

Antonosky's exclamation<sup>2</sup> of the 1960s: "The inescapable conclusion is that class influences one's chance of staying alive." □

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## ABSTRACT

The aim was to investigate whether job strain affects mortality in a representative population of elderly men, and whether social network and social support outside the workplace can buffer the negative health effects of job strain. A higher relative mortality risk (RR) was found among men exposed to job strain (RR = 1.7). The combination of exposure to job strain and seven different measures of weak social network and social support was associated with a further increased RR ranging from 2.1 to 4.6. (*Am J Public Health*. 1992;82:1136-1139)

## Job Strain and Mortality in Elderly Men: Social Network, Support, and Influence as Buffers

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### Introduction

In 1979, Karasek proposed a two-dimensional model for measuring psychosocial work conditions, in which the combination of high psychological job demands and low personal schedule freedom (job strain) was found to be associated with depression, exhaustion, and job dissatisfaction.<sup>1</sup> After that, several studies found associations between job strain and cardiovascular disease.<sup>2-6</sup> Job support was later added as a third concept in a three-dimensional model (iso-strain).<sup>7-8</sup>

Social network and social support have been shown to affect morbidity and mortality,<sup>9-13</sup> and it has been suggested that they may have a buffering function on the negative health effects of different stressors.<sup>14</sup>

Previous studies on the health effects of job strain have all been performed on active, working populations. No studies

have investigated the chronicity of job strain and its effects on health in elderly people.

The aims of this study are therefore to investigate whether exposure to job strain during the active working period affects mortality in elderly men after retirement and to investigate if the social network and social support outside the place of work can buffer the negative health effects of job strain.

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## Methods

All 621 men born in even months in 1914 and residing in the city of Malmö, Sweden (about 230 000 inhabitants), during 1982 to 1983 formed the study sample. Five hundred men (80.5%) agreed to participate, 23 only partially.<sup>15</sup>

The investigation took place during 1982 to 1983, 3 years after the participants' retirement. Interviews, questionnaires, and physical and physiological examinations were used to obtain information about health status, life-style, the psychosocial working environment, social network, and social support.

The dichotomous job strain variable was constructed by combining high job demands and low personal schedule freedom according to a method described by Karasek et al.<sup>3</sup> Affirmative answers to two questions (Was your job hectic? Was your job psychologically demanding?) were used to define high job demands. Low personal schedule freedom was defined as negative answers to at least two of three questions (Could you make at least one private phone call of about 10 minutes during working hours? Could you go on a private errand for about 30 minutes without asking a superior? Could you receive a private visitor for about 10 minutes during working hours?).

The indices measuring different aspects of social network and social support have been described in detail previously (see appendix).<sup>16-17</sup> Social network includes social anchorage (sense of anchorage within formal and informal groups),

	Relative Mortality Risks	95% CI
<b>Social network</b>		
Contact frequency	1.2	0.8, 1.8
Social anchorage	1.6	1.1, 2.3
Social participation	1.2	0.8, 1.8
Adequacy of social participation	1.9	1.1, 3.4
<b>Social support</b>		
Availability of material and informational support (low/high)	1.4	0.9, 2.0
Availability of emotional support	1.8	1.2, 2.8
Adequacy of emotional support	1.3	0.8, 2.0

Note. Figures are for men born in 1914 and residing in Malmö, Sweden, during 1982 to 1983.

contact frequency (contacts with family, neighbors, friends), and social participation (degree of participation in social activities).

Social support includes emotional support (opportunities to receive care and personal encouragement), informational support (access to guidance and information), and material support (access to practical services and material resources).

Low social network and social support was defined as the lowest third of the distributions of the indices.<sup>17</sup>

Mortality of the cohort was followed continuously until February 28, 1989, using the Cause of Death Register both at the Department of Community Health Sciences in Malmö and at the Swedish National Central Bureau of Statistics.

The relative mortality risks (RR) were calculated using risk odds ratios and multivariately using logistic regression analysis. Homogeneity of the RRs was tested with a chi-square test for homogeneity.

