

Research Article

UTILITY OF THE DIMENSIONS OF ANGER REACTIONS–5 (DAR-5) SCALE AS A BRIEF ANGER MEASURE

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Background: *Anger is a common emotional sequel in the aftermath of traumatic experience. As it is associated with significant distress and influences recovery, anger requires routine screening and assessment. Most validated measures of anger are too lengthy for inclusion in self-report batteries or as screening tools. This study examines the psychometric properties of a shortened 5-item version of the Dimensions of Anger Reactions (DAR), an existing screening tool. Methods:* Responses to the DAR-5 were analysed from a sample of 486 college students with and without a history of trauma exposure. **Results:** *The DAR-5 demonstrated strong internal reliability and concurrent validity with the State Trait Anger Expression Inventory-2 (STAXI-2). Confirmatory factor analysis supported a single factor model of the DAR-5 for the trauma-exposed and nontrauma subsamples. A screening cut-off point of 12 on the DAR-5 successfully differentiated high and low scorers on STAXI-2 Trait Anger and PCL posttraumatic stress scores. Further discriminant validity was found with depression symptom scores. Conclusions:* *The results support use of the DAR-5 for screening for anger when a short scale is required. Depression and Anxiety 31:166–173, 2014. © 2013 Wiley Periodicals, Inc.*

Key words: *anger; trauma; DAR; assessment*

INTRODUCTION

Anger is recognized as a common sequel following traumatic experiences.^[1] Increasingly research highlights the presence of anger and aggression in conjunction with PTSD in different populations exposed to trauma, including combat,^[2–4] sexual and physical assault,^[5–7] motor vehicle accidents,^[8] torture,^[9] refugees,^[10] exposure to human rights violations,^[11] and in 9/11 disaster relief workers.^[12] Despite this demonstrated relevance of anger regarding psychological adjustment, anger assessment is often omitted in multi-component psychological testing batteries because of

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space limitations. This tendency explains, in part, the dearth of knowledge we have about posttraumatic anger in relation to fear-based processes after trauma. The present study concerns an abbreviated anger screening tool.

Along with the high co-occurrence of traumatic stress and anger across populations, anger is often associated with a range of negative outcomes. For example, anger and anger related-thoughts have been shown to be predictive of chronic PTSD at 12 months.^[13] Likewise, the presence of anger disposition places an individual at increased risk for the development of PTSD,^[14] and at increased risk of harm to self.^[15] Anger has been identified as a key factor in maintaining PTSD problems^[12] and can negatively influence the outcome of PTSD treatment in assault victims,^[16] combat veterans,^[17–19] and peacekeepers.^[20] These findings highlight the importance of assessing anger in people exposed to traumatic events and suffering from traumatic stress reactions.

The two most commonly used anger assessment instruments are the Spielberger State Trait Anger Expression Inventory (STAXI-2)^[21] and the Novaco Anger Scale (NAS).^[22] Both of these instruments have strong psychometric properties and have been utilized in research on people exposed to trauma.^[22,23] However, both measures are too lengthy for inclusion in multicomponent self-report instrument batteries that assess various mental disorders and psychological constructs. Ideally, large sample surveys measuring trauma and symptoms of associated psychopathologies would include a measure of anger.^[1] Given that anger assessment has so often been neglected in PTSD research, there is a clear need for a concise and psychometrically sound measure of anger to augment existing screening, assessment, evaluation, and outcome batteries. Such an instrument should minimize burden on clients, while still being a valid measure of the construct.

Preliminary research has been conducted on a brief measure known as the Dimensions of Anger Reactions scale (DAR).^[24] Forbes et al.^[25] examined the DAR with combat veterans suffering PTSD and found it to be psychometrically strong, with sound internal reliability and convergent validity measured against the STAXI-2.^[26] The DAR was also found to be predictive of change in PTSD symptoms following treatment,^[27] to be associated with family functioning and alcohol use by veterans and their partners,^[28] and to demonstrate sensitivity to change in anger as an outcome of PTSD treatment.^[19] More recently, the DAR was found to be associated with all three PTSD symptom clusters in a longitudinal study of violent crime victims^[29] and observed to have strong concurrent, discriminant, and incremental validity in a sample of 3,528 treatment-seeking Iraq and Afghanistan combat veterans.^[30]

