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RESEARCH PAPER

Psychometric Evaluation of Terrorism Anxiety Scale

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ABSTRACT

The study investigated the psychometric parameters of the Terrorism Anxiety Scale (TAS) (Zafar et al., 2020) to verify and maintain the norms of a reliable and valid assessment measure. The survey method was used to collect TAS responses from teenagers aged 13 to 19 in Lahore, Karachi, Sahiwal, Haveli Lakhan, and Gujranwala. The sample was drawn using a convenient sampling strategy. The reliability and validity of the scale were assessed by using confirmatory factor analysis that utilized structural equation modeling. The model was refined and modified utilizing the structural equation modeling technique, which gave construct validity standards for the two-factor TAS model, substantial test-retest reliability, and acceptable model fit indices. Internal consistency was also found to be extremely significant. The findings confirmed the construct's high reliability as well as moderate convergent and discriminant validity norms. The construct validity of the model may be revised in future studies involving larger samples from all regions of Pakistan to achieve a high degree of generalizability.

Introduction

In contrast to the "hype of terrorism" of the last two decades, terrorism in Pakistan and around the world has been largely controlled. However, no one can claim that the terrorism threat in Pakistan has been completely eliminated, despite the fact that there has been a significant decrease in terrorist incidents in Pakistan since 2009, as our country is still being targeted by terrorist activities in one way or another, as stated in the Pakistan Security Report (2019). Despite the fact that the alarming situation has subsided, our country remains vulnerable to the rising impacts of terrorism, particularly "Terrorism Anxiety." Youth, not only in Pakistan but also around the world, are the most affected by terrorism anxiety. As evidenced

by the fact that the last two decades have seen massive records of terrorism, today's teenagers have been raised in an environment where terrorism is prevalent. As a result, the children's conduct and fundamental everyday functioning were influenced by the surrounding events on an emotional and mental level.

Furthermore, the majority of terrorist strikes in 2017 occurred in Afghanistan, India, and Pakistan, frightening the people, fostering insecurity, and creating problems throughout the region (Shahzad et al., 2020). In light of this, it is critical to develop a scale for assessing terrorism anxiety in Pakistani teenagers. Since terrorism has been reduced but not eradicated in our country. According to the global terrorism database, only South Asian countries, including Pakistan, lost 7664 lives as a result of 3430 terrorist incidents in 2017. Consequently, the current study focused on evaluating the Terrorism Anxiety Scale's psychometric parameters in Pakistan so that researchers in the field of clinical psychology, as well as other divisions of psychology, can measure terrorism anxiety and discuss strategies to reduce it.

Terrorism has ramifications in more than one aspect of life. It continues to have a negative impact on the normal functioning of society by spreading panic and fear, particularly in areas where terrorism is a bigger threat. Academic institutes, unions, public transportation, and hypermarkets, among other places with large populations, are frequently targeted by terrorists. Terrorism in Pakistan's educational sector has a long history, with the most terrible attack on Army Public School in Peshawar in 2014 marking a horrible massacre (Shah et al., 2018). This demonstrates that the threat of terrorism has not vanished entirely. As mentioned in an international current affairs magazine named "The Diplomat," which claims that while Pakistan is not completely free of terrorism, the number of terrorist attacks has dropped (Gannon, 2020).

Taking a closer look at Pakistan's current terrorism situation, "Tribune Take: Major Terrorist Incidents in Pakistan" (2019) disclosed that the following terrorist attacks occurred in the year 2019: In January 2019, nine people were killed in Loralai in a gun and suicide attack. In February an armed group attacked near Turbat; in April a bomb attack on Quetta's vegetable market; and in the same month, terrorists kidnaped passengers, including naval personnel, on the Makran Coastal Highway. In May 2019, a suicide bomber detonated a bomb near the Data Darbar in Lahore, followed by another terrorist assault in Gwadar the same month, and additional incidents in 2019 and 2020, as witnessed in January when an explosion happened in Quetta. The number of terrorist attacks in Pakistan in 2019 and the number of individuals killed as a result of them is shown in Table 1.

