

Anger and Anxiety in Light of Emotion Regulation and Relationship Satisfaction

Helena Olejčková

Utrecht University

Supervisor: Mark van Overveld

Student Number: 0758205

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Abstract

Studies have indicated that anger is involved in the maintenance of anxiety and consequently, could impact anxiety-related disorders. Based on existing literature, one way of dealing with anger within anxiety treatment could be through training emotion regulation. Additionally, relationship satisfaction may affect anger. The aim of this study is to investigate the relationship between anxiety and anger, and whether this relationship could be affected by emotion regulation and relationship satisfaction. It was hypothesized that anxiety will significantly predict anger, and that both emotion regulation and relationship satisfaction will negatively moderate this relationship.

In a quantitative correlational study, 103 participants ($n=103$) completed a series of questionnaires on anxiety, anger, relationship satisfaction, emotion regulation, and negative affect. The results showed that anxiety correlates significantly and positively with anger. Moreover, emotion regulation moderated the relationship positively between the main variables, and relationship satisfaction moderated them negatively. Overall, the study seeks to contribute to our understanding of the role of emotion regulation and relationship satisfaction in managing negative emotional states like anger and anxiety. Implications for future research within this topic arose from the results.

Keywords: *anxiety, anger, emotion regulation, relationship satisfaction*

1. Literature Review

Anxiety disorders are one of the most prevalent classes of psychological disorders among the general population (Amstadter, 2008). While anxiety on its own can at times be useful in eliciting a state of alertness or the fight-or-flight response to protect us from danger, anxiety disorders are problematic. They are often characterized by an excessive amount of anxiety, which can lead to maladaptive responses potentially causing problems and general negative affect in daily lives (Amstadter, 2008). For these reasons, it is important to investigate factors relevant to the development, maintenance, and treatment of anxiety.

1.1. Construct Definition. According to the DSM-V (APA, 2013), anxiety is “the anticipation of future threat”. It typically results in muscle tension as well as a state of high cautiousness (APA, 2013). The state of arousal which characterizes anxiety can be the outcome of either a real threat or an imagined one (Amstadter, 2008). As explained by Amstadter (2008), anxiety can “consume attentional resources and lead to feelings of helplessness and withdrawal”. In extreme form, anxiety may even lead to anxiety disorders. Anxiety disorders feature anxiety persistently or in an excessive amount (i.e., outside of what would be “developmentally appropriate”) (APA, 2013).

Anxiety disorders have also been called “ailments of emotion” (Amstadter, 2008). Barlow (1991) explains that both mood and anxiety disorders are largely an outcome of problems with emotions (e.g., high intensity, long duration). Previous research suggested that, in addition to anxiety, anger may also be important in the development and/or the maintenance of anxiety-related disorders (Hawkins & Cogle, 2011; Moscovitch et al., 2008). As summarized by del Barrio et al. (2004), anger can be classified as one of our basic emotions and can be understood as a gateway emotion to hostility and/or aggression. To

elaborate, anger is said to be triggered by a thwarting of goal attainment, an obstacle to need fulfillment, or provocation (Etzler et al., 2014).

1.2. Anger and Anxiety as the Main Relationship. As mentioned above, past studies have suggested that anger may play a role in developing and maintaining anxiety-related disorders (Hawkins & Cogle, 2011; Moscovitch et al., 2008). Interestingly, in the past, a relationship between anxiety and anger was thought to be impossible. It was assumed that the two cannot co-occur; anger was sometimes even brought on intentionally to treat anxiety (Hawkins & Cogle, 2010). A more accurate and updated way to conceptualize the relationship between the two is to see anger as a possible outcome of anxiety; in other words, in a prepared fight-or-flight state, a person will either act upon fear (flight) or anger (fight) (Hawkins & Cogle, 2010). Anger could then function as a tool “to gain mastery over a situation and suppress feelings of helplessness in the face of threat” (Hawkins & Cogle, 2010). Similarly, Novaco (2010) explained that anger’s function can be to protect an individual through suppressing fear. Thus, generally, contemporary views on anger in connection to anxiety seem to imply that one involves the other rather than excluding it in real world situations, indicating that anger may accompany anxiety.

For instance, Gould et al. (1996) pointed out that individuals experiencing intense anger also reported higher levels of anxiety and depression, and that anger attacks are more common in anxiety disorders, such as generalized anxiety disorder and panic disorder. Until the development of the newest fifth edition of the DSM, post-traumatic stress disorder was classified as an anxiety disorder and has potentially been the most studied in connection to anger (Taft et al., 2017). Anger has repeatedly been shown to be clearly positively associated to PTSD (Taft et al., 2017). In fact, anger is generally more likely to be dysregulated in individuals with a traumatic past (Novaco, 2010). Regardless of PTSD not belonging to the category of anxiety disorders anymore, it is important to consider whether the connection of

PTSD to anger involves PTSD's anxiety-related aspects. Some of the PTSD clusters in the DSM-V, namely "Negative Alterations in Cognitions and Mood (NCM, Cluster-D) and Alterations to Arousal and Reactivity (Cluster-E)" are symptoms that are highly related to generalized anxiety disorder, for instance (Price et al., 2019). In addition, the experience of trauma is also related to anxiety prevalence (Price et al., 2019). Furthermore, Hawkins and Cogle (2010) pointed out that intermittent explosive disorder is closely associated with the entirety of anxiety disorders, and anger is unquestionably an important factor in IED.

