

Paying the price for anger: Do women bear greater costs?

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Prior research shows that the social costs of expressing anger may be greater for women than for men. However, less is known about whether anger expression is also associated with greater intrapersonal costs for women relative to men. We tested the hypothesis that outward anger expression would be related to greater depressive symptoms over time for women, but not men. A nationally representative sample of 942 community-dwelling adults reported on their frequency of anger expression and completed diagnostic interviews to assess depressive symptoms at baseline and 9-year follow-up. Moderation analyses using bootstrapping revealed a significant main effect of anger-out on depression. As predicted, gender moderated the effects of anger-out on depression, such that greater anger-out at baseline predicted greater depression in women 9 years later, even after controlling for baseline depression. Findings add to the literature by revealing the intrapersonal costs women may incur from anger expression.

Keywords: Gender; Anger expression; Depression; Anger-out; Consequences of anger.

When it comes to emotional expression, social norms and “display rules” dictate whether and what kinds of emotional expression are appropriate (Ekman & Friesen, 1969). In particular, studies of emotion stereotypes have found that women are expected to experience and express less anger than men (Fabes & Martin, 1991). As a result of these stereotypes, women who express anger (relative to men who express anger) tend to bear greater social costs for expressing anger including being perceived as less likeable, less influential and more irrational (Brescoll & Uhlmann, 2008; Salerno & Peter-Hagene, 2015; Shields & Crowley, 1996).

Less explored, however, are the intrapersonal costs that women may incur from expressing anger. Prior studies show that women may tend to ruminate after anger expression (Kring, 2000), perhaps due to worries about how their expressed anger is perceived. Over time, this could have negative consequences for women’s well-being. In the present study, we aim to test how women’s anger expression may impact mental health outcomes using longitudinal data (over 18 years) from a large, nationally representative sample of women, diverse with respect to age and socioeconomic status.

ANGER EXPRESSION AND DEPRESSIVE SYMPTOMS

Anger is a common emotion and can range from mild irritation to fury (Miceli & Castelfranchi, 2019). Emotion scholars often ascribe the experience of anger to some form of goal obstruction or frustration that can be attributed to the intentional actions of a particular agent (usually another person; see Miceli & Castelfranchi, 2019 for discussion). The experience of anger itself can be functional or problematic, depending on the context, with high levels of anger especially linked to adverse health and poorer quality of life (see Vecchio & O’Leary, 2004 for a review).

More germane to the present study, however, are differences in the ways that people choose to *express* their anger. Anger expression has long been studied and measured as an individual difference variable, as well as a state-dependent response (Spielberger, 1989). Different styles of anger expression are associated with different mental and physical health outcomes. Outward anger expression, in particular, is associated with greater risk for cardiovascular disease and greater experience

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of depression (Cassidello-Robbins & Barlow, 2016; Kitayama et al., 2015). Although depression, as a mood disorder, is defined by symptoms of persistent sadness and/or a loss of interest or pleasure in activities (that were previously enjoyable), it may manifest as increased anger and irritability.

Seminal theories in psychology have long considered the role of anger in the pathogenesis of depression. Freud (1917) first put forth the conceptualization of depression as internalised anger, which has been elaborated upon in later theories, such as the “anger-turned-in” hypothesis (Becker & Lesiak, 1977). Since then, however, researchers have increasingly acknowledged the important role of outward anger expression and aggression in depression (De Bles et al., 2019). Unfortunately, much of the work concerning anger expression and depressive symptoms has been conducted using cross-sectional samples, limiting our ability to make strong conclusions about the predictive role of anger expression in depressive symptoms over time.