Table 1
Region-wise Terrorist Attacks and Fatalities in 2019 in Pakistan

Region	Attacks	Killed	Injured
Khyber Pakhtunkhwa	125	145	249
Balochistan	84	171	436
Punjab	5	21	41
Karachi	10	14	2
Sindh (excluding Karachi)	4	4	0
Islamabad	1	2	1
Total	229	357	729

* Source: Data compiled from news reports and is provisional information
* Data till June 23, 2019

The success of terrorism in achieving the desired outcomes and influencing people on a personal level always lies in the fact that it feels close to home, whether the terrorist attack is in the region near where one lives or in another part of the world, but with the same characteristics. People tend to personalize distant terrorism since they believe that the next terrorist assault will be theirs, and this belief is nearly universal. It constantly feels like it is occurring right in front of our eyes, courtesy of the horrifying scenes we see on social, print, and electronic media.

Terrorism's goal is to influence people's minds and arouse irrational fears in order to achieve the intended propaganda (Burke, 2019). The accompanying fear causes worry, which has terrible effects on people's, nations', and states' well-being, with some specific forms of terrorism proving to be a constant and major life-threatening factor all over the world (Schuurman, 2019). As a result of terrorism, psychological reactions are always present, and one key outcome is the growth of public anxiety (Huddy et al., 2009). Thus, anxiety is thought to be a key component of terrorism-related psychopathology. In addition to the deaths caused by terrorism, public behavioral and psychological responses are critical. Anxiety caused by terrorism causes a state of worry about an approaching terrorist incident or danger, which affects people of all walks of life. There is a possibility it could affect the students' education.

In a study conducted in Israel in 2011, Waxman documented the effects of terrorism. Waxman argues that terrorism not only promotes death and destruction but also has far-reaching economic effects, psychological effects in societies, as well as social and political repercussions. He also revealed that prior studies focused more on counter-terrorism policies and aims, as well as other types of terrorist challenges, while the ramifications and consequences of terrorism on the targeted population were ignored. As a result, additional research into the effects of terrorism is critical so that better methods may be devised to successfully deal with the consequences of terrorism.

Our country has seen plenty of such destructive events, the majority of which have impacted adolescents, creating a dangerous environment for them to be fearful and stressed, and teachers, parents, and health professionals are constantly working to mitigate these effects by assisting them in coping effectively. Thus, the essential priority for developing coping methods and abilities is to research the effects of terrorism on adolescents and children. Particularly, the consequences of terrorist-induced anxiety on psychological well-being, and then build measures to mitigate the increasing effects (Shah et al., 2018).

All of the above-mentioned research findings encourage the development of an indigenous scale to assess terrorism anxiety in adolescents.

Material and Methods

A survey research design was used in this study. After receiving approval from the institutional board of studies, the current study was carried out by collecting data from adolescents aged 13 to 19 years old in the cities of Lahore, Karachi, Sahiwal, Haveli Lakhan, and Gujranwala by distributing demographic sheets, consent forms, and the Terrorism Anxiety Scale. A total of 400 questionnaires were circulated via online forums and by hand. However, only 295 fully completed forms were chosen, with 136 males and 159 females.

Because probability sampling processes could not be maintained due to the global pandemic, participants were recruited using a convenient sampling strategy. As a result, a very large sample size could not be managed, but a sufficient sample size was maintained using a 10 to 1 participant to variable/item ratio, which requires a sample size of 350 for 35 items. As a result, the present study sample size was 295, which was close to the target range, making it ideal for CFA (Kyriazos, 2018).

The psychometric features of the Terrorism Anxiety Scale were assessed in this study. Zafar et al. (2020) developed the Terrorism Anxiety Scale to measure terrorism-related anxiety. The scale consists of 35 items, each of which is graded on a five-point Likert scale ranging from strongly disagree (0) to strongly agree (4). The alpha reliability of the scale was found to be 0.94.
The reliability and validity estimations of a measurement tool are primarily established through construct validity via a Structural Equation Modeling (SEM) approach utilizing the Confirmatory Factor Analysis (CFA) procedure (Brown, 2015). Therefore, the study conducted a detailed confirmatory factor analysis on the basis of its importance and a much stronger analytical framework than other statistical approaches, as CFA tests the covert/latent structure of a tool/instrument, scale reliability, convergent and divergent validity, and simultaneously deals with measurement issues and errors while providing a solution to correct the errors to make model adjustments (Brown, 2015). In this study, test-retest reliability was

investigated by administering the TAS to teenagers once and then contacting them again after a three-week gap to have them retake the test. Only 20 participants responded a second time, resulting in a total of 20 participants' data being used. The analysis was conducted using Pearson product-moment correlation, which was calculated using the Statistical Package for Social Sciences (SPSS).