However, some have theorized that anxiety disorders, as compared to others (e.g., specific trauma-related and personality disorders) is actually a group of disorders in which anger is not relevant (Novaco, 2010). Moscovitch et al. (2008) found that the relationship between anxious disorders and anxiety differs depending on disorder. Specifically, they found that social phobia, obsessive-compulsive disorder, and panic disorder seem to involve significantly more anger compared to specific phobias. On the other hand, Hawkins and Cogle (2010) argue that different anxiety disorders simply differ in how anger within them is experienced and/or conveyed on the outside.

Disorders such as these involve poor impulse control, which is linked to impaired emotion regulation (Fettich et al., 2015). Many disorders, including anxiety-related disorders, in some way or another present a problem in emotion regulation (Gross & Jazaieri, 2014). Across research, emotion regulation is generally seen as a group of various techniques, which can be used to modify how and/or when emotions are experienced and expressed (Amstadter, 2008). In simpler terms, it can be seen as an ability to exert control over our emotions. While the main dysregulated emotion in anxiety disorders is considered to be fear (American Psychiatric Association, 2013), this study will explore how anger may be related to this category of disorders. Since the way our emotions manifest can often be harmful to us, especially in the context of psychopathology, emotion regulation techniques are an important

part of the treatment of disorders (Gross & Jazaieri, 2014). Research into different emotions occurring within different disorders can help in developing more focused/specific emotion regulation techniques for certain disorders. For instance, some research has shown that employing “thought stopping” as an emotion regulation technique during anxiety-focused therapy can be very helpful in treatment of anxiety disorders (Amstadter, 2007).

1.3. Emotion Regulation as a Confounding Variable. Intuitively, it would make sense to assume that emotion regulation plays an important role in anger. Emotion regulation boosts our general psychological well-being, especially when dealing with negative emotions (Szasz et al., 2011). While Szasz et al. (2011) claim that research on emotion regulation with anger specifically is lacking, there is research that shows how adaptive emotion regulation techniques (e.g., cognitive reappraisal) can provide control over anger, generally reducing its intensity. Studies have also shown how maladaptive emotion regulation techniques (e.g., suppression) are unhelpful and can even be harmful when dealing with distress or for particularly anger as well (Szasz et al., 2011). For example, specifically rumination (maladaptive technique) has been shown to increase anger (Szasz et al., 2011).

According to these findings, adaptive emotion regulation techniques can be helpful in dealing with anger, which in the cited research is more concretely understood as decreasing anger. In this way, if high levels of emotion regulation decrease anger, this may weaken the relationship between anxiety and anger. Thus, emotion regulation techniques focused on dealing with anger may potentially improve anxiety-related psychopathology. Additionally, multiple factors can influence emotions within psychopathology in addition to emotion regulation. In this study, satisfaction in romantic relationships will be examined as a factor which could influence the expression of anger (Novaco, 2010).

1.4. Relationship Satisfaction as a Confounding Variable. Relationships with our partners represent a critical aspect of our lives, as they can bring us “support, love, health, and well-being” but can also cause problems (Røysamb et al., 2014). Røysamb et al. (2014) understand the concept as how we perceive our own and our partner’s happiness within the shared relationship. Røsand et al. (2012) called relationship satisfaction a “buffer” to a number of negative emotions. Past studies as well as the study by Røsand et al. (2012) show that higher relationship satisfaction is significantly associated with lower emotional distress. Many people view their romantic relationship as their key relationship in life, which is why it is important to consider especially when examining people’s emotional tendencies (Røsand et al., 2012). While there is research that has explored how neuroticism, and specifically aggression within neuroticism, puts relationship satisfaction at risk (Renshaw et al., 2010), Vater and Schröder-Abé (2015) explain that personality factors and relationship satisfaction influence each other bidirectionally. While anger may negatively affect a couple’s or individual’s happiness within a romantic relationship, low satisfaction in the relationship may encourage anger as well.

Yet, like functional emotion regulation strategies, high relationship satisfaction can potentially decrease anger. Revisiting Røsand et al.’s (2012) use of the word “buffer” to describe relationship satisfaction, Taft et al. (2017) explained that symptoms of PTSD did not predict aggressive behavior when relationship satisfaction was controlled for, meaning that relationship satisfaction acted as a buffer against aggression. More generally, this may represent how important relationship satisfaction may be in negative affect, including anger. Analyzing relationship satisfaction in the context of this study may shed light onto how such factor may play into reducing anger and/or anxiety as well.

1.4. Research Question and Hypotheses. Drawing from the summary of previous findings, the research question was formulated as such: *Is anger significantly related to anxiety and*

can emotion regulation and relationship satisfaction moderate this relationship? Because past studies did not always yield similar results, the following hypotheses address the connections between variables that were more supported overall: 1. High levels of anxiety will be positively associated with high levels of anger. 2. High levels of emotion regulation will negatively moderate the relationship between anxiety and anger. 3. High levels of relationship satisfaction will negatively moderate the relationship between anxiety and anger.

