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Depressive and anxious symptoms and 20-year mortality: Evidence from the Stirling County Study

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Abstract

Background—Depression and anxiety disorders are highly comorbid, and share significant symptom overlap. Whereas depression has been consistently associated with excess mortality, the association between anxiety and mortality is less clear. Our aim was to identify constellations of anxious and depressive symptoms and examine their associations with mortality.

Method—This study considers respondents from the 1970 (n=1203) and 1992 (n=1402) cohorts of the Stirling County Study. Symptoms of depression and anxiety were assessed using structured at-home interviews. Vital status of participants through 2011 was determined using probabilistic linkages to the Canadian Mortality Database.

Results—Exploratory factor analysis yielded 3 correlated factors in each cohort. Items loading on each factor varied slightly between cohorts, but roughly corresponded to: 1) depressive symptoms; 2) anxious symptoms; and 3) somatic symptoms. The depressive factor was associated with increased risk of mortality in both the 1970 (HR:1.35, 95%CI:1.12,1.62) and 1992 (HR:1.25, 95%CI:1.05,1.48) cohorts. Anxious symptoms were associated with a reduced risk of mortality in the 1992 sample (HR:0.72; 95%CI:0.53,0.90). Somatic symptoms were associated with a reduced risk of mortality in the 1970 sample (HR:0.83, 95%CI:0.69,0.99), but an elevated risk of mortality in the 1992 sample (HR:1.29; 95%CI:1.11,1.51).

Conclusions—This study provides evidence that symptoms of depression and anxiety may have differential associations with early mortality. Somatic symptoms such as upset stomach and loss of

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appetite may be protective against mortality, perhaps through increased use of health care services. Conversely, symptoms such as weakness and cold sweats may be indicative of failing health.

Keywords

anxiety disorders; depressive disorders; factor analysis; excess mortality; prospective studies

INTRODUCTION

Depression and anxiety disorders are the most common mental disorders (Kroenke, Spitzer, Williams, Monahan, & Löwe, 2007) and constitute a significant burden on population health (Whiteford et al., 2013). Depression and anxiety are highly comorbid – some estimates suggest that 50 – 75% of those diagnosed with major depression experience a concurrent anxiety disorder (Hirschfeld, 2001). Anxiety and depression also share a great degree of symptom overlap (Hranov, 2007), making it difficult to disentangle their respective impacts on population health.

Major depression has been consistently associated with increased risk of mortality (Cuijpers et al., 2014a), and evidence suggests that this mortality burden may be higher among men versus women (Cuijpers et al., 2014b; Gilman et al., 2017.). However, the relationship between anxiety disorders and mortality is less clear (Saeed Mirza, Ikram, Hofman, & Tiemeier, 2015). Some studies suggest that anxiety, like depression, is associated with increased risk of mortality (Kikkenborg Berg, Caspar Thygesen, Hastrup Svendsen, Vinggaard Christensen, & Zwisler, 2014; van Hout et al., 2004). Others have suggested that anxiety may be associated with lower risk of accidental mortality in early adulthood, yet higher risk for non-accidental mortality later in life (Lee, Wadsworth, & Hotopf, 2006). Results from a recent meta-analysis indicated no association between anxiety and mortality in prospective studies once publication bias was accounted for (Miloyan, Bulley, Bandeen-Roche, Eaton, & Gonçalves-Bradley, 2016); the authors suggested that previously reported associations may be driven by comorbid symptoms of depression. In a recent study of individuals with diabetes, depression strongly predicted mortality, but anxiety only predicted mortality when patients had comorbid symptoms of depression (Naicker et al., 2017).

One way to disentangle the associations of depression and anxiety with mortality is to compare the mortality risk associated with empirically derived domains of symptoms across the depression and anxiety spectrum. For example, it may be the case that specific constellations of symptoms (some relating to depression and others relating to anxiety) may be most strongly predictive of physical health outcomes including mortality. Several previous studies have used factor analysis to identify distinct domains of depression and anxiety symptoms based on the magnitude of intercorrelations between symptoms (Wetzler & Katz, 1989). However, results have varied greatly depending on the measures used to assess symptoms, the population studied, and the analysis method used to assess structure (Cosco, Doyle, Ward, & Mcgee, 2012; Watson et al., 1995). Therefore, to investigate the mortality risk associated with depression and anxiety, we factor analyzed symptoms of depression and anxiety in two representative cohorts of a population-based study, and used the resulting factors to predict mortality over a 20-year follow-up period.

