

The Role of Anger in Generalized Anxiety Disorder

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## Abstract

**Background:** Little is known about the role of anger in the context of anxiety disorders, particularly with generalized anxiety disorder (GAD). The goal of the current study was to examine the relations between specific dimensions of anger and GAD. **Method:** Participants ( $N = 381$ ) completed a series of questionnaires, including the *Generalized Anxiety Disorder Questionnaire* (GAD-Q-IV; Newman et al., 2002), the *State-Trait Anger Expression Inventory* (STAXI-2; Spielberger, 1999), and the *Aggression Questionnaire* (AQ; Buss & Perry, 1992). The GAD-Q-IV identifies individuals who meet diagnostic criteria for GAD (i.e., GAD-analogues) and those who do not (non-GAD). The STAXI-2 includes subscales for trait anger, externalized anger expression, internalized anger expression, externalized anger control, and internalized anger control. The AQ includes subscales for physical aggression, verbal aggression, anger, and hostility. **Results:** The GAD-Q-IV significantly correlated with all STAXI-2 and AQ subscales ( $r$ 's ranging from .10 to .46). Multivariate analyses of variance revealed that GAD-analogues significantly differed from non-GAD participants on the combined STAXI-2 subscales ( $\eta^2 = .098$ ); high levels of trait anger and internalized anger expression contributed most to GAD group membership. GAD-analogue participants also significantly differed from non-GAD participants on the combined AQ subscales ( $\eta^2 = .156$ ); high levels of anger (affective component of aggression) and hostility contributed most to GAD group membership. Within the GAD-analogue group, the STAXI-2 and AQ subscales significantly predicted GAD symptom severity ( $R^2 = .124$  and  $R^2 = .198$ , respectively). **Conclusions:** Elevated levels of multiple dimensions of anger characterize individuals who meet diagnostic criteria for GAD.

**Keywords:** anxiety, generalized anxiety disorder, anger, hostility, aggression

### The Role of Anger in Generalized Anxiety Disorder

Anger and anxiety have historically been linked through shared physiological reactions to stress (e.g., Cannon, 1926). In particular, anger and anxiety may be related through underlying biological vulnerabilities, such that when confronted with threat, individuals react either with anger or anxiety, that is, “fight” or “flight” (Barlow, 2002). According to this theory, the individual’s sense of mastery over the threatening situation predicts the type of reaction, with high perceived mastery predicting anger, and low perceived mastery predicting anxiety. This suggests that appraisals are an important feature of both emotions. Despite this, anger, defined as an emotion elicited by perceptions of threat caused by the misdeeds of others (DiGiuseppe & Tafrate, 2007), has received little empirical attention in the context of anxiety disorders.

However, there is some evidence to suggest that elevated levels of anger are present in individuals with anxiety disorders. In addition to trait and state anger, some dimensions of anger that have been examined include hostility (the cognitive component of anger), aggression (the behavioural component of anger), internalized anger expression (the tendency to suppress angry feelings), externalized anger expression (the tendency to outwardly express angry feelings), and anger control (the ability to regulate anger). Specifically, Moscovitch, McCabe, Antony, Rocca, and Swinson (2008) found elevated levels of hostility in individuals with social anxiety disorder, obsessive-compulsive disorder, and panic disorder, relative to non-anxious controls. They also found that individuals with panic disorder reported higher levels of aggressive anger, and that individuals with social phobia reported lower verbal aggression compared to non-anxious controls. Erwin, Heimberg, Schneier, and Liebowitz (2003) also found elevated trait anger and internalized anger expression in individuals with social anxiety disorder, relative to non-anxious individuals. Of the anxiety disorders, anger has mostly been examined in relation to post-

traumatic stress disorder (PTSD; Novaco, 2010). For example, Meffert and colleagues (2008) found that greater levels of anger mediated the relationship between trauma exposure and PTSD symptoms among police officers. In addition, meta-analytical findings suggest that PTSD symptoms are related to various dimensions of anger, particularly internalized anger expression, with large effects (Olatunji, Ciesielski, & Tolin, 2010; Orth & Wieland 2006). However, a recent study showed that, after controlling for demographic variables, PTSD did not significantly predict anger expression, but did significantly predict anger experience over a 30-day period (Hawkins & Cogle, 2011).