Forbes et al.,^[25] identified three potential modifications of the DAR. First, the lack of a time frame against which items were rated led to interpretation difficulties

with repeated measurement. Second, two items could be removed without compromising psychometric properties. Further, the measure's nine-point response scale was considered excessive, which can burden respondents' decision-making.^[31] Using the five items identified by Forbes et al.,^[25] Hawthorne et al.^[31] reduced the number of response categories from nine to five and reported improved psychometric strength of the modified measure. The shortened scale was referred to as the DAR-5 (five items and five response categories). However, while Hawthorne et al. revised the items and response categories the study re-analyzed existing data collected on the original DAR. Therefore no studies have yet been reported with new data collected using the DAR-5.

Given that large sample surveys often prefer abbreviated measures, the DAR-5 is in step with the shortening of other measures of psychological distress—e.g., the Patient Health Questionnaire,^[32] the Perceived Stress Scale,^[33] and Primary Care PTSD Screen.^[34] While the DAR is composed (cf. Novaco et al.^[30]) of four anger response parameter items (frequency, intensity, duration, and antagonism) and three impairment items (regarding work, social relationships, and health), the DAR-5 is comprised of the four response parameters items and the social relationship impairment item. The DAR-5 items can be seen in Table 1. The latter is included as it is generally recognized that the major negative impact of anger dysregulation is in the interpersonal realm. Given the potential for the DAR-5's inclusion in brief mental health batteries, which include designated time frames for symptom experience, the present study further refined the DAR-5 through including a timeframe for responding to items in relation to the past 4 weeks.

The purpose of the present research was to be the first study to collect new data using the DAR-5, examine the psychometric properties of the DAR-5 by evaluating internal reliability, factor structure, concurrent validity, and discriminant validity with a general college student sample and then separately for a trauma-exposed subsample. The present study also aims to identify a cutoff on the DAR-5 to indicate problematic anger associated with lowered functioning. It was expected that the DAR-5 would demonstrate a one-factor structure, high internal reliability, and moderate correlations with STAXI-2 and that these psychometric properties would be maintained in the trauma-exposed subsample. It was expected that the DAR-5 would demonstrate discriminant validity against a measure of depression. Although anger is associated with depression,^[35] we expected the measure's association with the depression criterion would be lower than with that for STAXI-2. The study sought to identify a "high anger" cut-off point for the DAR-5 based on STAXI-2 scores. Finally, given the well-established association between anger and PTSD, it was expected the cut off on the DAR-5 would discriminate respondents with high and low PTSD symptomatology.

TABLE 1. The DAR-5

		Thinking over the past 4 weeks, circle the number under the option that best describes the amount of time you felt that way.				
		None or almost none of the time	A little of the time	Some of the time	Most of the time	All or almost all of the time
1	I found myself getting angry at people or situations.	1	2	3	4	5
2	When I got angry, I got really mad.	1	2	3	4	5
3	When I got angry, I stayed angry.	1	2	3	4	5
4	When I got angry at someone I wanted to hit them.	1	2	3	4	5
5	My anger prevented me from getting along with people as well as I'd have liked to.	1	2	3	4	5

Note: The DAR-5 is an abbreviation of the Novaco (1975) measure.

TABLE 2. Rates for types of trauma exposure in the subsample ($N = 245$)

Type of trauma	N (%)
Life threatening illness	26 (10.6)
Life threatening accident	53 (21.6)
Robbery or mugging	18 (7.3)
Death of a close other	110 (44.9)
Sexual assault–intercourse	34 (13.9)
Attempted sexual assault	25 (10.2)
Sexual assault–fondling	50 (20.4)
Child physical abuse	35 (14.3)
Physical abuse other	65 (26.5)
Threatened with a weapon	31 (12.7)
Witness killing, injury, assault	49 (20)
Any other trauma (combat, warzone)	9 (3.7)

METHOD

PARTICIPANTS

Participants ($N = 501$) were recruited from an Ohio Public University's 2011 psychology research pool. The final sample was 486, as 15 participants who failed to complete the DAR-5 were excluded. Respondents' ages ranged from 18 to 43 years ($M = 19.58$; $SD = 2.50$). Regarding other demographic characteristics, 37.9% were male, and 62.1% were female; 74.3% were Caucasian, 18.5% were African American, 4.1% were Asian, 0.2% were Native American, and 2.5% did not report their ethnicity. This study was approved by the University of Toledo (IRB no. 107274).

