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Spousal Suffering and Partner's Depression and Cardiovascular Disease: The Cardiovascular Health Study

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Abstract

Objectives—To assess the effects of suffering in a spouse on prevalent and incident psychiatric (depression) and physical morbidity (cardiovascular disease, CVD) in their partner, controlling for known risk factors for depression and CVD.

Design—Descriptive longitudinal study.

Participants—1330 older married couples enrolled in the Cardiovascular Health Study (CHS), a large epidemiologic study of the elderly.

Measurements—Predictor variables were physical, psychological, and existential/spiritual indicators of suffering. Primary outcomes were prevalent and incident depression and CVD.

Results—Controlling for known risk factors for depression, we found a dose-response relationship between suffering in a spouse and concurrent depression in their partner as well as a relationship between suffering and the partner's future risk for depression. With respect to CVD, and controlling for sub-clinical CVD at baseline, husbands whose wives reported high levels of suffering also had higher rates of prevalent CVD, but there were not significant associations between wives suffering and husbands incident CVD. There were no associations between husbands' suffering and wives' prevalent or incident CVD.

Conclusion—Exposure to spousal suffering is an independent and unique source of distress in married couples that contributes to psychiatric and physical morbidity. More attention should be paid to the interpersonal effects of suffering in married couples, and to its role in contributing to morbidity.

Keywords

suffering; depression; cardiovascular disease

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INTRODUCTION

Having a spouse who is ill and disabled can be a major source of distress to their partner, particularly when spousal illness requires active caregiving support from their partner (1,2). This finding has been attributed to several factors. The caregiving literature argues that the detrimental effects of caregiving are primarily due to the patient's functional disabilities and behavioral problems, and the associated care demands. A parallel literature on affective contagion reports that distress or depression in one spouse can lead to depression in their partner, even in the absence of illness and disability that require caregiving (3–5). The latter result also has been attributed to multiple factors, including assortative mating, marital interaction patterns, emotion contagion, or shared environment and history. A common thread linking these literatures is that both involve exposure to the suffering of an intimate partner. In the case of caregiving, spouses are exposed to both physical and psychological suffering of their ill partner; the spousal contagion findings can be attributed to the effects of exposure to psychological suffering of one's intimate partner. The premise of this article is that exposure to suffering is a unique and powerful stressor that affects the physical and psychological well-being of the exposed individuals. The purpose of the current study was to examine whether the suffering of an older adult may uniquely and independently contribute to depression and cardiovascular disease (CVD) in their spouse. In conducting this research, we also aim to shed light on suffering as a construct worthy of future investigation, discussion, and policy debate.

Multiple perspectives on suffering can be found in the recent medical and health care literature. According to some authors, suffering is a broad construct defined as a state of distress associated with events that threaten the integrity of an individual as a complex physical, social, psychological, and spiritual being (6,7). In a recent book on the nature of suffering, Ferrell and Coyle (8) summarized definitions of suffering that included the following qualities: multidimensional distress/pain/discomfort, loss of control, helplessness, inability to cope, anxiety, and depression Recommendations for measuring suffering include simple, direct questions such as "Are you suffering?" (9) and scales that emphasize physical symptoms, such as the Edmonton Symptom Assessment system (10), and measures of pain behavior (11,12). Other researchers recommend assessing spiritual and social feelings along with measurement of the physical symptoms (e.g., 13–15). Taken together, this literature suggest that there are three measurable universal manifestations of suffering (10,12,16–18), including: (a) physical symptoms such as chronic or acute pain, nausea, and dyspnea; (b) psychological symptoms of distress, such as depression and anxiety; and (c) indicators of existential/spiritual well-being, which include measures of inner harmony, meaning and purpose of life, and the extent to which individuals find comfort and strength in religious beliefs.

