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The Development and Validation of Media Exposure to Terrorism Scale: A Mixed-Method Approach

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Abstract: The purpose of the study is to develop an original, valid, and reliable measure of Media exposure to terrorism (METT) that could adequately measure the effects of METT on the mental health of adolescents exposed to the Army Public School Peshawar (APSP) terrorist attack through media. Previously available measures on METT have some limitations. The scale was developed using a mixed-method approach with a study sample of students aged 12 to 17 years, selected from seven cities across Pakistan. In Phase I, qualitative data acquired from Focus Group Discussions (FGDs) conducted with adolescents (N = 45), who had learned about the event through the media, were subjected to content analysis for item generation. Phase II was the tryout and validation of the developed scale. The developed scale was validated through exploratory factor analysis (N = 380), confirmatory factor analysis (N = 332), and tests of convergent validity, contrasted groups, and Cronbach's alpha. The final METT scale is unidimensional ($\lambda > 0.30$) with seven items having high item-total correlation (r = 0.63 - 0.77), good alpha reliability ($\alpha = 0.85$), and acceptable model fit (CFI = 0.99, RMSEA = 0.03). The developed scale can be used to assess the impacts of indirect exposure to terrorism and assist in informing policy and educational programs in the given context.
Keywords: Educational institutions, electronic media, scale development, ethnic consideration.

1. Introduction

Educational institutions in Pakistan have faced attacks for more than a decade. During 2009-2012, more than 838 schools were attacked by terrorists in Pakistan, as per the reports of the Global Coalition to Protect Education from Attack (2014). The Human Rights Commission of Pakistan has reported 505 terrorist attacks on schools in 2009 alone. The Global Terrorism Database has also shared statistics revealing school attacks in Pakistan that were nearly 867 during 2009-2012, leaving 30 students killed and 97 injured ([USSD], 2014).

Among these, the one with the most detrimental impact on the Pakistani nation was the attack on the Army Public School Peshawar (APSP). On 16 December 2014, terrorists attacked APSP with a mass casualty of 144, out of which the majority were children and adolescents. (Tribune, 2017)

The attack acquired immense attention from the social and electronic media, spreading fear, shock, and terror not only among direct victims but also among those who were indirectly exposed to the incident through the media (Durrani et al., 2017);.

Direct victims received immediate attention from health workers, but those who were indirectly exposed to the incidents were less regarded (Nawaz et al., 2017). Terrorist attacks on educational institutions had adverse impacts on adolescents for multiple reasons.

Adolescents are the most sensitive and vulnerable age group in the context of exposure to terrorism. Firstly, because of lethal terrorist attacks and security threats to educational institutions of adolescents, who are soft targets for terrorists(Asad Ali Shah et al., 2018; Moscardino et al., 2014) . Secondly, because of the extensive media exposure to terrorism through social media and electronic media, it is hard for young minds to assimilate (Jenness et al., 2016)

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Thirdly, because of the disruption in their immediate environment –home and school- because of terrorist attacks on educational institutes, casting negative impacts on their mental health (Israel-Cohen et al., 2017; Pat-Horenczyk et al., 2007) . Also, adolescents' weak emotional coping skills, abstract thinking, and identity development phase make them more susceptible to developing psychological problems in the face of such traumatic events(McNeely & Blanchard, 2009; Mulye et al., 2009; Park et al., 2014). Apart from all these vulnerabilities, a significant portion of Pakistan's population consists of adolescents, which further highlights the need to study the problems and issues our youth are facing in the shadow of terrorism.

Exposure to terrorism –whether direct or indirect- is a threat to the healthy development of adolescents and children. Direct exposure to a trauma implies first-order exposure to the traumatic stressor (i.e., experiencing or witnessing) (Eisenberg & Silver, 2011). In contrast, indirect exposure to trauma involves learning about unexpected or violent deaths, disasters, traumatic events, serious harm, or threats of death or injury through media, close friends, or family (Zimering et al., 2006)

Direct exposure has always been in focus, but the concerns about the impact of indirect exposure to terrorism, mainly through the media, got much attention after the 9/11 terrorist attacks (Garfin et al., 2018). The 9/11 incident acquired immense attention from the media, spreading fear and trauma far and wide (Pfefferbaum et al., 2016).

Studies revealed that without any direct exposure, extended media exposure to traumatic events predicted significant trauma-related symptoms, leading to poorer mental health(Butler et al., 2003). Acute stress responses and poorer cardiovascular health have also been found to be significantly positively related to media exposure to terrorism(Holman et al., 2014; Holman et al., 2008). Thus, it is evident from past literature that media exposure to terrorism is detrimental to the mental health of adolescents and children and requires attention.

Media exposure to terrorism has been significantly positively associated with PTSS in many foreign studies. The emergence of PTSS -intrusive memories and avoidance symptoms- has been well-documented in children and adolescents because of media exposure to terrorism(Garbarino et al., 2015).

