

# Research Article

## PSYCHOMETRIC PROPERTIES OF THE TRAUMA ASSESSMENT FOR ADULTS

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**Background:** *The Trauma Assessment for Adults (TAA) was developed to facilitate the assessment of exposure to traumatic events that could result in posttraumatic stress disorder (PTSD). The TAA inquires about numerous potentially traumatic events that an individual may have experienced. Although the TAA has been used extensively for clinical and research purposes, its psychometric properties have never been formally evaluated. The objective of the present investigation was to evaluate the psychometric properties of this frequently used measure. Methods:* *The studies reported here describe the performance of the TAA in two samples—college undergraduates (N = 142) and community mental health center clients (N = 67). Among undergraduates, 1-week temporal stability was evaluated and, in both samples, item- and scale-level convergence of the TAA with an established trauma exposure measure was assessed. Convergence of the TAA with clinically related constructs was also evaluated. Results:* *The TAA exhibited adequate temporal stability (r = .80) and satisfactory item-level convergence with existing measures of trauma history among college students. In the clinical sample, the TAA again converged well with an established measure of trauma exposure (r = .65). It was not as strongly predictive, in either sample, of trauma-related distress relative to an alternate trauma exposure measure. Conclusion:* *Although it performs satisfactorily, the TAA does not appear to be superior to other existing measures of trauma exposure. Depression and Anxiety 26:190–195, 2009. © 2008 Wiley-Liss, Inc.*

**Key words:** *potentially traumatic experiences; PTSD; trauma; assessment; Trauma Assessment for Adults; psychometrics*

### INTRODUCTION

Exposure to potentially traumatic events (PTEs) is often associated with significant psychological and emotional distress. An event is considered potentially traumatizing if one experiences, witnesses, or confronts a situation that involves actual or threatened death or serious injury to oneself or others and if it elicits a response of intense fear, helplessness, or horror.<sup>[1]</sup> A person exposed to such an event is likely to experience a traumatic stress reaction, which is characterized by intense physiological arousal, a variety of negative affective states (e.g., dread, horror), and strong perceptions of vulnerability, loss of control, and derealization.<sup>[2, 3]</sup>

A number of large-scale epidemiological studies have revealed that PTE exposure is unfortunately quite

prevalent. For instance, utilizing a representative sample of nearly 6,000 US citizens, the National

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Received for publication 4 January 2008; Revised 8 July 2008; Accepted 8 September 2008

DOI 10.1002/da.20535

Published online 21 November 2008 in Wiley InterScience (www.interscience.wiley.com).

Comorbidity Survey found that 60% of men and 51% of women have experienced at least one PTE in their lifetime.<sup>[4]</sup> In another large study, 89% of adults in an urban area reported exposure to at least one PTE.<sup>[5]</sup>

Not surprisingly, the significant distress that most individuals experience in the immediate wake of trauma (e.g., Rothbaum et al.<sup>[3]</sup>) tends to be relatively transient for most people. A small but significant percentage of individuals exposed to such events develop chronic posttraumatic stress disorder (PTSD), however. Although the likelihood of developing chronic PTSD depends to some extent on the type of PTE experienced, it has been estimated that the overall rate of PTSD given traumatic exposure (i.e., aggregating across different types of PTEs) is approximately 9%.<sup>[5]</sup> For an excellent review of PTSD risk factors, see King et al.<sup>[6]</sup>