METHOD

Data Source

Data for this study come from the Stirling County Study (SCS), a repeated cross-sectional survey in which information on psychiatric disorders was collected from representative samples of a population living in a county in Atlantic Canada (“Stirling” is a fictitious name used to protect the identity of study participants). SCS participants were linked to the Canadian Mortality Database (CMDB) in a probabilistic linkage process carried out by Statistics Canada using a Generalized Iterative Record Linkage System (Howe & Lindsay, 1981; Smith & Newcombe, 1982). Deaths were recorded until the end of the year 2011.

Study Population

Representative samples of the Stirling county population 18 years of age and older were drawn in 1970, and 1992 using census and systematic sampling. This study considers respondents from the 1970 (n=1203) and 1992 (n=1402) samples and analyzes 20 years of follow-up regarding mortality for each sample.

Measures

Psychiatric symptoms were assessed via structured at-home interviews conducted by trained personnel. Participants were asked about symptoms of depression and anxiety (nervousness, tiredness, sleep quality, feeling of hopelessness, etc.) on a three point scale: Often, Sometimes, and Never (see Table 1)(Macmillan, 1957; Murphy, Monson, Laird, Sobol, & Leighton, 1998). When used as a diagnostic tool, this battery compares favourably with several other types of diagnostic assessment (Murphy, Neff, Sobol, Rice, & Olivier, 1985; Murphy et al., 1998).

Covariates—Our mortality analysis included several covariates which could serve as potential explanatory factors for the relationship between psychiatric symptoms and mortality. These were assessed upon enrolment into the study, and included: education (less than 5th grade, 5th – 10th grade, 11th grade or higher), smoking (non-smoker, 1–19 cigarettes per day, 20 or more cigarettes per day), alcohol abuse (yes/no, as observed by primary care physicians), and obesity (defined as a body mass index greater than 30). Participants with complete data on all covariates were included in the mortality analysis. This resulted in a reduction in sample size of 10% for the 1970 cohort, and 1.6% for the 1992 cohort. Psychiatric symptom factor scores for participants with missing data on any covariate did not differ from those for participants with complete data (t-tests, all p values > .05).

Statistical Analyses

Factor Analysis—We used exploratory factor analysis to identify latent factors that account for correlations among psychiatric symptoms. Since the responses were ordinal, polychoric correlations were used to analyze the relationship between the items (Holgado-Tello, Chacón-Moscoso, Barbero-García, & Vila-Abad, 2010). Items with correlations smaller than 0.3 with other items were excluded. Two items from both 1970 and 1992 met this criterion and are not reported on in this paper: ‘do you take vitamins for your health’; and, ‘do you depend on patent medicines’. One item from 1970 met this criterion and was

excluded from the 1970 analyses: ‘do you feel you are more apt to catch contagious diseases than most people’. We extracted factors using the principal-axis factoring method, a method preferable when normality assumption is likely to be violated (Fabrigar, Wegener, MacCallum, & Strahan, 1999).

Given the nature of anxiety and depression, we allowed factors to be correlated with each other by performing oblique rotation to extract the factors. We employed multiple criteria to choose the number of factors to retain: percentage of common variance explained by successive factors, examination of scree plots, size of the residuals, and interpretability of extracted factors. Factor loadings of 0.32 or higher were considered salient/significant (Tabachnick & Fidell, 2001).

Mortality analysis based on factor scores—Individual factors scores were calculated using least square regression, where each subject’s estimated factor score on each factor is a weighted sum of the products of scoring coefficients and the subject’s standardized scores on the original variables (Distefano, Zhu, & Mîndril , 2009). Before using factor scores in mortality analyses, the scores were evaluated for indeterminacy, validity, and correlational adequacy (Grice, 2001).