Surveys conducted after 9/11 revealed that children who have been exposed to media coverage of terrorist attacks for more than 3 hours have greater perceptions of personal risk, disrupted routine, and fear, which has increased the risks for PTSS(Busso et al., 2014).

Another study, following the Oklahoma City Bombing, has revealed that there has been a significant positive relationship between television and emotional exposure to terrorist attacks and PTSS among adolescents and children (Pfefferbaum et al., 2014).

About PTSS, a study has indicated that intrusion symptoms are observed regardless of the proximity to the epicenter of a terrorist attack, while avoidance symptoms were more prevalent in those who were directly exposed to a terrorist attack (Somer et al., 2005). From past studies, it has been deduced that media exposure to terrorism plays a significant positive role in inducing PTSS in adolescents and children, irrespective of their geographical area.

2. Need for Scale Development

Keeping in view the primary objective of the study, which is to explore the impact of media exposure to terrorism on adolescents' mental health, a reliable and valid measure is required that could adequately address the issue in an Indigenous context.

To the best of the researcher's knowledge, no such measure is available. Studies previously conducted on the topic have focused on a specific incident, such as 9/11(Henriksen et al., 2010; Rackham & Lau-Zhu, 2021; Silver et al., 2013). Boston Marathon Bombing (Busso et al., 2014) and the Oslo Bombing (Solberg et al., 2015) with which the targeted population could not relate much. These incidents acquired little or no attention from the electronic media of Pakistan; as a result, the targeted population had no knowledge or information about the incidents.

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Moreover, the measures used in these studies primarily addressed the issues that specific populations faced in the aftermath of that incident. Thus, those measures did not apply to the indigenous population. Most importantly, studies on the impact of media exposure to terrorism have focused on events extensively broadcast by local media. Indigenous populations often lack access to these channels or media sources.

It has also been found that many of the studies have employed a checklist or a few general statements to probe the impact of media exposure to terrorism on the targeted population. Checklists used were specific to the culture in which the studies were conducted (Becker-Blease et al., 2008; Kennedy et al., 2004). Thus, for the current study, these items were insufficient to cover the entire construction.

Therefore, it was decided to develop a measure that could efficiently measure the impact of media exposure to terrorism on adolescent mental health. To study the media exposure to terrorism, it was necessary to focus on a terrorist attack that had received immense coverage from the local media and that people could relate to(Becker-Blease et al., 2008; Kennedy et al., 2004). In this regard, for the current study, media coverage of terrorist attacks on APSP was focused, as it has received extensive media coverage for quite a long time.

3. Objectives

The primary objective of this study is to develop and validate a psychometrically robust scale to measure the impact of media exposure to terrorism among Pakistani adolescents, with a specific focus on the terrorist attack on the Army Public School in Peshawar.

4. Method

4.1 Ethical Considerations

Given the sensitivity of the topic under scrutiny and the age group of the targeted population, ethical approval was sought from the Advanced Studies Research Board (ASRB), the educational institute's ethics committee. After obtaining approval, researchers invited schools to participate in the study (Busso et al., 2014). They were debriefed on the study's purpose and the data collection process. The measures to be used in data collection were shared with them, and their queries were addressed.

Before reaching out to students, consent was taken from their parents and school authorities (Pfefferbaum et al., 2014),(Somer et al., 2005). The consent form clearly states the study's purpose and data collection process, ensuring that the information collected will be used solely for research and that participants' rights to anonymity, withdrawal, and confidentiality will be respected throughout the study.

Most importantly, the consent form assured that the well-being center at the National Institute of Psychology is on board if psychological support is required (Henriksen et al., 2010),(Rackham & Lau-Zhu, 2021). The contact information of the researcher and the psychological support center was mentioned in the consent form.

4.2 Mixed-Methodology

To achieve the study's objectives, a sequential mixed-methods research design has been used, with the qualitative phase guiding the quantitative phase (see Table 1). In Phase 1, which was qualitative, FGDs were conducted with the targeted population until saturation was reached for item generation (Silver et al., 2013).

The qualitative data from the FGDs were subjected to content analysis to generate and retain items. Phase 2 of the study is the validation of the developed scale, in which quantitative data were collected via a survey. Statistical packages have been used to analyze quantitative data to establish the scale's validity.

Table 1: Sequential Mixed Method for Scale Development.

Phase	Step	Description	Outcome
Phase 1: Qualitative	FGDs	Conduct FGDs with the targeted population until data saturation.	Insights and themes for item generation.

	Content Analysis	Analyze FGD data to generate initial items for the scale.	The initial pool of scale items.
	Committee Approach for Item Retention	A panel of experts reviews and refines the items based on relevance and clarity.	A finalized set of items for scale development.
Phase 2: Quantitative	Survey Data Collection	Administer the developed scale to a larger sample using surveys.	Quantitative data for validation.
	Statistical Analysis	Analyze data using statistical tools (e.g., reliability testing, factor analysis).	Validated scale with strong psychometric properties.

4.3 Convenient Sampling Technique

To select the study sample, the researcher employed a convenience sampling technique, selecting participants who were at a proximal distance and easy to access (Solberg et al., 2015). This is a widely used sampling technique in academic settings, helping researchers gather the required data with minimal resources and time.

