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SOCIAL CRITICISM MODERATES THE RELATIONSHIP BETWEEN ANXIETY DISORDERS AND DEPRESSIVE DISORDERS 10 YEARS LATER

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ABSTRACT

Research has reliably demonstrated that earlier anxiety disorders predict later depressive disorders, but few studies that have examined context variables that influence the strength of this relationship. One potential context variable is perceived social criticism. The current study examined perceived criticism as a possible moderator of the relationship of anxiety and depressive disorders 10 years later. Using a sample from The National Comorbidity Survey Baseline (NCS-I), 1990-1992, anxiety disorders and frequency of perceived social criticism were measured at Wave 1. Depressive disorders were measured at Wave 2, 10 years later, using data from The National Comorbidity Survey Reinterview (NCS-2), 2001-2002. Logistic regression analyses showed that generalized anxiety disorder, panic disorder, and social phobia significantly positively predicted later major depressive disorder. In addition, panic disorder significantly positively predicted dysthymic disorder 10 years later. Criticism significantly moderated the relationship between generalized anxiety disorder, panic disorder, social phobia, and major depressive disorder such that having higher levels of perceived criticism was associated with stronger relationships between anxiety disorders and later depressive disorders. These results suggest that criticism moderates the relationship between anxiety disorders and depressive disorders 10 years later.

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Introduction

Anxiety and depressive disorders are highly prevalent with more than a quarter of the population meeting criteria for a lifetime anxiety disorder, and more than a fifth of the population meeting criteria for a lifetime depressive disorder (Kessler et al., 2005). These disorders are highly comorbid. Approximately 27-77% of those with a primary diagnosis of an anxiety disorder meet lifetime criteria for major depression, and about three quarters of those diagnosed with major depression have comorbid lifetime anxiety disorders (Brown, Campbell, Lehman, Grisham, & Mancill, 2001). Such comorbidity is associated with greater severity of symptoms (Keller et al., 1992), poorer psychosocial functioning (Lewinsohn et al., 1995; Reich et al., 1993), poorer treatment outcomes and increased relapse rates (Brown et al., 1996), and increased suicide attempts, and completions (Bronisch & Wittchen, 1994).

Notably, a growing body of research has found that the onset of anxiety disorders typically precedes the onset of depressive disorders. In fact, the sequential comorbidity of anxiety and depressive disorders has been a robust finding (Jacobson & Newman, 2015; Jacobson & Newman, 2014; Jacobson, 2012a, 2012b; Starr, Hammen, Connolly, & Brennan, 2014; Starr & Davila, 2012a, 2012b; Swendsen, 1997); a relationship that is maintained at the symptom level (Starr & Davila, 2012a).

Though researchers are aware of the frequent comorbidity, and pervasive negative effects associated with comorbid diagnoses, the context variables affecting the temporal relationship between anxiety and depressive disorders remain inadequately understood. An investigation of context variables, or moderators, affords invaluable information about how the sequential relationship actually functions. Studying moderation effects helps to establish if a theory applies in all instances, and to break down a single complex theory so that a more nuanced understanding can be achieved. For example, it is important to understand the conditions that predict whether the temporal relationship between anxiety and depressive disorders is strengthened or weakened.

Perceived criticism is a variable that has been linked to both anxiety and depression. For example perceived social criticism predicts depression and depressive symptoms (Burkhouse, Uhrlass, Stone, Knopik, & Gibb, 2012; Peterson-Post, Rhoades, Stanley, & Markman, 2014; Seaburn, Lyness, Eberly, & King, 2005), depressive relapse (Hooley & Teasdale, 1989; Kwon, Lee, Lee, & Bifulco, 2006), and diminished reduction of anxiety and depressive symptoms during treatment (Renshaw, Chambless, & Steketee, 2003; Renshaw, Chambless, & Steketee, 2001). Furthermore, in individuals being treated for anxiety disorders, perceived criticism predicted poorer outcome, such that anxious symptoms persisted when the level of perceived criticism was high (Chambless & Steketee, 1999; Steketee, Lam, Chambless, Rodebaugh, & McCullouch, 2007). In terms of moderators, lack of social support moderated the relationship between anxiety and later depression (Xu & Wei, 2013), while perceived rejection, and negative attributions moderated the relationship between anxiety and depressive symptoms (Starr & Davila, 2012a). These response styles are all cognitive variables that may be linked with depressive rumination.

