

# Sex, Anger and Depression

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A social problem that has preoccupied sociologists of gender and mental health is the higher rate of depression found among women. Although a number of hypotheses about this health disparity between men and women have been advanced, none consider the importance of subjectively experienced anger. Drawing on theoretical and empirical insights from the sociology of emotion, we hypothesize that: (1. intense and persistent anger are associated with more symptoms of depression, and that (2. sex differences in the intensity and persistence of anger are involved in the sex difference in depressed affect. Analyses of data from the 1996 GSS Emotions Module provide support for these two hypotheses and strongly suggest that women's intense and persistent anger play a pivotal role in their high rate of depression. We discuss the extent to which sex differences in these emotions are a function of social factors, biological factors, or a complex interaction between them. We also comment on the implications of our findings for future theory and research on gender, emotion and mental health.

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## Introduction

A major problem that has long puzzled gender and mental health scholars is the relatively high rate of depression found among women. Sociologists have developed several hypotheses to explain this health disparity between genders, focusing on women's greater exposure and vulnerability to stress as well as gendered-responses to stressors. However, while these hypotheses shed light on social structural, social psychological and sociocultural factors that contribute to the female excess of depression, we offer an alternative set of hypotheses. Drawing on theoretical and empirical insights from the sociology of emotion, we hypothesize that: (1. intense and persistent feelings of anger are associated with more symptoms of depression, and that (2. sex differences in the intensity and persistence of anger are involved in the sex difference in depressed affect. Sex differences in the subjective experience of these emotions may be a function of social factors, biological factors or an interaction between them. Although some mental health researchers have speculated about the significance of anger for the

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prevalence of depression among women, the links between sex, anger and this mental health problem have not been investigated in the general population of adults. In this research, we evaluate our hypotheses with data from a nationally representative sample. We expect that women's intense and persistent anger play an important role in their high rate of depression.

## Background

### *The Sex Difference in Depression*

One of the most consistent and oft cited findings of research on mental health is that women have a higher rate of depressive disorders and report more symptoms of depression than men. Epidemiological studies based on non-clinical populations of adults find that women are twice as likely as men to experience this mental health problem (Kessler et al. 2003). The female excess of depressed affect is the leading cause of disease-related disability among women and is associated with a host of personal, social and economic problems for themselves as well as their families.

Not surprisingly, sociologists have developed a number of hypotheses about this health disparity. Several decades ago Gove (1972) argued that the higher rate of emotional disturbance among women is due to their roles in society, which are more stressful than men's. Building on Gove's sex-role theory of mental illness, research has evaluated the *exposure hypothesis*, which posits that gender inequality in the family and workplace differentially exposes men and women to role-related stress. However, while this research has enhanced our understanding of the relationship between role involvements and emotional well-being, it indicates that differences between men's and women's roles contribute to, but do not explain, women's mental health disadvantage (Thoits 1986).

The inability of the exposure hypothesis to account for the gender gap in depression led to the development of the *vulnerability hypothesis*, which claims that the stressors to which individuals are exposed have a greater impact on women's mental health. This hypothesis focuses on social psychological rather than structural factors, such as women's insufficient coping and social support resources, which render them more vulnerable than men to the adverse emotional effects of stress (see Aneshensel 1992 and Thoits 1995 for reviews). However, while this research has expanded our knowledge about social factors that both mediate and moderate the relationship between sex, stress and emotional distress, it indicates that women are not more vulnerable than men in general. Rather, some stressors are more distressing to women whereas others are more distressing to men (Pearlin and Lieberman 1979; Simon 1998).

Scholars have recently turned their attention to the *gendered-response hypothesis*, which argues that women are neither more exposed nor more vulnerable to stress than are men, but that males and females express emotional upset with different types of mental health problems. A growing body of work finds that women tend

to respond to stress with *internalizing* behaviors such as depression, while men tend to respond with *externalizing* behaviors such as antisocial conduct and substance abuse (Aneshensel et al. 1991; Lennon 1987; Simon 2002; Umberson et al. 1986).

Rosenfield (2000, 2005) attributes gendered-expressions of distress to gender-differentiated structures that develop in adolescence. She finds that females tend to develop an “other-focused” self that predisposes them to express distress with depression, whereas males tend to develop an “ego-focused” self that predisposes them to express distress with substance abuse problems. Simon (2002, 2004) attributes gendered-expressions of distress to Americans’ emotion culture, which includes gender-linked norms about the experience and expression of emotion. She argues that depression is a culturally acceptable emotion for females, but not for males. Men’s higher rate of substance problems reflects their tendency to manage (i.e., suppress) inappropriate feelings of depression with mood-altering substances.

However, while the gendered-response hypothesis begins to unravel the complex set of factors that contributes to sex differences in both the experience and expression of emotional upset, other factors may be involved in the female excess of depression. It is possible that intense and persistent subjectively experienced anger—more common among women than men—also plays a role in depressed affect. Although some mental health scholars suggest that sex differences in anger underlie the sex differences in depression most sociologists who study anger have focused on this emotion as an outcome of social disadvantage rather than as a mediator of the relationship between disadvantaged statuses and depression (Mabry and Kiecolt 2005; Ross and Van Willigen 1996; Schieman 1999, 2000).

### *Sex, Anger and Depression*

The emotion culture of the United States includes gendered norms about anger; while anger is an acceptable emotion for males, it is an inappropriate emotion for females. Emotions scholars tell us that gendered norms about anger in the United States emerged in the early 19<sup>th</sup> century—a period when males became identified with the public sphere of paid work and females with the private sphere of the family (Cancian and Gordon 1988; Shields 2002; Stearns 1992). Stearns and Stearns (1996) document that although anger control became a cultural ideal for men and women, it was especially important for women who were charged with creating a retreat from the competitive workplace. Gendered norms about anger—and their corresponding expectations that females should avoid and suppress these feelings—persist despite the influx of women into the labor force during the second part of the 20<sup>th</sup> century.