In the Analysis of Moment Structures (AMOS), data from the entire sample was used to perform confirmatory factor analysis (CFA). After the data was collected, it was manually checked for mistakes and omissions before being entered into SPSS, where it was again carefully screened for errors and omissions before being entered into the 'Descriptives' tool in SPSS to ensure the right entry of data. After that, a frequency distribution was used to determine the frequency and percentages of various demographic parameters. Internal consistency reliability was checked using Chronbach's alpha reliability mode, while test-retest reliability was checked using Pearson Moment Correlation. Construct validity and reliability norms were established based on confirmatory factor analysis. Analysis of all the data was carried out with SPSS 23 and AMOS 23 software.

The constructs that serve as factors in the model must be unidimensional in order for one variable or item to load into the component factor already maintained by theory; it cannot load on more than one factor, according to CFA. The CFA is used to determine if the measurement model is a good match or not, with the model being deemed to be a good fit if the observed and anticipated matrices are very comparable. As a result, the fundamental purpose of CFA is to find a well-fitting measurement model, which was accomplished using structural equation modeling in Amos Software 23.

According to Awang (2012), fitness Indexes for a construct are deemed valid when they satisfy the level of model fit desired for a construct. Model fit is a measure of how well the model corresponds to the data. This means that the coefficients of fit indices provide information about how well the items measure the main construct. Absolute fit, parsimonious fit, and comparative statistics, which also contain some model tests, are the three types of fit indices. Because there is some disagreement about the model tests to apply to validate model fit, a comprehensive method suggests utilizing one fitness test per index type (Brown, 2015; Byrne, 2010; Collier, 2020). Fit indices were employed in this study based on the criteria listed below:

The Chi square test χ^2 is an absolute fit index that requires a p value of less than 0.05; the relative chi-square test χ^2/df must be less than 3 for acceptance(Kline, 2011); In the Comparative Fit Index (CFI), the observed and anticipated matrices of a model are compared, with a cutoff value of 0.9 indicating good fit; The Incremental Fit Index (IFI), which has a cutoff value of 0.9 and above for acceptance, is also commonly discussed in literature; For an appropriate match, a Tucker Lewis Index (TLI) value of 0.9 or higher is necessary; A value of 0.5 or less for the Root Mean

Square Error of Approximation (RMSEA) suggests a good fit, whereas 0.8 or less indicates an adequate fit; On the basis of standardized residuals The Standardized Root Mean Square Residual (SRMR) measures the difference between expected and observed covariances A SRMR less than 0.05 indicates a good fit, while values between 0.05 to 0.08 are considered adequate. A number of 0.9 or higher on the Goodness of Fit Index (GFI) indicates a better fit. Based on sample size differences and other research, values closer to the acceptable range for all indices can be considered sufficient. The widely recognized values of these goodness-of-fit indices have variability in the range of 0.80-1.00. Meanwhile, 0.80 and above are regarded as a reasonable fit, and a "good fit" for a model is 0.90 and higher (Awang, 2012; Brown, 2015; Collier, 2020; Hair et al., 1998).

Results and Discussion

Initially, descriptive statistics were utilized to adequately explain the distributional aspects of the Terrorism Anxiety Scale (TAS). There were 136 (46.1%) males and 159 (53.9%) females in the total sample of *N=295* participants with different education levels and age groups.

In line with the goal of establishing test-retest reliability, the Pearson correlation coefficient ($r = .63, p < 0.05$) shows a significant relationship between the first and second administrations of the scale on the same sample with a three-week delay, indicating that the instrument had been reliable for the target population and internal consistency reliability was also high, as shown in table 2.

Table 2
Reliability Estimates of TAS for Test Re-test (n=20) and Internal Consistency (n=295)

Scale	*Pearson r*	*Cronbach's alpha*
TAS	.633**	.928**

Note: TAS = Terrorism Anxiety Scale;
*** Correlation is significant at the 0.01 level (2-tailed)*

The assessment of data normality revealed that the sample data was normally distributed, with skewness < 2 and a kurtosis value < 3 for all items. It was noticed in item total correlation that just one item (TAS1) should be considered for removal in the latter phase since its item-total correlation is less than 0.3; it also showed that deleting the item will increase the alpha value. For the sake of consistency, all other items appear to be kept. Other components with extreme values compared to other variables were taken into account throughout the model modification process.