Only a few studies have examined the relation between anger and generalized anxiety disorder (GAD). This is surprising because irritability, which is characterized by a lowered threshold for anger (DiGiuseppe & Tafrate, 2007), is a symptom of GAD (APA, 2000). Erdem, Celik, Yetkin, and Ozgen (2008) found that individuals with GAD had greater levels of trait anger, externalized anger expression, internalized anger expression, as well as lower anger control (i.e., lower self-regulation of anger), than did non-anxious individuals. More recently, Hawkins and Cogle (2011) found that greater anger expression, as well as anger experience over a 30-day period, was associated with GAD independently of shared associations with other psychiatric conditions. Overall, these findings suggest that anger may be an important emotion associated with GAD. Although the abovementioned studies examine the relations between specific anger dimensions (e.g., trait anger, anger expression) and GAD, the *relative* contributions of each anger dimension to GAD is largely unknown.

The goal of the current study was to examine the relations between specific dimensions of anger, and the presence and severity of GAD by: 1) comparing individuals who meet diagnostic criteria for GAD to individuals who do not meet diagnostic criteria for GAD on a

combination of anger dimensions; 2) exploring the relative contribution of each anger dimension to GAD status; and 3) examining the extent to which anger dimensions predict GAD symptom severity, in individuals who meet diagnostic criteria for GAD. The anger dimensions examined were based on the subscales of the questionnaires used in the current study (see below).

It was hypothesized that individuals who meet diagnostic criteria for GAD would differ from individuals who do not meet diagnostic criteria for GAD on a combination of anger dimensions, and that lower scores on externalized and internalized anger control and higher scores on all other anger dimensions would predict greater GAD symptom severity. Although the examination of the relative contribution of anger dimensions to GAD status was largely exploratory, we expected that trait anger and internalized anger (i.e., inwards anger expression, hostility) would contribute more to GAD than would externalized anger (i.e., outwards anger expression, physical aggression, and verbal aggression). This hypothesis was derived from the evidence suggesting that internalized anger (e.g., Olatunji et al., 2010) and hostility (e.g., Moscovitch et al., 2008) are strong predictors of other anxiety disorders.

## **Method**

### **Participants**

Three hundred and eighty-one ( $N = 381$ ) undergraduate students, between the ages of 18 and 57 ( $M = 23.49$ ,  $SD = 6.27$ ), participated in the study in exchange for course credit. The majority of the sample was female (85.79%) and studying in the field of psychology (71.39%). Most participants (38.10%) were in their first year of study, 25.93% were in their second year, 20.63% were in their third year, and 15.34% were in their fourth year, with 87.73% of the sample studying full-time. The majority of the sample (63.47%) reported English as their first language, 14.67% reported French, and 21.87% reported “other” as their first language. The majority of

participants reported their ethnicity as Caucasian (65.00%), 7.10% as Asian, 6.84% as Multi-Racial, 5.53% as Black, 5.00% as Latino, and 5.00% as Middle Eastern, whereas 5.53% reported “other” as their ethnicity.

## Measures

**Generalized Anxiety Disorder Questionnaire (GAD-Q-IV; Newman et al., 2002).** The GAD-Q-IV was developed as a screening tool for the diagnosis of GAD. It is composed of 14 self-reported items that assess the symptoms of GAD based on the DSM-IV (APA, 2000) diagnostic criteria. Eleven of the items are rated dichotomously (i.e., the presence or absence of symptoms), one item requires participants to list worry topics, and two items assess the degree of interference and the degree of distress resulting from worrying on a Likert scale ranging from 0 (*None*) to 8 (*Very severe*). The GAD-Q-IV demonstrates convergent and discriminant validity, a kappa agreement of .67 with a structured diagnostic interview of GAD, and test-retest reliability of 92% over two weeks. The recommended cut-off score for individuals meeting diagnostic criteria is 5.7 out of a total of 13 (Newman et al., 2002), with scores of 5.7 and above indicating the presence of GAD (i.e., GAD-analogues), and a score below 5.7 indicating the absence of GAD (i.e., non-GAD).

**Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990).** The PSWQ is a 16-item self-report measure that assesses the tendency to worry. Participants rate the extent to which items are typical of themselves on a Likert scale ranging from 1 (*Not at all typical*) to 5 (*Very typical*), with items such as “*I am always worrying about something*”. The PSWQ has demonstrated convergent and divergent validity, excellent internal consistency ( $\alpha = .93$ ), and test-retest reliability over eight to ten weeks ( $r = .92$ ).

**State-Trait Anger Expression Inventory-2 (STAXI-2; Spielberger, 1999).** The STAXI-2 is a 57-item self-report measure with scales developed to assess anger as a dispositional characteristic (trait anger scale), situational anger (state anger scale), and the expression of anger (anger expression scale). Given the goals of the current study, only the trait anger and anger expression scales were included. The 10-item Trait Anger scale (T-ANG) assesses the frequency and intensity of anger experiences, with items such as *“I get angry when I’m slowed down by other’s mistakes”* rated on a Likert scale ranging from 1 (*Almost never*) to 4 (*Almost always*). The 32-item Anger Expression scale is composed of four subscales that assess how people react when they are angry. For each 8-item subscale, the extent to which participants generally react when angry is rated on a Likert scale ranging from 1 (*Almost never*) to 4 (*Almost always*). The Anger Expression-Out (AX-O) subscale measures the expression of anger towards objects or other individuals with the use of physically or verbally aggressive behaviours, and includes items such as *“I strike out at whatever infuriates me”*. The Anger Expression-In (AX-I) subscale measures the extent to which angry feelings are experienced yet suppressed (i.e., lack of expression), and includes items such as *“I boil inside, but I don’t show it”*. The Anger Control-Out (AC-O) subscale assesses the extent to which a person controls his or her anger by preventing the externalized expression of anger, and includes items such as *“I keep my cool”*. Finally, the Anger Control-In (AC-I) subscale assesses the extent to which a person controls angry feelings by attempts to calm down and cool off, and includes items such as *“I do something relaxing to calm down”*. The STAXI-2 subscales have demonstrated construct validity and adequate internal consistency with  $\alpha$ 's ranging from .70 to .85.

**Aggression Questionnaire (AQ; Buss & Perry, 1992).** The AQ is a 29-item self-report measure that assesses the disposition of aggression, and is composed of four subscales. For each



subscale, the extent to which each statement is characteristic or uncharacteristic of participants is rated on a Likert scale ranging from 1 (*Extremely uncharacteristic of me*) to 5 (*Extremely characteristic of me*). The Physical Aggression (AQ-PA) subscale is composed of 8 items and assesses the motor component of aggressive behaviour, which involves the desire to harm others, with items such as “*Once in a while, I can’t control the urge to strike another person*”. The Verbal Aggression (AQ-VA) subscale is composed of 5 items and assesses instrumental aggression with items such as “*When people annoy me, I may tell them what I think of them*”. The Anger (AQ-ANG) subscale is composed of 7 items and assesses the affective component of aggression, including physiological arousal and preparation for aggression, with items such as “*I have trouble controlling my temper*”. Finally, the Hostility (AQ-HOST) subscale is composed of 8 items and measures the cognitive component of aggression, including feelings of injustice, with items such as “*When people are especially nice, I wonder what they want*”. The AQ has good internal consistency ( $\alpha = .89$ ) and test-retest reliability over nine weeks ( $r = .80$ ).

## **Procedure**

Participants were recruited in psychology undergraduate classes or through the Department of Psychology’s Participant Pool at Concordia University. They were invited to complete a series of questionnaires on anger and anxiety, administered in a quasi-counterbalanced order, either individually or in groups of up to ten participants. The experimenter (the first author) obtained informed consent and debriefed all participants.

## **Results**

### **Preliminary Analyses**

Data were normally distributed (all skewness values  $< 3.0$  and kurtosis values  $< 10.0$ ; Kline, 2009), and therefore no outliers were removed. The correlations between the GAD-Q-IV

and all STAXI-2 and AQ subscales were statistically significant ( $r$ 's ranging from .10 to .46,  $p$ 's  $< .05$ ). Male sex was significantly correlated with greater externalized anger control and greater physical aggression, whereas female sex was significantly correlated with higher scores on the GAD-Q-IV. Age was negatively related to hostility. Because the strengths of the correlations were weak ( $r$ 's  $< .17$ ), we did not statistically control for age and sex in subsequent analyses. See Table 1 for a correlation matrix.