This study reports an initial effort to test the hypothesis that suffering in a spouse predicts psychiatric (depression) and physical (CVD) morbidity in their partner, independent of known risk factors for depression and CVD. To test this hypothesis, we took advantage of a large dataset collected independently for each spouse of married couples enrolled in the Cardiovascular Health Study (CHS), an epidemiologic study of the elderly. We chose an elderly sample because of the relatively high prevalence of chronic disease, disability, and suffering in that population, and we focused on depression and CVD because of their established associations with chronic stress exposure and health (19,20). The study hypothesis is tested both cross-sectionally and prospectively, and we also examine gender differences in the prevalence of suffering and its association with depression and CVD. Studying the unique role of suffering in older married couples is important because it helps us understand the reciprocal nature of health and well-being, focuses our attention on a neglected aspect of illness and disability, and presents new opportunities for clinical intervention for both patients and their spouses.

METHODS

Sample

Our sample was drawn from the Cardiovascular Health Study (CHS), which provides descriptive data about perceived health status and risk factors for coronary heart disease and stroke in adults 65 years and older (21–22). The basic sampling frame was obtained from Medicare eligibility lists of the Health Care Financing Administration (HCFA). The CHS cohort was recruited from four U.S. communities. A total of 5888 participants were randomly selected and stratified by age and sex at each site to approximate the U.S. population distribution by age and sex. Further details regarding CHS sampling and recruitment can be found in Tell et al. (22). Starting in 1989, and continuing through 1999, participants underwent annual extensive clinical exams and interviews, and participants continue to be followed for coronary events and mortality.

For the present study, a total of 1,330 cohabiting married couples from across the four study sites were identified in the CHS sample. The data for the analyses reported here are from the CHS baseline assessment, which occurred in 1989–1990. Five year follow-up data on depression symptoms and CVD were also examined as outcome variables.

Data Collection Procedures

Participants completed structured interviews assessing sociodemographic variables, psychosocial status, physical activity, physical functioning, and medical history. The interviews were conducted by trained interviewers, separately for each spouse. Participants also received an extensive physical examination and a series of medical tests and procedures. All measures were collected from both husbands and wives.

Measures

The major focus of this study was on the relationship of one spouse's self-reported suffering to the other spouse's risk for clinical depression and CVD, both concurrently (at baseline) and prospectively (during a five year follow-up period). Three types of measures were included in the analysis: known correlates of depression and CVD including sociodemographic characteristics, subclinical CVD, functional status, and caregiving status, which were used as covariates in our analysis; measures of suffering, the primary predictor variables; and measures of depressive symptoms and CVD, the primary outcome variables.

Covariates

So*ciodemographic variables*—Three baseline sociodemographic variables were included in the analyses for the current study: (a) *age* at entry into the CHS cohort, analyzed as a continuous variable; (b) *race*, coded 0 for White and 1 for non-White (primarily African American); and (c) *education*, coded as the highest grade or year of school ever completed.

Difficulty with Activities of Daily Living (ADL)/Instrumental Activities of Daily Living (IADL)—This variable was coded 1 for the presence of any self-reported difficulty walking, getting in and out of a bed or chair, eating, dressing, bathing, or using the toilet (ADL), or any difficulty with heavy housework, light housework, shopping, preparing meals, managing money, or using the telephone (IADL) "because of health or physical problems." It was coded 0 if the respondent reported no difficulty across the 12 activities.

Caregiving status—An index of caregiving status was included because it is a known risk factor for depression (23). Respondents were asked a single question at baseline concerning

whether they provided help to anyone with things like shopping, filling out forms, doing repairs, providing child care, etc. Responses were coded 1 for "yes," and 0 for "no."

Sub-clinical CVD—Sub-clinical CVD, indicative of risk for CVD but without clinical manifestations, was used as a covariate in the analyses of prevalent and incident CVD. Sub-clinical CVD was coded 1 for the presence of any of the following at baseline: claudication by Rose Questionnaire (24); angina by Rose Questionnaire; ratio of ankle to arm blood pressure – indicating atherosclerotic obstruction to blood flow in the legs – of less than or equal to 0.90; major ECG abnormality (including ventricular conduction defects; major Q/Qs wave abnormalities; left ventricular hypertrophy; isolated major ST-T-wave abnormalities; atrial fibrillation; or first-degree atrioventricular block); or carotid stenosis, measured during ultrasound as greater than 25% stenosis.