Although many psychometrically sound paper-and-pencil measures and structured interviews of PTSD symptomatology have been developed, the assessment of exposure to PTEs and trauma history has been a comparatively neglected area of study. Certainly, a number of PTE measures have been developed, but empirical evaluation of their psychometric properties is the exception rather than the rule. For instance, the Trauma Assessment for Adults (TAA<sup>[7]</sup>) was developed at the National Crime Victims Research and Treatment Center to assess exposure to PTEs. The TAA is used to evaluate the respondent's experience of a wide array of traumatic experiences and a measure of PTSD can then be given to evaluate the presence and severity of posttraumatic symptoms resulting from those experiences. Numerous studies have used items from the TAA to query individuals about their traumatic event history. For example, the TAA was used in a query of 4,008 women in a large-scale US epidemiological study of trauma and PTSD.<sup>[8]</sup> Other studies have used the TAA across a wide variety of traumatized populations, including, for example, military veterans,<sup>[9]</sup> sexual assault victims,<sup>[10]</sup> child abuse victims,<sup>[11]</sup> mental health patients,<sup>[12]</sup> medical patients,<sup>[13, 14]</sup> college students,<sup>[15]</sup> and community residents evaluated for a clinical trial.<sup>[16]</sup> Given the extensive usage of this measure in the published literature, it is surprising that published data bearing on its psychometric properties are nonexistent.

Establishing the psychometric soundness of self-report trauma history inventories presents a challenge. In terms of validity, it is extremely difficult, if not impossible, to obtain external corroboration of the events that are reported. Many individuals report multiple events, which could require multiple corroborators. Moreover, the lack of corroboration for a reported event conveys little about the actual occurrence of the event. It may be that no one else knows about the event (and this is especially for events that the respondent may have been too embarrassed to share with others, such as instances of sexual assault). Even for events that occurred

in the presence of someone else, such individuals may not be easily contacted. If potential corroborators are unable to confirm the occurrence of an event, the fallibility of the corroborator's memory is an equally viable explanation for the lack of correspondence. For these reasons, investigators have generally focused on establishing the construct validity of PTE measures by demonstrating an association between the total number of events endorsed on a trauma inventory and symptom severity on PTSD scales. Additionally, the concurrent validity of a PTE measure can be examined by comparing the endorsement of like items on alternate PTE measures. The studies reported here utilized both approaches in evaluating the validity of the TAA.

With respect to reliability, investigators are typically only concerned with the temporal stability of a self-report PTE measure. Because PTE exposure is not a unidimensional construct, internal consistency is not a necessary property of PTE measures, and analysis of internal consistency of such measures is inappropriate and potentially misleading.<sup>[17]</sup> A PTE measure inquires about disparate events that may or may not co-occur. However, as a broad screening measure of diverse life events, there is certainly no reason to expect that such events will necessarily covary. The experience of child sexual assault, for instance, has little bearing on the likelihood of experiencing a life-threatening motor vehicle accident. Although some traumas may in fact co-occur (e.g., early and later interpersonal violence), the measure is not designed to include only items statistically related to one another. As noted by others, the occasional practice of reporting internal consistency estimates for PTE measures and the expectation that such measures should necessarily be characterized by high internal consistency are unfounded.<sup>[17-20]</sup>

The studies presented here were designed to evaluate the psychometric properties and performance of the TAA. The first study utilized a nontreatment-seeking sample of undergraduate students to evaluate the TAA's temporal stability and convergence with an established measure of PTE exposure—the Traumatic Life Events Questionnaire (TLEQ)—as well as its convergence with a related symptom measure. The second study, utilizing a sample of clients at a community mental health center, examined associations between the TAA and the TLEQ as well as a PTSD symptom measure to provide evidence for its construct validity.

## STUDY 1

### METHOD

**Participants.** Survey instruments described below were administered to 142 undergraduate psychology students at a Western state university. The participants voluntarily completed the TAA at the end of a regular class period and completed the TAA and additional measures at the end of a class period 1 week later. In this manner, it was possible to estimate the temporal stability of the TAA,

along with its association with conceptually related instruments. The mean age of the participants was 19.2 years ( $SD = 1.7$ ). Sixty-four percent of respondents were female and 93% were Caucasian. Respondents reported an average of 12.5 years of formal education ( $SD = 1.0$ ).

