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Behavioral and Characterological Self-Blame in Chronic Obstructive Pulmonary Disease

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Abstract

Objective—To assess behavioral and characterological self-blame, identify demographic and relational correlates of self-blame, and determine the association of self-blame with psychological and clinical outcomes of chronic obstructive pulmonary disease (COPD).

Methods—Data were collected via self-report questionnaires completed by 398 individuals with COPD who had at least a 10 pack-year history of smoking. Behavioral and characterological self-blame were measured, and multiple regression was used to identify correlates of both types of self-blame. Multiple regression was also used to determine the association of self-blame with outcomes of COPD.

Results—More than one-third of participants endorsed the maximum possible score on the measure of behavioral self-blame. The perception that family members blamed the individual for having COPD ($p = .001$), tobacco exposure ($p = .005$), and general family functioning ($p = .002$) were associated with behavioral self-blame. Current smoking status ($p = .001$) and perception of blame from family ($p < .001$) were associated with characterological self-blame. While behavioral self-blame was associated with fewer symptoms of depression ($p = .02$), characterological self-blame was associated with more symptoms of depression ($p = .02$).

Conclusions—Individuals with COPD tend to blame themselves for smoking and other behaviors that may have led to their COPD. Smoking-related variables and the perception that family members blamed the individual for having COPD were associated with self-blame. Findings support the importance of distinguishing between behavioral and characterological self-blame in COPD, as behavioral self-blame had a negative association with depression and characterological self-blame had a positive association with depression.

Keywords

Chronic Obstructive Pulmonary Disease (COPD); Family Relationships; Psychological Distress; Self-Blame; Smoking

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INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is an incurable disease characterized by progressive shortness of breath. In addition to impairment in quality of life, patients with COPD experience psychological and social consequences of COPD that include depression, anxiety, and social isolation (1–3). Qualitative research indicates that people with COPD consider it to be a self-inflicted health condition and feel shameful about their prior smoking (4, 5). Given that 80–90% of cases of COPD in the US are due to smoking (6, 7), self-blame may be a particularly important aspect of living with COPD. It is unclear who is most likely to experience self-blame. Two studies have reported that age is not associated with self-blame (8, 9); however, one study indicates that older individuals are less likely to report self-blame (10). A study of women with rheumatoid arthritis found that having a critical husband is associated with increased self-blame (11). These studies indicate that demographic and relational characteristics may help to identify individuals who are more likely to experience self-blame.

In previous research, self-blame has been conceptualized as a coping mechanism (8, 10, 12–14) or an attribution (9, 15, 16) used to manage chronic illness. Results of studies that conceptualize self-blame as a single construct for managing chronic illness suggest that self-blame is maladaptive. For example, two studies have demonstrated a positive association between self-blame and depression (8, 12). Research has also demonstrated an association between self-blame and decreased quality of life in patients with heart failure (8).

Janoff-Bulman has conceptualized self-blame as consisting of two related but distinct types of blame: behavioral self-blame and characterological self-blame (17). Behavioral self-blame occurs when an undesirable outcome is blamed on specific behaviors or actions. Characterological self-blame occurs when an undesirable outcome is blamed on one's own character or disposition. Janoff-Bulman has hypothesized that characterological self-blame is maladaptive because blame is placed on non-modifiable factors (i.e., one's own character). In contrast, behavioral self-blame is adaptive, as the blame is placed on modifiable factors (i.e., behavior) (17). Contrary to these hypotheses, both behavioral and characterological self-blame have been associated with poorer psychological adjustment in women with rheumatoid arthritis (11) and breast cancer (9). Other research indicates that characterological but not behavioral self-blame is related to greater maladjustment (14), and that behavioral self-blame is related to distress only when the individual also experiences characterological self-blame (15).

Although self-blame has been studied in health conditions such as cancer (15), genital herpes (14), rheumatoid arthritis (11), inflammatory bowel disease (16), and irritable bowel syndrome (18), no quantitative research to date has investigated self-blame in COPD. COPD is an ideal illness in which to study self-blame, since the vast majority of cases of COPD in the US are directly linked to a personal health behavior: tobacco smoking. The objectives of the present study were to assess the extent of behavioral and characterological self-blame, identify demographic and relational correlates of self-blame, and determine the association of self-blame with psychological and clinical outcomes of COPD. By measuring both behavioral and characterological self-blame, we were able to test the hypothesis that behavioral self-blame is adaptive while characterological self-blame is maladaptive.