A consequence of these emotion norms is the widespread belief that anger is experienced and expressed more frequently by males than by females. Gender, mental health and emotion researchers—particularly those who view emotions as socially constructed—assume that females are socialized to *suppress* rather than express anger (Campbell 1991; Hochschild 1979). Some scholars have suggested that the greater

prevalence of depression among women is due to their tendency to turn anger inward rather than outward as do men (Frankel 1991; Tavris 1982; Weissman and Paykel 1974). This argument is based on a “catharsis” model of emotion rooted in psychoanalytic theory and assumes that the uninhibited expression of anger is crucial for the development and maintenance of emotional well-being; when angry feelings are suppressed, they turn inward and people feel depressed.

In contrast to prevailing cultural beliefs and scholarly assumptions about women’s anger, recent sociological research based on national data reveals that men and women do not differ in the frequency with which they experience anger (Simon and Nath 2004). Numerous psychological studies report similar findings (Kring 2000; Thomas 1993). Moreover, while there are some differences in the ways in which men and women manage anger (e.g., women tend to talk with others while men tend to use substances), there is no evidence that women are more likely than men to suppress these feelings (Lively and Powell 2006; Simon and Nath 2004). Indeed, the tendency for men to use mood-altering substances to manage anger suggests that they are as likely as women to suppress these negative emotions—albeit in different and gendered ways. Research does, however, find sex differences in other dimensions of anger. Ironically, women report more intense and persistent anger than do men (Simon and Nath 2004)—a finding that is also echoed in several psychological studies (Averill 1982; Brody et al. 1995).

Drawing on theoretical and empirical insights from the sociology of emotion, we argue that women’s more intense and persistent anger—rather than their presumed tendency to suppress these feelings—is involved in their high rate of depression. That is, we posit that intense and persistent subjectively experienced anger *mediates* the well-documented relationship between sex and depression. At the same time emotion norms discourage women from experiencing and expressing anger, sociological research finds that their unequal status in the family and workplace disproportionately exposes them to anger-eliciting social interactions.

Sociologists of emotion have theorized about the link between anger and depression and provide clues about why intense and persistent angry feelings are associated with depressed affect and why women report more of these emotions than men. These theorists focus on the structural—rather than cultural—basis of anger and depression. Kemper’s social interactional theory (1978) argues that people experience intense negative emotions such as anger and rage in interactions that they perceive as unjust. If such interactions persist, these emotions may become more enduring emotional states (or moods) such as depression. Because disadvantaged persons are more likely than their advantaged peers to be subjected to unjust interactions—and are less likely to have the power to alter them—they are more likely to experience intense and persistent anger as well as more enduring feelings of depression (also see Barbalet 2001).

Collins’ theory of interaction rituals (2004) also argues that people’s structural location and subsequent social interactions affect their transient emotions (e.g.,

anger and joy) and moods (e.g., depression and happiness)—the latter of which he refers to as emotional energy. Intense transient emotions that arise in social interactions and then persist influence an individual's overall emotional energy. In the case of anger, people who experience intense and enduring emotions that emerge in unjust interactions also experience a degradation of emotional energy (i.e., an increase in feelings of depression).

Like Kemper, Collins posits that intense transient feelings of anger and enduring feelings of depression are more common among disadvantaged than advantaged persons. However, unlike Kemper, Collins theorizes that the relationship between transient emotions and emotional energy is bi-directional rather than unidirectional. Just as individuals whose anger is intense and persistent may experience decreased emotional energy, persons with low emotional energy may select into unjust social interactions that elicit intense and enduring anger—a supposition that is consistent with affect control theory (Heise 1979), theories about self-verification (Swann and Brown 1990), and symbolic interaction more generally.

Although they emphasize somewhat different emotional processes, Kemper and Collins provide compelling reasons to expect an association between intense and persistent anger and depression—which include feelings of sadness, loneliness, fearfulness, restlessness and worry. These emotions are key components of symptom scales that assess the prevalence of depression in the general population such as the CES-D (Radloff 1977) and SCL-90 (Derogotis and Cleary 1977).

Support for these ideas can be gleaned from research that documents the emotional consequences of gender inequality in the family and workplace for women. Hochschild's seminal qualitative studies of female airline attendants (1983) and wives in dual-income families (1989) show that intense and persistent anger from repeated unfair social interactions were transformed into depression. Subsequent quantitative studies document that involvement in an inequitable division of household labor (Lennon and Rosenfield 1994; Ross et al. 1983) and service occupations (Erickson and Wharton 1997) are associated with more depressive symptoms. Women report more depression than men because they are more likely to experience unjust social interactions in the family and workplace.

The later studies did not investigate whether women in unfair work and family roles report more intense and persistent anger than men and women in more equitable situations. However, Sprecher (1986), Ross and Van Willigen (1996), and Lively et al. (2008) found that perceptions of inequity in social relationships are associated with more anger for both genders. Here again, women report more anger than men because they perceive greater inequity in their social roles and relationships.

While these studies provide insight into the structural basis of anger and depression in the workplace and family, women's unequal status in society may expose them to unfair anger-eliciting social interactions in other life domains as well (Griffiths 1995; Ridgeway and Smith-Lovin 1999). In other words, women's

high rate of depression may reflect unresolved, intense anger that is rooted in their unequal experiences across a variety of social contexts.

Additional support for our ideas comes from studies of clinically depressed persons who report intense and persistent anger (Picardi et al. 2004; Newman et al. 2006). For example, Taylor's (1996) study of women suffering from postpartum depression revealed intense and persistent anger towards their unhelpful partners, their helpless children, the male-dominated medical profession and cultural norms that expect new mothers to be "happy." Hagan and Foster's (2003) recent longitudinal study of gendered pathways to disadvantage based on the general population also shows that intense and persistent anger in adolescence is associated with the development of depression among females and substance abuse among males in early adulthood.

In addition to research on the contribution of social factors to sex differences in anger and depression, research on the biology of affect documents biological contributions. Psychophysiological studies find that women have a stronger and longer emotional response to affective imagery than do men (Bradley et al. 2001; Schwartz et al. 1980). Neuroendocrinological research finds that women exhibit a more robust and longer lasting increase in certain bio-chemicals following exposure to stress than men (McCarthy and Konkle 2005). Medical and psychiatric studies have also uncovered a sex difference in the synthesis and utilization of neurotransmitters such as serotonin – bio-chemicals that regulate anger and depression (Heninger 1997). This research suggests that sex differences in the neurobiological and endocrinological systems predispose women to experience more intense and persistent feelings of anger and more depression than men.