**Measures.** The Trauma Assessment for Adults (TAA<sup>[7]</sup>). The TAA consists of 13 items inquiring about the experience of specific PTEs known to result in PTSD or other posttraumatic difficulties. It also includes three items inquiring about any other inordinately stressful experiences not captured by the previous 13 items. Each item includes follow-up questions about age and frequency of occurrence, degree of injury sustained, perception of life threat, and perceptions of peritraumatic fear, helplessness, or horror. A notable advantage of the TAA is that it was designed to be as behaviorally specific as possible, in fact using legal terminology for such traumas as rape and assault (e.g., “any forced unwanted vaginal, oral, or anal penetration by the person’s penis, fingers, tongue, or some other object”). Other PTE measures such as the TLEQ lack this degree of specificity.

Traumatic Life Events Questionnaire (TLEQ). As mentioned previously, very few PTE measures have undergone extensive, item-level psychometric analysis. The TLEQ was selected for inclusion in this study because, of the PTE measures in existence, it has been subject to the greatest empirical scrutiny and has been found to possess very solid psychometric properties.<sup>[21]</sup> In a 1-week test–retest analysis of the TLEQ in an undergraduate sample, Kubany et al.<sup>[21]</sup> found that  $\kappa$  coefficients for traumatic event items were 0.40 or higher for 14 of the 16 TLEQ items and .60 or higher for 8 of the 16 items. In addition, those with PTSD had more frequent traumas, a greater number of categories of traumas, and more traumas involving fear, helplessness, and horror.

PTSD Checklist (PCL). The PCL<sup>[22]</sup> provides point-to-point correspondence between individual items and the *Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition* diagnostic criteria for PTSD. The PCL has been shown to have very good internal consistency and temporal stability, and it correlates strongly with other measures of PTSD symptomatology.<sup>[23]</sup> The diagnostic efficiency, using the Clinician Administered PTSD Scale (CAPS) as the criterion, has also been found to be quite good (i.e., .90<sup>[23]</sup>).

**Procedure.** In the context of a large undergraduate course, students were informed of an opportunity to earn extra credit applied toward their course in exchange for their participation in a survey study. Interested students were given the TAA at the end of one class period and again at the end of class exactly 1 week later. All but a few students agreed to participate and remained in class to complete the measures. They were also given a matching form at both time points. This form asks nonmeaningful questions, such as shoe size, number of siblings, etc., to create a confidential research identification number based on the responses. This number allowed for evaluation of the TAA’s temporal stability while still ensuring confidentiality and anonymous responding. At the retest session, the participants were also given the TLEQ<sup>[21]</sup> to investigate the TAA’s convergence with an established PTE measure. Respondents also completed the PCL<sup>[22]</sup> to evaluate the TAA’s associations with a clinically related measure.

To evaluate the convergence of the TAA with the TLEQ, like items were compared for each participant. Although each PTE measure references items that the other does not, they do have eight events in common. Both measures include PTEs about which there is considerable agreement regarding their capacity to result in PTSD (e.g., combat, sexual assault, life-threatening accidents, and injuries). Points of divergence typically pertain to items about which there is some degree of controversy in terms of likelihood of culminating in PTSD. For instance, the TLEQ inquires about stalking, miscarriage,

and abortion. Although these are certainly very distressing events, the empirical literature documenting PTSD stemming from such experiences is much less developed. Convergence between the TAA and the TLEQ and the temporal stability of the TAA were determined using percentage agreement and Cohen’s  $\kappa$  indices for each item. Finally, the relative utility of the TLEQ and the TAA in predicting PTSD symptomatology was evaluated using both as predictors (simultaneously entered) in standard multiple regression analyses. Despite measuring the same construct, the TLEQ and the TAA were not so highly correlated ( $r = .65$ ) that multicollinearity would be problematic.<sup>[24]</sup> Although they converged on a number of specific traumas, each measure included some traumatic events not covered by the other measure. Accordingly, less than 50% of the variance in one trauma measure could be accounted for by the other measure, and both indices could be entered simultaneously in regression analyses. For these analyses, the total number of traumas endorsed on the TLEQ and TAA scale scores was used. Endorsement of a PTE as well as peritraumatic fear, helplessness, horror, or life threat (i.e., PTSD Criterion A2) was required for qualifying PTE exposure in this investigation.