Furthermore, it has been well established that a threat-related attentional bias is associated with and theorized to maintain anxiety disorders (Bradley, Mogg, White, Groom, & de Bono, 1999; Byrne & Eysenck, 1995; Clarke, Hart, & MacLeod, 2014; MacLeod, Mathews, & Tata, 1986; Mathews, May, Mogg, & Eysenck, 1990; Mogg, Mathews, & Eysenck, 1992). Additionally, it is a robust finding that anxious individuals perceive ambiguous stimuli as threatening (Eysenck, Mogg, May, Richards, & Mathews, 1991; Mathews, Richards, & Eysenck, 1989; Ogniewicz, Dugas, Langlois, Gosselin, & Koerner, 2014; Olthuis, Stewart, Watt, Sabourin, & Keogh, 2012); specifically, anxious individuals have been found to interpret ambiguous social information as negative and threatening (Deschenes, Dugas, & Gouin, 2015; Olthuis et al., 2012). Thus, having an anxiety disorder may make an individual more sensitive to perceived social criticism as he or she may be disposed toward interpreting ambiguous stimuli as threatening and negative.

Rejection sensitivity is closely related to these cognitive biases as it is described as the tendency to anxiously expect rejection, readily perceive rejection, even in the ambiguous behavior of others, and overact to rejection (Downey & Feldman, 1996; Feldman & Downey, 1994). It has been found that perceived rejection predicts increases in rejection sensitivity (Butler, Doherty, & Potter, 2007; London, Downey, Bonica, & Paltin, 2007), and that individuals who perceive more criticism make more negative interpretations of ambiguous words (Masland, Hooley, Tully, Dearing, & Gotlib, 2015). Rejection sensitivity also predicts adverse reactions to rejection, such as increased social anxiety (London et al., 2007), withdrawal (London et al., 2007; Zimmer-Gembeck & Nesdale, 2013), and depression (Liu, Kraines, Massing-Schaffer, & Alloy, 2014; McDonald, Bowker, Rubin, Laursen, & Duchene, 2010). Moreover, rejection sensitivity has been associated with self-blame in reaction to put-down, which predicted depression (Gilbert, Irons, Olsen, Gilbert, & McEwan, 2006; Gilbert & Miles, 2000). Notably, Posternak and Zimmerman (2002) found that the prevalence rate of rejection sensitivity across all participants with an anxiety disorder and without a depressive disorder was 32.3%. These findings indicate that only a portion of individuals diagnosed with an anxiety disorder experience rejection sensitivity suggesting it is an individual difference rather than a cognitive bias that is characteristic of individuals with anxiety disorders. It may be that perceived criticism moderates the relationship between anxiety disorders and depressive disorders such that individuals with anxiety disorders who perceive increased frequency of criticism consequentially experience increased rejection sensitivity and adverse reactions to criticism, increasing the likelihood of developing a depressive disorder.

Social criticism specifically has only been studied once in the context of anxiety and depression sequential comorbidity by Starr and Davila (2012a) in a 21-day daily diary study of anxious and depressed moods.. Perceived criticism was measured as the subjective degree to which the participants felt criticized that day. Although perceived criticism did not significantly moderate the relationship between anxious and depressed moods, it is possible that the measure did not capture the construct effectively. Perhaps it is more pertinent to measure frequency as opposed to the degree of perceived

criticism. In fact, other longitudinal studies that have found that social criticism was associated with later depression have utilized procedures that measured how often participants were criticized (Burkhouse et al., 2012; Peterson-Post et al., 2014; Seaburn et al., 2005). Furthermore, Star and Davila's study only lasted 21 days, which may also be the reason for the non-significant effect of perceived criticism. This highlights a gap in the literature, such that there are no studies examining the enduring effects of perceived social criticism on individuals with anxiety disorders. As such, being criticized often over long time periods is what may increase the likelihood of the onset of a depressive disorder in individuals with initial anxiety disorders through continuously decreasing self-disclosure.