It is also possible that social and biological factors interact in complex ways to produce sex differences in the experience of anger and depression. That is, cultural and structural influences on men's and women's feelings may reinforce biologically based sex differences in emotion. Support for this idea comes from recent sociological research on the joint influence of social and genetic factors on happiness (Schnittker 2008) and alcohol dependence (Pescosolido et al. 2008). We do not have the data to explore the joint influence of social and biological factors on sex differences in anger and depression. Nevertheless, theoretical and empirical insights into the cultural and structural basis of emotion – as well as developments in the biology of emotion – strongly suggest that an examination of the relationship between sex, anger and depression may provide insight into a problem that has long puzzled sociologists of gender and mental health.

Going beyond existing explanations, we evaluate whether: (1. intense and persistent angry feelings are *associated* with more symptoms of depression, and if (2. sex differences in the intensity and duration of anger are *involved* in the sex difference in depressed affect. In addition to an examination of these two hypotheses, we also explore the extent to which women's higher level of depression is due to their tendency to suppress rather than express anger.

## Data and Methods

### *Data*

Our analyses are based on data from the 1996 Emotions Module of the General Social Survey. The GSS, which has been conducted regularly since 1972, is based on a nationally representative sample of adults living in households in the United States. About half ( $N = 1,460$ ) of the 2,904 respondents who were interviewed that year were asked a variety of questions about their emotions. Our analyses are based on the subsample of respondents who identified an event that made them angry in the past month ( $N = 1,125$ ).

### *Measures*

#### *Symptoms of Depression*

These are measured with questions that asked respondents how many days in the previous week they felt: 1-sad, 2-blue, 3-lonely, 4-fearful, 5-restless, 6-worried, 7-happy, 8-overjoyed and 9-excited. Items 7 through 9 were reverse coded. We divided the sum of responses by the number of items included in the measure; scores range from 0 to 6.33 days ( $\alpha = .71$ ). Although this measure is not identical to the CES-D and SCL-90, it includes the same emotions.

#### *Intensity and Duration of Anger*

These are measured with single-item variables based on the following questions: “How intense was your anger?” (0 = not at all intense to 10 = very intense) and “How long did your anger last?” (1 = a few seconds to 6 = continuously).

#### *Anger Management Techniques*

Respondents were asked if they did one or more of the following things to change their angry feelings in the past month (yes = 1): 1-talked to the person I was angry at, 2-talked to someone else about how I felt, 3-yelled or hit something to let out my pent-up feelings, 4-left the situation, 5-tried to change the situation by doing something, 6-planned how to end the relationship with the person who made me angry, 7-thought about how to get revenge, 8-fantasized about a magical solution to the problem, 9-went out to get some exercise to make me feel better, 10-had a drink or took a pill, 11-prayed for help from God, 12-tried to forget it by doing or thinking about something else, 13-tried to think about the situation in a different way, 14-tried to accept the situation as it was, 15-waited for the feelings to pass, and 16-did something else.

#### *Sociodemographic Variables*

All analyses include respondents' age (in years), education (in years), household income (in dollars), and race (white = 1; black = 1; other = 1). To reduce missing cases, we assigned imputed mean scores for household income to respondents

with missing data ( $N = 124$ ). Dichotomous variables for employment, marital and parental status (employed = 1, married = 1, parent = 1) are included in all analyses as well. While feminist scholarship reminds us that women experience unjust social interactions in other social roles and life domains (Griffiths 1995), these experiences are unfortunately not easily captured in survey data. Because research indicates that poor health is associated with more depression and women report more health problems than do men (Williams and Umberson 2004), all analyses also include self-assessed health (1 = poor to 4 = excellent). Finally, we measure sex as a dichotomous variable (female = 1). Although this variable does not capture the power structures that create gender or the enactment of gendered identities in social interaction (Risman 1998), it allows us to assess whether sex differences in anger are involved in the sex difference in depressed affect.

### *Analytic Strategy and Sample*

Although we are advancing an alternative hypothesis about the female excess of depression, it complements existing hypotheses that attribute women's higher rate of depression to their greater exposure and vulnerability to stress as well as gendered-responses to stressors. However, these studies did not investigate whether women's more intense and persistent anger *mediates* the relationship between sex and depression. Certain types of stressors (e.g., events and situations that repeatedly expose individuals to unjust social interactions) may be depressing because they involve unresolved, intense anger.

Also, by identifying dimensions of anger that mediate the relationship between sex and depression, our research extends prior research that has focused on anger as an outcome of social disadvantage. Although they are both considered to be distressing emotions, anger and depression are distinct primary emotions that have different etiologies and evolutionary functions (Eckman 1999; Ortony et al. 1988). Moreover, feelings of anger tend to have a specific target whereas feelings of depression tend to be directed towards the self. In fact, anger is *not* included in depression screening scales such as the CES-D and SCL-90 because it is not considered to be a symptom of depression. In our sample, the intensity and duration of anger are only modestly correlated with depressive symptoms (.22 and .25, respectively).

Finally, although our cross-sectional data do not allow us to assess the causal direction of the relationship between intense and persistent anger and symptoms of depression, they provide much needed insight into the *associations* among sex, anger and depressed affect in the general population at a single point in time. Keep in mind that at the same time intense and persistent anger may transform into depression (Kemper 1978), feelings of depression may lead to intense and persistent anger (Collins 2004). It is, of course, possible that intense and persistent anger and depression are *concurrent* emotions as research on clinically depressed persons suggests (Newman et al. 2006; Picardi et al. 2004; Taylor 1996).