GENDER AND THE CONSEQUENCES OF ANGER EXPRESSION

Anger is often seen as the prototypical male emotion, and research has shown that people expect men to experience more frequent and intense anger (Fabes & Martin, 1991). For example, when participants were asked to judge the frequency with which they believed males or females typically feel and express different emotions, men were thought to experience and express anger more than women (Fabes & Martin, 1991). Furthermore, men’s anger is often judged as more acceptable and appropriate than women’s anger. For example, when evaluating identical vignettes in which either “Karen” or “Brian” became angry, participants viewed Brian’s anger as more appropriate and controlled (Shields & Crowley, 1996). Even children report thinking that anger displays are more acceptable from boys than girls (Birnbaum, 1983).

Not surprisingly given these expectations and stereotypes, women tend to bear greater social costs for expressing anger. For example, Brescoll and Uhlmann (2008) found that women who expressed anger in a job interview were seen as less likable, less competent, less deserving of power and independence, and were allotted lower salaries than their angry male counterparts. Additionally, while expressions of anger have been shown to increase social influence and perceptions of competence in men, the opposite is true for women—women who expressed anger in a group deliberation were less influential, and this effect was mediated by lower perceived competence among women who expressed anger (Salerno & Peter-Hagene, 2015).

While understanding how others perceive women’s anger is certainly useful to inform the social consequences

of anger expression, it is also essential to understand how anger expression might impact women’s intrapersonal functioning (e.g., mental health and well-being). Despite a long-established pattern of higher depression rates among women (relative to men), few studies have examined gender differences in the consequences of anger expression for mental health. While prior work suggests that irritability has been linked to greater depression severity (Verhoeven et al., 2011), there are several reasons to consider why the negative consequences associated with outward anger expression may impact women more than men.

First, if women face greater interpersonal costs from expressing anger, this could lead to greater social isolation or increased anger rumination which can, in turn, precipitate depression. Second, since anger expression is seen as un-feminine and therefore undesirable (Shields, 2005), women may feel a greater sense of inner conflict when expressing anger. Further, since women may have a tendency to value relational harmony more than men, jeopardising the same through outward anger expression may be particularly stressful for women.

THE PRESENT STUDY

Given different standards and expectations with respect to whether and how anger should be expressed by women, relative to men (Fabes & Martin, 1991; Shields & Crowley, 1996), we wanted to examine whether outward expression of anger (henceforth “anger-out”) would predict depressive symptoms longitudinally in a large, nationally representative sample of community-dwelling adults. Further, we aim to test the hypothesis that sex moderates the association between anger expression and depressive symptoms, such that the relationship between anger expression and depressive symptoms is greater for women than for men. We hypothesized that there would be a main effect of anger-out on depression, such that anger-out would be linked to greater depressive symptoms (across men and women), as well as a main effect of sex, such that women would have greater depressive symptoms than men. Finally, we hypothesized an interaction effect between anger-out and sex on depressive symptoms, such that the associations between anger-out and depressive symptoms would be stronger for women than for men.

METHOD

Participants

The present study was a secondary analysis of the Midlife Development in the United States (MIDUS) data set. The MIDUS contains three waves of data collection: 1995 to 1996 [Time 1 (T1)]; 2004 to 2005 [Time 2 (T2)]; and 2012

to 2013 [Time 3 (T3)] (Ryff et al., 2017; Ryff & Lachman, 2018). The analytic sample for the present study included data from 942 individuals who participated in all three waves of data collection (Brim et al., 2004; Ryff et al., 2017; Ryff & Lachman, 2018) and therefore had valid responses across all measures of interest. At baseline, participants' average age was 47.32 years ($SD = 11.50$; range 25–75); 55.60% were female and 42.80% had college education. The sample comprised mostly White participants (91.30%), with the remaining participants reporting their race/ethnicity as follows: 2.50% African American, Asian, 0.30% Native American, 0.20% Asian or Pacifica Islander, 0.70% multiracial and 1.80% other race/ethnicity. The average household income was \$82,766 at Time 1, \$79, 429 at Time 2 and \$89,239 at Time 3. All procedures were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Measures