4.4 Process of Scale Development

4.4.1 Qualitative Phase: Item Generation Through Content Analysis of FGDs

Sample: The FGDs were conducted with a student population selected from various educational institutions in Rawalpindi and Abbottabad. The participants' ages ranged from 15 to 18 years. Participants were drawn from both private and government-sector educational institutions (Pfefferbaum et al., 2000).

The sample included both male (24) and female (21) students, with levels of education ranging from matriculation to intermediate. Based on the study's purpose, inclusion criteria were established, requiring all participants to be enrolled in specific educational institutions. Moreover, neither participants nor their immediate family members should be exposed to any terrorist incident directly (Pfefferbaum et al., 2018).

It was also ensured that none of the participants had experienced any traumatic event in the past six months, to be certain that the main effect is due to the independent variable. Additionally, with the help of Parents, teachers, and school authorities, it was confirmed that the participants of the study were not going through any clinically significant mental health issues. In total, six FGDs were conducted (N=45).

Focus Group Guide: Based on the literature review, a focus group guide was developed to elicit participants' opinions and experiences. It contained questions mainly designed to explore their media exposure to terrorist attacks on APSP. Initially, the focus group guide consisted of 10 questions designed for conducting FGDs. Questions were open-ended and non-threatening (Becker-Blease et al., 2008).

It was assured that questions were not leading in nature. At the beginning of the guide, engagement questions were set to introduce participants to the topic of discussion and to make them comfortable with it, for example, how many hours or minutes do you watch television or use Facebook per day? What do you know about terrorism? Secondly, exploration questions were set to get to the essence of the discussion, for example, what content have you been exposed to through television or Facebook regarding the terrorist attack on APSP? In the end, an Exit question was used to see if anything was missing in the discussion, for example, is there anything else you would like to say about the media exposure to terrorism or the content media shows? Probing questions were also generated under each question to get in-depth responses. After every FGD, the guide was revised(Kennedy et al., 2004).

New questions were added to the previous list in the focus group guide to address new issues raised by respondents regarding the research objectives; questions that did not lend themselves to interactive discussion or were repetitive were excluded. By the end of the last focus group, there were 17 open-ended questions in the focus group guide (Boateng et al., 2018).

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5. Procedure

Each focus group consists of 5-13 participants selected through nominations, with key individuals (institution staff) nominating participants they believe are strong candidates and meet the inclusion criteria. Nominees were known for their ability to respectfully share their opinions and were willing to volunteer for about an hour. Efforts were made to achieve homogeneity (in the context of the setting, personal characteristics, and exposure to terrorism) between the groups to maximize disclosure among focus group participants. Once a group of viable participants had been established, they were informed of the purpose and the total expected time of 45 minutes.

Each one of them was then called to confirm their interest and availability (Bollen & Lennox, 1991),(Byrne, 1994). A series of FGDs was conducted till saturation was achieved. In total, six FGDs were conducted. The focus group was conducted by a team consisting of a researcher, a moderator, and an assistant moderator.

The moderator and the assistant moderator were MPhil scholars who had previously been trained in notetaking during FGDs. The moderator outlined the study's purpose and set ground rules for discussion. Participants were assured of the anonymity and confidentiality of their responses, and permission was sought to use an audio recorder to capture their responses (Browne, 1993).

5.1 Item Generation: Media exposure to terrorism

The primary purpose was to identify the type of media content the participants were exposed to in the aftermath of the terrorist attack on APSP, which turned out to be a national trauma and acquired immense attention from the media (Television and social media). Therefore, an item pool was generated with the study's objectives in mind (Comrey & Lee, 2013). The FGDs conducted were subjected to thematic analysis employing an interpretative phenomenological approach.

This reveals the major themes and codes reflecting the content that the participants were exposed to because of media exposure to the terrorist attack on APS Peshawar. Once the themes were established, item pools were generated from the relevant codes, transforming qualitative statements into survey items.

Initially, 13 items were generated through content analysis that depicted the media exposure to terrorism in the context of the terrorist attack on APS Peshawar (Everitt, 1975). Participants mainly highlighted the scenes from the auditorium, injured individuals, the reaction of parents and guardians of children and adolescents who were martyred or injured, and some other sights of the APS Peshawar (Nunnally, 1978).

5.2 Committee approach

Initially, the pool of items, along with their frequencies and percentages, was presented to a committee comprising three experts with knowledge and understanding of the phenomenon under scrutiny and the methodology of scale development. All items were evaluated for sensitivity, difficulty level, and relevance to the construction of interest, taking the age of the targeted population into account. For item retention, it was decided that items with at least 50% reporting in FGDs would be retained in the initial form of the scale (Hair et al., 1998).

5.3 Initial Form of Media Exposure to Terrorism Scale

Considering the committee approach and the nature of the items, the initial form of the developed scale reflects the extent to which the targeted population has been exposed to images, explanations, videos, and other details regarding terrorist attacks provided through televised media outlets or Facebook.