METHODS

Sample and Procedures

This protocol was approved by the Institutional Review Board at National Jewish Health and the Colorado Multiple Institutional Review Board. Cross-sectional data were collected from

individuals with physician-diagnosed COPD by mailing questionnaires to people who had been assessed or treated for COPD at two medical centers in Denver. These two medical centers were chosen to generate a large and diverse sample. One medical center was a tertiary-care respiratory hospital and the other was a university-affiliated public hospital. Questionnaires were mailed to 1040 people and were returned by 542 people, a 52% response rate.

Eleven of the returned questionnaires were excluded from analyses because the respondent indicated that they did not have COPD. These 11 respondents did not agree with their physician's diagnosis and were excluded because many of the items on the questionnaire only pertain to individuals who self-identify as having COPD. To improve our ability to assess the extent to which current or ex-smokers blame themselves for smoking, we limited our sample to individuals with at least a 10 pack-year history of smoking. This resulted in excluding 59 individuals. Listwise deletion was used to handle missing data in the regression analyses, resulting in a final sample of 398.

Measures

Demographic Characteristics—Demographic information was collected through a series of self-report items. Participants were asked to indicate their gender, age, race, ethnicity, education, relationship status, and current smoking status. Pack-years, a quantification of lifetime tobacco exposure, was calculated by multiplying the number of packs of cigarettes smoked per day by the number of years the person has smoked.

Relational Characteristics—*General family functioning* was measured by the 12-item General Functioning subscale of the Family Assessment Device (19). Questions address aspects of family relationships such as the extent to which family members express feelings with each other, feel accepted by each other, and confide in each other. The score of the General Functioning subscale can range from 1 to 4, and high scores are indicative of less healthy family functioning.

Perception of criticism was assessed via the Perceived Criticism Measure (PCM). The PCM is a single item designed to assess the extent to which the respondent views family members as being critical on a scale ranging from 1 (not at all critical) to 10 (very critical) (20).

Perception of blame from family members was assessed by a single item modeled on the PCM measuring the extent to which a person with COPD views family members as blaming: "To what extent do you think your family blames you for having COPD?" Responses range from 1 (not at all) to 10 (completely).

Self-blame—*Behavioral self-blame* was assessed via two questions adapted from a study of self-blame and adjustment to cancer (15). These questions address self-blame for smoking and for any other behavior that led to COPD. The specific questions are: 1) How much do you blame yourself for smoking? 2) How much do you blame yourself for any behavior that led to your COPD? Responses for each item range from not at all (coded as 1) to completely (coded as 5). The score for behavioral self-blame can range from 2 to 10, with higher scores indicating more behavioral self-blame.

Characterological self-blame was assessed via the self-blame subscale of the Internal Health Locus of Control scale (21). This scale uses three questions to assess a general tendency toward self-blame for negative health outcomes. An example item is: Whatever goes wrong with my health is my own fault. The other items ask whether respondents blame themselves when they get sick and whether respondents believe that they get ill when they are not taking care of themselves properly. Each item is scored on a scale from 1 to 5, and the score

for characterological self-blame can range from 3 to 15. Higher scores indicate more characterological self-blame.

Psychological Outcomes of COPD—*Symptoms of depression and anxiety* were measured by the Hospital Anxiety and Depression Scale (HADS)(22). This fourteen item scale contains 7-item subscales for depression and anxiety. The score for each subscale can range from 0 to 21, with higher scores indicating more symptoms of depression and anxiety. The HADS was designed for use with medical patients; as such, items focus on mood disturbance rather than physical symptoms that could be attributed to chronic illness.

Clinical Outcomes of COPD—*Health-related quality of life (HRQL)* was measured by the St. George's Respiratory Questionnaire (SGRQ)(23). The SGRQ is a 50-item scale designed to measure HRQL in people with airflow limitation. Items are summed and weighted to create a total scale score that can range from 0 to 100, with higher scores on the SGRQ reflecting greater impairment in quality of life.

Breathlessness was measured by the Modified Medical Research Council Scale (MRC) (24), a 5-point grading scale with higher scores indicating more breathlessness. The MRC is predictive of 5-year survival among people with COPD (25).