As a control variable, negative affect will be measured. Encompassing many aversive emotions including anger as well, negative affect was described as “subjective distress and unpleasurable engagement” (Watson et al., 1988). To understand the concept of negative affect, it is helpful to consider its correlation with factors like trait negative emotionality and neuroticism (Watson et al., 1988). Through measuring general negative affect, the relationship between the main variables can potentially be further explained. For instance, negative affect may explain the role of relationship satisfaction and emotion regulation in the relationship between the two main variables (Lopez & Denny, 2019).

2. Method

2.1. Research Design. The present study was conducted using a quantitative and correlational research strategy to identify whether anxiety, the independent variable, predicted anger, the dependent variable. Emotion regulation and relationship satisfaction, the moderating variables, were included in the analysis to see whether they affect the relationship between the two main variables. Lastly, negative affect acted as a control variable. The research was conducted using online self-report measures.

2.2. Participants. To increase the chances of obtaining a large sample, the participants were recruited using convenience sampling, meaning that the participants were self-selected for the study rather than being picked out purposefully by the researcher (Stratton, 2021). The

inclusion criterion required to be able to participate was that participants were currently in a romantic relationship. The total number of participants was 103. The sample size calculation showed that the ideal number would have been 385. Most recruited participants (39.8%; $n=41$) were individuals with a graduate degree (see Appendix A). The rest had either a high school degree (23.3%; $n=24$), undergraduate degree (13.6%; $n=14$), or post-graduate degree (2.3%; $n=24$) (see Appendix A). Over half of the participants were female (60.2%; $n=62$), while almost all the rest were male (38.8%; $n=40$), and one identified as other (1%) (see Appendix A). Most participants were Slovak (63.1%; $n=65$), 2.9% were American ($n=3$), 1.9% were Dutch ($n=2$), 3.9% were German and the same amount was Ukrainian ($n=4$), and the rest were a different nationality (24.3%; $n=25$) (see Appendix A). The mean age was 26.12 (see Section 3, Table 1).

2.3. Measures. The following measures were used: the State-Trait Anxiety Inventory (STAI) for anxiety, the State-Trait Anger Expression Inventory (STAXI) for anger, the Regulation of Emotions Questionnaire (REQ) for emotion regulation, the Relationship Satisfaction scale (RS) for relationship satisfaction, and the Positive and Negative Affect Schedule (PANAS) for negative affect (Oei et al., 1990; de Azevedo et al., 2010; Phillips & Power, 2007; Røysamb et al., 2014; Watson et al., 1988) All scales can be found in Appendix B.

2.3.1. STAI. The State-Trait Anxiety Inventory is a well-established measure for measuring anxiety (Oei et al., 1990). The STAI has 37 items. Some of the items in this scale measure how much anxiety is experienced at the moment the questionnaire is taken (i.e., state anxiety) while other items address anxiety as a more stable personality trait (i.e., trait anxiety). State anxiety is measured by items that focus on how a person is feeling at the time of taking the questionnaire, such as “I feel nervous”. On the other hand, trait anxiety is measured with items worded generally (i.e., not time-specific) like “I lack self-confidence”. Items are scored on a 4-point Likert scale from 1 (strongly disagree) to 4 (strongly agree).

The STAI is effective to determine levels of anxiety that may be clinically significant (Oei et al., 1990), making it very suitable for the purpose of this research. It is a valid and reliable scale ($\alpha=0.85$; Vitasari et al., 2011).

2.3.2. STAXI. While feeling anger and expressing it are two different things, for the purpose of this research, they will not be analyzed separately since expressing anger indicates that anger is being felt. Rather, importance is placed on anger being measured as an emotion regardless of expression. The widely used State-Trait Anger Expression inventory (STAXI) has 42 items and includes 5 subscales that measure various dimensions of anger: trait anger (e.g., “When I get mad, I say nasty things”), state anger (e.g., “I feel angry”), anger control (e.g., “I am patient with others”), anger oriented inwardly (e.g., “I withdraw from people”), and anger oriented outwardly (e.g., “I argue with others”) (de Azevedo et al., 2010). Items are scored on a 4-point Likert scale from 1 (strongly disagree) to 4 (strongly agree). The STAXI has strong psychometric properties and has high reliability ($\alpha=0.84$; de Azevedo et al., 2010).

2.3.3. REQ. The Regulation of Emotions Questionnaire (REQ) was constructed based on the framework that we process our emotions either in an adaptive way, which allows for making use of an emotion’s relevant function (e.g., “I put situations into perspective”), or in a maladaptive way, meaning an emotion is processed in an unhelpful way or alternatively not processed at all (e.g., “I bully other people”) (Phillips & Power, 2007). It consists of 18 items that are rated by participants on a 5-point Likert scale from 1 (not at all) to 5 (always). The items in the REQ are also worded in a way that implies that an individual uses an emotion regulation strategy involving either internal resources or external resources (Phillips & Power, 2007). This second distinction is not as important for the purposes of our study, as functional emotional regulation can be both internal and external (Phillips & Power, 2007). The REQ is a reliable measure of emotion regulation ($\alpha=0.81$; Phillips & Power, 2007).

