17	**.38**	.09	.17	-.35
Item 21	**.38**	-.00	.10	-.08
Item 71	**.38**	.13	-.12	.19
Item 6	-.10	**.64**	.02	.16
Item 59	.01	**.59**	.21	.03
Item 2	.07	**.58**	-.11	.20
Item 1	.01	**.58**	-.03	.16
Item 45	06	**.57**	.14	.09
Item 58	-.07	**.57**	.31	.19
Item 46	-.04	**.55**	.07	-.07
Item 47	-.07	**.53**	.21	-.01
Item 14	.19	**.51**	-.07	.06
Item 13	.21	**.49**	-.09	.10
Item 40	-.02	**.42**	.20	.03
Item 64	-.15	**.41**	.27	.17
Item 7	-.02	**.37**	.06	.23
Item 55	-.18	-.03	**.66**	.-01
Item 69	.02	.11	**.54**	.01
Item 50	-.23	-.06	**.51**	.19
Item 73	.01	.13	**.51**	.14
Item 67	-.19	.33	**.50**	-.06
Item 57	-.03	.26	**.49**	.02
Item 53	-.25	.25	**.45**	.14
Item 44	-.33	.01	**.43**	.22
Item 39	-.01	.17	**.42**	.16
Item 62	.02	-.06	**.39**	.20
Item 43	-.05	.33	**.38**	-.01
Item 70	-.04	.14	**.37**	.15
Item 52	-.09	.17	**.37**	.22
Item 5	-.05	.20	.22	**.59**
Item 10	-.07	.08	.26	**.56**
Item 4	.01	.05	.05	**.55**
Item 12	-.09	.13	.10	**.49**
Item 35	.01	.17	.24	**.45**
Item 3	-.02	.22	.08	**.44**
Item 29	-.19	.04	.18	**.39**
Item 74	-.10	-.08	.33	**.37**
Eigen Values	*6.10*	*5.37*	*5.14*	*4.39*
% Variance	*8.22*	*7.26*	*6.82*	*5.93*
Cum. %	*8.22*	*15.48*	*22.31*	*28.24*

Keeping in mind the goals of the conceptual validity and clarity of the scale and to decide the element dependability of the scale, all the 74 items were submitted for Principal Component Analysis using Varimax rotation utilizing the ordinary Eigen-value of 1.0 which yielded four factor solution.

Table 2 depicts the solution of Exploratory Factor analysis resulting in the final 52 items of various natures. These, on the basis of their main themes, can be labeled as Pessimism (18), Self efficacy (13), Optimism (13), & Sanctity and Education (8).

It is evident that the four-factors overall added 28.24% variance. In order to retain the items specific for certain factor it was decided that only those items shall be retained which load only on one factor with loading not less than .35. Utilization of this criteria filled two purposes; one that none of the factor scored for more than one element, furthermore it fortified the reliability and validity of the scale of the scale. Some of the items which did not load on any factor are excluded from the list

Table 3

RAT Sub-scales and Correlation Matrix

Sub-Scales	2	3	4	α
Pessimism	-.62*	-.89*	-.53*	.84
Self-efficacy		.64*	.65*	.78
Optimism &			.71*	.78
Sanctity				
Education				.72
RAT				.82

*p < .0001.

All inter-correlations among the sub-scales of the RAT were found to be significant (*p* < .0001). The reliability coefficients for total RAT score and its four sub-scales were additionally registered and observed to be profoundly significant (p < .0001) demonstrating that the subscales measure isolated parts of the construct and thus supporting the reasonableness of the calculated structure of the scale variable of intrigue. Pessimism scale is shown to be contrarily connected with "self-efficacy, optimism and sanctity & education" while these three sub-scales are highly positively correlated with each other. The α value shows the high intra-subscale consistency (see Table 3). The reliability of the scale is sound (r = .82) the sub-scales likewise showed high inter scale consistency running from .72 to .84.

Discussion

The scale measured the construct of resilience among various groups from various cities including under graduates and graduate students, officers of elite forces, officers from Punjab Police, Rescue officers from 1122, restorative professionals, observers, house wives and so forth and shows sound psychometric properties, with great internal consistency and alpha reliability

Eighteen items on factor I reflected feelings of despair, hopelessness, nervousness, poor self-control, crying spells, etc. Thus the factor was labeled "Pessimism". These items were intentionally added in the scale as they would help to find out the divergent validity of various sub-scales. The internal consistency and inter-scale relation indicates an inverse relation of this scale with rest of the three scales clearly indicating that people who are resilient are less likely to be pessimists. Initially for Factor II, fourteen items were loaded but while examining the item wise alpha value it was observed that retaining one item may reduce the overall reliability of the scale; hence one item which is item no 58 was excluded from the list and rest of thirteen items were retained. This scale comprised of the items with main themes such as "self-reliance, confidence, future planning and managing abilities, challenge taking, strong internal control, role of humor in coping and ability to help others in adversity", hence it was labeled "self-efficacy". The construct of "Self-efficacy" includes an individual's confidence in his or her capacity to prepare the inspiration, intellectual assets and activity to apply control over a given occasion (Bandura, 1997). Rutter (1987) portrayed strong people as having high self-regard and confidence in their own self-viability. The same was an imperative factor in Ryan and Caltabiano (2009) study who developed the Resilience in Mid Life (RIM) scale.