Cox proportional hazard models with age as a primary time scale were used to investigate the association of each factor with mortality. The analyses were performed separately for each of the 1970 and 1992 samples. For each analysis, a single model was fitted, which included all three factor scores and all four covariates. Due to previously observed sex differences in the link between depression and mortality, we also examined the interaction between each factor and participant sex, as well as sex-specific models for men and women in each sample. To facilitate comparison of the effect of factors on mortality between samples, the follow-up time for the 1970 sample was limited to 20 years following the interview to match the maximum follow-up time for the 1992 sample.

RESULTS

Characteristics of the study population

A sample of 1,203 individuals in 1970 and 1,402 in 1992 responded to the questions regarding psychiatric symptoms. Prevalence of symptoms was broadly similar in the 1970 and 1992 samples (Table 1). The distribution of the covariates in each sample is presented in supplementary table S1.

Factor Analysis

Initial factor analysis showed that the Kaiser’s measure of sampling adequacy was high (.90), and communalities were all above 0.3. Solutions for three, four, and five factors were examined using oblique rotations of the factor loadings matrix for each sample. Ultimately, the three factor solution was preferred for both the 1970 and 1992 samples based on examination of scree plots and interpretability criteria. Additionally, orthogonal rotation of the factor loading matrices showed that almost 100% of the common variance was explained by three factors.

Two items from the 1970 and 1992 samples were excluded because they failed to have a primary factor loading of .32 or above on any factor: ‘Having trouble in getting and staying asleep’ and ‘Ever troubled by “sick headaches”’. Two additional items were excluded from the 1992 sample for the same reason: ‘Ever bothered by hands trembling’; and ‘Ever troubled by hands or feet sweating so that they feel damp and clammy’.

The above common factor analysis was repeated for the remaining 21 items in the 1970 sample and 20 items in the 1992 sample. Twelve out of 22 items in the 1970 sample and eight out of 20 items in the 1992 sample had primary factors loadings over .5. The factor loading matrix is presented in Table 2. The extracted factors for the 1970 sample correspond roughly to three domains of symptoms: anxious, depressive, and somatic.

The “anxious” factor included items such as trembling hands, nervousness, fast heartbeat, and nightmares; the “depressive” factor constituted of items such as feeling in poor spirits, feeling hopeless and that things are not worthwhile, and having troubles getting going; and the “somatic” factor of items such as morning tiredness, upset stomach, loss of appetite, and an inability to taste food. In the 1992 sample, the three extracted factors referred to similar type of symptoms as those in the 1970 sample: depressive, somatic, and anxious; however, due to a higher number of cross-loadings of some items in this sample, the distinction between factors was not as clear as in the 1970 sample. For example, the “somatic” factor in the 1992 sample contained additional symptoms such as feeling weak, cold sweats, and being bothered by ailments that loaded on other factors in the 1970 sample, whereas other somatic symptoms, such as upset stomach and loss of appetite, cross-loaded on the anxious and depressive factors in the 1992 sample. For comparison, items loading on each factor in each sample are presented in Supplemental Table 1. The three factors were intercorrelated, with correlation coefficients ranging between .45 and .63 in both the 1970 and 1992 samples (Table 3).

Associations with Mortality

For both samples, the “depressive” factor was associated with an elevated risk of mortality. Adjusting for the anxious and somatic factors, as well as sex, education, smoking, alcohol abuse, and obesity, a 1 standard deviation higher score on the “depressive” factor was associated with 35% higher risk of mortality in the 1970 sample (HR=1.35, 95%CI: 1.12,1.62), and a 25% higher risk of mortality in the 1992 sample (HR=1.25; 95%CI: 1.05,1.48) (Tables 4a & 4b). Sex-stratified models indicated that the association between depressive symptoms and mortality was significant only among men in both cohorts (Tables 5a & 5b). However, the interaction of participant sex with depressive symptoms was not statistically significant for either cohort ($\chi^2_{1970} = 1.95, p = .163$; $\chi^2_{1992} = 1.16, p = .281$).