TRAUMA-EXPOSED SUBSAMPLE

Of the sample of 486 participants, 245 (50.4%) people reported exposure to a traumatic event. Table 2 shows the percentage of people who experienced each type of trauma. The most commonly reported type of trauma was the death of a close other, caused by an accident, homicide, or suicide. High rates were also reported for exposure to a life threatening accident. In contrast, lower rates of trauma exposure were evident for events including robbing or mugging and attempted sexual assault. These rates are consistent with other studies of college students.^[36]

PROCEDURE AND MEASURES

Participants were initially presented a web-based consent form and information describing the study. Class research credit was offered to participants, but no monetary compensation was provided.

The measures included:

Stressful Life Events Screening Questionnaire (SLESQ).

This is a 12-item yes/no self-report questionnaire that gauges previous exposure to psychological trauma and stressors.^[37] An additional question was included for which participants were instructed to nominate the trauma that had caused the most distress (if endorsing more than one trauma) in the past month. This measure has demonstrated reliability and validity.^[37]

PTSD Checklist Specific Stressor Version (PCL-S). This is a 17-item self-report inventory that assesses for the presence of DSM-IV PTSD symptoms over the past month that are related to previously experienced traumatic events.^[38] Participants are required to rate each symptom on a Likert scale (1 = *not at all*, 2 = *a little bit*, 3 = *moderately*, 4 = *quite a bit*, and 5 = *extremely*). The PCL-S has been reported to have adequate reliability and validity.^[39]

Novaco's Dimensions of Anger Reactions Scale. The DAR-5 comprises five items addressing anger frequency, intensity, duration, aggression, and interference with social functioning and scored on a five-point Likert scale (1 = *none of the time*, 2 = *a little of the time*, 3 = *some of the time*, 4 = *most of the time*, and 5 = *all of the time*). The scale total is summative with the scale score ranging from 5 to 25. Higher scores indicate worse symptomatology. Modifications to the previous report of the DAR-5 include a specified time period, with items rated over the past 4 weeks and removal of frequency references from the items themselves. For example a stem was included "Thinking over the past 4 weeks, circle the number under the option that best describes the amount of time you felt that way" and item wording changed to "I get at angry at people and situation" with the word "often" removed. Previously, the DAR-5^[31] was found to have high internal consistency (Cronbach's alpha of .88) and established convergent validity assessed against various STAXI subscales, with strong correlations for Trait Anger and Anger Out.^[25,31]

State Trait Anger Expression Inventory 2nd Edition. The STAXI-2^[40] is a 57-item self-report inventory assessing State Anger (15-items), Trait Anger (ten-items), and Anger Expression and Control (32-items). For State Anger, participants are asked to rate *how you feel right now* for each item from 1 (*not at all*) to 4 (*very much so*). For Trait Anger items, participants are asked to *indicate how you generally feel or react* from 1 (*almost never*) to 4 (*almost always*). For the Anger Expression items, participants are asked to *indicate how often you generally react or behave when feeling angry or furious* from 1 (*almost never*) to 4 (*almost always*). The STAXI-2 is a widely used and well validated anger assessment instrument.^[41]

Hospital Anxiety and Depression Scale. The HADS^[42] is a 14-item self-report form that assesses symptoms of anxiety and depression. Items are scored on a four-point Likert scale from 0 (not at all) to 3 (very much indeed). For the present study, the HADS depression scale was used, which ranges in score from 0 to 21. The HADS depression scale has strong psychometric properties, with high

internal consistency ($\alpha = .90$).^[42] The HADS anxiety scale was omitted, because the arousal properties of anxiety potentially overlap with anger. The level for significance was defined as $P < .05$ for all statistical analyses.