Next, we used the recommended cut-off score (5.7; Newman et al., 2002) on the GAD-Q-IV to create the GAD-analogue ( $n = 131$ ) and non-GAD ( $n = 250$ ) groups. Given that worry is the primary feature of GAD, we examined the validity of the GAD-Q-IV in our sample by conducting an independent-samples  $t$ -test between the groups on PSWQ scores. We found that, as expected, the GAD-analogue group had significantly higher scores ( $M = 63.00$ ,  $SD = 10.64$ ) than did the non-GAD group ( $M = 46.00$ ,  $SD = 12.44$ ),  $t(378) = -13.26$ ,  $p < .001$ . These means and standard deviations are comparable to those of clinical samples of individuals with GAD (e.g.,  $M = 65.27$ ,  $SD = 8.50$ ; Ladouceur et al., 2000) and samples of non-anxious individuals (e.g.,  $M = 47.08$ ,  $SD = 13.24$ ; Behar, Alcaine, Zuellig, & Borkovec, 2003).

### **Anger and GAD Group Membership**

To examine the difference between the GAD-analogue group and the non-GAD group on the STAXI-2 subscales, a multivariate analysis of variance (MANOVA) was conducted. GAD group membership served as the independent variable, and the STAXI-2 subscales served as the dependent variables. As expected, there was a statistically significant difference between the GAD-analogue group and the non-GAD group on the combined STAXI-2 anger subscales,  $\Lambda = 0.90$ ,  $F(5, 374) = 8.09$ ,  $p < .001$ ,  $\eta^2 = .098$ . See Table 2 for means and standard deviations of the STAXI-2 subscales by GAD group membership.

A discriminant function analysis was conducted to examine the relative contribution of each STAXI-2 subscale to GAD group membership. The correlations between the predictors and the discriminant function (i.e., the structure matrix) suggest that elevated T-ANG (Trait Anger) and AX-I (Anger Expression-In) accounted for the most variance in GAD group membership (loadings less than .50 are not interpreted; Tabachnick & Fidell, 2007). See Table 3 for canonical coefficients and the structure matrix. Using Jackknife classification, a method used to classify each case by the functions derived from all other cases, the discriminant function could be used to correctly classify 63.95% ( $n = 243$ ) of individuals into their respective groups, with 57.25% ( $n = 75$ ) correctly classified as GAD-analogue and 67.47% ( $n = 168$ ) correctly classified as non-GAD. The difference in the proportions of correct classification was significant,  $\chi^2 = 3.89$ ,  $p = .049$ , suggesting that the STAXI-2 subscales can better identify individuals who do not meet diagnostic criteria for GAD than those who do.

To assess the effect of anger on GAD symptom severity, a multiple regression analysis predicting GAD-Q-IV continuous scores was conducted within the GAD-analogue group ( $n = 131$ ), with the STAXI-2 subscales entered as predictors. As expected, the regression model was statistically significant,  $F(5, 125) = 3.54$ ,  $R^2 = .124$ ,  $p = .005$ . Of the predictor variables, only AX-I significantly predicted GAD symptom severity ( $\beta = .22$ ,  $p = .017$ ). See Table 4 for detailed results of the multiple regression.

### **Aggression and GAD Group Membership**

To examine the difference between the GAD-analogue group and the non-GAD group on the AQ subscales, a MANOVA was conducted. GAD group membership served as the independent variable, whereas AQ subscales served as the dependent variables. As expected, there was a statistically significant difference between the GAD-analogue group and the non-

GAD group on the combined AQ subscales,  $\lambda = 0.84$ ,  $F(4, 376) = 17.34$ ,  $p < .001$ ,  $\eta^2 = .156$ . See Table 5 for means and standard deviations of AQ subscales by GAD group membership.

A discriminant function analysis was conducted to examine the relative contribution of each AQ subscale to GAD group membership. The correlations between the predictors and the discriminant function suggest that elevated AQ-HOST (Hostility) and AQ-ANG (Anger) accounted for the most variance in GAD group membership. See Table 6 for canonical coefficients and the structure matrix. Using Jackknife classification, the discriminant function could be used to correctly classify 66.93% ( $n = 255$ ) of individuals into their respective groups, with 64.89% ( $n = 85$ ) correctly classified as GAD-analogue and 68.00% ( $n = 170$ ) correctly classified as non-GAD. The difference in the proportions of correct classification was not statistically significant,  $\chi^2 = .38$ ,  $p = .54$ .