Analyses

Data were analyzed using PASW Statistics Version 18. Characteristics of the sample were summarized using means and standard deviations for continuous variables and number and percentage of participants for categorical variables. The Pearson correlation was calculated to assess the association between behavioral and characterological self-blame. To identify demographic and relational correlates of self-blame, two multiple regression models were utilized: one for behavioral self-blame and one for characterological self-blame. The same set of independent variables was used for both models, and included the following variables: gender, age, education, relationship status, current smoking status, tobacco exposure, general family functioning, perceived family criticism, and perceived family blame. All of the independent variables were entered simultaneously. To determine the association of self-blame with psychological and clinical outcomes of COPD, four multiple regression models were utilized: one for symptoms of depression, one for symptoms of anxiety, one for impairment in HRQL, and one for breathlessness. In all four models, behavioral and characterological self-blame were entered simultaneously as predictors. All four models adjusted for gender, age, highest level of education completed, smoking status, and tobacco exposure. For all analyses, significance tests were two-sided with a significance level of .05.

RESULTS

Characteristics of the sample are in Table 1. Nearly half of the sample (48.24%) was female and less than 40% of the sample was younger than age 65. More than half of the sample was married or a member of an unmarried couple (58.04%). Only 16.08% of the current sample were current smokers. On average, participants had smoked 55.61 pack-years (SD = 28.63). Overall, participants did not perceive their family as critical or blaming. The mean score for perceived criticism was 3.99 (SD = 3.40) and the mean score for perceived blame was 2.75 (SD = 2.34). The mean score for symptoms of depression was 5.84 (SD = 3.66) and the mean score for symptoms of anxiety was 6.73 (SD = 4.21), which indicates that overall this sample was not highly depressed or anxious. The mean scores for impairment in HRQL and breathlessness were both slightly below the midpoint of possible scores on each measure. The mean score for impairment in HRQL was 46.63 (SD = 19.02) and the mean score for breathlessness was 2.85 (SD = 1.11).

Extent of Self-Blame

Behavioral self-blame scores can range from 2 to 10. In this sample, respondents endorsed the full range of scores and the mean score was 8.21 (SD = 1.97), indicating a very high level of behavioral self-blame. In fact, 36.89% of participants scored the maximum possible score of 10. Characterological self-blame scores can range from 3 to 15. In our sample, respondents endorsed the full range of scores and the mean score was 8.57 (SD = 2.86).

The correlation between behavioral and characterological self-blame was small but statistically significant ($r = .21, p < .001$). This is consistent with conceptualizing behavioral and characterological self-blame as two related but distinct constructs.

Demographic and Relational Correlates of Self-Blame

Correlates of Behavioral Self-Blame—Multiple logistic regression was utilized to test demographic and relational correlates of behavioral self-blame because responses were not normally distributed due to the fact that 36.89% of participants endorsed the maximum possible score for behavioral self-blame. A binary variable was created to indicate whether each participant endorsed the maximum score for behavioral self-blame. If the participant endorsed the maximum score, their score for behavioral-self-blame was coded as 1. If the participant endorsed any score below the maximum score, their score for behavioral self-blame was coded as 0.

Table 2 presents results of the logistic regression model for behavioral self-blame. The model fit the data well, as indicated by a nonsignificant Hosmer-Lemeshow (H-L) goodness-of-fit test ($\chi^2(8) = 11.72, p = .16$). Behavioral self-blame was associated with tobacco exposure, perception of family blame, and family functioning. With regard to tobacco exposure, participants who had a greater duration and intensity of smoking were more likely to endorse the maximum amount of behavioral self-blame (OR per 10 pack-years = 1.13, 95% CI = 1.04 – 1.23, $p = .005$). This indicates that for every additional 10 pack-years, the odds of endorsing the maximum amount of behavioral self-blame increase by 13%. Participants who perceived more blame from family members were also more likely to endorse the maximum amount of behavioral self-blame (OR = 1.13, 95% CI = 1.05 – 1.22, $p = .001$). This indicates that for every one-unit increase in the measure of perception of family blame (which can range from 1 to 10), the odds of endorsing the maximum amount of behavioral self-blame increase by 13%.