2.3.4. RS. Røysamb et al. (2014) created the Relationship Satisfaction scale (RS) measuring relationship satisfaction, which involves aspects of this construct that have appeared recurrently across multiple previously developed measurements for the same construct. The researchers focused on avoiding cultural specificity and redundancy in the form of similar items, and they focused on measuring the construct through relationship evaluation rather than through specific behaviors (Røysamb et al., 2014). It is a 10-item 4-point Likert scale from 1 (strongly disagree) to 4 (strongly agree). An example of an item of the RS is “I often consider ending our relationship” (Røysamb et al., 2014). Research confirmed that the RS has strong psychometric properties ($\alpha=0.92$; Røysamb et al., 2014).

2.3.5. PANAS. Watson et al. (1988) developed the Positive Affect and Negative Affect Schedule to measure positive and negative affect in a way that is easy to administer and is relatively brief, at least in comparison to previously utilized measures for these constructs. It is a 20-item 5-point Likert scale. Ten items measure positive affect (e.g., I feel enthusiastic) and ten quantify negative affect (e.g., I feel hostile) (Watson et al., 1988). The finalized scale asks participants about how they feel in multiple different given time frames (Watson et al., 1988). For this study, it was important to gain a measure of participants’ negative affect in general, which is why the only time frame used was the general one (i.e., participants were asked how they feel on average). The PANAS is valid and reliable ($\alpha=0.88$; Von Humboldt et al., 2017).

2.4. Procedure. Using online survey platform Qualtrics, an online survey was constructed. The link to the survey was then posted on social media, namely Facebook and Instagram, accompanied with a short introduction encouraging people that are currently in a romantic relationship to participate in the study. It was also sent privately to people in the network of the researcher that are known to be in relationships, as this was the target group for the study.

After clicking on the survey, participants were briefed on the study and had to provide informed consent (see Appendix B). Participants could not continue to the next section of the survey until they indicated they were voluntarily choosing to participate. Then, participants completed the following questionnaires in this order: anger (STAXI), anxiety (STAI), emotion regulation (REQ), relationship satisfaction (RS), negative affect (PANAS). Lastly, they answered questions about demographic variables and a few additional questions regarding the details of their relationship. All questions were set to be required to answer, meaning the form did not allow for the occurrence of missing values. After answering the questions, the participants were debriefed (i.e., more details about the nature of the study were provided) (see Appendix B).

All responses were processed entirely anonymous, which was stated in the informed consent. Participation in the study was strictly voluntary (i.e., no reward was offered). Finally, it is important to note that before data collection, approval for the method of the study was obtained from the Faculty Ethics Review Committee at Utrecht University.

3. Results

In this chapter, the results are discussed on descriptive statistics and the testing of the hypotheses.

3.1. Descriptives. Most participants of the sample were in a relationship (70.9%; $n=73$), as compared to married (9.7%; $n=10$) or in a domestic relationship (19.4%; $n=20$) (see Appendix A). As Table 1 shows, the mean for subjective relationship rating (on a scale of 1 to 10) was 8.29, suggesting a relatively high overall relationship satisfaction among the participants. The average relationship length in years was around 3 years ($SD=2.84503$), with a maximum of 19 years (see Table 1).

Table 1*Descriptive Statistics*

Variables	Minimum	Maximum	Mean	SD
Relationship Rating (0-10)	2	10	8.29	1.678
Relationship Length (years)	0	19	3.2752	2.84503
Age	19	53	26.12	6.043
STAXI	58	115	86.05	13.082
STAI	42	125	83.43	18.258
REQ	40	84	69.23	7.960
RS	13	40	32.83	5.668
PANAS	28	83	48.53	11.661
Valid N (listwise)				103

3.2. Hierarchical Regression. Next, a series of regressions were used to test the hypotheses. Before running regressions, assumptions needed to be examined. According to the Durbin-Watson test, the assumption of error independence was not violated (1.877). All VIF tolerance values were greater than 1, indicating that there was no multicollinearity. The residuals were approximately normally distributed as assessed by a visual inspection of the histograms of the data. Since the assumptions were not violated, regressions were run.

To examine the hypotheses, a hierarchical regression was performed. In the first block, the control variable of negative affect (PANAS) was entered in the model to predict dependent variable anger (STAXI). Next, in the second block, anxiety (STAI) was added as a predictor of anger. In the third block, relationship satisfaction and emotion regulation were added as predictors. In the last block, interaction terms were added as predictors, namely anxiety with emotion regulation and anxiety with relationship satisfaction.

As Table 2 shows, the first model was significant and explained 28.7% of the variance in anger scores ($R^2=0.287$; $F(1,101)=40.674$, $p<0.001$), meaning that negative affect statistically significantly and positively associated with anger. The second model was also significant, explaining significantly more of the variance in anger scores ($\Delta R^2=0.146$,

$p < 0.001$; $F(2,100) = 38.198$, $p < 0.001$) (see Table 2). Therefore, anxiety was significantly positively associated with anger, confirming the first hypothesis.