In the 1970 sample, the “somatic” symptoms factor was associated with a lower risk of mortality (HR: 0.83; 95%CI: 0.69, 0.99). Tests of the interaction between participant sex and somatic symptoms revealed a marginally significant interaction ($\chi^2 = 3.82, p = .051$). In the sex-stratified model, this association was significant among women, but not men (Table 5a).

In the 1992 sample, the “anxious” factor was associated with a lower mortality risk (HR: 0.75; 95%CI: 0.63, 0.90), whereas the “somatic” symptoms factor was associated with an

elevated risk of mortality (HR: 1.29; 95%CI: 1.11, 1.51). Sex-stratified models suggested these effects were stronger among women than men (Table 5b), however, interactions with sex were not significant ($\chi^2_{\text{anxious}} = 0.55, p = .458$; $\chi^2_{\text{somatic}} = 0.39, p = .530$).

DISCUSSION

Results from this community-based prospective study suggest that symptoms of depression and anxiety fall along a spectrum of 3 distinct but correlated domains that are characterized by depressive, anxious, and somatic symptoms, and that these domains have unique associations with mortality. Depressive symptoms were associated with a 25–35% higher mortality risk. Higher somatic symptoms were associated with a lower mortality risk in the 1970 sample but an elevated mortality risk in the 1992 sample. Higher anxious symptoms were associated with a lower mortality risk among within the 1992 sample.

Structure of depressive and anxious symptoms—In both the 1970 and 1992 samples, results of factor analysis suggested three intercorrelated factors. These factors were similar, though not identical, between samples – corresponding to depressive, anxious, and somatic symptoms.

Results of previous studies assessing the factor structure of symptoms of anxiety and depression have been inconsistent, with different studies reporting one-, two-, and three-factor models as the best fit for symptoms of anxiety and depression (Cosco et al., 2012; Norton, Cosco, Doyle, Done, & Sacker, 2013). Notwithstanding, the factors identified in the present study are roughly congruent with a *tripartite model* of depression and anxiety (Clark & Watson, 1991b). According to such models, symptoms of anxiety and depression can be grouped into three categories- 1) general distress and negative affect, which are common to both depression and anxiety; 2) symptoms of emotional withdrawal and apathy that are unique to depression; and 3) symptoms related to physiological hyperarousal (e.g., nervousness, agitation), specific to anxiety. Clark and Watson also note that general somatic complaints often form a fourth distinct factor (Clark & Watson, 1991a). In the present study, the factor identified as ‘depressive symptoms’ may in fact represent general distress. In previous factor-analytic studies of depressive and anxious symptoms, symptoms such as hopelessness, fear, difficulty ‘getting going’, pessimism, and discouragement have been shown to load on a general distress factor common to both anxiety and depression (Watson et al., 1995). The items available in the Stirling study did not include anhedonic symptoms such as emotional withdrawal, social disinterest, and sexual dysfunction, which form the basis of the ‘pure’ depression factor identified by the tripartite model. The ‘anxious’ and ‘somatic’ factors identified in the present study correspond more clearly to those suggested by Clark & Watson.

Associations of depression and anxiety factors with mortality—In both the 1970 and 1992 samples, the ‘depressive symptoms’ factor was associated with increased risk of mortality. Results stratified by gender revealed that these associations were significant among men, but not women. These findings are consistent with previous research suggesting that depression is associated with increased risk of mortality (Cuijpers et al., 2014a), and that this mortality burden is more prominent among males (Cuijpers et al., 2014b; Naicker et

al., 2017). Indeed, previous results from the Stirling County Study have indicated that depression is associated with an elevated risk of mortality, especially among males (Gilman et al., 2017; Murphy et al., 2008; Murphy et al., 2010). Psychological distress, including symptoms common to both depression and anxiety, has also been associated with mortality (Russ et al., 2012), and some research has suggested that this burden, too, is higher among males (Puustinen, Koponen, Kautiainen, Ntysek, & Vanhala, 2011).