## RESULTS AND DISCUSSION

With respect to test–retest reliability, the TAA appears to be reasonably stable over an interval of 7 days, and this is true at both the item and total scale levels. Table 1 documents the percentage agreement and  $\kappa$  statistics for each item. Excluding the nonspecific “catch-all” items, only two items failed to achieve a  $\kappa$  of 0.40, and all other item  $\kappa$ s were above 0.45 ( $P < .01$  for all  $\kappa$  coefficients). Kappa coefficients for eight of the TAA items were above 0.60. Because the  $\kappa$  statistic is a very conservative estimator of nominal data convergence, substantive correspondence is indicated by figures somewhat lower than conventional measures of convergence (e.g., Pearson’s  $r$ ) that do not correct for chance correspondence. More specifically,  $\kappa$  coefficients ranging from 0.41 to 0.60 are generally considered to be indicative of moderate agreement, and  $\kappa$ s above 0.60 are indicative of substantial correspondence.<sup>[25]</sup> The mean  $\kappa$  for all items was 0.60 (e.g., substantial correspondence), and the test–retest correlation was  $r = .80$ ,  $P < .01$ .

Overall, a great majority of items met conventional standards for adequate reliability. Specifically, 11 of the 16 items produced  $\kappa$  coefficients of 0.40 or higher. Those that did not were either “catch-all” items for which poorer reliability would be expected (e.g., “other very stressful events”), or items pertaining to seldomly endorsed events, which can result in low  $\kappa$ s despite high percentages of agreement. For instance, being attacked by someone who “intended to kill or very seriously injure you” was associated with a very low  $\kappa$ , which is not surprising given the fact that only 5 of the 142 participants endorsed this event at either time.

Table 2 documents the relatively strong degree of convergence between the TAA and the TLEQ on similar items. None of the eight items failed to achieve a  $\kappa$  of 0.40, six like items yielded  $\kappa$  statistics of 0.60 or higher, and two items converged perfectly. The average of the  $\kappa$ s for each item was 0.67. The total scale

**TABLE 1. Temporal stability of the TAA over a 1-week interval**

TAA items	Percent agreement	$\kappa$
Combat	100	NA <sup>a</sup>
Motor vehicle or other serious accident	85	0.47
Natural disaster	93	0.55
Serious or life-threatening illness	99	0.79
Child sexual assault before the age of 13	99	0.89
Any child sexual assault (before age 18)	94	0.63
Sexual assault (lifetime)	96	0.72
Physical assault with weapon	98	0.66
Assault without weapon but intent to kill or seriously injure	97	0.00
Childhood physical abuse	99	0.89
Domestic violence since 18 years of age	95	0.20
Witness violent death/serious injury	94	0.50
Close friend/relative murdered or killed in car accident	99	0.80
Any other serious injury	95	0.34
Any other threat of death or serious injury	93	0.13
Other very stressful event	89	0.38

<sup>a</sup>Kappa not computable because the variable was a constant (no participants reported combat). TAA Time 1–TAA Time 2 correlation:  $r = .80, P < .001$ . TAA, Trauma Assessment for Adults.

(number of events endorsed) correlation between the TAA and the TLEQ (i.e., nondichotomized and including all items from both scales) was  $r = .66, P < .01$ .

In terms of their relative utility in predicting PTSD symptoms, the TAA was not as strongly predictive of PTSD symptoms as was the TLEQ in standard multiple regression analyses. Although both the TAA and the TLEQ were significantly correlated with PTSD symptoms, only the TLEQ was predictive in the resulting regression model. These results as well as means and standard deviations of all measures are presented in Table 3.

## STUDY 2

### METHOD

**Participants.** Sixty-seven clients receiving mental health services at a local community mental health center comprised the clinical sample in this investigation. Sixty-six percent of respondents were female, and, with respect to race, 76% were Caucasian. Sixteen percent were Native American, 2% were Asian, 3% reported being multiracial, and the remaining participants did not endorse a specific racial background. Approximately, half of the respondents were single, 21% were married, and 27% were divorced, separated, or widowed. The mean age of the sample was 43.4 ( $SD = 12.0$ ), and the mean years of education reported was 12.8 ( $SD = 2.2$ ).