With regard to general family functioning, participants that endorsed less healthy family functioning were less likely to endorse the maximum amount of behavioral self-blame (OR = 0.46, 95% CI = .28 – .76, $p = .002$). Higher scores on the measure of general family functioning indicate less healthy family functioning. For every one-unit increase in the measure of general family functioning (which can range from 1 to 4), the odds of endorsing the maximum amount of behavioral self-blame decrease by 54%.

Correlates of Characterological Self-Blame—Characterological self-blame was normally distributed; thus, multiple linear regression was utilized to test demographic and relational correlates of characterological self-blame. Table 3 presents results of the linear regression model for characterological self-blame. The adjusted R^2 was .11, indicating that the model accounts for 11% of the variance in characterological self-blame. The model was statistically significant ($F(11, 379) = 5.58, p < .001$). Characterological self-blame was associated with smoking status and perception of family blame. Current smokers report significantly more characterological self-blame than former smokers ($p = .001$). On average, current smokers have a score on the characterological self-blame scale that is 1.32 points higher than former smokers (95% CI = .52 – 2.12). In addition, there is a significant increase

in characterological self-blame with increasing perception of family blame ($p < .001$). On average, there is an increase of 0.19 points on the characterological self-blame scale (95% CI = .11 – .28) for every one-point increase on the perception of family blame scale.

The Association of Self-Blame with Psychological and Clinical Outcomes of COPD

Table 4 presents results of the multiple linear regression models to determine the association of behavioral and characterological self-blame with psychological and clinical outcomes of COPD. Consistent with the scoring used in our prior analyses, behavioral self-blame was scored as 1 if the participant endorsed the maximum score, and was scored as 0 if the participant endorsed any score below the maximum. Both characterological and behavioral self-blame were related to depression. While characterological self-blame was associated with more symptoms of depression (Unst B. = .16, 95% CI = .02 – .29, $p = .02$), behavioral self-blame was associated with fewer symptoms of depression (Unst B. = $-.90$, 95% CI = -1.68 – $-.12$, $p = .02$). Those individuals experiencing more behavioral self-blame also reported less impairment in health-related quality of life (Unst B. = -4.11 , 95% CI = -8.21 – $-.01$, $p = .049$). While this finding was just barely statistically significant, it is noteworthy because the unstandardized regression coefficient is -4.11 and a four-point difference on the SGRQ is considered clinically significant (26, 27). In the current sample, endorsing the maximum amount of behavioral self-blame was associated with a 4.11 point decrease on the SGRQ, compared to those who did not endorse the maximum score on behavioral self-blame.

DISCUSSION

COPD is an ideal illness in which to study self-blame, since the vast majority of cases of COPD in the US are directly linked to tobacco smoking. Participants in the current study endorsed a high level of behavioral self-blame—more than one-third of participants endorsed the maximum possible score on behavioral self-blame. This indicates that participants blame themselves for smoking and other behaviors that may have contributed to the development of their COPD. Behavioral self-blame was correlated with characterological self-blame, but the correlation was low enough to indicate that behavioral and characterological self-blame represent two distinct constructs. In addition, regression analyses indicated that behavioral self-blame had a negative association with depression, while characterological self-blame had a positive association with depression.

Smoking-related variables were significant predictors of self-blame. Tobacco exposure (measured in pack-years) was associated with behavioral self-blame. The more an individual has smoked over time, the more likely he or she was to blame him/herself for specific behaviors that led to developing COPD. The association between tobacco exposure and behavioral self-blame is logical, given that the measure of tobacco exposure reflects the duration and intensity of smoking *behavior* over time. Smoking status was associated with characterological self-blame; being a current smoker was related to a greater tendency to blame aspects of one's character or disposition for health problems. The association between smoking status and characterological self-blame is likely due to the fact that being a smoker is one aspect of an individual's identity. Identity refers to how an individual answers the question "Who am I?" (28). Labeling oneself with regard to smoking status is one aspect of identity (28–30). As such, it is not surprising that current smokers scored higher on the characterological self-blame scale than former smokers.