Center for Epidemiologic Studies depression scale (CES-D). Depressive symptoms during wave 2 were measured with the Center for Epidemiologic Studies depression scale (Radloff, 1977). The CES-D has been shown to be a reliable measure for assessing the number, types and duration of depressive symptoms across racial, gender and age categories (Knight, Williams, McGee & Olaman, 1997; Roberts, Vernon, & Rhoades, 1990). Scores range from 0 to 60, with high scores indicating greater depressive symptoms. Cut-off scores for clinical depression are suggested at 16 and above. Scores in this sample ranged from 0 to 49, $M = 8.02$, $SD = 7.72$. High internal consistency has been reported in prior research with Cronbach's alpha coefficients ranging from .85 to .90 across studies (Radloff, 1977). Reliability was also high in this sample, $\alpha = .89$ (females $\alpha = .90$, males $\alpha = .89$).

The World Health Organisation Composite International Diagnostic Interview Short-Form (CIDI-SF; Kessler et al., 1998). Depressive symptoms at waves 1 and 3 were assessed using the WHO Composite International Diagnostic Interview Short-Form, which is a structured interview based on the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised (DSM-III-R)* criteria for major depressive disorder (MDD). Participants completed a phone interview and were asked a series of questions to ascertain MDD diagnostic status. If participants met initial criteria for depression by endorsing a period of 2 weeks or more in which they felt down or depressed almost all day nearly every day, and endorsed both depressed affect and anhedonia, they were then asked about whether they experienced additional depressive symptoms that comprise the symptom severity index. Thus, the measure used

TABLE 1
Descriptive statistics and t-tests for all study variables by sex (N men = 419; N women = 523)

Variable	Group		<i>t</i>	<i>df</i>
	Male	Female		
Anger-out	12.92 (3.18)	12.75 (3.09)	-0.79	940
Depression T1 (CIDI-SF)	0.55 (1.66)	0.97 (2.12)	-3.36**	940
Depression T2 (CES-D)	7.23 (7.06)	7.82 (7.71)	-1.22	940
Depression T3 (CIDI-SF)	0.45 (1.49)	0.71 (1.88)	-2.31*	940

Note: CES-D = Center for Epidemiologic Studies Depression scale; CIDI-SF = Composite International Diagnostic Interview Short-Form; *df* = degrees of freedom; T1 = Time 1; T2 = Time 2; T3 = Time 3. * $p < .05$. ** $p < .01$.

in this study was seven items that assessed depressive symptoms. The average of these seven items provided the depression score at waves 1 and 3 ($M_{T1} = 0.81$, $SD_{T1} = 1.98$; $M_{T3} = 0.60$, $SD_{T3} = 1.73$). Means (shown in Table 1) for both men and women ranged from 0.81 to 3.5 for both men and women indicating that as a group, neither men nor women met criteria for major depression at any time point (cut-off scores are 4 and above). Kuder–Richardson's coefficient 20 (KR-20; Padilla, 2019) was computed as the reliability index, given the dichotomous nature of the items, and indicated high reliability in our sample overall (KR-20 $T1 = 0.91$; KR-20 $T3 = 0.83$) as well as when estimated for each gender separately (females KR-20 $T1 = 0.90$; females KR-20 $T3 = 0.83$; males KR-20 $T1 = 0.91$; males KR-20 $T3 = 0.84$).

State–Trait Anger Expression Inventory (STAXI). Anger expression was measured during wave 2 using the anger-out subscale of the State–Trait Anger Expression Inventory, which refers to the extent to which “one can express feelings of anger” (STAXI; Spielberger, 1989). Responses to the eight items on each subscale were measured on a 4-point scale, ranging from 1 (*almost never*) to 4 (*almost always*). The State–Trait Anger Expression Inventory is a well-known instrument and there is data in support of its high reliability and validity (Spielberger, 1996). Cronbach's alpha was .75 in this sample (females $\alpha = .75$, males $\alpha = .77$).