**Table 1: Sociodemographic Characteristics of the Analysis Sample by Sex**

	Total	Male	Female
<b>Sociodemographic Characteristics</b>			
Age, mean years	42.8 (15.5)	42.4 (15.0)	43.0 (15.8)
<b>Race %</b>			
White	82.1	84.8	80.1
Black	13.0	9.2	15.8
Other	5.0	6.0	4.1
Education (mean years)	13.7 (2.8)	13.9 (2.7)	13.5 (2.8)
Household income (\$1,000s)	\$29,799	\$32,749	\$27,599
Employed (%)	71.1	79.6	64.8
Married (%)	47.1	51.5	43.9
Children less than 18 in the home (%)	38.8	32.7	43.3
Self-assessed health (mean score)	3.08 (.79)	3.10 (.76)	3.06 (.81)
N	1,050	447	603

Note: Numbers in parentheses are standard deviations.

To examine the relationship between sex and both the intensity and duration of anger as well as symptoms of depression, our first model for each dependent variable only includes sex. To investigate whether sex differences in these emotions are a function of differences between men's and women's sociodemographic characteristics, Model 2 includes their age, race, education, household income as well as their employment, marital and parental status, and self-assessed health.

Our analyses are based on respondents who had complete information on all variables in the models ( $N = 1,050$ ). Means and standard deviations for all of the emotion variables appear in appendices A and B. Auxiliary analyses (available) indicate that two-thirds (66%) of the respondents reported that they felt angry at least one day in the prior week. Consistent with prior research, these analyses also indicate that there is no sex difference in the frequency of angry feelings.

The sociodemographic characteristics of the analysis sample by sex appear in Table 1. Bivariate analyses (available) indicate that women are older and have less education and lower household incomes than men. Similar to other national samples, women are less likely than men to be married and employed but are more likely to be residing with minor children; they also assess their health as poorer than do men.

## Results

### *Sex Differences in the Intensity and Duration of Anger*

We first assess whether the men and women in our sample differ with respect to the intensity and duration of anger. Table 2 contains the results of analyses in which these dimensions of subjectively experienced anger are regressed—first on respondents' sex and then on their sociodemographic characteristics.

**Table 2: Effects of Sex on the Intensity and Duration of Anger**

	Intensity of Anger		Duration of Anger	
	Model 1	Model 2	Model 3	Model 4
Female (0, 1)	.64*** (4.23)	.57*** (3.71)	.30*** (3.28)	.31*** (3.24)
Black (0, 1) <sup>a</sup>		.32 (1.40)		.23 (1.59)
Other (0, 1) <sup>a</sup>		.17 (.50)		.15 (.69)
Age		-.02*** (3.58)		-.01 (1.52)
Education		-.02 (.65)		.02 (1.20)
Household income		.02 (1.10)		.01 (.56)
Employed (0, 1)		-.19 (1.05)		.08 (.73)
Married (0, 1)		-.32 (1.92)		-.10 (1.00)
Children less than 18 in the home (0, 1)		.14 (.81)		-.02 (.24)
Self-assessed health		-.23* (2.28)		-.17** (2.66)
Intercept	5.87	7.58	3.36	3.65
Adjusted R <sup>2</sup>	.02	.04	.01	.02

Notes: Numbers shown are unstandardized OLS regression coefficients. Numbers in parentheses are t-ratios. N = 1,050.

<sup>a</sup>Whites are the reference category.

\*p < .05    \*\*p < .01    \*\*\*p < .001 (two-tailed tests)

Consistent with recent sociological research based on the same data as well as psychological and biological studies, women report that the anger they experienced in the past month was more intense than men's (Model 1). Moreover, this sex difference persists when respondents' sociodemographic characteristics are held constant (Model 2). In addition to gender, age is associated with the intensity of anger; younger adults report more intense anger than their older peers.

Also consistent with previous research based on the same data as well as psychological and biological studies, women report that the anger they experienced in the past month lasted longer than did men's (Model 3), which persists when their sociodemographic characteristics are controlled (Model 4). Here again, age is the only other variable associated with the duration of anger. In fact, Table 2 results suggest that other factors may be responsible for the greater intensity and persistence of women's anger.<sup>1</sup>

Supplementary analyses (available) based on alternative specifications of our sociodemographic variables indicate that divorced persons report more intense (but not more persistent) anger than their married peers, but personal income, the

number of hours employed in the prior week, the presence of children younger than 6 in the home and the number of preschool age children in the home are not associated with the intensity and duration of anger. Marital unhappiness increases the intensity (but not the duration) of anger among married respondents. These analyses further indicate that the inclusion of these variables in the models does not reduce the coefficients for sex to non-significance (see the first two columns of Appendix C).<sup>2</sup> Auxiliary interactional analyses (available) indicate that there is no sex difference in the association between sociodemographic characteristics and the intensity and duration of anger as well as no sociodemographic variation in anger among women and men.

### *The Sex Difference in Depression*

Do individuals who report more intense and persistent anger report more symptoms of depression than persons whose anger is less intense and persistent? Are sex differences in the intensity and duration of anger involved in the sex difference in depressed affect? The answers to these questions are in Table 3, which contains the results of analyses in which symptoms of depression are regressed on respondents' sex (Model 1) and sociodemographic characteristics (Model 2). Model 3 includes these variables as well as both the intensity and duration of respondents' anger.

Consistent with the extensive body of research on depression, women report more symptoms than men (Model 1), which is not explained by their sociodemographic characteristics (Model 2). Younger, less educated, non-employed and unmarried adults also report more symptoms than their older, more educated, employed and married counterparts, which is consistent with prior research as well. Persons residing with minor children report neither more nor less symptoms than those not living with minor offspring, and those who enjoy better health report fewer symptoms than their less healthy counterparts.