Being married has been associated with a variety of positive physical and mental health outcomes among people with chronic illness (31–33). In the current study, relationship status was not correlated with self-blame; rather, characteristics of family relationships were associated with self-blame, such as perception of blame from family members and general

family functioning. As expected, the perception that family members blamed the individual for their COPD was positively associated with behavioral and characterological self-blame. General family functioning was related to behavioral self-blame; participants who perceived their families as being healthier were more likely to endorse the maximum possible score for behavioral self-blame. It is noteworthy that healthy family functioning had a positive correlation with the type of self-blame that was associated with better COPD outcomes.

Factors such as perceived criticism, age, and relationship status were not associated with self-blame in this sample. Although one prior study found an association between criticism and self-blame (11), we did not find an association between perceived criticism and self-blame in our sample. Consistent with two prior studies, we did not find an association between age and self-blame (8, 9). The one study that has found a relationship between self-blame and age included participants with a variety of chronic health conditions from a broad age range spanning 41 to 89 years of age (10). The current study focused on a health problem that typically affects individuals in their 60s and 70s, and as such, we may not have had a large enough age range in our sample to detect an association between age and self-blame.

Although several correlates of self-blame were identified, it is important to note that most of the predictors in both models were not associated with self-blame. Factors that were not included in these analyses must be important correlates of self-blame. Further research is needed to identify these additional correlates. The quality of other significant relationships, such as the doctor-patient relationship, could potentially impact self-blame in chronic illnesses such as COPD. Qualitative research indicates that some individuals with COPD feel that their physician is biased against them due to their smoking (1), and some COPD patients do not tell their doctors about their ongoing smoking out of fear that this will affect their medical care (4). It is likely that the doctor-patient relationship can influence the extent to which COPD patients blame themselves for their COPD. In addition, aspects of personality such as optimism and hardiness, which have been found to predict adaptation to other chronic illnesses (34–36), could be associated with self-blame in COPD. Finally, the use of coping strategies other than self-blame may be important in COPD. For example, benefit finding is one coping strategy that has been found to reduce distress (37) and serum cortisol levels (38) in patients with chronic illness.

In this sample of individuals with COPD, characterological self-blame had a positive association with symptoms of depression. This is consistent with prior research that suggests that self-blame, especially characterological self-blame is maladaptive (8, 10, 12–14). According to Janoff-Bulman (17), characterological self-blame places fault on one's character, a relatively stable and non-modifiable source. It is not surprising then that characterological self-blame is related to depression, given that attributing negative events to internal, stable, and global causes has been consistently linked to depression in prior research (39). Alternatively, individuals who endorsed the maximum possible score for behavioral self-blame reported fewer symptoms of depression and less impairment in health-related quality of life. This is consistent with Janoff-Bulman's hypothesis that blaming external and modifiable factors, such as smoking behavior, may afford the individual a sense of controllability over avoiding future negative events (17). Our findings suggest that, in COPD, blaming the health condition on a modifiable behavior such as smoking is adaptive.

Self-blame is a construct that can be conceptualized in multiple ways. Some researchers have conceptualized self-blame as a coping mechanism (8, 10, 12–14), while other researchers have referred to self-blame as an attribution (9, 15, 16). In one study that conceptualized self-blame as an attribution, self-blame affected adjustment indirectly through its impact on the use of coping strategies (16). Characterological self-blame could

also be conceptualized as a symptom of depression or a personality trait. Further research is needed to determine the most appropriate way to conceptualize self-blame.

Results of this study should be considered in light of limitations of the study. All data in the present study were collected at a single time point; as such, we are not able to prospectively identify precursors to or consequences of self-blame. In addition, all of the relational variables were measured via self-report of COPD patients, and therefore reflect the patients' perceptions. As such, the associations between the relational variables and self-blame may reflect, at least in part, the perceptual filter of the respondent. Future research should include family members of patients with COPD to gather information about family relationships from the perspective of multiple family members.

Strengths of this study include the large sample size and the fact that both behavioral and characterological self-blame were investigated. The present study is important in that it is, to our knowledge, the first quantitative study of self-blame among patients with COPD. Results indicate that behavioral and characterological self-blame are distinct constructs that lead to different psychological and clinical outcomes in this population. Behavioral self-blame is strongly endorsed by individuals with COPD—more than a third of participants endorsed the maximum possible score on the measure of behavioral self-blame. Behavioral self-blame was not only prevalent in this population, it was also adaptive. The consequences of self-blame depend on the type of self-blame that is being examined.