Primary Predictor Variables

Suffering indicators—Three indicators of baseline suffering were included in an attempt to capture its physical signs and symptoms, existential/spiritual expression, and psychological manifestations. The measure of physical suffering was based on the number of the following symptoms reported by the respondent as occurring in the two weeks prior to baseline interview: shortness of breath, dizziness, fatigue, weakness, nausea, abdominal pain, fever, muscle aches, and diarrhea. A simple count across the nine symptoms was obtained and categorized as zero, one, and two or more physical symptoms. Existential/spiritual suffering was measured with a single item that asked respondents to rate satisfaction with the meaning and purpose of their life, from 1 (extremely satisfied) to 10 (extremely dissatisfied). Psychological manifestation of suffering was measured using the 10-item Center for the Epidemiological Studies of Depression (CESD) scale (25). The CESD was dichotomized according to established guidelines, with a score of 8 or higher placing the respondent at risk for clinical depression (26).

For each of these suffering indicators, criteria for a "high" level of suffering were adopted for analyses. Criteria included reporting two or more physical symptoms in the past two weeks; scoring 4 or higher on the dissatisfaction with meaning and purpose of life scale (the upper quartile); and being at risk for clinical depression (i.e., scoring 8 or higher on the CESD). In order to capture global suffering, a simple count (ranging from 0 to 3) of the number of high level suffering indicators present in the spouse was used for analysis (see below). Thus, a person with a score of 3 reported high levels of suffering on all three indicators of suffering.

Outcome Variables

Prevalent and Incident Depression symptoms—The risk for clinical depression measure at baseline – scoring 8 or higher on the 10-item CESD - was also used as the outcome measure of prevalent depression in this study. In addition, five years of follow-up CESD scores were examined to explore incident depression (i.e., new cases) as a second outcome (27). The intent of this measure was to capture prospective effects of baseline suffering on development of depressive symptoms. Incident depression was defined as a score of 8 or higher on the CESD during any of the five years of follow-up among respondents who were not depressed at baseline.

Prevalent and Incident Cardiovascular disease—Prevalent CVD was coded 1 for the presence of any of the following at baseline, as confirmed by clinical exam: myocardial infarction; angina pectoris; congestive heart failure; intermittent claudication; stroke or transient ischemic attack. This variable was coded 0 if no CVD was present at baseline. Baseline prevalent CVD was used as both a covariate in the depression models and an outcome in the CVD models (see below). In addition, *incident CVD* was examined as an outcome, defined as

new cases of any of the six events during the five year follow-up period among those who were disease-free at baseline.

Analytic Strategy

As noted, the major focus of data analysis was the relationship of one spouse's self-reported suffering to the other spouse's risk for clinical depression and CVD, both at baseline and during a five year follow-up period. Logistic regression was used to model prevalent (baseline) and incident (follow-up) depression and CVD. We chose logistic regression rather than survival analyses (e.g., Cox proportional hazards models) to model incident events, because depression and CVD are not inevitable time-dependent characteristics of the normal aging process. Moreover, we were interested in addressing whether suffering *predicts* depression or CVD, not when or how soon they develop.

Risk for clinical depression—Logistic regression models were run to predict baseline risk for clinical depression (indexed by CESD scores of 8 or higher), separately for husbands and wives in each couple. The key predictor variable was the number of "high" suffering indicators (0–3) present in their partner at baseline. The regression models also controlled for baseline self-reported age, education, race, ADL/IADL difficulty, prevalent CVD, and caregiving status, as well as baseline age, education, ADL/IADL difficulty, and prevalent CVD of their partner. Logistic models for husbands and wives who were free of clinical depression at baseline were also run with incident depression as the outcome, defined as being at risk for clinical depression at least once during the five year follow-up period. The set of baseline predictors noted above was also used in these models.

The prospective analyses of incident depression and CVD included only those participants with complete five year follow-up data on depression (n = 757 husbands, n = 773 wives). Among husbands who were not depressed at baseline, 407 either died during the five year follow-up period (n = 196) or did not have complete depression assessments (n = 211). Among wives not depressed at baseline, 274 either died (n = 55) or did not have complete follow-up (n = 219). While the deaths and dropouts for both husbands and wives were older and less educated, there were no differences between completers and drop-outs in the baseline suffering levels of their spouses. In addition, when the logistic regression models for incident depression were run including deaths and dropouts (i.e., using all available data), the results were nearly identical to those reported here.