Supplementary analyses (available) reveal that divorced persons and individuals living with children less than 6 years old report more depression than the married and those not living with preschool age children. However, personal income, the number of hours worked in the past week, and the number of preschool age children in the home are not associated with symptoms. These analyses further reveal that the inclusion of these variables in the models does not reduce the coefficients for sex to non-significance (see the last column of Appendix C). Additionally, marital unhappiness—which is associated with more symptoms—reduces the sex difference in depression among the married to non-significance. This finding suggests that marital unhappiness helps explain the sex difference in depression among the married. Auxiliary interactional analyses (available) indicate that there is no sex difference in the association between any of the socio-demographic variables and depression with two exceptions: The association between symptoms and being divorced and widowed is greater for women than for men; divorced and widowed women also report more symptoms

**Table 3: Effects of Sex, the Intensity and Duration of Anger, and Anger Management Techniques on Depression**

	Symptoms of Depression			
	Model 1	Model 2	Model 3	Model 4
Female (0, 1)	.26*** (3.52)	.20** (2.83)	.13 (1.85)	.20* (2.74)
Black (0, 1) <sup>a</sup>		-.09 (.81)	-.14 (1.31)	-.08 (.75)
Other (0, 1) <sup>a</sup>		-.24 (1.49)	-.27 (1.74)	-.25 (1.57)
Age		-.01*** (4.33)	-.01*** (3.76)	-.01*** (3.73)
Education		-.05*** (3.93)	-.06*** (4.23)	-.06*** (4.06)
Household income		-.00 (.27)	-.00 (.51)	.00 (.25)
Employed (0, 1)		-.01 (.13)	-.01 (.17)	.02 (.24)
Married (0, 1)		-.24** (3.12)	-.21** (2.81)	-.22** (2.87)
Children less than 18 in the home (0, 1)		.08 (1.02)	.08 (1.02)	.08 (1.02)
Self-assessed health		-.36*** (7.69)	-.33*** (7.14)	-.35*** (7.51)
Intensity of anger			.05*** (3.16)	—
Duration of anger			.15*** (5.96)	—
Talked to the person (0, 1)				-.15* (2.04)
Talked to someone else (0, 1)				.03 (.44)
Yelled or hit something (0, 1)				.17 (1.27)
Tried to think about the situation (0, 1)				-.11 (1.39)
Had a drink or took a pill (0, 1)				.30 (2.04)
Tried to forget it (0, 1)				.02 (.19)
Tried to change the situation (0, 1)				-.01 (.09)
Prayed for help from god (0, 1)				.07 (.81)
Fantasized about a magical solution (0, 1)				.45*** (3.22)
Went out to get some exercise (0, 1)				.30** (2.95)
Waited for feelings to pass (0, 1)				-.01 (.07)
Tried to accept the situation (0, 1)				.05 (.74)
Left the situation (0, 1)				-.10 (1.02)

Table 3 continued

	Symptoms of Depression			
	Model 1	Model 2	Model 3	Model 4
Thought about how to get revenge (0, 1)				.15 (.97)
Planned how to end the relationship (0, 1)				.16 (1.35)
Did something else (0, 1)				.09 (.54)
Intercept	2.14	4.66	3.75	4.39
Adjusted R <sup>2</sup>	.01	.12	.18	.15

Notes: Numbers shown are unstandardized OLS regression coefficients. Numbers in parentheses are t-ratios. N = 1,050.

<sup>a</sup>Whites are the reference category.

\* $p < .05$  (two-tailed tests) \*\* $p < .01$  \*\*\* $p < .001$ .

than married women. These findings echo recent research on the relationship between gender, marital status and mental health (Simon 2002; Umberson et al. 1996), which finds that marital status is more closely associated with depression among women (and substance abuse among men).

The most intriguing results of Table 3 are in Model 3; consistent with our first hypothesis based on theoretical and empirical insights about the structural basis of emotion, individuals whose anger was more intense and persistent during the previous month report significantly more depression in the prior week than those whose anger was less intense and persistent. Moreover, the inclusion of both dimensions of anger in the model reduces the sex coefficient for depression to *non-significance*. This finding provides support for our second hypothesis; sex differences in the intensity and duration of subjectively experienced angry feelings are involved in the sex difference in depressed affect. Although our data do not allow us to assess this possibility, these findings – which are consistent with prior research based on clinical and non-clinical samples (Hagan and Foster 2003; Hochschild 1983, 1989; Newman 2006; Picardi et al. 2004; Taylor 1996) – strongly suggest that intense and persistent anger has etiological significance for the development of depression in the general population of adults and sex differences therein. Additional interactional analyses (available) indicate that the associations between intense and persistent anger and depression do not differ for women and men. These results suggest that there would not be a sex difference in depressed affect if women's anger was less persistent and intense.<sup>3</sup>

As a final step in our analysis, we explore whether the ways in which respondents managed their angry feelings are associated with depression and the extent to which sex differences in the use of anger management techniques are involved in the sex difference in depressed affect. To this end, Model 4 of Table 3 includes the anger management variables.

We want to point out that logistic regression analyses (shown in Appendix D) indicate that there is a significant sex difference in only 3 of the 16 anger management items. Women are more likely than men to manage their angry feelings by talking with someone else about how they felt and praying to God for help. Men, on the other hand, are more likely than women to manage anger by having a drink or taking a pill. These findings are similar to Simon and Nath's (2004) study based on the same data as well as psychological research, which finds that females tend to express anger verbally while males tend to express these feelings behaviorally (Brody and Hall 1993; Kring 2000). The tendency for women to manage their anger with prayer also echoes findings from studies of gender differences in coping and social support (Thoits 1991). That men are more likely than women to manage their anger with mood-altering substances is also consistent with research on the gendered-response hypothesis, which finds that males tend to express emotional upset with *externalizing* problems such as substance abuse. Although our results are based on cross-sectional analyses, they are also consistent with Hagan and Foster's (2003) longitudinal study, which shows that intense and persistent anger in adolescence is associated with the development of depression among females and substance abuse among males in early adulthood. Overall, while we cannot say with certainty whether men and women use these emotion management techniques to *suppress* angry feelings, there is no evidence that women are less likely than men to *express* these emotions. In fact, the evidence points to the contrary.

In Model 4, it appears that only 3 of the 16 emotion management strategies are significantly associated with symptoms of depression. However, these strategies—which include having a drink or taking a pill, fantasizing about a magical solution to the problem, and going out to get some exercise—are associated with *more* rather than *less* symptoms. While these findings are interesting, the cross-sectional nature of our data prevents us from sorting out whether these anger management techniques are ineffective for reducing depression or if depressed persons are more likely than their non-depressed peers to use these techniques. Most important for our hypotheses, Model 4 reveals that the inclusion of the emotion management items in the model does not reduce the sex coefficient for depressive symptoms to non-significance. It thus appears that differences in some ways men and women manage anger are *not* involved in the sex difference in depressed affect.