The addition of relationship satisfaction and emotion regulation in the third model also yielded statistically significant results, $F(4,98) = 24.237$, $p < 0.001$ (see Table 2). The third model explained the variance of anger scored by 6.4% more than the previous model, which was a significant increase ($\Delta R^2 = 0.064$, $p = 0.003$) (see Table 2). However, only relationship satisfaction was significant ($\beta = -0.365$, $p < 0.001$), emotion regulation was not ($\beta = 0.071$, $p = 0.367$) (see Table 2). The last model was also significant ($F(6,96) = 21.120$, $p < 0.001$), and it explained the variance in anger scores significantly more than the previous one ($\Delta R^2 = 0.072$, $p < 0.001$) (see Table 2). The interaction terms for anxiety x emotion regulation ($\beta = 1.808$, $p < 0.001$) and anxiety x relationship satisfaction ($\beta = -1.333$, $p = 0.012$) were both statistically significant (see Table 2). As shown by the coefficients, when emotion regulation interacted with anxiety, anger scores increased (see Figure 1). However, when relationship satisfaction interacted with anxiety, anger scores decreased (see Figure 2). Therefore, the second hypothesis was rejected, and the third hypothesis was confirmed.

Table 2

Hierarchical Regression

Independent Variables	R ²	ΔR ²	Sig. F Change	F	Sig. (ANOVA)	β	Sig. (Coefficients)
Model 1 PANAS	0.287	0.287	<0.001	40.674	<0.001	0.536	<0.001
Model 2 (R=0.658) STAI	0.433	0.146	<0.001	38.198	<0.001	0.714	<0.001
Model 3 (R=0.705) RS REQ	0.497	0.064	0.003	24.237	<0.001	-0.356 0.071	<0.001 0.367
Model 4 (R=0.754)	0.569	0.072	<0.001	21.120	<0.001		

STAIxREQ	1.808	<0.001
STAIxRS	-1.333	0.012

a. Dependent Variable: Anger

Figure 1

Scatterplot of Anger by Emotion Regulation

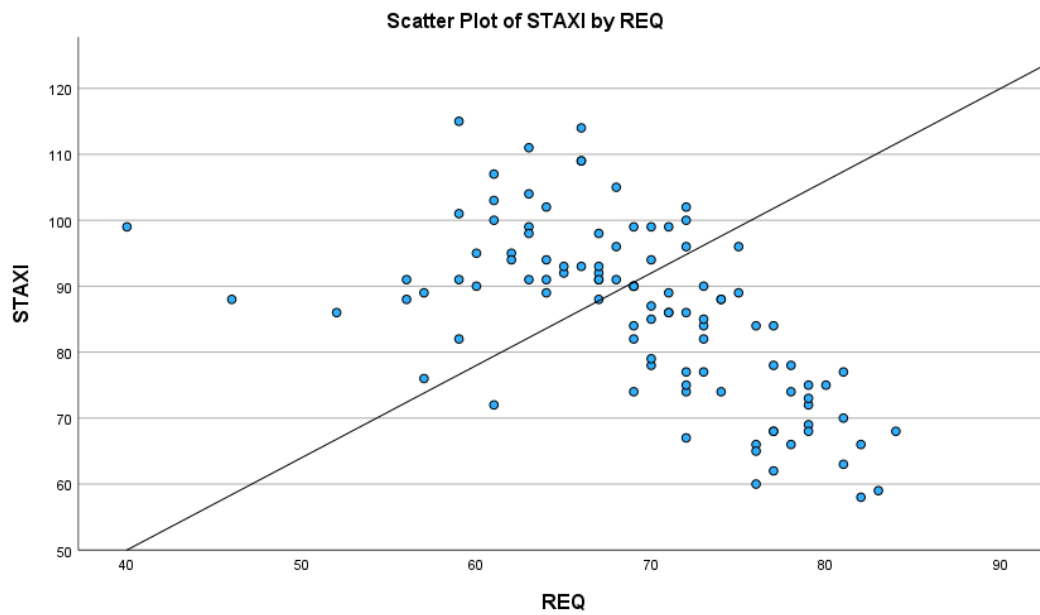
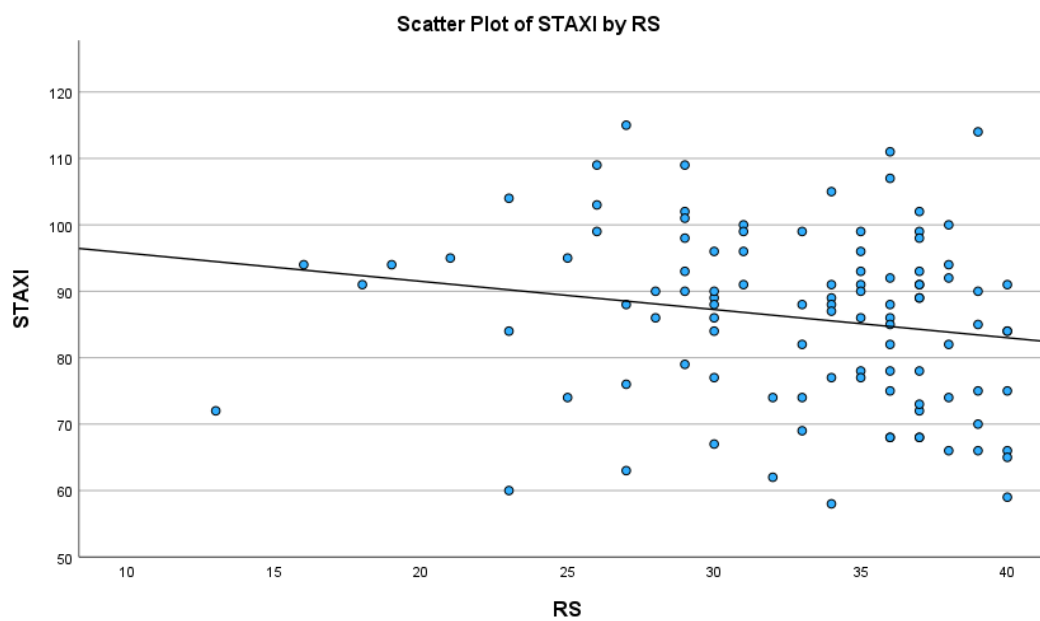