To assess the association of aggression to GAD symptom severity, a multiple regression analysis with AQ subscales predicting GAD-Q-IV continuous scores was conducted within the GAD-analogue group. As expected, the regression model was statistically significant,  $F(4, 126) = 7.80$ ,  $R^2 = .198$ ,  $p < .001$ . Of the predictor variables, only hostility (AQ-HOST) significantly predicted GAD symptom severity ( $\beta = .39$ ,  $p < .001$ ). See Table 7 for detailed results of the multiple regression.

### Discussion

The goal of the current study was to examine the relations between specific dimensions of anger, and the presence and severity of GAD. Overall, our results suggest that heightened levels of anger, in particular trait anger, internalized anger expression, anger as the affective component of aggression, and hostility, are uniquely related to GAD status. Our results also suggest that, when controlling for shared variance between the subscales, only internalized anger

expression from the STAXI and hostility from the AQ uniquely contribute to the severity of GAD symptoms within individuals who meet diagnostic criteria. These findings are broadly consistent with our hypotheses.

The current findings are also in keeping with previous research on anger and anxiety disorders demonstrating that elevated anger levels, particularly internalized anger expression (e.g., Bridewell & Chang, 1997; Orth & Wieland, 2006) and hostility (e.g., Moscovitch et al. 2008), are present in anxious individuals. Also in accordance with our findings, Erdem and colleagues (2008) found that individuals with GAD have elevated levels of trait anger and anger expression. Although Hawkins and Cogle (2011) showed that a diagnosis of GAD was related to elevated anger experience and a greater tendency to express anger *externally*, they did not assess the tendency to express anger *internally*. Our results suggest that when the shared variance between internal and external anger expression is controlled, internalized anger expression is a stronger predictor of GAD.

Although our results do not address the question of *why* anger and GAD tend to co-occur, one possibility is that they are functionally related due to shared information processing biases. For example, Barrazone and Davey (2009) found that both angry and anxious mood inductions led to increased threat interpretations of ambiguous homophones (e.g., slay/sleigh). Relatedly, Owen (2011) concluded based on a review of the published literature that high trait anger is characterized by similar transdiagnostic cognitive processes (e.g. selective attention) as other emotional disorders such as depression and anxiety disorders. In addition, anger and GAD may share underlying cognitive vulnerabilities such as intolerance of uncertainty. Intolerance of uncertainty arises from a set of negative beliefs, including the belief that uncertainty is unfair (Sexton & Dugas, 2009). Similarly, anger has been associated with perceived unfairness (e.g.,

Barclay et al., 2005). One possibility is that perceiving a state of uncertainty as unfair can lead to anger, anxiety, or both, in individuals who do not cope well with uncertainty. Future studies should aim to examine the role of intolerance of uncertainty in anger. Overall, it seems possible that similar cognitive processes contribute to both anger and anxiety. Another possibility relates to a model of GAD that posits that the heightened intensity of many emotions contribute to GAD (Mennin, Heimberg, Turk, & Fresco, 2005). Thus, individuals with GAD may find anger and other emotions overwhelming, and these individuals may therefore worry about the consequences of losing control over their anger.

Anger may be particularly important to examine in the context of anxiety disorders as it can interfere with cognitive-behavioural treatment (CBT). For instance, one study found that pre-treatment anger predicted poorer response to CBT for individuals with social anxiety disorder (Erwin et al., 2003). Although the mechanisms by which anger leads to poor CBT responses are unknown, one possibility is that anger interferes with common therapy factors in the treatment of anxiety disorders. For example, anger may interfere with the development of a strong therapeutic alliance, as suggested by DiGiuseppe, Tafrate, and Eckhardt (1994). In addition, anger may lead to lower motivation in treatment or resistance to change, or a less collaborative approach to goal setting, all of which are known to affect treatment response (Hubble, Duncan, & Miller, 2004).