**Measures.** This investigation utilized the same measures. Specifically, the TAA, and the TLEQ and the PCL were given to all the participants.

**TABLE 2. Convergence of like items on the TAA and the TLEQ among college students**

Event type	Percent agreement	$\kappa$
Combat	100	NA <sup>a</sup>
Motor vehicle or other serious accident	89	0.54
Natural disaster	94	0.64
Very serious or life-threatening illness	98	0.72
Child sexual assault before age 13	100	1.00
Sexual assault before the age of 18	92	0.48
Any sexual assault (lifetime)	96	0.72
Child physical abuse	95	0.61

<sup>a</sup>Kappa not computable because the variables are constant (no combat exposure reported). TAA–TLEQ total scale correlation:  $r = .66, P < .001$ ; all  $\kappa$ s  $P < .001$ . TAA, Trauma Assessment for Adults; TLEQ, Traumatic Life Events Questionnaire.

**TABLE 3. Standard multiple regression analyses of the TLEQ and the TAA as predictors of PTSD in college students**

	$\beta$	$t$	$P$	Correlation PCL	
TLEQ	.56	5.4	> .001	$r = .68^{**}$	$R^2 = .47$
TAA	.15	1.5	.15	$r = .56^{**}$	
			Mean	SD	
TAA			0.69	1.2	
TLEQ			1.40	1.9	
PCL			25.7	10.6	

TLEQ, Traumatic Life Events Questionnaire; TAA, Trauma Assessment for Adults; PTSD, posttraumatic stress disorder; PCL, PTSD Checklist.  $^{**}P < .001$ .

**Procedure.** Clients waiting to be seen for appointments at a mental health clinic were informed about the nature of the investigation and were offered a monetary incentive (\$10) for participating. They were informed that all completed measures would be stored separately from their treatment records and that their mental health provider would not have access to these measures. Further, they were informed that participation was entirely voluntary and anonymous and that refusal to participate would have no bearing on services received. To further evaluate evidence bearing on the TAA's convergent validity in a clinical sample, we evaluated its correspondence with the TLEQ. In addition, to further evaluate its utility as a predictor of PTSD symptomatology, the TAA and the TLEQ were once again entered (simultaneously) into a standard multiple regression analysis that utilized the PCL as the criterion measure. As before, the TAA and the TLEQ were strongly correlated ( $r = .65$ ), but this correlation was not so strong to render multicollinearity as a problem in regression analyses.

## RESULTS AND DISCUSSION

As depicted in Table 4, the TAA converged reasonably well with an established measure of trauma exposure. All  $\kappa$  statistics were above 0.45, with three of the eight like events corresponding particularly well

across instruments (serious or life-threatening illness, child sexual assault, and lifetime sexual assault). The correlation between the TAA and the TLEQ was also reasonably strong ( $r = .66$ ,  $P < .01$ ). Replicating the results of Study 2, the TAA was not a significant predictor of PTSD symptoms and was not as strongly associated with PTSD symptoms as was the TLEQ (Table 5).

## GENERAL DISCUSSION

The TAA appears to be characterized by adequate psychometric properties on the basis of the two studies presented here. In a nonclinical sample of undergraduates, it appears to be quite stable over a 1-week period, and this is true at the total scale level as well as the item level. The  $\kappa$  coefficients for individual items compare very favorably with the only other PTE measures that have been examined at the item level.<sup>[21, 26]</sup> The TAA converges reasonably well with an established measure of PTE exposure—the TLEQ—on similar items. In fact, a few of the like items demonstrated  $\kappa$ s that were as strong as stability coefficients for repeated administrations of the same inventory (i.e., test–retest  $\kappa$ s for TAA items in this study and test–retest  $\kappa$ s for TLEQ items reported by Kubany et al.<sup>[21]</sup>).