The initial version of the scale comprised 7 items; the remaining items were excluded due to their low reporting and sensitive nature. A four-point Likert scale, ranging from "never" (0) to "rarely" (1), "sometimes" (2), "often" (3), and "frequently" (4), was used to record the participants' responses (Field, 2014). Scoring high on the scale

indicates higher exposure to media coverage of terrorist attacks on APSP. Low scores indicate that a person had less exposure to the media coverage of terrorist attacks on APSP.

Table 2 illustrates the most frequent images/content that participants reported while describing their media (Television /Facebook) exposure to terrorist attacks on APSP. All the items meet the retention criteria, with a reporting percentage above 50%. The highest frequencies correspond to the images of the auditorium where the incident occurred. Participants also reported that they had been exposed to more explicit images on Facebook, comparatively (Kline, 1998). Whereas on Television there was extensive media coverage, but the content was not very explicit. Table 2 indicates the items included in the initial form of the scale.

Table 2: Items Retained for Media Exposure to Terrorism Scale (N= 45)

To what extent have you been exposed to the following images or scenes from the APS, Peshawar terrorist attack through media platforms:	**f**	**%**
1. Blood on the floor of the auditorium	33	73
2. Chaotic image of auditorium/furniture	33	73
3. Destructed school building	32	71
4. Injured and martyred students	29	64
5. The victim's parents are crying	28	62
6. Books/notebooks with stains of blood	24	53
7. Walls and windows riddled with bullets	24	53

5.4 Quantitative Phase: Try out of the Developed Scale

After developing the measure, it was administered on a small sample of 50 as a try-out. The objective of the tryout was to evaluate whether the participants had been through any emotional difficulty in responding to any of the items on the questionnaire. Also, through an open-ended question, it was asked if they had been through any difficulty in comprehending or responding to the items.

For the try-out, 50 students were selected from various educational institutions in Abbottabad, Rawalpindi, and Islamabad. The participants' age range was 15-17 years (M = 16.56; S.D. = .73). Results revealed that participants remained emotionally stable while completing the questionnaires and experienced no difficulty comprehending their content (Birkeland et al., 2017). The results of the tryout validate the developed measure.

5.5 Validation of Developed Measure

Finally, validation and parsimony of the developed measures were established through different methods: 1) inter-item correlation, 2) exploratory factor analysis (EFA) to establish factorial validity, 3) Reliability through Cronbach's Alpha, revealing the inter-consistency of the developed scales, 4) Contrasted group validity, and 5) Convergent validity with measures of theoretically related constructs. The following section discusses in detail the process of scale validation.

5.6 Survey Administration: Gathering Enough Data Sample

Validation was carried out on a sample of 380 adolescents aged 14-17 years (M = 15.35; SD = 0.89) who were enrolled in certain educational institutes and had never been directly exposed to any act of terrorism. A convenient sampling technique was used, and the sample was collected from three different regions of the country: Khyber Pakhtunkhwa (Abbottabad and Peshawar), Federal (Islamabad and Rawalpindi), and Punjab (Lahore, Sialkot, and Kasur).

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The sample size is important in factor analysis. Comrey and Lee (2013) illustrated 100 as poor, 200 as fair, 300 as good, 500 as very good, and 1000 or more as excellent sample sizes for factor analysis (Kline, 1998), Moreover, Everitt (1975) and Nunnally (1978) have recommended that, for conducting EFA, the sample size should be at least 10 times the number of variables under scrutiny. For the METT factor analysis, the sample size is 380, which is adequate for EFA given the criteria.

6. Procedure

Data was collected from various educational institutions in Punjab, Khyber-Pakhtunkhwa, and the Federal Region. Heads of the educational institutes were personally approached to seek permission for data collection. They were briefed about the study, and a booklet comprising the questionnaires to be used in the study was shared with them (Laufer & Solomon, 2009). The purpose of the study was discussed with the heads, and any queries were resolved. Furthermore, they were briefed about the time required to answer the questions in the booklet.

After the heads of the educational institutes granted permission, informed consent was obtained from the heads and parents of the students who met the study's inclusion criteria (Solomon & Lavi, 2005). Students were selected from grades 8th to 2nd year and were assured about the confidentiality of their responses.

The purpose of the study was to provide a briefing to the participants, and booklets were distributed among them. Booklets were collected after participants completed them. In the end, participants and heads of educational institutes were thanked for their cooperation, time, and support. Once the data were collected, the scale validation process began with the Item reduction phase (Keinan et al., 2003).

6.1 Item Reduction: Ensuring Scale is parsimonious Item-Total Correlation

Primarily, item-total correlations were computed for the study sample (N=380) to examine the relationship of each item to the total score of the scale. Item-total correlation will help develop a parsimonious scale, as items with low item-total correlations will be eliminated.

A parsimonious scale increases the participant's ability to complete the survey questionnaire without suffering survey fatigue, as it includes an optimal number of items (Stuber et al., 2006). Table 3 shows the item total correlation for the Media exposure to terrorism scale.