Cardiovascular disease—Logistic models predicting baseline CVD were run for husbands and wives using the same predictors as the depression models, with three exceptions: (a) only CVD of their spouses was included as a covariate, since CVD in the target spouse was the outcome variable; (b) presence of any subclinical CVD was added as a covariate, given its status as a risk factor for CVD; (c) self-reported risk for clinical depression was added as a covariate to control for the known association between depression and CVD. The models predicting new or incident cases of CVD during the follow-up period used the same predictors. The incident models excluded participants who had died more than a year before the fifth follow-up assessment. Again, when the incident CVD models were run including the dropouts, results were not significantly different from those reported below.

RESULTS

Baseline Characteristics

Sample characteristics are summarized in Table 1. In terms of suffering, wives were more likely to report physical symptoms and to be at risk for clinical depression than husbands, both at baseline and follow-up. Both husbands and wives tended to report similar – and fairly high

– levels of satisfaction with the meaning and purpose of their lives. Global suffering, indexed as the count of high suffering indicators, also was slightly higher among wives than husbands.

Multivariate Regression Models

Baseline risk for clinical depression—Tables 2 and 3 (column 2) report odds ratios for all model variables for risk for baseline clinical depression for husbands and wives, respectively, adjusting for all other variables in the model. Looking first at husbands' risk for depression (Table 2), less educated, non-White men with ADL/IADL difficulties and prevalent CVD were at significantly greater risk. Most importantly, self-reported suffering by their wives was strongly related to husbands' risk for clinical depression. Husbands whose spouses reported one indicator of high suffering (versus none) were twice as likely to be at risk for clinical depression, while husbands whose wives reported two indicators were 2.38 times as likely to be at risk for clinical depression. Husbands whose wives were high on all three suffering indicators were more than four times as likely to be at risk for clinical depression than those whose wives did not score high on any of the suffering indicators.

Looking at wives' risk for baseline depression (Table 3, column 2), those reporting ADL/IADL difficulties and prevalent CVD were at greater risk for depression. In addition, wives whose husbands had prevalent CVD were at greater risk for depression. Similar to the results for husbands, although somewhat weaker in magnitude, wives whose spouses reported high levels of suffering on one indicator (versus none) were 64% more likely to be at risk for clinical depression, while those whose husbands reported two indicators were 2.30 times as likely to be at risk. Wives whose husbands were high on all three suffering indicators were about three times as likely to be at risk for clinical depression than those whose husbands did not score high on any of the suffering indicators.

Incident depression—Tables 2 and 3 (column 3) report odds ratios for all model variables for risk for incident depression for husbands and wives (among those not depressed at baseline), respectively, adjusting for all other variables in the model. Looking first at husbands' risk for incident depression (Table 2), older men, and those reporting ADL/IADL difficulties were more likely to experience incident depression. In addition, similar to the baseline model, self-reported suffering by their wives was related to incident depression. Husbands whose wives reported two indicators were 1.7 times as likely to be at risk for incident depression. Husbands whose wives were high on all three suffering indicators were over two times as likely to be at risk for incident depression than those whose wives did not score high on any of the suffering indicators.

Looking at wives' risk for incident depression (Table 3, column 3), those reporting ADL/IADL difficulties were at greater risk. Wives whose spouses reported high levels of suffering on one indicator (versus none) were about 1.7 times more likely to be at risk for clinical depression. However, having a husband with two or three (versus no) suffering indicators was not significantly related to elevated risk for incident depression among wives. This may suggest a threshold effect of husbands' suffering on the development of depression among wives.

Baseline prevalent cardiovascular disease—Table 4 (column 2) reports odds ratios for all model variables for risk for baseline CVD for husbands, adjusting for all other variables in the model. Men with ADL/IADL difficulties, sub-clinical CVD, and who were at risk for clinical depression were at greater risk for CVD at baseline. In addition, husbands whose wives were high on all three suffering indicators were 2.05 times as likely to have CVD compared to those whose wives were high on none of the suffering indicators. Wives' risk for baseline CVD was not related to husbands' baseline suffering. The only significant predictors in the

female baseline cardiovascular model (not shown) were self-reported ADL/IADL difficulties, sub-clinical disease, risk for clinical depression, and having a less educated husband.