The mechanisms underlying these associations remain unknown, though it has been suggested that depression may be associated with certain physiological changes, especially to the cardiovascular system, which directly impact mortality risk (Larson, Owens, Ford, & Eaton, 2001). Depressive symptoms and psychological distress are also associated with increased concentrations of markers of inflammation (Russ et al., 2012). In addition, depression and distress may indirectly increase risk of mortality through their association with health behaviours such as smoking, alcohol use, and physical inactivity (Dierker, Avenevoli, Stolar, & Merikangas, 2002; Holahan, Moos, Holahan, Cronkite, & Randall, 2003; Whooley et al., 2008).

Results regarding symptoms of anxiety were less clear. Results from the 1992 sample suggested that symptoms of anxiety may be associated with lower risk of mortality. Anxiety is generally recognized as a mechanism which enables humans to detect and respond to threat. It is argued that although symptoms of anxiety may cause psychological distress and impair daily functioning, they may nonetheless provide an evolutionary advantage to survival and reproductive fitness (Bateson, Brilot, & Nettle, 2011). This idea is consistent with the results from the 1992 sample, as well as some previous research indicating that trait anxiety may be protective against accidental mortality in early adulthood (Lee et al., 2006). However, this result was not found in the 1970 sample.

Findings regarding somatic symptoms were somewhat difficult to interpret. Results of factor analysis differed between samples, and therefore the specific symptoms included in the 'somatic' factor were not identical. In the 1970 sample, symptoms included upset stomach, loss of appetite, food seeing tasteless, a bad taste in one's mouth, and morning tiredness. This factor was found to be associated with lower mortality risk during the 20-year follow-up period. Somatic symptoms such as these may be associated with lower risk of mortality because they may result in more frequent use of healthcare. Indeed, the functional somatic symptoms associated with depression and anxiety have been associated with an increase in use of general medical services (Simon, 1992).

In 1992, the 'somatic symptoms' factor included many of the same items, but also several other symptoms, including being bothered by ailments in various parts of the body, feeling weak all over, and cold sweats. This factor was associated with increased risk of mortality. One possibility is that these particular somatic symptoms are more strongly indicative of failing physical health than the other somatic symptoms assessed. For example, generalized weakness has been found to be predictive of mortality among ICU patients (Ali et al., 2008) and geriatric patients presenting to the emergency department (Anderson & Hallen, 2013). The presence of these symptoms in the 1992 somatic symptoms factor may have masked the

apparent protective effect of other somatic symptoms (e.g., upset stomach, loss of appetite) found in the 1970 sample.

This might also explain the contradictory results with respect to symptoms of anxiety. The abovementioned symptoms related to weakness, cold sweats and ailments loaded on the anxiety factor in 1970, when anxiety was not found to be protective against mortality. These items, if they are indicators of declining physical health, may have masked the association between anxious symptoms and mortality.

Results of this study should be interpreted in light of certain limitations. The factors obtained, as well as their interpretations and associations with mortality, are likely to differ depending on the assessment measure used. For example, the Stirling County study did not include questions about certain specific features of depression (e.g., social withdrawal, sexual dysfunction) which may be captured by other instruments. Moreover, the language used to describe symptoms of anxiety and depression is often idiomatic (Murphy, Monson, Laird, Sobol, & Leighton, 2000), and changes over time and across cultures. Even within the present study, the same items did not load on the same factors across both time periods. Though specific factor structures may not generalize across studies, more research using varied assessments of depressive and anxious symptoms may help identify specific groups of symptoms that confer increased risk of mortality.

The mortality linkage conducted by Statistics Canada did not cover deaths that were not recorded in Canadian provincial registrars. However, the number of deaths identified by the mortality linkage is consistent with expectations based on applying provincial mortality rates to the age and sex distribution of the sample (Gilman et al., 2017).

These limitations are offset by several strengths. Most notably, this study was conducted using data from two representative samples of the general population in Atlantic Canada. The long duration of the study allowed us to examine the effects of depressive and anxious symptoms on mortality over two decades. This long follow-up period is a strength for studies examining mortality, an outcome which can reasonably be expected to occur years to decades after baseline assessment. The long-follow up period is not without its drawbacks however – hazard ratios from Cox models are likely to be biased downwards with increasing follow-up time, and changes in symptoms during the follow-up period may also attenuate the observed effect on mortality.