DATA ANALYSIS

Missing values (less than 1% of the data), were estimated by calculating the series mean.^[43] Reliability and validity analyses were conducted using IBM SPSS Statistics 18. Concurrent validity was examined through correlation with the STAXI-2 subscales. The DAR-5 is a measure of anger disposition and therefore expected to have its highest correlation with STAXI Trait Anger. With regard to the STAXI, the DAR-5 includes items on antagonism and interference with social relationships therefore analysis with the STAXI Anger Expression subscales should observe the highest correlation with Anger Out, as found by Forbes et al.^[25] Discriminant validity was examined using the HADS Depression score. It was expected the DAR-5 correlation with HADS Depression would be lower than its correlation with STAXI Trait Anger. To test the proposed one-factor structure of the DAR-5, a confirmatory factor analysis (CFA) was conducted using SPSS AMOS 7. These series of analyses were repeated for the trauma-exposed subsample to examine consistency of findings. Finally a series of correlations and *t*-test analyses were conducted to examine the capacity of the DAR-5 to distinguish high and low levels of traumatic stress as measured by the PCL. Participants were divided into two groups based on scoring equal to and greater than 50, or less on the PCL-S. A cut-point score of 50 on the PCL-C was observed to correctly identify PTSD in 91% of veteran sample,^[44] although other cut-points have been applied in the previous research as well.^[45]

To assess how well a one-factor model represented the DAR-5 items, absolute fit indices including the chi-square (χ^2) Statistic and the root mean-square error of approximation (RMSEA) were used, as well as incremental fit statistics such as the comparative fit index (CFI), Tucker-Lewis index (TLI), and standardized root mean square residual (SRMR). While preference for model selection is to find a CFA with a nonsignificant χ^2 value, in large samples even small amounts of residual covariance may produce a significant result.^[46] Therefore, it is

recommended that assessment of model fit be completed by reviewing multiple fit indices such as the CFI, TLI, RMSEA, and SRMR.^[47-50]

RESULTS

Table 3 provides the means and standard deviations for the DAR-5, STAXI-2, and HADS measures used in the present study. The highest item mean occurred for “I found myself getting angry at people or situations,” while the lowest was obtained for “When I got angry at someone, I wanted to hit them.” Means and standard deviations for the STAXI-2 measures were consistent with those in the STAXI-2 manual. Both the DAR-5 and the STAXI-2 scores approximated a normal distribution, although the distributions were shifted to the right and flattened slightly. DAR-5 total scores had a skewness value of 1.12 (SE = 0.11) and a kurtosis value of 0.93 (SE = 0.22) while the STAXI Trait score has a skewness of 1.17 (SE = 0.11) and a kurtosis value of 1.52 (SE = 0.22).

RELIABILITY

For the overall sample, the internal consistency for the PCL-S was $\alpha = .95$, the STAXI-2 was $\alpha = .87$, and HADS was $\alpha = .84$. For the overall sample, the internal consistency of the DAR-5 was high ($\alpha = .90$). Item-total correlations ranged from .72 to .89. The strongest item-total correlation was for the “intensity” item ($r = .89$) while the lowest was for the “antagonism” item ($r = .72$). Interitem correlations ranged from .46 to .75. The lowest interitem correlation was between the “frequency” item and the “antagonism” item, while the highest interitem correlation was between the “intensity” item and the “duration” item. In the trauma-exposed subsample,

TABLE 3. Mean scores for DAR-5 and STAXI-2 and HADS scales for overall sample (N = 486), trauma sample (N = 245) and the nontrauma sample (N = 241)