Incident cardiovascular disease—Table 4 (column 3) reports odds ratios for all model variables for risk for incident CVD during the five year follow-up period for husbands not reporting disease at baseline, adjusting for all other variables in the model. Older men, Whites, those reporting ADL/IADL difficulties, and those with sub-clinical disease at baseline were more likely to develop CVD. In addition, husbands whose wives were high on all three suffering indicators at baseline were 2.10 times as likely to develop CVD during the five year follow-up period than those whose wives were high on none of the suffering indicators, although this effect was not statistically significant. Wives' risk for incident CVD was not related to husbands' baseline suffering.

DISCUSSION

The results of the current study indicate that suffering in husbands and wives predicts psychiatric and physical morbidity in their spouses. Controlling for known risk factors for depression, we found a dose-response relationship between suffering in a spouse and concurrent depression in their partner as well as a relationship between suffering and the partner's future risk for depression. Husbands exposed to wives reporting high levels of suffering also had higher rates of prevalent CVD. The fact that similar physical health effects were not found among wives could be due to the generally lower levels of CVD among women, husbands' lower rates of suffering, and/or reluctance among males to express symptoms of suffering when compared to females (28).

The findings of this study are important for several reasons. First, they provide for finer-grained understanding of how illness and disability affect family members. The type and magnitude of disability associated with an illness may be no more important than the suffering engendered by the illness in terms of its impact on family members (7,29,30). Furthermore, gaining an understanding of the role of suffering presents new opportunities for assessment and intervention for both patients and family members. The multidimensional nature of suffering offers several potential targets for intervention. Physical and psychological symptoms as well as psychosocial or spiritual/existential aspects of patient suffering could be targeted, as could family members' appraisals of the suffering of their relative.

One implication of these findings is that caregiver support programs could be strengthened by addressing patient suffering as part of the intervention strategy Educational or counseling interventions that help family members appraise their loved one's suffering as less threatening may also be beneficial. When little can be done to alleviate patient suffering, clinicians can play an important role by helping the family come to terms with the limits of their ability to control suffering in their partner.

There are limitations to this work. As with all observational studies, residual confounders cannot be ruled out, and we must, therefore, be cautious in making causal inferences about relationships between a patient's suffering and their loved one's depression and CVD. It is also likely that there are important psychological manifestations of suffering that we have not addressed in this study. Because of limitations in the available data, we focused primarily on depressive aspects of psychological suffering. Future measures of this domain should include other psychological components such as anxiety, guilt, anger, and feelings of rejection. In addition, our limited measure of existential/spiritual suffering, in particular, should be expanded to include a sense of meaning and peace and the role of faith in illness. Such limitations notwithstanding, the large sample CHS dataset provided an exceptional opportunity to examine our initial hypotheses about the unique contribution made by a patient's suffering

to the prediction of negative psychosocial and physical outcomes in spousal partners who witnessed that suffering.

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Table 1

Descriptive statistics on study variables for husbands and wives (n = 1,330 spousal pairs; all data from baseline unless otherwise noted).

Variable	Husbands	Wives
Mean Age (SD)	73.6 (5.3)	71.2 (4.8)
% High school grad or less	52.6	57.3
% White	92.1	92.4
% with any ADL/IADL difficulties	21.1	30.2
% who provide help with IADL	30.6	20.5
Current physical symptoms:		
% with none	47.5	35.6
% with 1	24.4	25.3
% with 2 or more	28.1	39.1
% who score 4 or higher on dissatisfaction with meaning and purpose of life	23.1	24.8
% at risk for clinical depression at baseline	12.5	21.2
% with incident depression[a]	33.3	42.8
% with any sub-clinical cardiovascular disease at baseline[b]	69.9	55.3
% with any prevalent cardiovascular disease at baseline[c]	31.8	17.4
% with 5-year incident cardiovascular disease	19.2	11.3
Number of high suffering indicators[d]		
% with none	54.3	44.4
% with 1	31.7	32.4
% with 2	10.0	17.0
% with 3	3.9	6.1

[a] defined as being at risk for clinical depression during at least one assessment point during five year follow-up among those not at risk at baseline with complete depression follow-up data (n = 757 husbands; n = 773 wives).