## Conclusions and Discussion

Although sociologists have developed a number of hypotheses about the well-documented female excess of depression, none consider the importance of subjectively experienced anger for understanding the prevalence of this mental health problem in the general population of adults and sex differences therein. The lack of research is surprising because mental health scholars have suggested that the female preponderance of depression is due to their tendency to suppress rather

than express anger. The idea that suppressed anger underlies women's high rate of depression reflects a social constructionist view of emotion, which posits that emotion norms encourage females to turn their anger inward rather than outward as do men. However, while provocative, recent sociological research indicates that women are not less likely than men to experience and express anger. Ironically, this research—as well as research on the psychology and biology of emotions—also reveals that women report more intense and persistent anger than do men.

Drawing on theoretical and empirical insight from the sociology of emotion about the structural rather than cultural basis of anger and depression, we hypothesized that intense and persistent angry feelings are *associated* with more depressive symptoms. We also hypothesized that sex differences in the intensity and duration of anger are *involved* in the sex difference in depressed affect. Using data from a nationally representative sample, we obtained empirical support for our hypotheses.

Similar to other studies, we found that women report more intense and persistent anger than do men. However, we were unable to account for sex differences in these dimensions of anger despite the inclusion of socio-demographic characteristics and self-assessed health—for which significant sex differences exist. We also found minimal socio-demographic variations in these dimensions of anger among women and among men. There are several possible reasons for our inability to explain women's more intense and persistent anger.

The first possibility is that unmeasured variations in men's and women's social experiences are responsible for sex differences in these two dimensions of anger. An important next step for research is to examine whether women's intense and persistent angry feelings stem from their greater exposure to repeated unjust social interactions across a variety of life domains or are due to their greater vulnerability to such interactions. A sense of powerlessness among women to alter the injustice they regularly experience—whether from the inequitable division of household labor, the types of jobs they tend to hold, and/or their unfair wages—may also contribute to their more intense and persistent feelings of anger relative to men. We believe—as do other feminist-oriented emotions scholars—that women's intense and persistent anger reflects the cumulative effect of everyday injustice they experience in their social roles and across a variety of life domains (Griffiths 1995). Although we could not assess this idea, the use of measures of lifetime stress exposure would be a start for investigating this possibility (Turner et al. 1999).

A second possibility is that women are biologically predisposed to experience anger and depression more strongly and for longer duration than are men. Although we focused on social factors, we noted that research finds sex differences in anger and depression that are biologically based. Whether these sex differences reflect psychophysiological, neuroendocrinological or other biochemical factors is still unclear. What is clear is that sociologists of gender, emotion and mental health cannot ignore these findings if they want to understand the sex difference in depressed affect.

A third possibility is that sociocultural and structural factors interact with biological propensities in complex and not particularly well-understood ways to produce sex differences in anger and depression. Biological research indicates that social factors influence biological processes (McCarthy and Konkle 2005). At the same time, recent sociological research shows that genetic factors affect emotions and health-related behaviors (Pescosolido et al. 2008; Schnittker 2008). This and other research also reveals that social influences on emotion processes are even greater once genetic factors are held constant. These findings suggest that the magnitude of the influence of the sociodemographic variables on sex differences in the intensity and persistence of anger may have been greater if our models included certain biological factors.

Social scientists have been reluctant to consider the contribution of biological factors to sex differences in emotion since biological arguments about women's emotions have been used to justify their social disadvantage (see Shields 2007 for a discussion of this issue as well as the use of socially constructed beliefs about men's and women's emotions to justify gender inequalities). However, Fausto-Sterling (1992), a feminist biologist, argues that the failure to acknowledge the complex web of interactions between the biological and social environment impedes scientific understanding of sex and gender. We concur that a multi-disciplinary approach—which focuses on the interplay between biological and social factors—would expand our knowledge about sex differences in anger and depression.

We also found that women report more symptoms of depression than do men, which is not explained by socio-demographic characteristics or self-assessed health. Our most intriguing result, however, is that individuals who report more intense and persistent angry feelings report more depression than those whose anger is less intense and persistent. Moreover, sex differences in the intensity and persistence of anger help explain the sex difference in depressed affect. These findings strongly suggest that women's more intense and persistent angry feelings play an important etiological role in their high rate of depression.

In addition to providing support for our hypotheses, our findings support Kemper's social interaction theory and Collins' theory about interaction rituals. Recall that these theorists argue that socially disadvantaged persons are more likely than their advantaged peers to experience situationally based anger, which if intense and prolonged, may transform into enduring emotional states or moods such as depression. It is, of course, also possible that persons with low emotional energy (i.e., depression) select into situations that elicit intense and enduring anger. Given the cross-sectional nature of our data, we obviously could not sort out the causal direction of this relationship. Longitudinal survey data and data from daily diaries would allow researchers to evaluate these different possibilities. Researchers could also assess whether intense and persistent anger and depression are concurrent emotions—a finding that is reported in studies of clinically depressed adults (Newman et al. 2006; Picardi et al. 2004; Taylor 1996). While



we could not assess whether anger is causally linked to depression, our findings are consistent with Hagan and Foster's (2003) longitudinal study, which shows that anger in adolescence is associated with the development of depression among females and substance problems among males in early adulthood.

As a final step in our analyses, we explored whether sex differences in the techniques used to manage anger are involved in the sex difference in depressive symptoms. Consistent with other studies, we found that women tend to talk with others, while men tend to use mood-altering substances. The later finding suggests that men use mood-altering substances in an attempt to dampen, transform and/or suppress *all* unpleasant emotions, not only those that are culturally *inappropriate* for males such as depression. However, there was no evidence that women are *less* likely than men to express their anger as the social constructionist view of emotion suggests. There was also no evidence that sex differences in anger management help explain the sex difference in depressed affect. These findings belie the assumption long held by mental health scholars that the greater prevalence of depression among women is due to their tendency to turn their anger inward rather than outward as do men.