Factor III involved 14 stems with a reliability of .78. The vast majority of the items included the ideas like battling soul, social standards and qualities, capacity to strive back, positive considering, bravery and positive hopes for future. This variable was named "Optimism". Past investigation have reasoned that versatile people have a more noteworthy interior locus of control and are idealistic about their capacity to make constructive results for themselves as well as other people. People who trust that they can impact their own particular conditions will probably confront unfriendly conditions with versatile methodologies (Friborg et al., 2003; Kumpfer, 1999; Werner & Smith, 1992).In the present research optimism is inversely correlated with pessimism which indicates the divergent validity of both the scales. Thus, optimism turns out to be a very important character trait of resilient people in local culture.

Fourth factor displayed the stacking of eight items with an internal consistency of .72. The subjects of the items were

contingent on religious encounters, shield in prayer, help of God, sacrifice and part of family and instruction in advancing high adapting capacities. Accordingly the scale was marked "Sanctity& Education". Religion is a very strong aspect of the daily life of people in our country and so is the family. Previous studies also indicate that family and social network assume a vital part in building more prominent versatility. Secure interpersonal connections give a vital wellspring of passionate support, and social support from the more extensive group can likewise serve as a building block for versatility (Greff, Vansteenwegen & Ide, 2006; Wagnild & Young,1993). Versatility incorporates the individual's capacity to use family, social and outer emotionally supportive networks to better adapt to push (Friborg et al., 2003). Moreover, religious or otherworldly conviction has been known as another outer segment that can help resilient people by ingraining a feeling of trust (Connor & Davidson, 2003; Johnson, 2000).

Despite the fact that the exploratory element examination and scree plot showed a unidimensionality of the scale; investigation of the considerable number of components with eigenvalue more prominent than 1 recommends the multidimensionality of the construct. Intra-scale reliability demonstrated that element I (Pessimism) was contrarily associated with self-efficacy, optimism and sanctity and education. The most grounded negative relationship of pessimism with optimism (r = -.89) demonstrates high discriminant validity of subscales.

Overall assessment of the scale indicates that it has sound psychometric properties. This scale features great value in the native culture as through this scale we come to know that although there are many resilience scale available globally but they cannot measure the said construct as accurately in our culture as this scale could do because the way people in west describe their resilient features varies drastically from the way people in Pakistani culture do. People in Pakistan have a different way of expressing their concerns. This scale would definitely be a good tool in the hands of researchers, clinical practitioners and general population as well.

Implication

The RAT can add considerable contribution in the field of psychological treatment and research as well. The scale can be utilized to measure the level of resilience in various individuals which they show at the time of trauma and adversity. Not only this, but it may be helpful to explore the basic qualities of the individuals which make them more resilient as compared to others. The scale is valuable tool to differentiate between the people who are more resilient and have the ability to "bounce back" (Bonanno, 2004) even after facing terror, agony, and near death experiences. The scale may identify the factors that are weak among many individuals who are less resilient and consequently be helpful to enhance those factors to make people more resilient and be auxiliary in customized treatment. It may be a valuable tool for the people working for the prevention and intervention programs to ripen specific areas among individuals such as self-efficacy (Caltabiano& Caltabiano, 2006; Masten & Reed, 2005; Ryff et al., 1998). Richardson (2002) recommends that people can enhance their internal strength with the assistance of different systems like yoga, and so forth. Contemporary flexibility mediations distinguish strong qualities in the person to sustain and expand on, with the possibility that concentrating on the qualities of an individual builds his or her versatile capacities and advances the development of further qualities (Tedeschi & Kilmer, 2005). Luthar and Cicchetti (2000) proposes that resilience models are useful in identifying the

protective factors which help individual to regain and maintain a healthy level of functioning, and same factors may be targeted by the experts for providing support for positive adoption to the environment. The RAT would be of precise use to the latest contemporary field of positive psychology, which focuses on the strengths of the individuals rather than weaknesses (Banyard, 2004; Masten & Reed, 2005). This scale can also be utilized to measure the response of an individual to treatment and intervention. It is also envisaged that RAT would be great contribution in the field of research, terrorism and clinical practice.

Limitations of the study

The study sample had a greater representation of students as compared to rest of the population which may limit the generalizability of the results. A vast majority of the sample had a vicarious observation of the terror attack and was not directly influenced by the incident. Another limitation of the research might be the factor that various people might have faced the trauma in different circumstances which were beyond control and scope of the study. More over the role of individual differences in perceiving the circumstances might have affected the results of the study.

Conclusion

The recently constructed RAT is a legitimate, solid and socially reasonable instrument with four sub-scales for the estimation of resilience. This is first ever test of resilience of its kind that endeavors to measure the resilience in indigenous culture in the local dialect. The scale is helpful for measuring the reactions against injury as well as is useful for mental health practitioners.

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