Data analysis

Data analyses were conducted using SPSS software, Version 23. As data analyses were limited to the subsample of participants who completed all the relevant measures, there were no missing data in the analytic sample. Before conducting analyses, all continuous variables were standardised (*z*-scored). Sex was coded dichotomously using effect codes (female = 1, male = -1). In order to test the hypothesis that anger-out would be related to greater depression and that the effect of anger-out on depression would differ by sex, we conducted moderation

analysis predicting depressive symptoms at Time 3 using the PROCESS macro (Model 1), as per Hayes (2012). In order to control for prior depressive symptoms, CIDI-SF depression scores from Time 1 and CES-D scores from Time 2 were included in all analyses as covariates.

RESULTS

Descriptive statistics

Descriptive statistics for the analytic sample on all of the study variables, including means and standard deviations, are presented in Table 1 and correlations between variables are presented in Table 2. Not surprisingly, depression scores were moderately and significantly correlated across all time points (all r 's $\sim .20$, all p 's $< .01$). Significant gender differences in depression emerged at Time 1 and Time 3 (but not at Time 2), with women reporting higher depression than men at Time 1, $t(1051) = 3.46$, $p < .01$ and Time 3, $t(942) = 2.41$, $p < .05$, respectively. Any outliers on depression at Time 2 (3 or more standard deviations above the mean) were removed ($n = 20$) before conducting further analyses.

Relationships between sex, anger-out and depressive symptoms

Moderation analysis was conducted using 1,000 bootstrapped samples. Results revealed that the overall model accounted for 19% of the variance in Time 3 depression, $F(5, 936) = 44.50$, $p < .0001$, $R^2 = .19$, with anger-out, $\beta = .08$, $t(936) = 2.96$, $p < .01$, emerging as a unique predictor. Greater anger-out at baseline (T2) was associated with greater depression 9 years later (T3). Sex was a marginally significant predictor of depression when accounting for anger-out and prior depression, $\beta = .05$, $t(936) = 1.73$, $p = .08$, indicating that women had marginally higher levels of depression as compared to men at T3. Furthermore, sex was a significant moderator of the association between anger-out and depression, $\beta = .06$, $t(936) = 2.06$, $p < .05$; $\Delta R^2 = .004$. Specifically, examination of simple effects revealed that anger-out was linked to greater depression 9 years later for women, $\beta = .15$, $t(936) = 3.68$, $p < .001$, but not for men, $\beta = .02$, $t(936) = 0.64$, $p = .52$.¹ Results are presented in Table 3 and Figure 1.

DISCUSSION

In this study, we used a longitudinal approach to examine gender differences in the negative intrapersonal

TABLE 2
Inter-correlations, means, and standard deviations among predictor and outcome variables across time points

	<i>M</i> (<i>SD</i>)	1	2	3	4	5
1. Sex	—	—				
2. Anger-out	12.79 (3.13)	−0.03	—			
3. Depression T1 (CIDI-SF)	0.81 (1.98)	0.11**	0.03	—		
4. Depression T2 (CES-D)	8.02 (7.72)	0.04	0.17**	0.19**	—	
5. Depression T3 (CIDI-SF)	0.60 (1.73)	0.08*	0.15**	0.28**	0.37**	—

Note: CES-D = Center for Epidemiologic Studies Depression scale; CIDI-SF = Composite International Diagnostic Interview Short-Form; *M* = mean. *SD* = standard deviation. T1 = Time 1. T2 = Time 2. T3 = Time 3. Sex is effect-coded as a binary variable where female = 1 and male = −1. Means and standard deviations reflect the total sample. * $p < .05$. ** $p < .01$.