## Results

Eighty-seven men (18.2%) of the 477 full participants died during the follow-up. Men exposed to high demands had an RR of 1.3 (0.8–2.0), and those exposed to low personal schedule freedom had an RR of 0.7 (0.5–1.2). Men exposed to job strain showed a higher all-cause mortality rate (23/91) than those not exposed (64/386) (RR = 1.7 [1.0–2.3]). Adjustment for social class, cardiovascular risk factors, and

	Social Network								Social Support					
	Contact Frequency		Social Anchorage		Social Participation		Adequacy of Social Participation		Availability of Material and Informational Support		Availability of Emotional Support		Adequacy of Emotional Support	
	RR	CI <sup>a</sup>	RR	CI	RR	CI	RR	CI	RR	CI	RR	CI	RR	CI
High social network, social support, and no job strain	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
High social network, social support, and job strain	1.4	0.7, 2.7	1.0	0.5, 2.1	1.6	0.8, 3.4	1.3	0.6, 2.6	1.3	0.6, 2.9	1.8	1.0, 3.4	1.2	0.6, 2.4
Low social network, social support, and no job strain	1.1	0.6, 2.0	1.2	0.7, 2.3	1.3	0.7, 2.2	1.7	1.0, 3.1	1.3	0.7, 2.2	2.3	1.2, 4.4	1.0	0.5, 2.0
Low social network, social support, and job strain	2.9	1.2, 6.7	4.6	2.1, 10.0	2.1	1.0, 4.6	4.4	2.0, 9.5	2.6	1.3, 5.3	2.7	1.1, 6.9	3.6	1.6, 8.2
<i>p</i> <sup>b</sup>	.09		.002		.23		.002		.07		.01		0.02	

Note. Figures are for men born in 1914 and residing in Malmö, Sweden, during 1982 to 1983.  
<sup>a</sup>CI = 95% confidence intervals.  
<sup>b</sup>Chi-square test for homogeneity.

variations in follow-up time did not change the relative risk very much (RR = 1.6 [1.0–2.5]).

The RRs for men with a low score on the social network and social support indices were compared with those for men with a high score (Table 1). All indices showed RRs higher than 1.0.

A multicategorical analysis was performed to investigate if there was evidence of a buffering effect (i.e., effect modification) between job strain and social network and social support (Table 2). The RRs regarding exposure to job strain were highest in the groups exposed to low social network and social support, ranging from 2.1 to 4.6, using the group with no job strain/high social network and support as reference (RR = 1).

## Discussion

Considering the high participation rate together with the fact that the health differences between the participants and the nonparticipants were rather small, the participants could be regarded as fairly representative of this population of elderly men.<sup>15</sup>

The individual's view of his personal schedule freedom probably was not affected too much by the fact that 3 years or more had passed between being in active work and participating in this study. The assessment of job demand, however, was more indirect and measured the sum of several components of the psychosocial work conditions. A nondifferential misclassification because of a fading recollection of the actual job situation, however, meant an underestimation of the true mortality risks.

The association between job strain and mortality could be the result of social class differences or of a higher prevalence of risk factors in the strain group. However, such effects did not show in the multivariate analysis, consistent with other studies.<sup>4</sup>

The health effect of social network and social support may be mediated through different causal pathways. One such pathway is described by the buffering hypothesis; i.e., social network and social support are mobilized in response to environmental stressors.<sup>14</sup> Men with a combination of high job strain and insufficient

social network and social support showed the highest mortality risks, thus supporting a buffering effect.

Our findings indicate that exposure to job strain also influences the risk of mortality after retirement, and that social network and social support outside work seem to buffer the negative health effects of job strain. □

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## APPENDIX

The following items were included in the interview questionnaire that measured the different aspects of social network and social support.

### Social Anchorage

Would you say that you are rooted and have a feeling of familiarity with your neighborhood?

How many years have you lived in your neighborhood?

If you were able to move now, would you do so?