It has been consistently exhibited that anxiety is a risk factor for depression; however, research on moderators of the relationship is sparse, and social criticism has not been thoroughly studied in this specific context. As such, this study sought to examine perceived social criticism as a possible moderator of the relationship between anxiety disorders and depressive disorders. This is a naturalistic, longitudinal study that utilized the data from the National Comorbidity Survey: Baseline (NCS-1), 1990-1992 (Kessler, 2008) and the National Comorbidity Survey: Reinterview (NCS-2), 2001-2002 (Kessler, 2015). Diagnostic interviews were conducted at baseline (Wave 1), and then 10 years later as a follow-up (Wave 2). Two hypotheses were tested: (1) anxiety disorders (generalized anxiety disorder (GAD), panic disorder, social phobia, and simple phobia) will predict depressive disorders (major depressive disorder, and dysthymia) 10 years later, and (2) social criticism will moderate the relationship between initial anxiety disorders (Wave 1), and later depressive disorders (Wave 2), while controlling for baseline depressive disorders, such that such those who perceive more social criticism will exhibit stronger relationships between initial anxiety disorders and later depressive disorders.

Methods

Participants

Participants were interviewed for the National Comorbidity Survey: Baseline (NCS-1), 1990-1992 (Kessler, 2008) and the National Comorbidity Survey: Reinterview (NCS-2), 2001-2002 (Kessler, 2015). The initial sample consisted of 8,098 individuals aged 15-54 years old (47.4% male; 75.1% Caucasian, 12.5% African American, 9.1% Hispanic, 3.3% Other); these individuals participated in the NCS-1 between September 14th, 1990 and February 6th, 1992. Wave 2 participants include 5,001 of the original participants who were reinterviewed between 2001-2002 during NCS-2 (46.8% male). Diagnostic interviews were conducted at baseline (Wave 1), and then 10 years later during the reinterview (Wave 2). Data was analyzed utilizing the 5,001 participants that were interviewed during Wave 1 and Wave 2 (see Table 1 for demographic characteristics).

Measures

Diagnostic and Statistical Manual of Mental Disorders, Third Edition Revised (DSM-III-R). The DSM-III-R (American Psychiatric Association, 1987) was utilized during NCS-I to assess for clinical psychopathology (Robins et al., 1988). During wave 1, participants were assessed for lifetime GAD, lifetime panic disorder, lifetime social phobia, lifetime simple phobia, lifetime dysthymia, and lifetime major depressive disorder. The diagnostic interview used during NCS-1 to produce these diagnoses was a modified form of the Composite International Diagnostic Interview (CIDI) (*CIDI*, 1990), which is a structured diagnostic

interview developed to be administered by trained interviewers who were not clinicians (Robins et al., 1988).

The World Health Organization field trials of the CIDI found excellent interrater reliability for depressive and anxiety disorders (all Kappa values between 0.94-0.98) (Wittchen et al., 1991). In fact, Andrews, Peters, Guzman , and Bird (1995) found perfect interrater reliability for social phobia and depression. Additionally, the CIDI had good to high retest reliability (Wacker, Battegay, Mullejans, & Schlosser, 1990; Wittchen, Zhao, Abelson, Abelson, & Kessler, 1996; Wittchen, Kessler, Zhao, & Abelson, 1995). Furthermore, acceptable clinical and procedural validity was found for anxiety and depressive disorders (Farmer, Jenkins, Katz, & Ryder, 1991; Farmer, Katz, McGuffin, & Bebbington, 1987; Wittchen et al., 1996; Wittchen et al., 1995). Overall, diagnostic concordance between the DSM-III-R checklist and the CIDI was high ($K = 0.78$); specifically, diagnostic concordance was high for depressive disorders ($K = 0.84$), and anxiety/phobic disorders ($K = 0.76$) (Janca, Robins, Bucholz, Early, & Shayka, 1992).

Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). The CIDI was utilized during the reinterview to assign DSM-IV (American Psychiatric Association, 1994) diagnoses during NCS-2. In order to be diagnosed with a depressive disorder, the participant must have met DSM-IV criteria for either lifetime major depressive disorder or lifetime dysthymic disorder. A comparison of diagnoses made with the CIDI using DSM-IV criteria to diagnoses made by clinicians utilizing the standard LEAD procedure for the DSM-IV found good to excellent concordance for depressive episodes ($K = 0.95$), anxiety disorders ($K = 0.79$), panic disorder ($K = 0.63$), social phobia ($K = 0.80$), and other phobic disorders ($K = 0.64$), and moderate concordance for dysthymia ($K = 0.54$) (Reed et al., 1998).