Figure 2

Scatterplot of Anger by Relationship Satisfaction



4. Discussion

The aim of this study was to examine the role anger might play in anxiety, potentially addressing the question of whether anger may be a maintaining factor in anxiety-related disorders. Emotion regulation and relationship satisfaction were examined as possible moderators of the relationship between anxiety and anger. Drawing from past research, it was expected that the two would diminish the main relationship (Szasz et al., 2011; Røsand et al., 2012). Anxiety was found to significantly predict anger, suggesting a strong relationship between the two. Emotion regulation was found to positively moderate the relationship, and relationship satisfaction was found to negatively moderate the relationship.

4.1. Findings and Implications. The data analysis supported the first and main hypothesis: Anxiety was positively and significantly associated with anger. The higher the level of anxiety was, the higher the level of anger was as well. The study is a small addition to the pool of research focused on the relationship between anxiety and anger (Hawkins & Cogle, 2011; Moscovitch et al., 2008). This could be important, as prior research findings emphasized the significant role of anger in the development and maintenance of anxiety and anxiety-related disorders (Moscovitch et al., 2008). Therefore, it could be relevant to focus on dealing with anger during therapeutic treatment of anxiety.

As summarized in the literature review, research is not entirely consistent on whether anxiety and anger are significantly correlated. Some have emphasized how the two may be interconnected, while others suggested anger may simply play a minor role in only some anxiety-related disorders (Hawkins & Cogle, 2011; Novaco, 2010). However, the results of this study support such relationship. To conclude that anger is a significant aspect of anxiety disorders, it would be necessary to study a clinical population, specifically anger in individuals diagnosed with an anxiety disorder. Nonetheless, the results obtained from the research at hand are undoubtedly supportive of such a conclusion.

The second hypothesis was rejected, meaning that emotion regulation did not negatively moderate the relationship between anxiety and anger; it moderated the relationship positively. In other words, when emotion regulation strengthened the positive relationship between anxiety and anger. It is important to note that high emotion regulation can decrease both anxiety and anger (Gross & Jazaieri, 2014). Based on such findings, the role of emotion regulation may not be to change the direction of the relationship between anxiety and anger, but rather to reduce them both. While this would mean that emotion regulation would influence both anger and anxiety, it may not change the ultimate relationship between the two.

Finally, the last hypothesis was confirmed. Relationship satisfaction negatively moderated the relationship between anxiety and anger. As explained before, previous research suggested that relationship satisfaction can decrease anger expression (Novaco, 2010). Having a healthy romantic relationship has been shown to decrease many negative emotions and distress overall (Røsand et al., 2012). This study supports the findings of previous studies, as it showed that when relationship satisfaction interacted with anxiety, anger decreased.

4.2. Limitations. The first obvious limitation to consider is the small sample used in this study. A smaller sample may produce falsely positive or unreliable results (Hackshaw, 2008). Offering a reward for participation may have been helpful to increase the number of responses. Furthermore, gathering the data by asking people to participate through social media may make the sample “skewed toward young, educated, above-average income respondents”, a limitation that can often be seen with the use of online surveys (Gideon, 2012, p.184). The sample in this study was indeed of a younger age and with a higher level of education, limiting the generalizability of the current findings. In addition, the data collection method offers little control over the type of sample obtained by the researcher (Stangor, 2014,

p.329). Most of the participants were Slovak, making the results potentially less applicable to the general population. There were also more female than male participants, which has shown to generally be a trend in survey responding (Smith, 2008). Thus, the overall sample was not representative of the general population.

It is important to mention that since the survey was accompanied by a description asking only those that are currently in a romantic relationship to participate, it led to some misconceptions. Several participants contacted me asking whether all the questionnaires should be answered in terms of feelings within their relationship, and I needed to clarify that only the RS was relationship focused. It is possible that some participants experienced the same confusion, did not contact me, and ended up answering the questionnaires thinking all of them were relationship related.

4.3. Future Directions and Conclusion. To reiterate, the goal of this study was to explore whether a relationship between anxiety and anger is present, and whether emotion regulation and relationship satisfaction might influence it in case it is present. As Gross and Jazaieri (2014) emphasize, while emotion regulation techniques are incorporated into psychotherapy, the inclusion of such focus is limited and can be greatly improved. As maladaptive emotion regulation techniques can predict anxiety and anger, adaptive ones, such as positive reappraisal, can reduce anxiety and anger as well as other components of negative affect (Martin & Dahlen, 2005). While generally, research suggests emotion regulation strategies can be a very helpful addition to treatment of many different mental disorders, the results of the present study sheds little light onto the role of emotion regulation. Additional research would be needed to draw conclusions specific to the importance of emotion regulation in psychopathology, and specifically emotion regulation in anxiety-related disorders.