Table 3: Item-total Correlations of Initial Form of Media Exposure to Terrorism Scale (N=380)

Item no	R
1	.77**
2	.77**
3	.73**
4	.63**
5	.65**
6	.67**
7	.71**

**p < .01.

Results in Table 3 showed that all the items are highly correlated to the total score of the scale. Hence, with the optimal number of items, the next step was factorial validation through Exploratory factor analysis. (EFA).

6.2 Exploratory factor analysis for METT Scale

EFA was conducted on a sample of 380 to confirm the probable factor structure for the developed questionnaires. EFA examined the relationships among variables, the one-dimensionality of the theoretical construct, and construct validity. It was carried out using AMOS 21.

In EFA, one of the main decisions is the choice of rotation, which maximizes high item loadings and minimizes low ones, thereby producing a more interpretable and simpler solution. The selection of the rotation depends upon the fact that items are related (Oblique) or not (Orthogonal).

In this vein, the item-total correlations in Table 2 showed significant correlations between the items and the total. Thus, because the items are correlated, oblique (oblimin) rotation was selected for the EFA using Principal Component Analysis (PCA).

Before extracting the factors, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity were used to assess the suitability of the data for factor analysis. The KMO index ranges from 0 to 1, with a value of 0.50 considered suitable for factor analysis. Bartlett's Test of Sphericity should be significant ($p<.05$) for factor analysis to be suitable.

Results revealed that measures of sampling adequacy confirm the suitability of the data for factor analysis, as the KMO is .84, within the acceptable range. Likewise, the significance ($p <.00$) of Bartlett's test of sphericity $\chi 2$ (336) = 852.72 indicated that the sample is adequate for EFA.

Further factor loadings were calculated for each item, which are shown in Table 3, along with Eigenvalue, percentage of variance, and cumulative variance.

The scree plot of METT in Figure 1 gave a clear indication of one dimension of the construct in the current context. The item loadings of the factors were highly correlated; therefore, items were analyzed by force for a one-factor solution, as the scree plot also suggested a one-factor solution. Based on the screen plot's point of inflection, factor loadings, and the percentage of variance explained, a single-factor solution was retained.

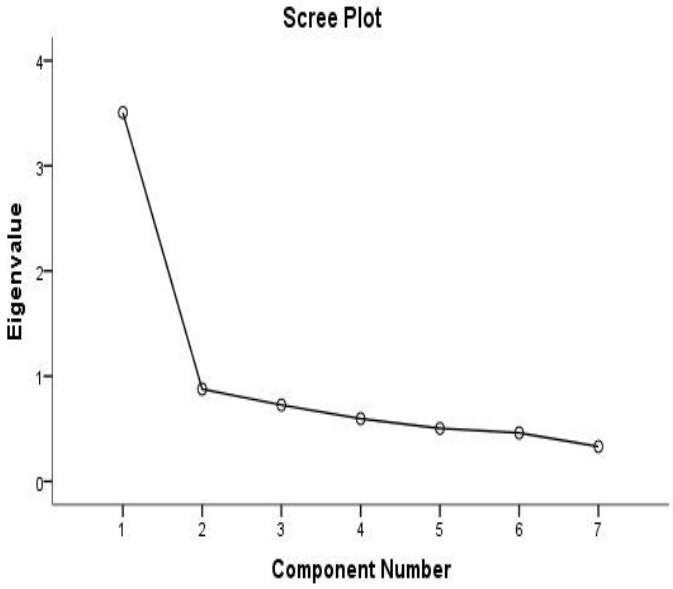

Figure 1: Scree plot Media exposure to terrorism scale.

Table 4: Factor Loadings, Eigen Value, Percentage of Variance Explained, and Accumulative Variance Explained by One Factor Solution of Media Exposure to Terrorism Questionnaire Urdu Version (N=380).

Items	Factor Loadings

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	1	0.77
	2	0.78
	3	0.73
	4	0.63
	5	0.66
	6	0.67
	7	0.69
Eigen Value		3.50
Percentage of Variance Explained		50.08
Accumulative Percentage of Variance		50.08

In Table 4, the only factor so achieved explained an accumulated variance of 50.08 %. Along with this item, loading was within the acceptable range (.30). Therefore, the Media Exposure to Terrorism Scale (MET) was treated as a unidimensional scale with 7 items measuring media exposure to terrorism in Pakistan.

6.3 Confirmatory Factor Analysis (CFA) for METT Scale

CFA with maximum likelihood, was conducted on an independent sample of 332 individuals with the help of the AMOS 22 statistical package.

The aim was to test whether the unidimensional METT model could be replicated in an independent sample. Various indices were generated to test this model, as represented in Table 5.