With regard to a different version of the DSM being used in Wave 2: the criteria for depressive disorders, namely major depressive disorder and dysthymia, were preserved with minor alterations from DSM-III-R to DSM-IV. The only changes were to the criteria for dysthymia and are as follows: addition of an impairment criterion, subtype distinction was eliminated, and another set of symptom criteria was included in the Appendix section (Klein et al., 1996). As such, there was no difference in diagnostic criteria for major depressive disorder, and only slight differences in diagnostic criteria for dysthymic disorder between the two versions.

Perceived Social Criticism Measure. Perceived social criticism has been typically measured usng one item from the Perceived Criticism Measure (PCM) (Hooley & Teasdale, 1989), which was rated on a 10-point Likert scale that asks, “How critical is your spouse of you?” This one-item measure was found to have high retest reliability (K = 0.75) (Chambless, Steketee, Bryan, Leona, & Hooley, 1999; Hooley & Teasdale, 1989). Ratings of perceived criticism according to the PCM have been found to not covary with large emotional shifts, supporting the stability of the measure, and therefore, lending support to the construct validity of the measure (Gerlsma, de Ruiter, & Kingma, 2014). Additionally, the isolated single item measure exhibits moderate to good convergent validity when compared to spouses measures of criticism of each other (Chambless & Blake, 2009). Moreover, it has been found to have excellent discriminant validity, as it was not correlated with measures of depression or personality in a sample of outpatients who met DSM-III-R criteria for depression and dysthymia (Riso, Klein, Anderson, Ouimette, & Lizardi, 1996), and no significant relationship was found with sensitivity to criticism (White, Strong, & Chambless, 1998). According to Hooley and Teasdale (1989) this single item is more predictive of depressive relapse than longer measures of

expressed emotion. Similarly, perceived social criticism in the current study was measured using one item, "How often do they [your friends] criticize you?"

Planned Analyses

First, sampling weights were applied according to the rules outlined in the NCS-1 Codebook to ensure that the sample was representative of the U.S. census (Kessler, 2008). Next, to determine whether anxiety disorders predicted major depressive disorder 10 years later, four independent logistic regressions were conducted utilizing the anxiety disorder of interest (wave 1 lifetime GAD diagnosis, wave 1 lifetime panic disorder diagnosis, wave 1 lifetime social phobia diagnosis, and wave 1 simple phobia diagnosis) as the independent variable, and 12-month major depressive disorder as the dependent variable, while controlling for baseline major depressive disorder (see Table 2). Additionally, to determine whether anxiety disorders predicted dysthymia 10 years later, four independent logistic regression analyses were run utilizing the anxiety disorder of interest as the independent variable, and 12-month dysthymia disorder diagnosis as the dependent variable, while controlling for baseline dysthymia. Each anxiety disorder was run in an independent model to avoid colinearity.

Then, to determine whether perceived social criticism moderated the relationship between anxiety disorders and major depressive disorder, four separate logistic regression analyses were performed utilizing 12-month major depressive disorder diagnosis from wave 2 as the dependent variable, while controlling for baseline major depressive disorder diagnosis. Each logistic regression analysis utilized the following as predictors: baseline major depressive disorder diagnosis, perceived social support, the anxiety disorder of interest, and an interaction

term equal to the anxiety disorder by perceived social criticism (see Table 3). Additionally, to determine whether perceived social criticism moderated the relationship between anxiety disorders and dysthymia, four separate logistic regression analyses were performed utilizing 12-month dysthymia diagnosis from wave 2 as the dependent variable, while controlling for baseline dysthymia diagnosis. Each logistic regression analysis utilized the following as predictors: baseline dysthymia diagnosis, perceived social support, the anxiety disorder of interest, and an interaction term equal to the anxiety disorder by perceived social criticism (see Table 4).