It is currently unknown whether anger leads to poor responses in the cognitive-behavioural treatment of GAD. We can postulate, however, that anger may interfere with some components of empirically-supported CBT protocols for GAD. For example, Roemer and Orsillo (2007) developed a treatment protocol that targets experiential avoidance, which is characterized by attempts to reduce the intensity and frequency of negative internal experiences. Anger may interfere with clients' ability to focus awareness on the present moment and accept internal

experiences. Another empirically-supported CBT protocol for GAD includes problem-solving training as a component of treatment (Dugas & Robichaud, 2007). Given that high levels of anger and hostility have been found to predict poor social problem-solving skills (D’Zurilla, Chang, & Sanna, 2003), individuals with GAD who have elevated anger may be faced with particular challenges when attempting to solve their day-to-day problems. The effect of anger on specific components of treatment, however, requires further exploration.

The finding that scores on measures of anger and aggression correctly classified individuals meeting diagnostic criteria for GAD at a greater than chance level (57.3% and 64.9%, respectively) is noteworthy. These findings suggest that it may be valuable for clinicians to inquire about anger difficulties in clients with GAD to obtain a more complete understanding of potential emotional problems, particularly given that difficulties with anger management are not screened for in common diagnostic assessments, with the exception of borderline personality disorder (e.g., The Structured Clinical Interview for DSM-IV Axis-II Disorders (SCID-II); First, Spitzer, Gibbon, & Williams, 1997).

### **Limitations**

A possible caveat to empirically investigating anger is the lack of a consistent definition of anger and its related constructs (Eckhardt, Norlander, & Deffenbacher, 2004). There is currently little agreement on definitions for the dimensions of anger, and this likely affects the development of self-report anger assessments. Thus, the reliance on such self-report measures in the present study is a limitation. Future studies could improve on this by using multi-method assessments of anger. In addition, our study is limited by the use of an analogue sample of GAD composed of university students enrolled in at least one psychology course. Although analogue samples have been shown to be similar to clinical samples of individuals with GAD on measures

of worry and anxiety (Roemer, Borkovec, Posa, & Borkovec, 1995), we cannot be certain that the anger levels reported by our GAD-analogue group would be comparable to individuals with GAD who were recruited from a clinical setting.

Arguably, another limitation is that our statistical analyses did not control for depression. Elevated anger levels have been found in individuals with major depression (e.g., Riley, Treiber, & Woods, 1989), and GAD and major depression are highly comorbid (e.g., Brown, Campbell, Lehman, Grisham, & Mancill, 2001). It is therefore possible that our results were in part due to shared variance between anger and depression. However, the decision to exclude depression as a covariate was made to increase the ecological validity of our results. Specifically, there are a number of symptoms of GAD and depression that overlap, such as difficulty concentrating, fatigue, and sleep disturbance (APA, 2000), and these criteria were included in our measure of GAD. In addition, negative affect is common to both anxiety and depression, as suggested by the tripartite model of depression and anxiety (Clark & Watson, 1991). Relatedly, depressive symptoms are important features of the clinical presentation of GAD, and controlling for these would “exclude” a number of symptoms that make up the diagnostic criteria for GAD, thereby limiting the generalizability of our results. Furthermore, Miller and Chapman (2001) suggested that statistically “removing” shared variance between two conceptually similar constructs (e.g., anxiety and depression) leads to poor construct validity of the target construct. In summary, we chose not to control for depression, given the overlapping nature of GAD and depression.

## **Conclusions**

The potential link between anger and GAD in cognitive-behavioural contexts has not been given much attention. This is reflected in the scarce literature on anger and GAD, and the lack of recommendations for addressing anger-related symptoms in evidence-based treatments



for GAD. The current findings highlight the importance of examining the co-occurrence of anger and GAD. Overall, our results suggest that multiple facets of anger are related to GAD symptoms; although further research is needed to identify the mechanisms by which high trait anger, internalized anger expression, and hostility are related to GAD.