Do you belong to a group of friends that does things together, i.e., play cards, listen to music, go on picnics, etc.?

In your daily life, do you have use for the knowledge and skills you have acquired during your life?

Do you feel that you are of great importance to other people and that you have a useful function in society?

Are you a member of any organizations or clubs?

Are you in any position of trust in any organizations or clubs?

### Contact Frequency

How often do you meet any of these persons (children, kin, neighbors, friends, close friends, workmates) at your or at their homes?

### Social Participation

How often in the last year have you

taken part in study circles and other courses?

How often do you take part in meetings of different organizations, clubs, etc.?

Have you done any of the following during the last 12 months: written an article, taken an active part in the discussion at a meeting, taken part in a political meeting, tried to influence a decision regarding a political question, appealed against a decision, contacted a consumers' association, gone to a salesman or shop in order to complain, taken part in a political or union rally?

How often in the last year have you been to parties at your friends', relatives', or neighbors' homes?

How often in the last year have you been to church?

Did you vote in the referendum concerning nuclear power?

### Adequacy of Social Participation

Are you satisfied with your opportunities for participating in different activities?

How important do you think that your activities are to you?

How often do you find it a problem to occupy yourself?

### Availability of Material and Informational Support

Is there anyone in your neighborhood from whom you can borrow things or exchange services?

Is there anyone in your neighborhood from whom you can get help if you fall ill?

If you need help with something for 24 hours, do you have anyone (other than wife) you can ask?

Do you know anyone who can help you to write an official letter or appeal against a decision made by some authority?

Do you know where to go to get help in writing an official letter or appealing against a decision made by some authority?

### Availability of Emotional Support

Do you have any friends or relatives who you like very much and who like you very much?

Do you have any really close friends with whom you feel intimate and with whom you can discuss anything?

If you have continued to work, is it because you want to feel that you are a valuable and important person?

When you have personal problems of any kind, do you have any close friend or relative to whom you can turn to discuss your problems?

### Adequacy of Emotional Support

How often do you feel lonely?

Do you have the feeling that people appreciate what you do?

Do you have enough good friends to be with?

Do you think that you see your children too often or too rarely?



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## ABSTRACT

This study examined the association between mortality and attributing health problems to aging among 1391 respondents from the Longitudinal Study of Aging who indicated difficulty with activities of daily living. Of this number, 72 persons attributed impairment primarily to "old age." Logistic regression controlling for demographics, physical health problems, self-rated health, and social involvements showed an association with mortality (adjusted odds ratio = 1.78, CI = 1.05, 3.00). Attributing health problems to aging may carry a risk of adverse health events. (*Am J Public Health*. 1992;82:1139-1141)

# Mortality and the Attribution of Health Problems to Aging among Older Adults

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## Introduction

Research in gerontology continues to try to distinguish effects of disease from effects of aging on physical health and functioning.<sup>1-3</sup> Public information and professional education increasingly emphasize that attributing health problems to supposedly inevitable consequences of old age is inappropriate. The current emphasis on disease prevention and health promotion with older persons<sup>4-6</sup> reflects a growing recognition that chronological aging per se imposes significantly fewer limitations than was previously assumed.

It is important to understand the potential consequences of laypersons, professionals, and the general public attributing health problems to aging. Leventhal and Prohaska<sup>7</sup> report that attribution to aging is associated with a tendency to delay seeking care. Gjorup et al.<sup>8</sup> found that attribution to aging exceeds 60% for some conditions and is associated with delay in contacting a physician, while Brody and Kleban<sup>9</sup> note that such attribution is associated with reluctance to discuss health problems with other people or health care providers. It was

therefore expected in this study that persons who made attributions to aging would have higher mortality.

## Methods

### Sample

The sample for this investigation was self-respondents at baseline in the 1984-1988 Longitudinal Study of Aging (LSOA) who reported difficulty with one or more activities of daily living (ADLs) (n = 1391). The baseline for the LSOA was the Supplement on Aging to the 1984 National Health Interview Survey. All LSOA participants

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