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ABBREVIATION LIST

COPD	chronic obstructive pulmonary disease
HRQL	health-related quality of life
OR	odds ratio

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Table I

Characteristics of the Sample (N = 398)

Variable	N (%)
Gender (% Female)	192 (48.24%)
Age	
64 and younger	156 (39.20%)
65–74	166 (41.71%)
75 and over	76 (19.10%)
Race/Ethnicity	
Caucasian non-Hispanic	348 (87.44%)
Black non-Hispanic	19 (4.77%)
Hispanic	25 (6.28%)
Other	6 (1.51%)
Highest Level of Education Completed	
High school graduate or less	141 (35.43%)
Some college	163 (40.95%)
College graduate	94 (23.62%)
Relationship Status	
Divorced/never married/widowed	167 (41.96%)
Married/member of unmarried couple	231 (58.04%)
Smoking Status (% Current Smoker)	64 (16.08 %)
Variable	M (SD)
Tobacco Exposure (in pack-years)	55.61 (28.63)
General Family Functioning	1.85 (.55)
Perception of Criticism	3.99 (3.40)
Perception of Blame	2.75 (2.34)
Symptoms of Depression	5.84 (3.66)
Symptoms of Anxiety	6.73 (4.21)
Health-Related Quality of Life	46.63 (19.02)
Breathlessness	2.85 (1.11)

Table II

Results of Multiple Logistic Regression for Behavioral Self-Blame

Variable	Odds Ratio (OR)	95% CI for OR	p
Gender			
Male	Reference		
Female	1.59	.96 – 2.62	.07
Age			
64 and younger	Reference		
65–74	1.14	.68 – 1.91	.61
75 and over	.49	.23 – 1.04	.06
Highest Level of Education Completed			
High school graduate or less	Reference		
Some college	.62	.37 – 1.03	.07
College graduate	.54	.284 – 1.02	.06
Relationship Status			
Divorced/never married/widowed	Reference		
Married/member of unmarried couple	.89	.54 – 1.47	.64
Smoking Status			
Former smoker	Reference		
Current smoker	.70	.36 – 1.37	.30
Tobacco Exposure (per 10 pack-years)	1.13	1.04 – 1.23	.005
General Family Functioning	.46	.28 – .76	.002
Perception of Criticism	.97	.87 – 1.09	.63
Perception of Blame	1.13	1.05 – 1.22	.001

Table III

Results of Multiple Linear Regression for Characterological Self-Blame

Variable	Unstandardized B	95% CI for B	p
Gender			
Male	Reference		
Female	-.60	-1.20 — .001	.05
Age			
64 and younger	Reference		
65–74	.005	-.63 — .64	.99
75 and over	-.38	-1.19 — .43	.36
Highest Level of Education Completed			
High school graduate	Reference		
Some college	-.22	-.84 — .40	.49
College graduate	-.53	-1.28 — .211	.16
Relationship Status			
Divorced/never married/widowed	Reference		
Married/member of an unmarried couple	.31	-.29 — .91	.31
Smoking Status			
Former smoker	Reference		
Current smoker	1.32	.52 — 2.12	.001
Tobacco Exposure (per 10 pack-years)	.09	-.01 — .19	.06
General Family Functioning	.41	-.16 — .98	.16
Perception of Criticism	-.06	-.20 — .07	.37
Perception of Blame	.19	.11 — .28	<.001

Table IV

Results of Multiple Linear Regression Models for Psychological and Clinical Outcomes of COPD*

	Depression β, B (95% CI for B) <i>p</i>	Anxiety β, B (95% CI for B) <i>p</i>	Impairment in HRQL β, B (95% CI for B) <i>p</i>	Breathlessness β, B (95% CI for B) <i>p</i>
Behavioral Blame	-.12, -.90 (-1.68 — -. 12) .02	-.09, -.82 (-1.70 — .06) .07	-.11, -4.11 (-8.21 — -. 01) .049	-.02, -.04 (-.29 — .20) . 74
Characterological Blame	.12, .16 (.02 — .29) .02	.04, .06 (-.10 — .21) . 47	.03, .19 (-.51 — .90) .59	.02, .01 (-.03 — .05) .69

* Note that both types of self-blame were entered simultaneously in all four models. All four models were adjusted for gender, age, highest level of education completed, smoking status, and tobacco exposure