TABLE 3

Summary of moderation analysis for sex, anger-out, and their interaction in predicting depression at T3 controlling for T1 and T2 depression ($N = 941$)

Variable	β	SE	<i>t</i>	<i>p</i>	95% CI
Intercept	0.02	0.03	0.52	.60	(−0.04, 0.07)
Depression T1	0.22	0.03	7.19	.00	(0.16, 0.28)
Depression T2	0.33	0.03	9.76	.00	(0.26, 0.39)
Sex	0.05	0.03	1.73	.08	(−0.01, 0.11)
Anger-out	0.09	0.03	2.96	.00	(0.03, 0.15)
Sex x Anger-out	0.06	0.03	2.06	.04	(0.01, 0.12)

Note: β = standardised beta coefficient; 95% CI = 95% confidence interval; T1 = Time 1; T2 = Time 2; SE = standard error. Sex is effect-coded as a binary variable where female = 1 and male = −1. Sex x anger-out represents the interaction term. Results are based on moderation analysis conducted on 1000 bootstrapped samples. All continuous variables were standardised (z-scored) to facilitate interpretation. Bolded values are statistically significant at $p < .05$.

effects associated with anger expression. Specifically, we examined the relationship between outward anger expression and depressive symptoms over a 9-year span. Results revealed that greater outward anger expression was associated with greater depressive symptoms 9 years later, controlling for prior levels of depressive symptoms. Importantly, the effects were moderated by sex, such that greater anger expression was significantly related to greater depression for women, whereas there was no relationship between outward anger expression and depression for men.

The present study provides preliminary evidence that women may bear greater intrapersonal costs for expressing anger outwardly. There are several possibilities to consider as to why this may be the case. Greater

¹ Results remain the same when including baseline income and education level. Using a multiple imputation procedure for missing data showed that findings were not impacted by patterns of missingness in the data. Finally, excluding T2 depression from the model did not impact the findings.

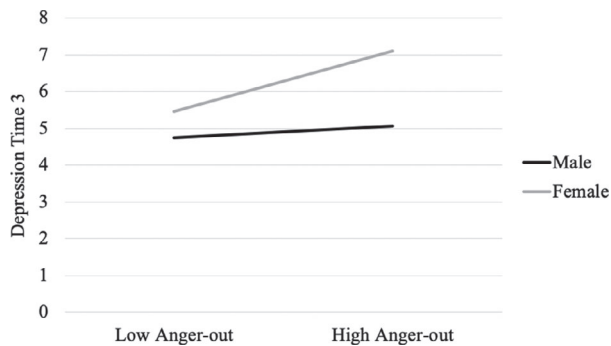


FIGURE 1. Plot depicting the interaction between sex and anger-out (Time 2) predicting depression 9 years later (Time 3). Values are depicted for individuals who are one standard deviation above (labelled “high anger-out”) on the *x*-axis and below (labelled “low anger-out”) the mean of anger-out.

depression in relation to outward anger expression could result directly from the negative interpersonal evaluations women receive from others for expressing anger. Women tend to feel more responsible than men for the emotional tone of their relationships, and for maintaining positive relationships with others at all costs (Fritz & Helgeson, 1998). This sense of responsibility may lead women to be particularly attuned to negative reactions from others, as they may attend to every nuance of their relationships. This, in turn, may make women more vigilant toward others’ emotional states as barometers of how their relationships are going, contributing to rumination and subsequent depressive feelings when things do not go well. In fact, past research has demonstrated that this tendency to be responsible for the emotional tone of relationships is associated with greater rumination among women, and rumination is linked to greater depression (Nolen-Hoeksema & Jackson, 2001).

Alternatively, if we conceptualise gendered norms of emotional displays as a cultural norm, we can apply the relevant cultural theories to gender differences in the anger expression—depression relationships. The cultural norm hypothesis of depression (Chentsova-Dutton et al., 2007) posits that the symptoms of depression (i.e., impaired concentration, low energy and anhedonia) may impair individuals’ abilities to attend to and enact cultural norms and ideals regarding emotion and emotional expression. In their study, depressed individuals (from both European American and Asian American backgrounds) were unable to adhere to their respective cultural norms around positive emotional expression. Applying this frame to our analyses, it is possible that in the MIDUS sample, women who were more depressed had difficulty adhering to gendered norms around anger expression due to prior depression. However, our results did show that the association between anger-out and depression held when controlling for prior depression, which suggests that anger-out is uniquely predictive of future depressive

symptoms, rather than strictly arising from depressive symptoms.