Although we have advanced an alternative hypothesis about the relationship between sex and depression, our work builds on and complements existing hypotheses. While these hypotheses attribute women's higher rate of depression to their greater exposure and vulnerability to stress as well as gendered-responses to stressors, researchers have not considered whether women's more intense and persistent anger mediates the relationship between sex and depression. We contend that certain types of experiences—particularly those that repeatedly expose individuals to unjust social interactions—are depressing because they involve unresolved, intense anger.

By identifying dimensions of anger that mediate the relationship between sex and depression, our research also extends prior work—which has focused on anger as an outcome of social disadvantage. In doing so, our study points to some promising new lines of inquiry that would benefit from greater integration of insights from the sociologies of emotion and mental health as we have attempted to do here (also see Simon 2007). For example, while mental health research shows that exposure to stress is associated with higher levels of depression, it is likely that some stressors (e.g., a divorce, the inequitable division of household labor, and unfair financial compensation for work done outside the home) are associated with intense and persistent anger—particularly when the event or situation is perceived as *unjust*. A consideration of the intensity and duration of individuals' anger—as markers of the injustice they experience in everyday social interactions across a variety of life domains—may also help explain other well-documented group (e.g., socioeconomic status) differences in depression.

We noted that our analyses, which focused on *sex differences* in anger and depression, do not capture the power structures that create gender or the enactment of gendered-identities in social interaction. Gender scholars urge researchers to avoid contributing to the social construction of the dichotomy between men and

women (Shields 2007). To this end, we examined whether there are variations in anger and depression *among* women and *among* men who hold different statuses. Although we found minimal within-gender variation, research should assess whether variations in gender-role ideology and gendered-identities contribute to variation in these emotions among women and among men.

We want to emphasize that our findings are only generalizable to men and women in the United States. Hopcroft and Bradley (2007) recently documented cross-cultural variation in the gender gap in depression and showed that it tends to be larger in societies with more rather than less gender equity. These authors attribute this seemingly paradoxical finding to a variety of social factors that characterize high equity societies such as the United States—including the prevalence of single parenthood among women (which exposes them to economic hardship) and difficulties they experience from combining work and family roles. These authors also suggest that women in high-equity societies expect equality, which creates a sense of relative deprivation. In light of the lower expectations women in low-equity societies have for *fair* social interactions, we suspect that they also experience less intense and persistent anger than women in gender-equity societies.

While our findings indicate that intense and persistent anger is associated with symptoms of depression, it is ironic that intense and persistent anger seem to be necessary for the collective redress of large-scale social inequalities. Collective behavior researchers tell us that the success of social movements often lies in the ability of movement organizers to instill in disadvantaged individuals a sense of *righteous anger*, anger related to positive emotions such as pride rather than negative feelings of depression (Britt and Heise 2000; Jasper 1988; Taylor and Reitz 2010). It is obviously beyond the scope of this article to assess the social conditions in which intense and persistent feelings of anger are transformed into feelings of righteous anger and pride rather than depression. We hope that social movement scholars will explore this interesting paradox.

## Notes

1. In an attempt to identify social factors that help account for sex differences in the intensity and persistence of anger, we examined the role context of the anger-eliciting event and target of respondents' anger. These analyses (available) indicate that women are more likely to be angered by an event in the family, while men are more likely to be angered by an event at the workplace. Women are also more likely to be angry with a family member, whereas men are more likely to be angry with someone at work. These analyses further show that persons who were angered by a family event reported more intense (but not more persistent) anger than those angered by a work event. However, they also reveal that sex differences in the role context and target of anger do *not* help account for sex differences in the intensity and duration of anger.
2. In this table, we only present the sex coefficients for our dependent variables when alternative specifications of sociodemographic variables are included in the models. For example, the coefficient for sex in the regression of the intensity of anger is .57\*\*\* when personal rather than household income is in the model.

3. Supplementary analyses (available) based on the sample of respondents who reported that the anger-eliciting event occurred within the previous week (N = 645) rather than the previous month produced even stronger results for the associations between the intensity and duration of anger and depression than those shown in our tables. In other words, the patterns presented in this research offer a conservative test of our hypotheses. Additional auxiliary analyses (available) also revealed that while the frequency of anger is positively and significantly associated with depressive symptoms, the inclusion of this variable in the models does not appreciably reduce the sex coefficient for depression.

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### Appendix A. Means and Standard Deviations for the Intensity and Duration of Anger and Depression by Sex

	Total	Males	Females	P Values	Reliability
N	1,050	447	603		
<b>Intensity and Duration of Anger</b>					
Intensity of anger	6.24 (2.44)	5.87 (2.40)	6.51 (2.43)	.001	
Duration of anger	3.53 (1.48)	3.36 (1.44)	3.66 (1.50)	.001	
<b>Symptoms of Depression</b>					
	2.29 (1.18)	2.14 (1.13)	2.40 (1.21)	.001	.71
Blue	1.27 (1.85)	1.13 (1.76)	1.38 (1.91)	.05	
Sad	1.73 (1.94)	1.52 (1.85)	1.89 (1.98)	.01	
Lonely	1.51 (2.19)	1.30 (2.04)	1.67 (2.29)	.01	
Fearful	1.23 (1.98)	1.17 (1.89)	1.27 (2.04)	NS	
Restless	1.53 (2.25)	1.62 (2.30)	1.47 (2.21)	NS	
Worried	3.02 (2.77)	2.60 (2.63)	3.33 (2.83)	.001	
Excited <sup>a</sup>	3.31 (2.26)	3.09 (2.17)	3.46 (2.31)	.01	
Happy <sup>a</sup>	1.79 (2.01)	1.77 (2.01)	1.80 (2.01)	NS	
Overjoyed <sup>a</sup>	5.23 (2.09)	5.09 (2.26)	5.33 (1.96)	NS	

Notes: Numbers in parentheses are standard deviations.

<sup>a</sup>These variables were reverse coded; high values indicate infrequent feelings.