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Table 1

*Correlations Between the GAD-Q-IV, the STAXI-2, and the AQ (N = 381)*

	1	2	3	4	5	6	7	8	9	10	11	12
1. GAD-Q-IV	1.00	.34**	.25**	.33**	-.16**	-.15**	.17**	.10*	.34**	.46**	-.033	-.16**
2. T-ANG <sup>1</sup>		1.00	.70**	.38**	-.57**	-.41	.63**	.52**	.73**	.55**	-.09	-.07
3. AX-O			1.00	.20**	-.59**	-.40**	.57**	.61**	.63**	.34*	-.10	-.04
4. AX-I				1.00	-.06	-.14**	.16**	.07	.28**	.55**	-.04	.03
5. AC-O					1.00	.66**	-.43**	-.45**	-.62**	-.26**	.02	.12*
6. AC-I						1.00	-.29**	-.29**	-.44**	-.27**	.06	.04
7. AQ-PA							1.00	.49**	.60**	.37**	-.06	.13*
8. AQ-VA								1.00	.54**	.36**	-.06	.05
9. AQ-ANG									1.00	.50**	-.01	-.08
10. AQ-HOST										1.00	-.12*	-.08
11. Age											1.00	.02
12. Sex <sup>a</sup>												1.00

\* $p < .05$ , \*\*  $p < .01$



*Note.* GAD-Q-IV = Generalized Anxiety Disorder Questionnaire IV; STAXI-2 = State-Trait Anger Expression Inventory, second edition; AQ = Aggression Questionnaire; T-ANG = State-Trait Anger Expression Inventory II – Trait Scale; AX-O = State-Trait Anger Expression Inventory II – Anger Expression-Out subscale; AX-I = State-Trait Anger Expression Inventory II – Anger Expression-In subscale; AC-O = State-Trait Anger Expression Inventory II – Anger Control-Out subscale; AC-I = State-Trait Anger Expression Inventory II – Anger Control-In subscale; AQ-PA = Aggression Questionnaire – Physical Aggression Subscale; AQ-VA = Aggression Questionnaire – Verbal Aggression Subscale; AQ-ANG = Aggression Questionnaire – Anger Subscale; AQ-HOST = Aggression Questionnaire – Hostility Subscale.

<sup>1</sup>Data missing for one participant ( $n = 380$ )

<sup>a</sup>Point-biserial correlation, 0 = female, 1 = male.

Table 2

*Means and Standard Deviations for the STAXI-2 by GAD Group Membership*

STAXI-2 subscales	GAD-analogue ( <i>n</i> = 131)		Non-GAD ( <i>n</i> = 250)	
	Mean	<i>SD</i>	Mean	<i>SD</i>
T-ANG <sup>1</sup>	21.50 <sup>a</sup>	6.19	18.52 <sup>b</sup>	4.73
AX-O	16.35 <sup>a</sup>	4.91	14.74 <sup>b</sup>	3.59
AX-I	19.42 <sup>a</sup>	4.62	16.86 <sup>b</sup>	4.83
AC-O	22.18 <sup>a</sup>	5.22	23.39 <sup>b</sup>	4.51
AC-I	20.86 <sup>a</sup>	5.06	22.38 <sup>b</sup>	4.71

*Note.* Means with differing superscripts are significantly different ( $p < .05$ ). STAXI-2 = State-Trait Anger Expression Inventory, second edition; GAD = generalized anxiety disorder; T-ANG = State-Trait Anger Expression Inventory II – Trait Scale; AX-O = State-Trait Anger Expression Inventory II – Anger Expression-Out subscale; AX-I = State-Trait Anger Expression Inventory II – Anger Expression-In subscale; AC-O = State-Trait Anger Expression Inventory II – Anger Control-Out subscale; AC-I = State-Trait Anger Expression Inventory II – Anger Control-In subscale.

<sup>1</sup>Data missing for one participant (Non-GAD:  $n = 249$ )

Table 3

*Standardized Canonical Coefficients and Structure Matrix for the STAXI-2 Predicting GAD Group Status (N = 380<sup>1</sup>)*

STAXI-2 Subscales	Standardized Canonical Coefficients	Structure Matrix
T-ANG	.570	.815
AX-O	.090	.567
AX-I	.553	.780
AC-O	.190	-.372
AC-I	-.266	-.462

*Note.* STAXI-2 = State-Trait Anger Expression Inventory, second edition; GAD = generalized anxiety disorder; T-ANG = State-Trait Anger Expression Inventory II – Trait Scale; AX-O = State-Trait Anger Expression Inventory II – Anger Expression-Out subscale; AX-I = State-Trait Anger Expression Inventory II – Anger Expression-In subscale; AC-O = State-Trait Anger Expression Inventory II – Anger Control-Out subscale; AC-I = State-Trait Anger Expression Inventory II – Anger Control-In subscale.