This study provides further evidence of the mortality burden of depressive symptoms. Taken together, results of this study suggest that specific patterns of symptoms may be important to consider when assessing long-term outcomes of anxiety and depression. For example, previously we reported that a diagnosis of depression was associated with a higher risk of mortality among women in the 1992 sample (Gilman et al., 2017); here we found that women with higher scores on the somatic factor (controlling for scores on the depressive factor) had a higher risk of mortality. As several of the symptoms loading on the somatic factor in 1992 are symptoms of depression (e.g., loss of energy), it may be that the somatic dimension of depression rather than the dysphoria/anhedonia dimension of depression carries the mortality risk. Conversely, symptoms of anxiety, including physical symptoms

such as upset stomach and loss of appetite, may be associated with reduced mortality, perhaps through increased use of healthcare services. Healthcare providers should take into account patients' symptom profiles, including somatic complaints as well as symptoms of both anxiety and depression, as these profiles may be differentially associated with mortality.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Distribution of psychiatric symptoms in the Stirling County Study, 1970 and 1992 samples

	1970 SAMPLE (N=1,203)		1992 SAMPLE (N=1,402)	
	N	%	N	%
Do your hands ever tremble enough to bother you?				
<i>Never</i>	1049	87.2	1172	83.6
<i>Sometimes</i>	128	10.6	190	13.6
<i>Often</i>	26	2.2	40	2.9
Are you ever troubled by your hands or feet sweating so that they feel damp and clammy?				
<i>Never</i>	823	68.4	951	67.8
<i>Sometimes</i>	256	21.3	365	26.0
<i>Often</i>	124	10.3	86	6.1
Have you ever felt you were going to have a nervous breakdown?				
<i>Never</i>	973	80.9	1061	75.7
<i>Sometimes</i>	195	16.2	307	21.9
<i>Often</i>	35	2.9	34	2.4
Have you ever been bothered by your heart beating very hard?				
<i>Never</i>	829	68.9	903	64.4
<i>Sometimes</i>	313	26.0	465	33.2
<i>Often</i>	61	5.1	34	2.4
Do you tend to feel tired in the mornings?				
<i>Never</i>	574	47.7	611	43.6
<i>Sometimes</i>	422	35.1	558	39.8
<i>Often</i>	207	17.2	233	16.6
Do you have any trouble getting to sleep and staying asleep?				
<i>Never</i>	734	61.0	709	50.6
<i>Sometimes</i>	290	24.1	451	32.2
<i>Often</i>	179	14.9	242	17.3
How often are you bothered by having an upset stomach?				
<i>Never</i>	751	62.4	599	42.7
<i>Sometimes</i>	361	30.0	694	49.5
<i>Often</i>	91	7.6	109	7.8
Are you ever bothered by nightmares (dreams) which frighten or upset you?				
<i>Never</i>	901	74.9	1000	71.3
<i>Sometimes</i>	259	21.5	362	25.8
<i>Often</i>	43	3.6	40	2.9
Do your legs or arms go to sleep rather easily?				
<i>Never</i>	667	55.4	680	48.5
<i>Sometimes</i>	390	32.4	555	39.6
<i>Often</i>	146	12.1	167	11.9
Have you ever been bothered by 'cold sweats'?				