Results

Hypothesis 1: Anxiety Disorder Predict Depressive Disorders

The presence of a prior diagnosis of lifetime GAD ($B = 0.532$, $SE = 0.156$, $e^{B = 1.703}$, Wald $\chi^2 = 11.702$, $p < 0.01$),. simple phobia ($B = 0.406$, $SE = 0.117$, $e^B = 1.500$, Wald $\chi^2 = 11.936$, $p < 0.01$), and social phobia ($B = 0.288$, $SE = 0.116$, $e^B = 1.256$, Wald $\chi^2 = 3.864$, $p < 0.05$) significantly positively predicted later major depressive disorder. Notably, the likelihood of having major depressive disorder at wave 2, was increased by 1.668 if participants had a prior GAD diagnosis, by 1.497 for prior simple phobia and by 1.261 by prior social phobia. Thus, having GAD, simple phobia, or social phobia diagnoses significantly increased the likelihood of having a later major depressive disorder, supporting my first hypothesis. Lifetime panic disorder diagnoses did not significantly predict later major depressive disorder diagnoses.

The presence of a prior lifetime diagnosis of simple phobia ($B = 0.959$, $SE = 0.244$, $e^B = 2.610$, Wald $\chi^2 = 15.437$, $p < 0.001$), and social phobia ($B = 0.578$, $SE = 0.252$, $e^B = 1.782$, Wald $\chi^2 = 5.252$, $p < 0.05$) significantly positively predicted later dysthymia. A prior lifetime

diagnosis of simple phobia also more than doubled the likelihood of having dysthymia disorder at wave 2. A lifetime social phobia diagnosis also nearly doubled the likelihood of having dysthymia at wave 2. These findings provided further support to my first hypothesis. GAD, and panic disorder did not significantly predict dysthymia.

Hypothesis 2: Perceived Social Criticism Moderates the Relationship

There was a significant interaction between wave 1 lifetime GAD diagnosis and perceived social criticism on major depressive disorder ($B = 0.595$, $SE = 0.192$, $e^B = 1.813$**,** Wald $\chi^2 = 9.581$, $p < 0.01$), such that increased perception of social criticism by those with GAD increased the likelihood of having major depressive disorder 10 years later. There was a significant interaction between wave 1 lifetime panic disorder diagnosis and perceived social criticism on major depressive disorder ($B = 0.501$, $SE = 0.231$, $e^B = 1.651$**,** Wald $\chi^2 = 4.725$, $p < 0.05$), such that in those with lifetime panic disorder increased perceived social criticism was correlated with increased likelihood of having major depressive disorder 10 years later.

Perceived social criticism did significantly moderate the relationship between social phobia and major depressive disorder ($B = 0.280$, $SE = 0.141$, $e^B = 1.323$**,** Wald $\chi^2 = 3.925$, $p < 0.05$), such that in those with lifetime social phobia and increased perceived social criticism had increased likelihood of having major depressive disorder 10 years later. This pattern of results indicated that perceived social criticism significantly positively moderated the relationship between anxiety disorders and major depressive disorders, supporting my second hypothesis. The interaction term between simple phobia and perceived social criticism was not significant, indicating the absence of a moderation effect in the context of that relationship. None of the

interaction terms were significant, indicating that perceived social criticism did not moderate the relationship between any of the lifetime anxiety disorder diagnoses and dysthymia diagnoses 10 years later.

Discussion

Overall, these results suggest that GAD, simple phobia, and social phobia significantly positively predicted major depressive disorder 10 years later while controlling for baseline major depressive disorder diagnoses, and simple phobia, and social phobia significantly positively predicted dysthymia 10 year later while controlling for baseline dysthymia diagnosis, supporting my first hypothesis that anxiety disorders would predict later depressive disorders. Moreover, this pattern of results partially supported my second hypothesis: perceived social criticism moderated the relationship between anxiety disorders and major depressive disorder, but not the relationship between anxiety disorders and dysthymia.

These results add to the robust findings that earlier anxiety disorders predict later depressive disorders (Jacobson & Newman, 2015; Jacobson & Newman, 2014; Jacobson, 2012a, 2012b; Starr et al., 2014; Starr & Davila, 2012a, 2012b; Starr et al., 2016; Swendsen, 1997). These findings also add to this line of research because the sequential comorbidity between anxiety disorders and later dysthymia has been studied less often. Furthermore, perceived social criticism significantly moderated the relationships between three out of the four anxiety disorders analyzed (GAD, panic disorder, and social phobia) and major depressive disorder at reinterview. This is not surprising when considering that perceived rejection has been found to moderate the relationship between anxiety disorders and depressive disorders (Starr & Davila, 2012a). It may be that perceived social criticism creates feelings of rejection, much like bullying (Smokowski, Evans, & Cotter, 2014), which may in turn decrease levels of disclosure in an effort to avoid

instances of disapproval (Lepore & Helgeson, 1998; Lepore et al., 1996; Manne & Zautra, 1989), which has been associated with social exclusion (Rudolph & Bohn, 2014). This avoidance behavior may decrease opportunities for positive social interactions, such as social support, and overall, increase the likelihood of developing a major depressive disorder (Jacobson & Newman, 2014).