<sup>1</sup>Data missing for one participant

Table 4

*Multiple Regression for the STAXI-2 Predicting GAD Symptom Severity in GAD-Analogues (n = 131)*

STAXI-2 Subscales	$R^2$	$B$	$SE$	$\beta$	[Lower, Upper]
					95% Confidence Interval for $B$
STEP 1	.124				
T-ANG		.067	.045	.211	[-.022, .155]
AX-O		.019	.057	.048	[-.094, .133]
AX-I		.091*	.038	.215	[.016, .165]
AC-O		.011	.055	.029	[-.097, .119]
AC-I		.014	.044	.036	[-.074, .101]

\* $p < .05$

*Note.* STAXI-2 = State-Trait Anger Expression Inventory, second edition; GAD = generalized anxiety disorder; T-ANG = State-Trait Anger Expression Inventory II – Trait Scale; AX-O = State-Trait Anger Expression Inventory II – Anger Expression-Out subscale; AX-I = State-Trait Anger Expression Inventory II – Anger Expression-In subscale; AC-O = State-Trait Anger Expression Inventory II – Anger Control-Out subscale; AC-I = State-Trait Anger Expression Inventory II – Anger Control-In subscale.

Table 5

*Means and Standard Deviations for the AQ by GAD Group Membership*

AQ subscales	GAD-analogue ( <i>n</i> = 131)		Non-GAD ( <i>n</i> = 250)	
	Mean	<i>SD</i>	Mean	<i>SD</i>
AQ-PA	19.42 <sup>a</sup>	7.97	17.70 <sup>b</sup>	6.63
AQ-VA	14.80 <sup>a</sup>	4.96	14.38 <sup>a</sup>	4.04
AQ-ANG	19.05 <sup>a</sup>	6.60	15.64 <sup>b</sup>	5.44
AQ-HOST	23.95 <sup>a</sup>	5.74	19.15 <sup>b</sup>	6.39

*Note.* Means with differing superscripts are significantly different ( $p < .05$ ). AQ = Aggression Questionnaire; GAD = generalized anxiety disorder; AQ-PA = Aggression Questionnaire – Physical Aggression Subscale; AQ-VA = Aggression Questionnaire – Verbal Aggression Subscale; AQ-ANG = Aggression Questionnaire – Anger Subscale; AQ-HOST = Aggression Questionnaire – Hostility Subscale.

Table 6

*Standardized Canonical Coefficients and Structure Matrix for the AQ Predicting GAD Group Membership (N = 380<sup>1</sup>)*

AQ Subscales	Standardized Canonical Coefficients	Structure Matrix
AQ-PA	-.163	.268
AQ-VA	-.444	.108
AQ-ANG	.624	.645
AQ-HOST	.799	.862

*Note.* AQ = Aggression Questionnaire; GAD = generalized anxiety disorder; AQ-PA = Aggression Questionnaire – Physical Aggression Subscale; AQ-VA = Aggression Questionnaire – Verbal Aggression Subscale; AQ-ANG = Aggression Questionnaire – Anger Subscale; AQ-HOST = Aggression Questionnaire – Hostility Subscale.

<sup>1</sup>Data missing for one participant

Table 7

*Multiple Regression for the AQ Predicting GAD Symptom Severity in GAD-Analogues (n = 131)*

AQ Subscales	$R^2$	$B$	$SE$	$\beta$	[Lower, Upper] 95% Confidence Interval for $B$
STEP 1	.198				
AQ-PA		.036	.028	.149	[-.019, .091]
AQ-VA		.002	.043	.006	[-.083, .087]
AQ-ANG		-.011	.034	-.037	[-.078, .057]
AQ-HOST		.131**	.030	.386	[.072, .190]

\*\*  $p < .01$

*Note.* AQ = Aggression Questionnaire; GAD = generalized anxiety disorder; AQ-PA = Aggression Questionnaire – Physical Aggression Subscale; AQ-VA = Aggression Questionnaire – Verbal Aggression Subscale; AQ-ANG = Aggression Questionnaire – Anger Subscale; AQ-HOST = Aggression Questionnaire – Hostility Subscale.