Using maximum likelihood estimation, confirmatory factor analysis was undertaken. This analysis provided factor loadings along with covariances, model fit

index, squared multiple correlations (R^2), and modification indices for each item. The initial estimation's chi-square value is 1237.28(p=.000), χ^2/df =2.21 indicating an acceptable fit. In contrast, other fit indices were not falling within the acceptance level, such as CFI, GFI, TLI, and IFI. Notably the RMSEA value was required to be below 0.05, whereas the initial model gave a 0.06 and an SRMR value of 0.06, indicating that the modification was required to make an acceptable model.

Model specification and modification were carried out according to the guidelines of Arbuckle (2010), Byrne (2010), and Collier (2020), in which low factor loadings were sought, the standardized residuals specification was utilized to check error covariance, and modification indices were changed to bring about a probable change. After each change, model fit was observed until acceptable fitness indices were achieved. The initial stage of the change was to seek standardized estimations to check each item's factor loading. It was proposed that if any item has a factor loading of less than 0.5, it be deleted from the initial model and the analysis be rerun to assess the updated model. To re-estimate the model fit, item number 1 was removed from the initial model. It had an $R^2 < 0.2$. The covariance between the error terms of related construct variables (added one by one in each stage) was established as indicated in the Modification Indices after all items with an estimate of less than 0.5 were eliminated (all items were eliminated simultaneously). With a total of 26 Terrorism Anxiety scale items, the final model fit better than the initial model. Table 3 shows the model fit index values for the initially hypothesized model and the final accepted model.

Table 3
Fit Indices of Two Models of Terrorism Anxiety Scale (N=295)

Model	χ^2	χ^2/df	GFI	CFI	IFI	TLI	RMSEA	SRMR
Initial model	1237.28	2.213	.799	.802	.804	.789	.064	.067
Final Model	540.55	1.903	.876	.904	.906	.890	.055	.057

Note: χ^2 = chi-square; χ^2/df = relative chi-square; GFI=Goodness of Fit Index, CFI=Comparative Fit Index; IFI=Incremental Fit Index; TLI=Tucker Lewis Index; RMSEA= Root Mean Square Error of Approximation; SRMR=Standardized Root Mean Square Residual

The values of fit indices improved after making changes to the initial model, indicating that the model fit was acceptable, as shown in Table 6. The correlation between the two variables of the updated TAS model was 0.77, which was less than the value of 0.85 used to assess the scale's discriminant validity; thus, TAS appeared to have discriminant validity. The average variance extracted was also found to be less than the 0.5 threshold, which explains the low convergent validity. Figure 1 shows the final structure that was created.