Limitations and future directions

Strengths of the present study include a large sample which provided excellent statistical power, used psychometrically strong measures and made use of a sample that included a wide age-range, rather than relying on college-aged participants alone. Additionally, we were able to test our predictions longitudinally over an 18-year time span, adding important predictive validity to our findings.

These strengths notwithstanding, several limitations deserve mention. First, the study relied on self-report measures of anger expression, rather than emotional behaviour. Future research should measure behavioural displays of anger in a lab setting to capture a more ecologically valid measure of anger expression, as self-report measures of emotional expression may be impacted by retrospective bias, whereas momentary measures of emotional expression may be more accurate (Sato & Kawahara, 2011). Second, although our study was not experimental, we cannot infer causality between anger expression and depressive symptomatology, the use of a prospective longitudinal design provides an important first step in this direction that future experimental work can examine further.

Third, given the length of time between the assessment of anger expression and depressive symptoms, it is also possible that other variables may have contributed to the observed effect across the 9-year span. For instance, increases in neuroticism or social isolation resulting from the interpersonal effects of women’s anger expression may have driven the increases in depression. Unfortunately, there was no intermediary time point between the assessment of anger and depression to allow us to examine mediational processes in our results.

A final limitation is our reliance on different measures of depression across time points (CIDI-SF for T1 and T3; CESD for T2). Although we were constrained by the MIDUS design, both the CES-D and CIDI-SF have shown to be significantly related at similar magnitudes to physician diagnosis of depression (Turvey et al., 1999), increasing our confidence that these measures tap into the same latent construct. Furthermore, both measures showed good internal consistency reliability for both men and women, and were significantly correlated across all three time points. Moreover, we believe the use of a diagnostic interview to assess the main outcome of interest (depressive symptoms at T3) is a strength of our study, whereas the self-reported measure of depressive symptoms was used only as a control variable at T2. In fact, the test of our hypotheses may be more conservative by including prior depression with the same measure 18 years earlier, adding to our confidence that the

findings are not due to the use of different measures of depression. Finally, as noted in our results section, rerunning the models without T2 depression did not impact the results. An exciting avenue of future research is in the investigation of whether these findings replicate across other cultures and ethnic minority groups. Cross-cultural research on interpersonal effects of anger suggests that norms around anger expression differ in Asian cultures, such that anger is seen as less acceptable in interpersonal interactions (e.g., Adam et al., 2010). Coupled with research on stereotypes of Asian women as demure and submissive, we might expect that outward expressions of anger in Asian women may be linked to even greater increases in depression compared to White women, as it may reflect a more stark stereotype violation in the former case. Further, the examination of within-culture differences in the United States with respect to intersectional identities as moderators of the anger-out to depression relationship is warranted, given that research suggests that Black women's anger is perceived differently given stereotypes of Black women as strong and domineering (Donovan, 2011). Future research should test these possibilities in cross-cultural and ethnically diverse samples.

CONCLUSION

The present study aimed to test whether anger expression predicts depressive symptoms longitudinally, and whether women bear greater intrapersonal costs for expressing anger outwardly. Results suggest that anger expression is related to depressive symptoms over time, and that outward anger expression is related to greater depression for women, but not for men. As such, our study provides preliminary evidence that women may not only bear greater social costs for anger expression, but greater costs to their own mental health and well-being over time. While further research is needed in order to examine the mechanisms of this association, the present study provides an important first step in elucidating the unique role of outward anger expression in predicting depressive symptoms in women over time.

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