[b] Includes any of the following: claudication (2.9% husbands; 1.4% wives) or angina (6.1%; 5.8%) by Rose Questionnaire; ankle/arm BP ratio <.90 (13.3%; 8.6%); major ECG abnormality (36.7%; 21.4%); or carotid stenosis (52.8%; 40.2%).

[c] Includes any of the following: angina, myocardial infarction, stroke, transient ischemic attack, congestive heart failure, or claudication.

[d] includes 2 or more current physical symptoms; score of 4 or higher on dissatisfaction with meaning and purpose scale; and at risk for clinical depression.

Table 2

Husbands' risk for baseline and incident clinical depression (CESD > 7) as a function of wives' self-reported suffering, controlling for husband and wife demographic and health variables.

Wald Statistic (1 df), Odds Ratio (95% Confidence Interval), *P*-value								
Husband-reported/assessed demographic, health, and caregiving	**Baseline Depression(n = 1,316)**				**Incident Depression*(n = 755)**			
Age	0.18	1.01	(0.97, 1.05)	.671	13.18	1.09	(1.04, 1.14)	.001
Education (grade)	6.17	0.95	(0.91, 0.99)	.013	0.62	0.98	(0.95, 1.03)	.432
Race (non-White)	9.96	2.32	(1.38, 3.92)	.002	2.41	1.66	(0.88, 3.15)	.121
Any ADL/IADL difficulties	22.82	2.46	(1.70, 3.56)	.001	16.28	2.48	(1.60, 3.86)	.001
Any prevalent cardiovascular disease	6.06	1.56	(1.10, 2.22)	.014	2.40	1.32	(0.93, 1.88)	.122
Provides help with IADL	0.01	0.98	(0.67, 1.45)	.931	0.10	0.95	(0.67, 1.33)	.747
Wife-reported/assessed demographic and health								
Age	0.35	1.01	(0.97, 1.06)	.552	0.65	0.98	(0.93, 1.03)	.422
Education (grade)	0.57	1.02	(0.97, 1.07)	.450	0.77	0.98	(0.93, 1.03)	.379
Any ADL/IADL difficulties	0.51	0.87	(0.59, 1.28)	.475	0.39	0.89	(0.61, 1.29)	.532
Any prevalent cardiovascular disease	0.10	0.93	(0.59, 1.47)	.758	0.02	1.03	(0.65, 1.63)	.896
Wife-reported suffering(# of "high" indicators)	23.38[a]			.001	8.21[a]			.042
1 (vs. 0)	10.17	2.00	(1.30, 3.05)	.001	0.86	1.19	(0.82, 1.73)	.354
2 (vs. 0)	11.73	2.38	(1.45, 3.91)	.001	5.80	1.75	(1.11, 2.76)	.016
3 (vs. 0)	18.96	4.24	(2.21, 8.11)	.001	4.23	2.13	(1.04, 4.38)	.040

p-values from Wald Chi-Square statistics with df = 1

[a]Wald statistic for ordinal (0–4) suffering variable (3 df)

*Depressed for at least one year during five year follow-up among those not depressed at baseline.

Table 3

Wives' risk for baseline and incident clinical depression (CESD > 7) as a function of husbands' self-reported suffering, controlling for husband and wife demographic and health variables.