\*P values, which refer to the difference between men and women, are based on two-tailed tests. NS = non-significant.

**Appendix B. Means and Standard Deviations of Anger Management Techniques by Sex**

	Total	Males	Females	P Values
N	1,050	447	603	
<b>Anger Management Techniques</b>				
Talked to the Person (0, 1)	.37 (.48)	.34 (.48)	.39 (.49)	NS
Talked to Someone Else (0, 1)	.59 (.49)	.51 (.50)	.64 (.48)	.001
Yelled or Hit Something (0, 1)	.08 (.27)	.09 (.28)	.08 (.27)	NS
Tried to Rethink the Situation (0, 1)	.35 (.48)	.36 (.48)	.33 (.47)	NS
Had a Drink or Took a Pill (0, 1)	.06 (.24)	.08 (.27)	.05 (.21)	.05
Tried to Forget It (0, 1)	.31 (.46)	.34 (.48)	.29 (.45)	.05
Tried to Change the Situation (0, 1)	.27 (.44)	.26 (.44)	.27 (.44)	NS
Prayed for Help from God (0, 1)	.28 (.45)	.20 (.40)	.34 (.47)	.001
Fantasized About a Magical Solution (0, 1)	.07 (.25)	.07 (.25)	.07 (.25)	NS
Went Out to Get Some Exercise (0, 1)	.14 (.35)	.13 (.34)	.14 (.35)	NS
Waited for Feelings to Pass (0, 1)	.29 (.46)	.29 (.46)	.29 (.46)	NS
Tried to Accept the Situation (0, 1)	.46 (.50)	.45 (.50)	.47 (.50)	NS
Left the Situation (0, 1)	.15 (.36)	.15 (.36)	.16 (.36)	NS
Thought About How to Get Revenge (0, 1)	.06 (.25)	.06 (.23)	.07 (.26)	NS
Planned How to End the Relationship (0, 1)	.10 (.30)	.08 (.27)	.11 (.32)	NS
Did Something Else (0, 1)	.04 (.20)	.04 (.19)	.05 (.22)	NS

Notes: Numbers in parentheses are standard deviations.

\*P values, which refer to the difference between men and women, are based on two-tailed tests. NS = non-significant.



**Appendix C. Sex Differences in the Intensity and Duration of Anger and Depression With Alternative Specifications of Sociodemographic Variables in the Models**

	Female		
	Intensity of Anger	Duration of Anger	Symptoms of Depression
Personal Income <sup>a</sup>	.57*** (3.62)	.32*** (3.31)	.21** (2.91)
Number of Hours Worked <sup>b</sup>	.59*** (3.79)	.31*** (3.23)	.22** (2.99)
Marital Status <sup>c</sup>	.56*** (3.62)	.29** (2.99)	.19** (2.58)
Children less than 6 in the Home (0, 1) <sup>d</sup>	.58*** (3.80)	.31*** (3.34)	.20** (2.87)
Number of Children less than 6 in the Home (0, 1) <sup>d</sup>	.60*** (3.91)	.32*** (3.38)	.21** (2.95)
Marital Unhappiness <sup>e</sup>	.67** (3.16)	.29* (2.13)	.08 (.83)

Notes: Numbers shown are unstandardized OLS regression coefficients. Numbers in parentheses are t-ratios. All analyses are based on the full sample (N = 1,050) with the exception of models that include marital unhappiness, which are based on married respondents (N = 494).

<sup>a</sup>In addition to sex and personal income, these models include race, age, education, employment status, marital status, children less than 18 in the home, and self-assessed health.

<sup>b</sup>In addition to sex and the number of hours worked, these models include race, age, education, household income, marital status, children less than 18 in the home, and self-assessed health.

<sup>c</sup>In addition to sex and dummy variables for marital status (married = 1, divorced = 1, widowed = 1, never married = 1), these models include race, age, education, household income, employment status, children less than 18 in the home, and self-assessed health. The married are the reference category in these analyses.

<sup>d</sup>In addition to sex and children less than 6 in the home, these models include race, age, education, household income, employment status, marital status, and self-assessed health.

<sup>e</sup>These analyses are restricted to married respondents. In addition to sex and marital unhappiness, these models include race, age, education, household income, employment status, children less than 18 in the home, and self-assessed health. Responses for Marital Unhappiness range from very happy (coded as 1) to not so happy (coded as 3).

\*p < .05 (two tailed tests) \*\*p < .01 \*\*\* p < .001.

**Appendix D. Effects of Sex on Anger Management Techniques**

	Talked to Someone Else			Had a Drink or Took a Pill			Prayed for Help from God		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6			
Female (0, 1)	.53*** (4.20)	.67*** (4.98)	-.55* (-2.13)	-.72** (2.64)	.74*** (5.06)	.67*** (4.39)			
Black (0, 1) <sup>a</sup>		-.63*** (3.18)		.71* (2.07)		1.08*** (5.32)			
Other (0, 1) <sup>a</sup>		-.15 (.51)				.41 (1.27)			
Age		-.01* (2.53)		-.02** (-2.40)		.00 (.58)			
Education		.07*** (2.86)		-.01 (.21)		.01 (.36)			
Household income		-.00 (.09)		-.03 (1.19)		-.03 (1.55)			
Employed (0, 1)		.25 (1.58)		-.64** (2.17)		-.22 (1.26)			
Married (0, 1)		-.01 (.10)		.04 (.13)		.38 (2.33)			
Children less than 18 in the home (0, 1)		-.09 (.62)		-.35 (1.16)		-.07 (.45)			
Self-assessed health		-.03 (.33)		-.13 (.17)		-.09 (.90)			
Intercept	.05	-.46	-2.44	.10	-1.41	-1.12			
Adjusted/ Pseudo R <sup>2</sup>	.01	.04	.01	.05	.02	.05			

Notes: Numbers shown are unstandardized logistic regression coefficients. Numbers in parentheses are z-ratios. N = 1,050.

<sup>a</sup>Whites are the reference category in all of the models except for Model 4 in which whites and others are the combined reference category.

\*p < .05 (two tailed tests) \*\*p < .01 \*\*\*p < .001.