	1970 SAMPLE (N=1,203)		1992 SAMPLE (N=1,402)	
	N	%	N	%
<i>Never</i>	952	79.1	1134	80.9
<i>Sometimes</i>	221	18.4	246	17.6
<i>Often</i>	30	2.5	22	1.6
Do you feel that you are bothered by all sorts of ailments in different parts of your body?				
<i>Never</i>	988	82.1	1086	77.5
<i>Sometimes</i>	184	15.3	259	18.5
<i>Often</i>	31	2.6	57	4.1
Are you ever troubled by 'sick headaches'?				
<i>Never</i>	931	77.4	901	64.3
<i>Sometimes</i>	195	16.2	410	29.2
<i>Often</i>	77	6.4	91	6.5
Do you ever have a loss of appetite?				
<i>Never</i>	861	71.6	1011	72.1
<i>Sometimes</i>	260	21.6	337	24.0
<i>Often</i>	82	6.8	54	3.9
Do you ever have a bad taste in your mouth?				
<i>Never</i>	682	56.7	772	55.1
<i>Sometimes</i>	421	35.0	553	39.4
<i>Often</i>	100	8.3	77	5.5
Does your food ever seem tasteless and hard to swallow?				
<i>Never</i>	981	81.6	1110	79.2
<i>Sometimes</i>	178	14.8	253	18.1
<i>Often</i>	44	3.7	39	2.8
Do you feel you are more apt to catch contagious diseases than most people?				
<i>Never</i>	1090	90.6	1247	88.9
<i>Sometimes</i>	92	7.7	127	9.1
<i>Often</i>	21	1.8	28	2.0
Do you feel in good spirits?				
<i>Most of the time</i>	1009	83.9	1212	86.5
<i>Sometimes</i>	151	12.6	156	11.1
<i>Almost never</i>	43	3.6	34	2.4
Do you ever feel frightened or apprehensive without knowing why?				
<i>Never</i>	1018	84.8	1132	80.7
<i>Sometimes</i>	161	13.4	238	17.0
<i>Often</i>	22	1.8	32	2.3
Are you ever bothered by nervousness (irritable, fidgety, tense, restless, and jumpy)?				
<i>Never</i>	640	53.3	700	49.9
<i>Sometimes</i>	463	38.6	598	42.7
<i>Often</i>	98	8.2	104	7.4
Have you ever had periods where you couldn't take care of things because you couldn't get going?				

	1970 SAMPLE (N=1,203)		1992 SAMPLE (N=1,402)	
	N	%	N	%
<i>Never</i>	984	81.9	1093	78.0
<i>Sometimes</i>	181	15.1	269	19.2
<i>Often</i>	36	3.0	40	2.9
Would you say things don't turn out the way you want them to?				
<i>Never</i>	545	45.4	366	26.1
<i>Sometimes</i>	566	47.1	929	66.3
<i>Often</i>	90	7.5	107	7.6
Do you sometimes wonder if anything is worthwhile anymore?				
<i>Never</i>	782	65.1	785	56.0
<i>Sometimes</i>	352	29.3	536	38.2
<i>Often</i>	67	5.6	81	5.8
Have there been times when you feel low or hopeless?				
<i>Never</i>	664	55.3	732	52.2
<i>Sometimes</i>	478	39.8	613	43.7
<i>Often</i>	59	4.9	57	4.1
Do you feel weak all over much of the time?				
<i>Never</i>	974	81.1	1089	77.7
<i>Sometimes</i>	187	15.6	262	18.7
<i>Often</i>	40	3.3	51	3.6

Table 2
Pattern coefficients for promax-rotated factors based on anxious and depressive symptoms