These results indicate that context variables of the relationship between anxiety and depressive disorders deserve future research, as the boundaries of sequential comorbidity between earlier anxiety disorders and later depressive disorders have yet to be outlined. Particularly, the effects of perceived social criticism on the relationships between anxiety and depressive disorders deserve further research as this is the first paper to study the enduring effects of perceived social criticism in those with anxiety disorders on the likelihood of developing a depressive disorder. Furthermore, these results challenge research that claims that perceived criticism only matters when it comes from those you live with suggesting that future research should continue to explore criticism from individuals outside the household (Renshaw, 2007).

It is interesting that perceived social criticism had no moderation effect when dysthymia was the dependent variable. Unfortunately, a lack of research on moderation effects on the sequential comorbidity of anxiety disorders and dysthymia make it difficult to draw comparisons; however, these results are not in line with research that finds dysthymia to be comorbid with anxiety disorders (Pini et al., 1997). It is difficult to see why perceived social criticism did not significantly moderate the relationships between anxiety disorders and dysthymia. These results were unanticipated; nevertheless, a more sophisticated and sensitive statistical technique may find the moderation effect to be significant.

Additionally, this lack of association may also be due to a lack of discrimination between dysthymic and major depressive disorder, as these disorders have been found to be highly comorbid (Kocsis & Frances, 1987; Weissman, Leaf, Bruce, & Florio, 1988). In a field trial of the DSM-IV, 80% of those who qualified for dysthymia according to the DSM-III-R met DSM-IV criteria for lifetime major depressive disorder. In this study, those that originally qualified for dysthymic disorder according to the DSM-III-R may have qualified for DSM-IV major depressive disorder during the reinterview (Keller et al., 1995). Post hoc analyses revealed that 19.1% of individuals diagnosed with dysthymia during wave 1 were diagnosed with major depressive disorder during wave 2.

There are multiple limitations to this study. First, two different versions of the DSM were utilized from wave 1 to wave 2. Although there are few differences between the versions, the criteria for dysthymia were changed (Klein et al., 1996), and DSM-III-R dysthymia criteria are highly correlated with the DSM-IV major depressive episode criteria (Keller et al., 1995). This is a potential confound when measuring dysthymia. Additionally, one-item was utilized to measure perceived social criticism. It may be necessary to utilize a more nuanced and comprehensive perceived social criticism measure. Some research suggests that it may be beneficial to break the construct of perceived social criticism into hostile (destructive) and nonhostile (constructive) subcategories (Renshaw et al., 2010). Perceptions of hostile and nonhostile criticism were negatively correlated with a large effect size ($r = -0.59$, $p < 0.001$). Additionally, hostile criticism was found to be positively correlated with general criticism with a medium effect size ($r = 0.36$, $p < 0.01$), but nonhostile criticism was not correlated with general criticism as measured by the PCM (Renshaw et al., 2010). These findings suggest that there is a distinction between hostile and nonhostile criticism, and that the one-item utilized in this study to measure general criticism

may tap into both constructs.This may also be the reason that there were not robust moderation effects across all anxiety disorders. This is an issue to address in future research.

Another issue for further research is whether decreasing the perception of social criticism in those with anxiety disorders decreases the likelihood of developing major depressive disorder. These results may suggest that treatment regimens for anxiety disorders should include training that focuses on coping with social criticism. Several techniques have been tested for countering the effects of destructive criticism: the most effective being attributing the criticism to something other than the critic's harmful intentions and receiving an apology (Baron, 1990). A necessary intervention may include cognitive restructuring to help individuals attribute destructive criticism to something other than the critic's malice. Further research is needed in the realm of preventing negative effects associated with perceived social criticism.