Wald Statistic (1 df), Odds Ratio (95% Confidence Interval), *P*-value								
Wife-reported/assessed demographic, health, and caregiving	**Baseline Depression(n = 1,316)**				**Incident Depression*(n = 768)**			
Age	1.03	0.98	(0.94, 1.02)	.309	0.28	0.99	(0.94, 1.04)	.598
Education (grade)	3.61	0.96	(0.92, 1.00)	.057	0.45	0.99	(0.94, 1.03)	.501
Race (non-white)	1.72	1.38	(0.85, 2.25)	.190	2.01	0.64	(0.34, 1.19)	.156
Any ADL/IADL difficulties	46.34	2.76	(2.06, 3.69)	.000	9.25	1.75	(1.22, 2.51)	.002
Any prevalent cardiovascular disease	7.41	1.61	(1.14, 2.26)	.006	2.24	1.42	(0.90, 2.24)	.134
Provides help with IADL	0.14	0.94	(0.66, 1.33)	.711	0.82	0.85	(0.59, 1.22)	.364
Husband-reported/assessed demographic and health								
Age	0.15	1.01	(0.97, 1.05)	.699	2.38	1.03	(0.99, 1.07)	.123
Education (grade)	0.84	1.02	(0.98, 1.05)	.360	1.88	0.97	(0.94, 1.01)	.171
Any ADL/IADL difficulties	1.51	0.80	(0.56, 1.14)	.219	1.79	1.31	(0.88, 1.95)	.181
Any prevalent cardiovascular disease	4.20	1.36	(1.01, 1.83)	.040	2.72	1.33	(0.95, 1.86)	.099
Husband-reported suffering(# of "high" indicators)	23.08[a]			.001	11.83[a]			.008
1 (vs. 0)	9.44	1.64	(1.19, 2.24)	.002	10.49	1.73	(1.242.42)	.001
2 (vs. 0)	13.47	2.30	(1.47, 3.59)	.001	1.71	1.45	(0.83, 2.54)	.191
3 (vs. 0)	11.70	3.04	(1.61, 5.75)	.001	2.45	1.97	(0.84, 4.60)	.117

p-values from Wald Chi-Square statistics with df = 1

[a]Wald statistic for ordinal (0–4) suffering variable (3 df)

*Depressed for at least two consecutive years during five year follow-up.

Table 4

Husbands' risk for baseline prevalent and incident cardiovascular disease as a function of wives' self-reported suffering, controlling for husband and wife demographic and health variables.

Wald Statistic (1 df), Odds Ratio (95% Confidence Interval), *P*-value								
Husband-reported/assessed demographic, health, and caregiving	**Baseline Cardiovascular Disease(n = 1,316)**				**Incident Cardiovascular Disease(n = 796)**			
Age	0.01	1.00	(0.97, 1.03)	.915	4.76	1.06	(1.01, 1.11)	.029
Education (grade)	0.17	1.01	(0.98, 1.04)	.677	0.01	1.00	(0.96, 1.05)	.918
Race (non-white)	0.69	0.82	(0.52, 1.31)	.406	4.54	0.39	(0.16, 0.93)	.033
Any ADL/IADL difficulties	18.93	1.90	(1.42, 2.54)	.001	4.61	1.70	(1.05, 2.76)	.032
Any Sub-Clinical Disease(claudication or angina by Rose Questionnaire; ankle/arm BP ratio ≤.90; major ECG abnormality; carotid stenosis)	55.83	3.30	(2.42, 4.52)	.001	10.38	1.96	(1.30, 2.96)	.001
Provides help with IADL	0.11	0.96	(0.73, 1.25)	.745	0.19	1.35	(0.92, 1.98)	.129
Risk for clinical depression	6.77	1.62	(1.13, 2.33)	.009	2.31	1.15	(0.62, 2.14)	.662
Wife-reported/assessed demographic and health								
Age	0.12	1.01	(0.97, 1.04)	.725	0.58	0.98	(0.93, 1.03)	.446
Education (grade)	0.69	0.99	(0.95, 1.02)	.405	0.02	1.00	(0.951.05)	.887
Any ADL/IADL difficulties	0.27	0.93	(0.70, 1.23)	.601	0.23	1.11	(0.73, 1.68)	.633
Any prevalent cardiovascular disease	1.00	1.18	(0.85, 1.63)	.318	0.00	1.02	(0.61, 1.68)	.955
Wife-reported suffering(# of "high" indicators)	9.15[a]			.027	4.13[a]			.248
1 (vs. 0)	2.54	1.27	(0.95, 1.69)	.111	0.10	1.07	(0.69, 1.66)	.748
2 (vs. 0)	3.62	1.41	(0.99, 2.01)	.057	1.18	1.33	(0.79, 2.23)	278
3 (vs. 0)	7.41	2.05	(1.22, 3.44)	.007	3.54	2.10	(0.97, 4.55)	.060

p-values from Wald Chi-Square statistics with df = 1

[a]Wald statistic for ordinal (0–4) suffering variable (3 df)