Symptoms	1970 sample			1992 sample		
	Pattern Coefficients			Pattern Coefficients		
	Anxious	Depressive	Somatic	Anxious	Depressive	Somatic
Ever bothered by hands trembling	0.468	0.012	0.214		n/a	0.076
Felt that going to have a nervous breakdown	0.628	0.255	-0.103	0.362	0.408	0.257
Bothered by heart beating very hard	0.531	0.057	0.087	0.514	-0.183	0.398
Tend to feel tired in the mornings*	0.337	0.010	0.380	0.139	0.176	0.271
Bothered by having an upset stomach	0.061	0.070	0.522	0.360	-0.083	0.163
Bothered by nightmares	0.487	0.145	-0.052	0.348	0.134	0.338
Arms or legs go to sleep rather easily	0.394	-0.095	0.316	0.225	0.053	0.430
Ever troubled by "cold sweats"	0.529	0.009	0.140	0.284	-0.039	0.566
Bothered by all sorts of ailments in different parts of your body	0.618	0.038	0.197	0.194	0.045	0.353
Loss of appetite	0.010	0.149	0.590	-0.042	0.389	0.399
Bad taste in mouth	0.108	0.145	0.368	0.092	0.154	0.363
Food seems tasteless and hard to swallow	0.018	0.226	0.583	0.026	0.353	0.094
Feel in good spirits	0.142	0.461	0.177	0.128	0.567	
Hands or feet sweating	0.367	-0.181	0.294		n/a	
Feels more apt to catch contagious diseases than most people		+		0.101	0.068	0.414
Feel frightened or apprehensive without knowing why	0.319	0.494	-0.062	0.507	0.368	-0.032
Bothered by nervousness	0.385	0.361	0.070	0.616	0.321	-0.030
Couldn't get going	0.241	0.560	-0.018	0.063	0.405	0.337
Saying that things don't turn out the way you want them to	-0.158	0.679	0.148	-0.021	0.500	0.158
Wonder if anything is worthwhile any more	-0.055	0.703	0.015	-0.125	0.862	-0.002
Feeling low or hopeless	0.083	0.704	0.045	0.054	0.779	0.011
Feel weak all over much of the time	0.421	0.074	0.372	-0.002	0.192	0.655

Note: Salient structure coefficients (>.32) are in bold.

*Item excluded due to correlation less than 0.3 with other items

Table 3

Correlations between factors in 1970 and 1992 samples

Inter-Factor Correlations	1970 sample			1992 sample		
	“Anxious”	“Depressive”	“Somatic”	“Anxious”	“Depressive”	“Somatic”
“Anxious”	-				-	
“Depressive”	0.629	-		0.575	-	
“Somatic”	0.593	0.555	-	0.460	0.566	-

Table 4a

Hazard ratios for mortality risk associated with factors obtained in the 1970 sample

Full sample (n=1080, deaths=362)			
	HR	95% CI	p-value
“Anxious”	1.01	(0.83, 1.22)	0.929
“Depressive”	1.35	(1.12, 1.62)	0.002
“Somatic”	0.83	(0.69, 0.99)	0.045

* models adjusted for age, sex, education, smoking, alcohol abuse, and obesity

NOTE: factors significant at 95% level of confidence are in bold

Table 4b

Hazard ratios for mortality risk associated with factors obtained in the 1992 sample

Full sample (n=1379, deaths=428)			
	HR	95% CI	p-value
“Anxious”	0.75	(0.63, 0.90)	0.002
“Depressive”	1.25	(1.05, 1.48)	0.012
“Somatic”	1.29	(1.11, 1.51)	0.001

* models adjusted for age, sex, education, smoking, alcohol abuse, and obesity

NOTE: factors significant at 95% level of confidence are in bold

Sex-specific hazard ratios for mortality risk associated with factors obtained in the 1970 sample

Table 5a

	Women (n=551, deaths=142)			Men (n=529, deaths=220)		
	HR	95% CI	p-value	HR	95% CI	p-value
"Anxious"	1.20	(0.88, 1.64)	0.246	0.91	(0.70, 1.17)	0.456
"Depressive"	1.15	(0.86, 1.56)	0.343	1.46	(1.15, 1.87)	0.002
"Somatic"	0.68	(0.52, 0.90)	0.006	0.92	(0.72, 1.19)	0.530

* models adjusted for age, education, smoking, alcohol abuse, and obesity.
NOTE: factors significant at 95% level of confidence are in bold

Sex-specific hazard ratios for mortality risk associated with factors obtained in the 1992 sample

Table 5b

	Women (n=751, deaths=220)			Men (n=628, deaths=208)		
	HR	95% CI	p-value	HR	95% CI	p-value
"Anxious"	0.74	(0.58, 0.93)	0.010	0.78	(0.60, 1.03)	0.076
"Depressive"	1.12	(0.89, 1.42)	0.327	1.42	(1.10, 1.82)	0.007
"Somatic"	1.47	(1.18, 1.83)	0.001	1.11	(0.89, 1.40)	0.364

* models adjusted for age, education, smoking, alcohol abuse, and obesity.

NOTE: factors significant at 95% level of confidence are in bold