Table 5: Confirmatory Factor Analysis (Indices of Model Fit) for Media Exposure to Terrorism

Indices	$\chi^2(df)$	χ^2/df	**GFI**	**NFI**	**CFI**	**IFI**	**RMSEA**
M 1	49.21(14)	3.15	.96	.90	.93	.93	.08
M 2	15.82(12)	1.32	.98	.97	.99	.99	.03

Scale (N = 332)

Note. χ^2(df) = chi-square; χ^2/df = normed chi-square; GFI = Goodness of Fit Index; CFI = Comparative Fit Index; IFI = Incremental Fit Index; RMSEA = Root Mean Squared Error of Approximation.
M1 = Default Model; M2 = After adding error covariance.

The Model 1 of present study (default model) shows that most of the indices of model fit were in acceptable range except χ^2/df, NFI, and RMSEA as per conventions which state that for a model to be considered acceptable, NFI should be greater than .90(Byrne, 1994), RMSEA value should be less than .08 (Browne, 1993) and χ^2/df value should be less than 2 or 3 (Ahern et al., 2002).

Model 2 shows the improved model fit indices obtained after covering the error terms of certain items with the highest modification indices. Thus, covariances were drawn between the error terms of item 1 (Blood on the

floor of the auditorium) and item 2 (Chaotic image of auditorium/furniture); as well as between item 1 and item 6 (books/notebooks with images of blood).

In the case of items 1 and 6, these correlations may be due to the mention of the word 'blood' in both. As Bollen & Lennox (1991) have suggested, items with similar wording or those that occur next to each other in a scale can exhibit correlated errors.

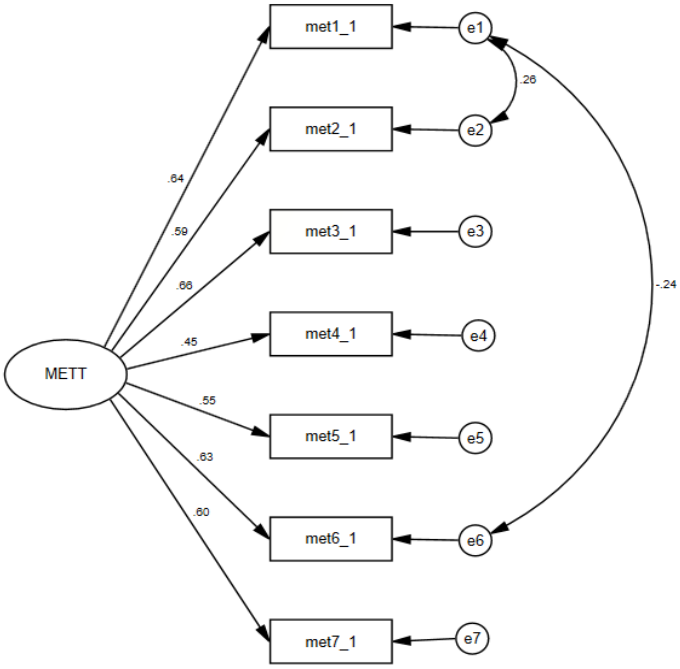

Figure 2: Measurement Model of Media Exposure to Terrorism Scale

Figure 2 represents the graphical picture of the unidimensional measurement model of METT. The covariances between the error terms are shown. It is evident from Figure 2 that all items possess factor loadings greater than .40, which is a convention set by [51]. Thus, the factor structure of METT, as proposed by EFA, has been confirmed through a CFA on an independent sample (Steffen & Fothergill, 2009).

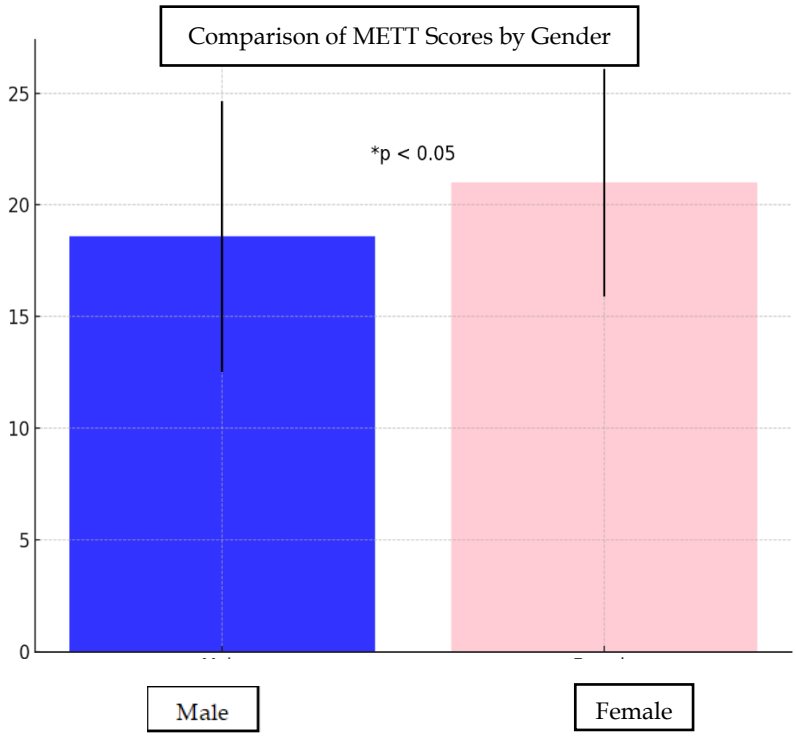

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Figure 3: Comparing the METT scores of male and female

To establish convergent validity, the parochiality of adolescents was measured using the prosocial behavior subscale of the Strengths and Difficulties Questionnaire, whereas PTSS were assessed using a short version of the CRIES. The results revealed that METT is significantly positively related to both the prosocial behavior of individuals (r = .21**, p= ⩽.00) and PTSS (r= .24**, p= ⩽.00) as evident from Scatter plot 1.