Measure	Overall M (SD)	Trauma M (SD)	Nontrauma M (SD)	<i>t</i> -test	<i>P</i>
DAR-5					
Item 1—angry frequency	2.3 (1.0)	2.3 (1.0)	2.3 (0.9)	0.9	ns
Item 2—anger intensity	2.1 (1.1)	2.3 (1.2)	2.0 (1.0)	3.0	<.01
Item 3—anger duration	1.8 (1.0)	1.9 (1.0)	1.7 (0.9)	3.2	<.01
Item 4—antagonism towards others	1.7 (1.0)	1.8 (1.1)	1.5 (0.9)	3.5	<.001
Item 5—social relations interference	1.8 (1.1)	1.9 (1.1)	1.7 (1.0)	2.2	<.05
DAR-5 Total ^a	9.7 (4.3)	10.3 (4.5)	9.1 (4.0)	3.1	<.01
STAXI-2					
Trait anger	16.9 (5.7)	17.9 (6.0)	15.9 (5.3)	3.7	<.001
State anger	19.3 (7.2)	19.8 (7.5)	18.7 (6.9)	1.6	ns
Anger expression and control	36.5 (13.5)	37.8 (13.3)	35.3 (13.6)	2.0	<.05
Expression out	15.3 (3.8)	15.8 (3.8)	14.9 (3.7)	2.6	<.05
Expression in	16.7 (4.5)	17.6 (4.6)	15.7 (4.3)	4.4	<.001
Control out	22.2 (4.9)	22.1 (4.6)	22.3 (5.3)	−0.4	ns
Control in	21.9 (5.5)	21.8 (5.2)	22.0 (5.9)	−0.4	ns
HADS					
Depression	4.1 (3.2)	4.3 (3.1)	3.9 (3.3)	1.5	ns

DAR, Dimensions of Anger Scale; STAXI-2, State Trait Anger Expression Inventory; HADS, Hospital Depression Scale.

^aDifference between aggregate of individual DAR-5 items and DAR-5 total due to rounding.

high reliability was also obtained for the DAR-5 ($\alpha = .89$), and item-total correlations range from .73 to .89.

STRUCTURE OF THE DAR-5 USING CONFIRMATORY FACTOR ANALYSIS

Previous research demonstrated support for a one factor model for the full DAR.^[25] CFA with maximum-likelihood estimation was used to test a one factor model of the DAR-5 items with uncorrelated error terms. The model was tested using the complete dataset (regardless of trauma exposure) and then tested with the trauma-exposed subsample.

Prior to CFA a square root transformation was applied to normalize the data set. A one factor model was fitted to the DAR-5 ($\chi^2 (5, N = 486) = 15.90, P = .007$) and returned robust fit statistics in terms of the TLI = .984, CFI = .992, SRMR = .0175, and RMSEA = .067. Overall, these fit statistics demonstrate the suitability of a one-factor model.

The one-factor model was retested using the 245 participants in the trauma-exposed subsample, see Figure 1. Robust fit statistics were also observed for this model in the trauma-exposed subsample, $\chi^2 (2, N = 245) = 13.01, P = .023$, with TLI = .975, CFI = .988, and RMSEA = .081; SRMR = .024.

CONCURRENT AND DISCRIMINANT VALIDITY

Correlations between the DAR-5, scales of the STAXI-2 and HADS depression scores are presented in Table 4. The correlations were calculated using Spearman's Rho because of skewness. All correlations were significant at $P < .001$. The strongest correlations were found with the STAXI Trait Anger followed by State Anger, and Anger Expression-Out. As expected, negative correlations were obtained between the DAR-5 and the STAXI-2 Anger Control subscales. Table 4 shows that a similar pattern of concurrent validity

coefficients were obtained for the nontrauma and the trauma-exposed subsamples.

Table 4 shows the correlations between the DAR-5, the HADS depression scale, and the STAXI. *t*-Test analyses indicate that the correlation between the DAR-5 and the HADS depression scale was lower than that between the DAR-5 and STAXI Trait Anger $t (484) = -6.25, P < .001$. A comparison of the correlation between DAR-5 and HADS Depression with the correlation between DAR-5 and STAXI Anger Expression-Out strongly trended toward significance $t (484) = -1.95, P = .051$. Overall these results support the discriminant validity of the DAR-5 scale.

DETERMINING A CUTOFF

The STAXI-2 Manual notes that the normal range of Trait Anger scores is considered within the 25th to 75th percentiles. Scores above the 75th percentile signify a level of anger that is associated with psychological distress and functional impairment. Trait Anger scores of 20 were calculated to lie at the 75th percentile for the overall sample. This is similar to the raw score of 21, which is detailed in the STAXI-2 manual as representing the 75th percentile for normal adults aged 16 years of age and older.^[40]