Though the degree of convergence was not quite as strong in the clinical sample, convergence between the TAA and the TLEQ was still satisfactory. There are at least a couple of explanations for the stronger convergence among college students relative to the clinical sample. First, the mean age of the student sample was much lower than the clinical sample. Normal memory decay of distal life events—even traumatic events—may be more pronounced among the clinical sample as some of the traumatic events may have occurred decades earlier. Recall of very distal events may depend more on the specificity of the retrieval cue (e.g., wording of a trauma exposure

**TABLE 4. Convergence of like items on the TAA and the TLEQ among mental health clinic clients**

Event type	Percent agreement	$\kappa$
Combat	97	0.48
Motor vehicle or other serious accident	78	0.50
Natural disaster	88	0.53
Very serious or life-threatening illness	93	0.77
Child sexual assault before age 13	84	0.49
Sexual assault before the age of 18	85	0.67
Any sexual assault (lifetime)	87	0.72
Child physical abuse	85	0.52

<sup>a</sup>Kappa not computable because the variables are constant (no combat exposure reported). TAA–TLEQ total scale correlation:  $r = .65$ ,  $P < .001$ ; all  $\kappa$ s  $P < .001$ . TAA, Trauma Assessment for Adults; TLEQ, Traumatic Life Events Questionnaire.

**TABLE 5. Standard multiple regression analyses of the TLEQ and the TAA as predictors of PTSD in mental health clinic clients**

	$\beta$	$t$	$P$	Correlation PCL	
TLEQ	.42	2.7	<.01	$r = .37^*$	
TAA	.08	0.54	>.3	$r = .20$	$R^2 = .14$
			Mean	SD	
TAA			2.3	3.5	
TLEQ			4.7	4.3	
PCL			35.7	25.7	

TLEQ, Traumatic Life Events Questionnaire; TAA, Trauma Assessment for Adults; PTSD, posttraumatic stress disorder; PCL, PTSD Checklist.

\* $P < .01$ .

question); therefore, differential responding on similar measures may be more likely in an older sample. Second, it seems reasonable to suppose that cognitive and memory function may be compromised to a greater degree among some respondents in the clinical sample relative to college students. Although speculative, this possibility cannot be ruled out.

With respect to evidence for construct validity, the TAA demonstrated strong convergence with a measure of PTSD among college students, but this association was modest in the clinical sample. We cannot rule out the possibility that the observed correspondence between trauma exposure and trauma symptoms reflects, to an unknown degree, the state-dependent responding to both measures. In both samples, the TLEQ was a stronger predictor of posttraumatic stress symptoms than was the TAA. Overall, the TAA's psychometric properties appear to be satisfactory, but it does not appear to be quite as sound as the TLEQ. It should be noted, however, that the selection of a PTE measure should be guided by the particular clinical or research purposes. Because the TAA appears to be characterized by adequate temporal stability and convergence with the TLEQ, there may be some instances in which the TAA may be preferred on the basis of the item wording or event coverage being more consistent with a researcher or clinician's needs.

In sum, although a number of PTE measures have been constructed, very few of them have known psychometric properties, and still fewer have been examined at the item level. Unfortunately, there does not appear to be a comprehensive PTE measure that can be commended above all others for all purposes, as no measure in existence inquires about all incidents that a clinician or a researcher may wish to know about. In part, this reflects the considerable controversy in the field surrounding the defining characteristics of a traumatic event (i.e., “the Criterion A problem”; for an excellent review, see Weathers and Keane<sup>[27]</sup>) Until there exists greater agreement in the field about the

necessary and sufficient characteristics of a PTSD qualifying traumatic event, it will be incumbent upon the researchers and clinicians to examine the item content to select measures most germane to their purposes and to be cognizant of conceptual issues surrounding the trauma assessment. Fortunately, there are a couple of particularly good measures in existence and it appears that the TAA can be added to this list. Although information on its psychometric properties is long overdue considering its widespread clinical and research usage, it appears to elicit reliable information about PTE exposure. Moreover, the TAA is related to theoretically consistent and clinically meaningful phenomena. Its applicability to populations other than those studied here remains to be established, but its performance in the clinical and nonclinical samples in these studies is certainly encouraging.

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