The main inference to be taken from the study here is that anxiety is very closely related to anger. In terms of regulating anger within therapeutic treatment of anxiety, it may be of value to consider using acceptance-based treatment approaches (Szasz et al., 2011). The effectiveness of acceptance-focused regulation strategies in dealing with a multitude of negative emotions, such as anger, have been supported throughout research (Szasz et al., 2011). Furthermore, as the buffering nature of relationship satisfaction in the relationship between anxiety and anger was confirmed in this study, greater focus on healthy interpersonal relationships may also be important in the treatment of anxiety.

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Appendix A

Table 1

Descriptive Statistics for Demographic Variables

Education	Frequency	Percent
High School	24	23.3
Undergraduate	14	13.6
Graduate	41	39.8
Postgraduate	24	23.3
Gender		
Male	40	38.8
Female	62	60.2
Other	1	1
Nationality		
American	3	2.9
Dutch	2	1.9
German	4	3.9
Slovak	65	63.1
Ukrainian	4	3.9
Other	25	24.3
Relationship Status		
Married	10	9.7
In a Relationship	73	70.9
In a Domestic Relationship	20	19.4
Total	103	100

Appendix B

Informed Consent

Welcome! This research is part of my master's thesis examining certain factors potentially related to romantic relationships. If you agree to participate, you will be asked to complete five questionnaires, in which you will answer questions inquiring about your emotions, personality, and your current romantic relationship.

You are free to ask questions or to discontinue your participation at any time without penalty. Participation in this research study does not guarantee any benefits to you, it is strictly voluntary. You will be given additional information about the study after your participation is complete. If you agree to participate in the study, it may take up to 15 minutes to complete the survey. All data from this study will be kept from inappropriate disclosure and will be accessible only to the researcher.

The present research is designed to reduce the possibility of any negative experiences as a result of participation. Risks to participants are kept to a minimum. However, if your participation in this study causes you any concerns, anxiety, or distress, please contact UU's Connect Center for Counseling and Guidance at ucu.connect@uu.nl to make an appointment to discuss your concerns. (Non-UU participants please contact contact@betterhelp.com to discuss any concerns).

If you have questions or concerns about your participation in this study, you may contact the researcher at h.olejcekova@students.uu.nl.

By clicking "I Agree" below, you attest that you are 18 years old or older, and you are indicating that you have freely consented to participate in this research study.

STAXI

In the section below, on a scale of 1-4 (1=strongly disagree, 4=strongly agree), identify how much you agree with each statement based on how correctly it personally pertains to you.

1. I am furious
2. I feel irritated
3. I feel angry
4. I feel like yelling at somebody
5. I feel like breaking something
6. I am mad
7. I feel like banging on a table
8. I feel like hitting someone
9. I am burned up
10. I feel like swearing
11. I am quick tempered
12. I have a fiery temper
13. I am a hotheaded person
14. I get angry when slowed down
15. I get annoyed about lack of recognition
16. I fly off the handle

17. When I get mad, I say nasty things
18. I am furious when criticized
19. When I am frustrated, I feel like hitting someone
20. I am infuriated when poorly evaluated
21. I control my behavior ®
22. I express my anger
23. I keep things in
24. I am patient with others ®
25. I become sullen
26. I withdraw from people
27. I make sarcastic remarks to others
28. I keep fit
29. I do things like slamming doors
30. Nothing forces me to show anger
31. I control my temper ®
32. I argue with others
33. I tend to harbor grudges
34. I pout or sulk
35. I can stop myself from losing my temper ®
36. I get angrier than I am willing to admit
37. I am overly irritated
38. I say nasty things
39. I have to be tolerant and comprehensive ®
40. I lose my temper
41. If annoyed, I tend to say how I feel
42. I control my angry feelings ®

STAI

In the section below, on a scale of 1-4 (1=strongly disagree, 4=strongly agree), identify how much you agree with each statement based on how correctly it personally pertains to you.

1. I feel calm ®
2. I feel secure ®
3. I am tense
4. I feel strained
5. I feel at ease ®
6. I feel upset
7. I am presently worrying over possible misfortunes
8. I feel satisfied ®
9. I feel frightened
10. I feel comfortable ®
11. I feel self-confident ®
12. I feel nervous
13. I am jittery
14. I feel indecisive
15. I am relaxed ®
16. I feel content ®
17. I feel worried
18. I feel confused
19. I feel steady ®

20. I feel pleasant ®
21. I feel nervous and restless
22. I feel satisfied with myself ®
23. I wish I could be as happy as others seem to be
24. I feel like a failure
25. I feel rested ®
26. I am “calm, cool, and collected” ®
27. I feel that difficulties are piling up so much I cannot overcome them
28. I worry too much over things that don’t really matter
29. I am happy ®
30. I have disturbing thoughts
31. I lack self-confidence
32. I make decisions easily ®
33. I feel inadequate
34. Some unimportant thoughts run through my mind and bother me
35. I take disappointments so keenly that I can’t put them out of my mind
36. I am a steady person ®
37. I get in a state of tension or turmoil as I think over my recent concerns and interests

REQ

In the section below, on a scale of 1-5 (1=not at all, 5=always), identify how much you agree with each statement based on how correctly it personally pertains to you.