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Tables

Table 1. ***Participant Demographics***

	N (%)	Mean (*SD*)	Range
Age		43.03 (10.483)	25-69
Sex			
Male	2338 (46.8)		
Female	2662 (53.2)		
Race			
Caucasian	3914 (78.3)		
African American	515 (10.3)		
Hispanic	418 (8.3)		
Other	154 (3.1)		

Table 2. ***Anxiety Disorders Predict Depressive Disorders***

	B	SE	e^B	Wald χ^2 (df = 1)	*pseudo-*R^2	Model χ^2 (df = 2)
GAD predicting MDD					0.066	158.129
GAD	0.532**	0.156	1.703	11.702		
MDD	1.145***	0.102	3.142	126.675		
Panic Disorder predicting MDD					0.061	147.327
Panic Disorder	0.063	0.193	1.065	0.104		
MDD	1.219***	0.100	3.383	148.044		
Simple Phobia predicting MDD					0.066	158.612
Simple Phobia	0.406**	0.117	1.500	11.936		
MDD	1.151***	0.101	3.162	130.315		
Social Phobia predicting MDD					0.063	150.980
Social Phobia	0.228*	0.116	1.256	3.864		
MDD	1.188***	0.100	3.281	140.736		
GAD predicting Dysthymia					0.022	16.744
GAD	0.399	0.367	1.490	1.180		
Dysthymia	1.098***	0.292	2.997	14.093		
Panic Disorder predicting Dysthymia						
Panic Disorder	0.531	0.394	1.701	1.822	0.023	17.258
Dysthymia	1.136***	0.278	3.116	16.678		
Simple Phobia predicting Dysthymia					0.039	29.402
Simple Phobia	0.959***	0.244	2.610	15.437		
Dysthymia	1.054***	0.276	2.868	14.518		
Social Phobia predicting Dysthymia					0.027	20.501
Social phobia	0.578*	0.252	1.782	5.252		
Dysthymia	1.111***	0.276	3.038	16.230		

* = $p < 0.05$, ** = $p < 0.01$, ***= $p < 0.001$

Table 3. ***Anxiety Disorders Predicting MDD Moderated by Perceived Social Criticism***

	B	SE	e^B	Wald χ^2 (df = 1)	*pseudo-R^2*	Model χ^2 (df = 4)
GAD					0.074	177.895
MDD	1.181***	0.103	3.257	132.657		
GAD	-0.572	0.395	0.565	15.070		
PSC	-0.272***	0.071	0.762	14.568		
PSC x GAD	0.595**	0.192	1.813	9.581		
Panic Disorder					0.068	163.220
MDD	1.245***	0.101	3.472	152.083		
Panic Disorder	-0.898	0.501	0.407	3.211		
PSC	-0.245***	0.069	0.783	12.578		
Panic Disorder x PSC	0.501*	0.231	1.651	4.725		
Simple Phobia					0.072	173.042
MDD	1.177***	0.102	3.256	134.557		
Simple Phobia	-0.750	0.288	0.928	0.068		
PSC	-0.277***	0.078	0.758	12.603		
Simple Phobia x PSC	0.264	0.143	1.303	3.402		
Social Phobia					0.069	166.191
MDD	1.218***	0.101	3.381	146.047		
Social Phobia	-0.280	0.287	0.756	0.953		
PSC	-0.288***	0.079	0.750	13.333		
Social Phobia x PSC	0.280*	0.141	1.323	3.925		

Note: Nine cases were excluded from these analyses because they were missing perceived social criticism data (*N* = 4,992).
* = $p < 0.05$, ** = $p < 0.01$, ***= $p < 0.001$

Table 4. ***Anxiety Disorders Predicting Dysthymia Moderated by Perceived Social Criticism***

	B	SE	e^B	Wald χ^2 (df = 1)	*pseudo-*R^2	Model χ^2 (df = 4)
GAD					0.024	17.692
Dysthymia	1.098***	0.292	2.998	14.131		
GAD	-0.186	0.863	0.830	0.046		
PSC	-0.135	0.165	0.874	0.665		
PSC x GAD	0.322	0.418	1.380	0.594		
Panic Disorder					0.024	18.041
Dysthymia	1.138***	0.278	3.119	16.713		
Panic Disorder	-0.019	0.971	0.982	0.000		
PSC	-0.150	0.162	0.882	0.597		
Panic Disorder x PSC	0.297	0.464	1.346	0.410		
Simple Phobia					0.042	31.855
Dysthymia	1.031***	0.277	2.803	13.838		
Simple Phobia	-0.184	0.610	1.202	0.091		
PSC	-0.277	0.200	0.758	1.921		
Simple Phobia x PSC	0.430	0.304	1.537	2.000		
Social Phobia					0.028	21.371
Dysthymia	1.117***	0.276	3.056	16.349		
Social Phobia	0.917	0.624	2.501	2.160		
PSC	-0.047	0.185	0.954	0.064		
Social Phobia x PSC	-0.184	0.322	.832	0.327		