Based on statistical analysis and scatter plot illustration, it can be stated that the developed measure is valid and reliable and serves the purpose well.

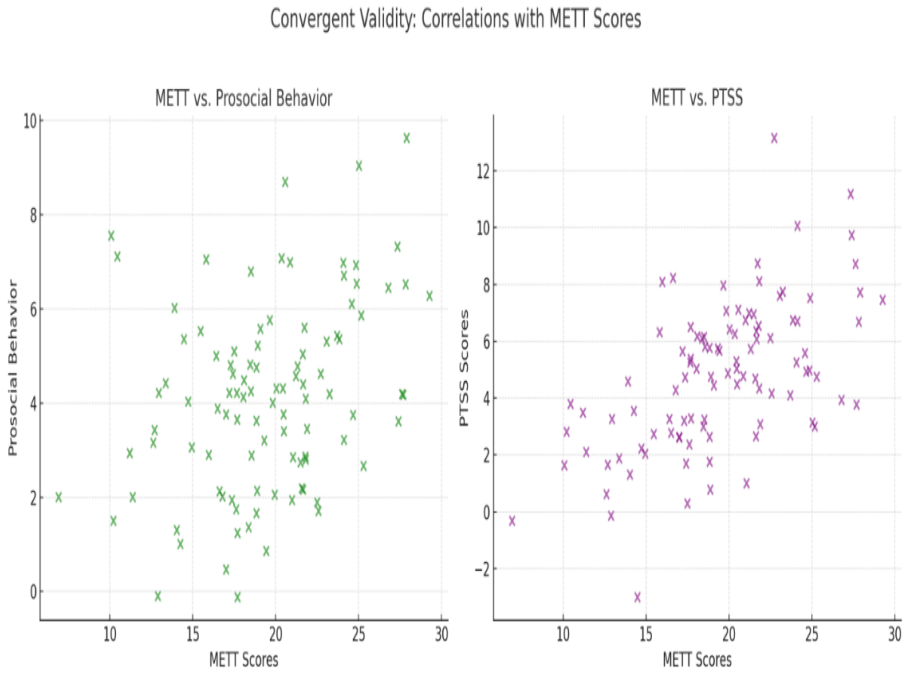

Figure 4: Illustrating the convergent validity of the METT scale

7. Reliability

Furthermore, the alpha reliability of the METT scale was also calculated. Results revealed that the final form of the developed scale, the METT scale, has a good level of alpha (αα = 0.83). After validating the development measures through factorial validity and establishing their internal consistency through item-total correlations and Cronbach's Alpha, the validity of the developed scale was further strengthened by contrasted-group and convergent validity.

7.1 Contrasted Groups

The construct validity of the developed METT scale has been further established through contrasted groups. It is evident from past studies that media exposure to terrorism impacts males and females differently (Brown et al., 2008), (Penner et al., 2005). Keeping this fact in mind, the researcher investigated differences in METT scores between male and female participants, as they were expected to differ when indirectly exposed to terrorism through the media (Figure 3). Consistent with past literature, there was a significant difference between the mean scores of male participants (M = 18.59, S.D. = 6.06) and female participants (M = 21.00, S.D. = 5.10) on the METT scale. Females scored significantly higher on the METT scale than male participants, as indicated in the following bar graph.

7.2 Convergent Validity

Additionally, the convergent validity of METT was established by estimating the correlation coefficient between METT and prosocial behavior and METT and Post-traumatic stress symptoms (Figure 4). As indicated

by the past literature, METT is significantly positively related to prosocial behavior and PTSS among the most significant scents (Staub, 2005).

8. Discussion

The Media Exposure to Terrorism Scale was developed to address shortcomings of prior measures that were not appropriate or relevant to the study's target population. Earlier measures tended to focus on specific incidents, making them less applicable to the participants in the current study (Vollhardt, 2009), (Barnett et al., 1987).

Furthermore, there was a lack of standardized tools to assess the effects of media exposure to terrorism, as existing instruments were mostly checklists designed for cultural settings in which the research was conducted (Gillen, 2005).

To our knowledge, there was no established measure available to assess the effects of media exposure to terrorism on the mental health of adolescents within the Pakistani cultural framework. As a result, the decision was made to develop a scale that is both culturally relevant and comprehensive to effectively evaluate this impact.