1. I review (rethink) my thoughts or beliefs
2. I review (rethink) my goals or plans
3. I put situations into perspective
4. I concentrate on a pleasant activity
5. I plan what I could do better next time
6. I take my feelings out on others verbally (e.g., shouting, arguing) ®
7. I take my feelings out on others physically (e.g., fighting, lashing out) ®
8. I try to make others feel bad (e.g., being rude, ignoring them) ®
9. I bully other people ®
10. I take my feelings out on objects around me ®
11. I harm or punish myself in some way ®
12. I dwell on my thoughts and feelings ®
13. I think about people better off and make myself feel worse ®
14. I keep feelings locked up inside ®
15. Things feel unreal ®
16. I talk to someone about how I feel
17. I ask others for advice
18. I seek physical contact from friends or family (e.g., hug)

RS

In the section below, on a scale of 1-4 (1=strongly disagree, 4=strongly agree), identify how much you agree with each statement based on how correctly it personally pertains to you.

1. I have a close relationship with my spouse/partner
2. My partner and I have problems in our relationship ®
3. I am very happy with our relationship
4. My partner is generally understanding
5. I often consider ending our relationship ®

6. I am satisfied with my relationship with my partner
7. We frequently disagree on important decisions ®
8. I have been lucky in my choice of a partner
9. We agree on how children should be raised
10. I think my partner is satisfied with our relationship

PANAS

Please indicate, on a scale of 1-5 (1=very slightly or not at all, 5=extremely) how strongly you feel each of these emotions in general (i.e., think about how you feel on average).

I feel...

1. Interested ®
2. Distressed
3. Excited ®
4. Upset
5. Strong ®
6. Guilty
7. Scared
8. Hostile
9. Enthusiastic ®
10. Proud ®
11. Irritable
12. Alert
13. Ashamed
14. Inspired ®
15. Nervous
16. Determined ®
17. Attentive ®
18. Jittery
19. Active ®
20. Afraid

Demographics/Additional Information

1. Please indicate your relationship status
 - a. Married
 - b. In a relationship
 - c. In a domestic relationship
 - d. Other
2. Please indicate the length of your relationship in years
3. Please rate your relationship on a scale from 0 (lowest rating – “very bad”) to 10 (highest rating – “very good”)
4. What is your highest achieved level of education?
 - a. High school
 - b. Undergraduate
 - c. Graduate
 - d. Postgraduate
5. What is your gender?
 - a. Male
 - b. Female
 - c. Other

- d. Prefer not to say
- 6. Please state your age in years
- 7. What is your nationality? (If you have multiple, please choose the one you most identify with)
 - a. American
 - b. Dutch
 - c. German
 - d. Slovak
 - e. Ukrainian
 - f. Other

Debriefing

Title of Research: Anger and Anxiety in Light of Emotion Regulation and Relationship Satisfaction

Thank you for participating in this research. You have made an important contribution to a developing body of knowledge in psychology. Now that your participation is complete, below you can read more about the study you have just participated in.

In this study, anger's role in anxiety-related disorders is examined along with factors that may interfere with that role (emotion regulation and relationship satisfaction). Across research, it has been unclear whether anger is an emotion that is more dysregulated in anxiety-related disorders (Moscovitch et al., 2008; Novaco, 2010). This research aims to shed more light onto how anger may be important in anxiety-related disorders. This is important, as future emotion regulation techniques in therapy can focus on specific emotions that need to be dealt with within a specific disorder. According to some, anger is especially prominent in such disorders in individuals with past trauma (Novaco, 2010). While anger and trauma have been repeatedly confirmed as related across research (Taft et al., 2017; Novaco, 2010), more research on anger and anxiety in general may be helpful to clarify the relationship. Satisfaction in intimate relationships has been identified as a factor that may influence anger expression (Novaco, 2010), which is why it will be explored as a confounding variable in this study's main relationship (anger-anxiety). Furthermore, emotion regulation was measured in general as well, as it is important to see whether it lowers anger levels measured. It is hypothesized that anxiety predicts anger, and that high scores in emotion regulation and/or relationship satisfaction diminish this prediction.

The data for this study was collected using online questionnaires, which were created using Qualtrics. The questionnaires, one of which measured anger, the second which measured anxiety, the third which measured emotion regulation, the fourth which measured relationship satisfaction, and the last which measured positive and negative affect was posted on social media under one link along with an informed consent and this debriefing form. Anger is the independent variable, while anxiety is the dependent variable, and emotion regulation along with relationship satisfaction act as confounding variables. Using the statistical software SPSS, the relationships between the variables will be analyzed. Taken together, it is expected that the results from the present study will contribute to research in the area of emotion regulation in psychopathology by examining the ways in which anger might play a role in

anxiety-related disorders, while taking into account individual levels of emotion regulation, relationship satisfaction, and their general affect.

If you have any further questions, please feel free to contact Helena Olejcekova (e-mail: h.olejcekova@students.uu.nl).

For more information on this topic, some references are provided below.

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