Note: Nine cases were excluded from these analyses because they were missing perceived social criticism data (*N* = 4,992).
* = $p < 0.05$

ACADEMIC VITA

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EDUCATION

BA in Psychology | BA in Communication Arts & Sciences May 2016

The Pennsylvania State University, University Park, PA

Honors Thesis: *Social Criticism Moderates the Relationship between Anxiety Disorders and Depressive Disorders 10 Years Later*

Honors Thesis Supervisor: Dr. Michelle G. Newman

RESEARCH EXPERIENCE

Undergraduate Research Assistant August 2014 – Present

Anxiety and Emotions Research Lab, University Park, PA

Principal Investigator: Dr. Michelle G. Newman

- Recruit participants
- Schedule, organize, and run research study sessions
- Perform the Mini-International Neuropsychiatric Interview (M.I.N.I.)
- Interview participants about emotionally charged events
- Utilize BioPac technology
- Train to utilize fMRI technology

Undergraduate Research Assistant August 2015 – Present

Relationships and Stress Research Lab, University Park, PA

Principal Investigator: Dr. Amy D. Marshall

- Review literature on oxytocin, arginine vasopressin, and genetic correlates
- Review literature on intimate partner violence and PTSD
- Code conflict scripts

MANUSCRIPTS IN PREPARATION

Jacobson, N. C., **Lord, K. A.,** & Newman, M. G. Social Support in Bereaved Spouses Mediates the Relationship between Anxiety and Depression.

Lord, K. A., Jacobson, N. C., & Newman, M. G. Social Criticism Moderates the Relationship between Anxiety Disorders and Depressive Disorders 10 Years Later.

CONFERENCE PRESENTATIONS

Lord, K. A., Jacobson, N. C., & Newman, M. G. (2016, March). *Social support in bereaved spouses mediates the relationship between anxiety and depression.* Poster presentation at the annual meeting of the Anxiety and Depression Association of America, Philadelphia, PA

Lord, K. A., Jacobson, N. C., & Newman, M. G. (2016, March). *Social criticism moderates the relationship between anxiety disorders and depressive disorders 10 years later.* Poster presentation at the annual meeting of the Anxiety and Depression Association of America, Philadelphia, PA.

Lord, K. A., Jacobson, N. C., & Newman, M. G. (2016, April). *A possible temporal mechanism between anxiety and depression: Social support.* Poster presentation submitted to the annual meeting of the Psi Chi Research Conference, University Park, PA.

ADDITIONAL EXPERIENCE

Volunteer **May 2015 – August 2015**

The Mental Health Association in Passaic County, Clifton, NJ

- Facilitated Depression Bipolar Alliance meetings on site
- Facilitated Double Trouble in Recovery meetings at St. Joseph's Regional Medical Center

Peer Mentor **August 2014 – Present**

The Undergraduate Speaking Center, University Park, PA

- Design and deliver presentations
- Mentor students on a one-on-one basis in public speaking

ASSOCIATION MEMBERSHIPS

Psi Chi — January 2015 – Present

American Psychological Association — January 2015 – Present

- Student member

Lambda Pi Eta — January 2015 – Present

The National Society of Leadership and Success — January 2014 – Present

The National Society of Collegiate Scholars — January 2014 – Present

HONORS, AWARDS, AND SCHOLARSHIPS

Schreyer Honors Scholar — **January 2015 – Present**

Paterno Fellow — **August 2013 – Present**

Merit Scholarship — August 2013 – Present

- Awards total: $12,000

Essex County Labor Scholarship — August 2013 – Present

- Awards total: $6,000

Dean's List — August 2013 – Present

Excellence in Communication Certificate — May 2015

Harold J."Pat" O'Brien Memorial Scholarship — January 2015

- Only awarded to three students in the CAS department
- Awards total: $635

The Evan Pugh Scholar Senior Award — February 2016

The President Sparks Award — January 2015

The President's Freshman Award — January 2014