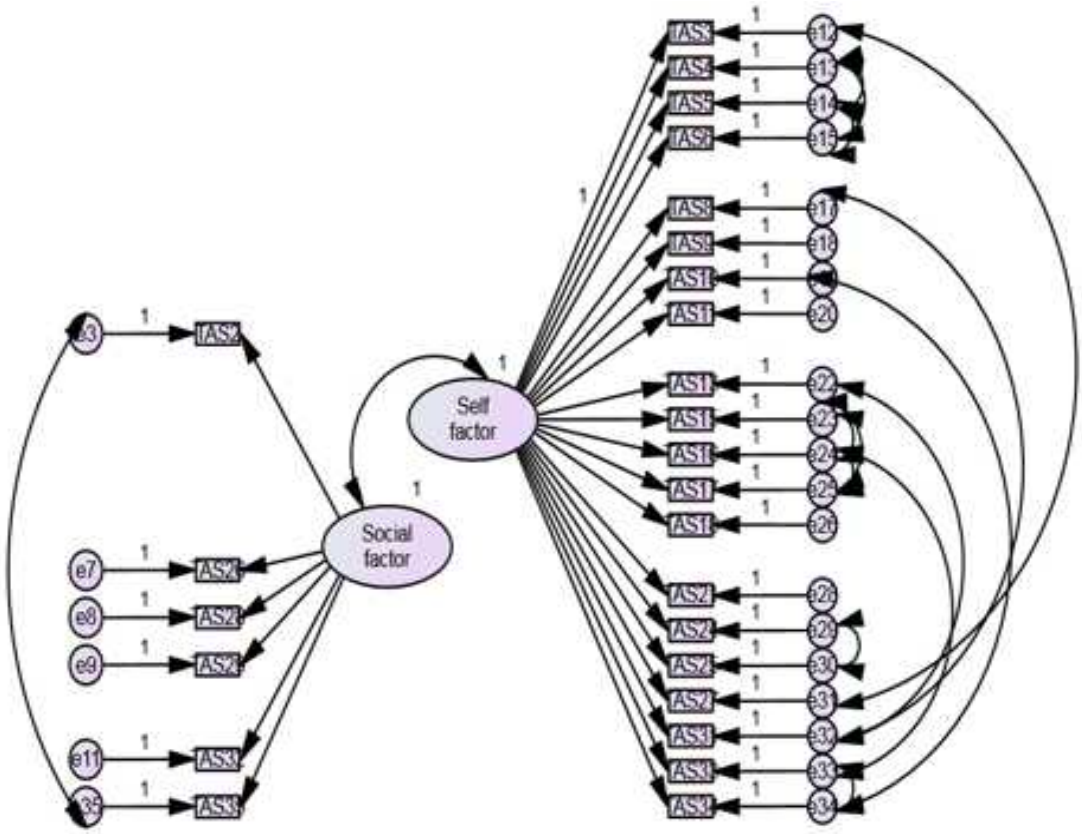

Figure 1
Modified structure of TAS after adding covariances and removal of items

Discussion

In reality, a wide range of dimensions of terrorism are there to explore in the world, which in the scientific world appears to have reached a conclusion. Nevertheless, the reality is somewhat opposite. Terrorism research is still ongoing, despite the fact that it appears to have come to a halt in the current scenario due to global pandemic supremacy, although there are some exceptions among Pakistanis. As recent events have revealed, terrorist acts in such a critical and crisis period have put our nation on a quest to conduct a serious investigation into the dangerous scenario produced by terrorism. As a result, one of the pros of the present research is the persistence of investigation in the field of terrorism.

In fact, researchers in the clinical field of psychology, as well as other social sciences and humanities, must comprehend the response set of respondents to specific psychological assessments in order to verify the validity of the assessment

technique and tool. The features of underlying anxiety linked with terrorism were taken into consideration in the current study, which can provide knowledge of the concerns and thought patterns of those suffering from this anxiety.

The current study's findings are the first psychometric evaluation for a measure assessing adolescent anxiety about terrorism, namely TAS, as per our knowledge, because there was a noticeable implicit lack of a specific measure for a precise exploration of this phenomenon according to the literature. The goal was to use an objective instrument to analyze and assess adolescent anxiety, which could only be done with a validated measurement tool.

The data's overall quality was found to be satisfactory, and appropriate assumptions were made. The item correlations were all greater than 0.40, showing that the convergent validity and reliability requirements had been met. Although scored separately for conceptual reasons, two of the scale's components (anxiety about self-concerns and anxiety about significant others and social aspects) were strongly related. Internal consistency reliability was found to be significant (=.92), while convergent and discriminant validity estimates were found to be questionable. This suggests a strong link between the two variables. One explanation for this link could be that both elements of terrorism anxiety are associated with the presence of real-life emotions, which is unlikely to be unrelated. Another reason for the model's shortcomings is that the TAS responsiveness has been influenced by the subjects' current emotional and psychological reactions to the pandemic because the majority of the subjects come from areas of Pakistan that are now considered safe as opposed to highly targeted areas.

The good fit model was provided in the revised CFA model with a total of twenty-six TAS items, yielding adequate to excellent fit indices. The changes also reveal that the TAS content structure may contain certain repeats and inconsistencies among the elements to some extent. It's also possible that, instead of a two-factor solution, a single-factor structure might be assessed to guarantee that standardization practices are maintained. Nonetheless, it is acknowledged that the current study was an initial attempt to validate the criteria and that there were some limitations, such as sample size and other characteristics, as well as other environmental conditions, such as COVID-19 dominating stress, which had an indirect effect on the subjects' responsiveness. According to the writings on scale development and evaluation, the social, cultural, economic, educational and other certain individual characteristics may play a role in moderating the overall anxiety response to terrorism and may influence their reactions. This may also be the case because the respondents' geographical region may have a strong influence on perceiving terrorism anxiety.

Conclusion

The reliability coefficients were considerable, indicating that the TAS is a viable and reliable tool in Pakistan. The current study's findings posed a preliminary query about the Terrorism Anxiety Scale's generalizability. Because there are some concerns due to specific outcomes associated with terrorism anxiety in adolescents, the potential value of this scale can contribute significantly to the field of clinical psychology. Thus, this scale can be valuable in dealing successfully with these difficulties and identifying further topics in terrorism study.

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