A DAR-5 score of 12 defined the 75th percentile for the overall sample. Analysis was conducted to examine differences in Trait Anger scores for people who scored above and below the 75th percentile on the DAR-5. The purpose of this analysis was to assess the criterion validity of the DAR-5 to distinguish between persons high in Trait Anger compared with persons low in Trait Anger. To facilitate this comparison a High DAR-5 group was defined as persons with a score above 12, along with a Low DAR-5 group that comprised persons with scores equal to or less than 12. The High DAR-5 group had a Trait Anger mean score of 21.94 ($SD = 6.26, n = 125$), while the Low DAR-5 group had a Trait Anger mean score of 15.03 ($SD = 4.22, n = 337$). The difference between these two means was significant, $t (460) = -6.91, P < .001$, Cohen's $d = 1.20$, indicating a large effect size.

TABLE 4. Correlations between DAR-5 and the following measures: STAXI-2 subscales, and the HADS depression

Measure	Overall <i>N</i> = 486	Trauma <i>N</i> = 245	Nontrauma <i>N</i> = 241
Staxi-2 Trait	0.67	0.62	0.71
Staxi-2 State	0.47	0.42	0.49
Staxi-2 Anger expression and control	0.46	0.55	0.38
Expression out	0.52	0.52	0.50
Expression in	0.44	0.48	0.37
Control out	-0.36	-0.38	-0.33
Control in	-0.29	-0.30	-0.27
HADS depression	0.43	0.46	0.37

Note: DAR, Dimensions of Anger Scale; STAXI-2, State Trait Anger Expression Inventory; HADS, Hospital Depression Scale). All coefficients (Spearman Rho) are $P < .001$.

DAR-5 AND PCL-S SCORES

Table 5 concerns the trauma-exposed subsample, listing the mean PCL-S score with and without item 14 (which refers to anger) for participants calculated overall and for specific traumatic event types. The total score is a little more than one standard deviation below the cut-off score of 50, considered to be indicative of probable PTSD.^[51] Table 5 also reports the mean DAR-5 scores based on type of trauma exposure and PCL-S scores. Participants were divided into two groups based on scoring equal to and greater than, or less than 50 on the PCL-S. The high PCL-S group had a mean DAR-5 score of 16.4 ($SD = 5.3, n = 26$) and the low PCL-S group recorded a mean DAR-5 score of 9.3 ($SD = 3.8, n = 143$), with a significant difference observed between the two groups $F(1, 167) = 68.80, P < 0.001, \eta^2 = 0.29$.

TABLE 5. PCL-S, PCL-S no item 14 and DAR-5 scores for participants reporting past month distress associated with a previous trauma (n = 169)

Measure	n	%	PCL-S M (SD)	PCL-S (no i14) M (SD)	DAR-5 M (SD)
Life threatening illness	12	7.1	28.3 (14.8)	26.6 (13.7)	8.9 (3.3)
Life threatening accident	18	10.7	30.3 (12.2)	28.9 (11.9)	8.9 (3.5)
Robbery or mugging	2	1.2	17.0 (1.4)	16.0 (1.4)	5.9 (0.1)
Death of a close other	69	40.8	35.9 (13.9)	33.9 (13.0)	10.4 (4.8)
Sexual assault–intercourse	12	7.1	44.4 (18.3)	41.9 (17.0)	11.8 (4.2)
Attempted sexual assault	1	0.6	17.0	16.0	5.0
Sexual assault–fondling	11	6.5	34.6 (18.2)	32.5 /17.1)	10.5 (6.6)
Child physical abuse	15	8.9	38.0 (17.7)	35.7 (16.2)	12.2 (5.7)
Physical abuse other	12	7.1	27.3 (7.6)	25.5 (7.3)	11.9 (4.8)
Threatened with a weapon	6	3.6	22.0 (8.0)	21.2 (8.5)	9.9 (5.4)
Witness killing, injury, assault	6	3.6	30.8 (13.0)	29.3 (12.4)	10.3 (3.3)
Any other trauma (combat, warzone)	5	3.0	27.4 (10.3)	25.8 (9.1)	7.2 (2.5)
Total	169	100.0	33.6 (14.8)	31.7 (13.8)	10.3 (4.7)

DAR-5, Dimensions of Anger Scale; PCL, PTSD Checklist.