The process of scale development involved a mixed-methods research approach: items were generated from the content analysis of FGDs, followed by a quantitative phase in which the developed items were tested and validated. Zhou (2019) found that a sequential mixed-methods research design is the most suitable and reliable approach for scale development. All the codes related to the media exposure to terrorism were carefully analyzed.

The pool of items was constructed from the related codes, which were then subjected to a rigorous approach in which a panel of experts carefully evaluated each item, keeping in view their relevance and appropriateness for the targeted population, as guided.

Supporting this, a study found that panel reviews for item generation validate the instrument's content. Based on the panel review and retention criteria, which selected items with response percentages above 50%, 7 items were selected for the Media exposure to terrorism scale.

EFA was conducted on a sample of 380 to establish the construct validity of the developed scale. Furthermore, measures of sampling adequacy confirmed the suitability of the sample for EFA, as indicated by the KMO and Bartlett's test of sphericity.

For the Media exposure to terrorism scale, oblique rotation was selected because the items are correlated. Results revealed a one-factor solution for Media exposure to terrorism, based on Eigenvalue > 1 and the scree plot.

Items on this scale were highly correlated, indicating that the construction under scrutiny is homogeneous. The tentative factor structure revealed by the EFA was further confirmed by the CFA, in which all model fit indices (CFI, IFI, GFI, NFI, RMSEA) were within acceptable ranges. The Cronbach's alpha reliability value ($\alpha = 0.83$) also confirms that the scale has good internal consistency.

The construct validity of the METT was further confirmed through a contrasted group where it was expected that males and females would score differently on the media exposure to terrorism scale, considering the Indigenous context.

The results revealed that girls scored higher on METT as compared to boys. The results are supported by past studies, such as Pfeffer, indicating that females prefer to receive information about the disaster via electronic media compared to males.

Moreover, in Pakistani culture, females are comparatively less outgoing and mostly confined to their homes. Thus, they have a high potential to get exposed to media coverage about the terrorist attack on APS Peshawar,

comparatively. This fact is further proved by exploring the moderating effect of gender on METT and intrusion symptoms.

Furthermore, establishing the convergent validity of the developed scale, the study revealed that METT may induce PTSS among the targeted population. Empirically, it has been tested and confirmed in past studies that media exposure to terrorism is significantly positively related to PTSS in adolescents and children (Gillen, 2005).

The studies conducted after the 9/11 terrorist attack, the Oslo Bombings, the Boston Marathon Bombing, and the Oklahoma school incident have revealed that indirect exposure to terrorism through media and close relatives has induced post-traumatic stress symptoms among adolescents and children (Costa et al., 2009).

The relationship between METT and prosocial behavior as an effect of media exposure to terrorist attacks on APS was also assessed to establish construct validity through convergent validity. There was a significant positive relationship between METT and participants' prosocial behavior. Literature supports the notion that indirect exposure to terrorism or any other trauma can potentially instigate and promote prosocial behavior in the targeted population (Vollhardt, 2009).

Exposure to trauma or adversity instigates a sense of responsibility and commitment to help others rather than a hostile attitude toward them (Costa et al., 2009). Indirect exposure to terrorism is significantly positively related to prosocial behavior because it assists in relieving one's suffering after a traumatic event.

Moreover, prosocial behavior shifts one's attention from self to others and promotes self-efficacy and competency (Martínez, 2018). Thus, further confirming the construct validity of the METT. Overall, METT is found to be a valid and reliable scale for measuring the construct of interest.

9. Implications and Limitations

The scale can aid psychologists and researchers in determining the impact of media exposure to terrorism on the mental health of children and adolescents.

This is crucial because frequent exposure to violent and upsetting material can exacerbate post-traumatic stress symptoms, including anxiety and panic.

Moreover, the results of the scale may offer insightful information to parents, educators, and politicians regarding the possible drawbacks of providing unrestricted access to violent or graphic content related to terrorism.

This knowledge can help establish rules for young audiences' media exposure to delicate subjects and regulate their consumption of age-appropriate content. This can assist in providing tailored therapies to individuals who are more likely to experience mental health problems because of recurrent indirect exposure to terrorism.

The sample size is not large enough to ensure the true representation of the targeted population. This has hampered the generalizability of the study's results.

Since the sample was not chosen at random, the inherent bias of convenience sampling and the risk of over- or under-representation of certain groups within the sample were present. Future studies are suggested to incorporate random sampling techniques to enhance the generalizability of results and reduce sample bias (Zimering et al., 2006).

10. Conclusion

Conclusively, the Media Exposure to Terrorism scale is a valid and reliable measure that can inform interventions, guide media-use guidelines, and advance our understanding of how media affects young minds in a society that is becoming increasingly interconnected.

It has been found from the FGDs that children and adolescents have been exposed to heart-wrenching footage and images about terrorist attacks on APS Peshawar that could potentially affect their mental health. Therefore, there should be laws that regulate media broadcasting without compromising the media 's independence.

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Data availability
The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Ethics approval and consent
Not applicable. This study uses publicly available, de-identified secondary data and does not involve human participants or personal information.

Competing interests
The authors declare no competing interests.

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