Examination of the PCL-S scores for participants reporting scores above and below the DAR-5 cut off indicated significant differences in PTSD symptom severity between these two groups $F(1, 167) = 25.93, P < 0.001, \eta^2 = 0.13$.

DISCUSSION

Anger is prevalent in trauma-exposed populations,^[1] and it is predictive of PTSD incidence and severity.^[7,52,53] The present study examined the psychometric properties of an abbreviated anger screening tool to evaluate its suitability for incorporation into research and clinical protocols.

Results suggest that the DAR-5 is a reliable and valid screening measure of common anger reactions. Its brevity is useful for rapidly assessing the presence of anger problems in different populations. The strength of the DAR-5 is that it employs a minimum number of items to measure the anger construct. Item content pertains to anger frequency, intensity, duration, interpersonal aggressiveness, and the extent to which anger interferes with interpersonal relationships. In contrast, its parent instrument, the DAR, concerns anger disposition generally without a designated timeframe and incorpo-

rates work performance and personal health items.^[30] The current version of the DAR-5 sets a “past 4-weeks” time frame for the anger ratings. Such time frames are commonly included in other mental health symptom measures used in minimum data set batteries and are suitable for use in assessing change following intervention.

The cohesiveness of the DAR-5 is evidenced by high internal reliability, moderate range interitem correlations, and excellent fit statistics for a single factor model in both the overall sample and the trauma-exposed sample. The moderate range interitem correlations indicate that each question gauges a different aspect of anger. Good concurrent validity was obtained with subscales of the STAXI-2, which is widely accepted as a valid measure of anger. Discriminant validity was demonstrated by significantly higher correlations with the STAXI-2 Trait Anger than with HADS Depression. Consistent with a study on the complete DAR,^[25] the strongest associations between the DAR-5 and the STAXI-2 scales were with Trait Anger, followed by Anger Out. That conforms to the formulation of the DAR as an anger disposition index (cf. Novaco et al.^[30]).

Using STAXI-2 norms as reference, a cut off for the DAR-5 total score reflecting psychological distress and functional impairment was determined to be 12, which

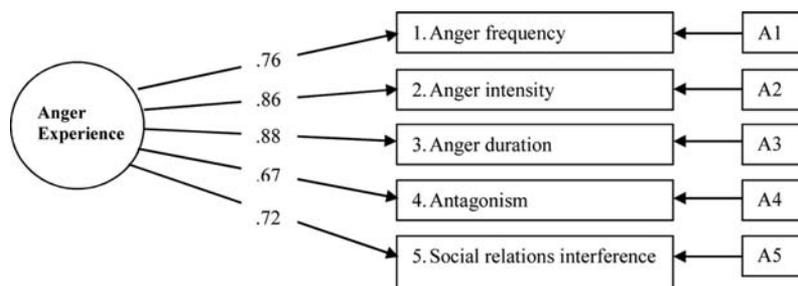


Figure 1. Confirmatory factor analysis of the DAR-5.

is at the 75th percentile of the total score distribution. A significant difference in STAXI-2 Trait anger scores emerged between people who scored above and below the DAR-5 score of 12. These findings indicate that there is consistency between the DAR-5 and STAXI-2 in detecting high and low rates of anger.

One limitation of the study is the absence of a clinical sample. However, we differentiated a trauma-exposed subsample for separate analyses of the DAR-5 scores, which was justified by the well-established association between anger and trauma.^[1] The reliability, validity, and factor structure of the DAR-5 scores found for the full sample were replicated in the trauma-exposed subsample, and high and low scorers on the PCL were discriminated by DAR-5 scores.

Other limitations of the present study include the use of self-report data and having only two criterion instruments (one for anger and one for PTSD). Validation of the DAR-5 would be strengthened by corroboration through observational reports of anger-related behavior and by a structured interview measure of PTSD, such as the Clinician-Administered PTSD Schedule.^[54] Analyses of test-retest reliability are also missing. Further research is necessary to investigate the sensitivity of the DAR-5 to change following treatment, compared to other anger measures.

In conclusion, the results indicate that the DAR-5 has excellent psychometric properties and is an effective instrument to screen for problematic anger in normal and trauma-exposed populations. The brevity of the measure makes it a useful tool to be incorporated within assessment batteries.

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