

## Social support and psychiatric sickness absence: a prospective study of British civil servants

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### ABSTRACT

**Background.** Studies on the direct and buffering effects of social support have not examined psychiatric sickness absence and few studies have considered support both at home and at work. This study addresses prospectively the effects of chronic stressors and social supports, at home and at work, on psychiatric sickness absence rates.

**Methods.** Sociodemographic factors, health and social support were measured at baseline, and short and long spells of sickness absence were measured prospectively over a 5-year period. The participants were a subsample of 4202 male and female civil servants, aged 35–55 years at baseline, from an occupational cohort, the Whitehall II Study, who completed detailed social support questions.

**Results.** Support from colleagues and supervisors at work is related to lower risk of short spells of psychiatric sickness absence, particularly for those also receiving high levels of negative aspects of close relationships from their closest person outside work. Negative aspects of close relationships from the closest person increase the risk of taking long spells of psychiatric sickness absence in men. High levels of material problems increase the risk of short spells of sickness absence.

**Conclusions.** Negative aspects of close relationships may have an aetiological role in non-psychotic psychiatric disorder. Social support at work appears to protect against short spells of psychiatric sickness absence. This potentially implies that levels of short spells of absence might be reduced by increasing support at work. Conversely, emotional support at home may influenced absence-related behaviour and encourage a person to take absence at a time of illness.

### INTRODUCTION

Sickness absence from work is an expensive and increasing problem for industrialized countries. Psychiatric disorder has become a more prominent cause of certified sickness absence, largely through greater recognition of psychiatric illness (Semence, 1971; Taylor & Burrige, 1982). Psychiatric disorder is also important as a cause of sickness absence because it is often a feature

of repeated absence (Taylor, 1968; Ferguson, 1972) and is a more frequent contributor to longer spells of certified absence (Stansfeld *et al.* 1995a).

Although social and cultural factors have long been recognized as important influences on sickness absence (Morris, 1965) there has been little detailed study of these factors. Research on social support and sickness absence has been largely confined to the effects of marital status. Even these are not consistent: being married has been related to lower levels of absence for men (Leigh, 1991) and higher rates of absence for women if they have children, but this has not

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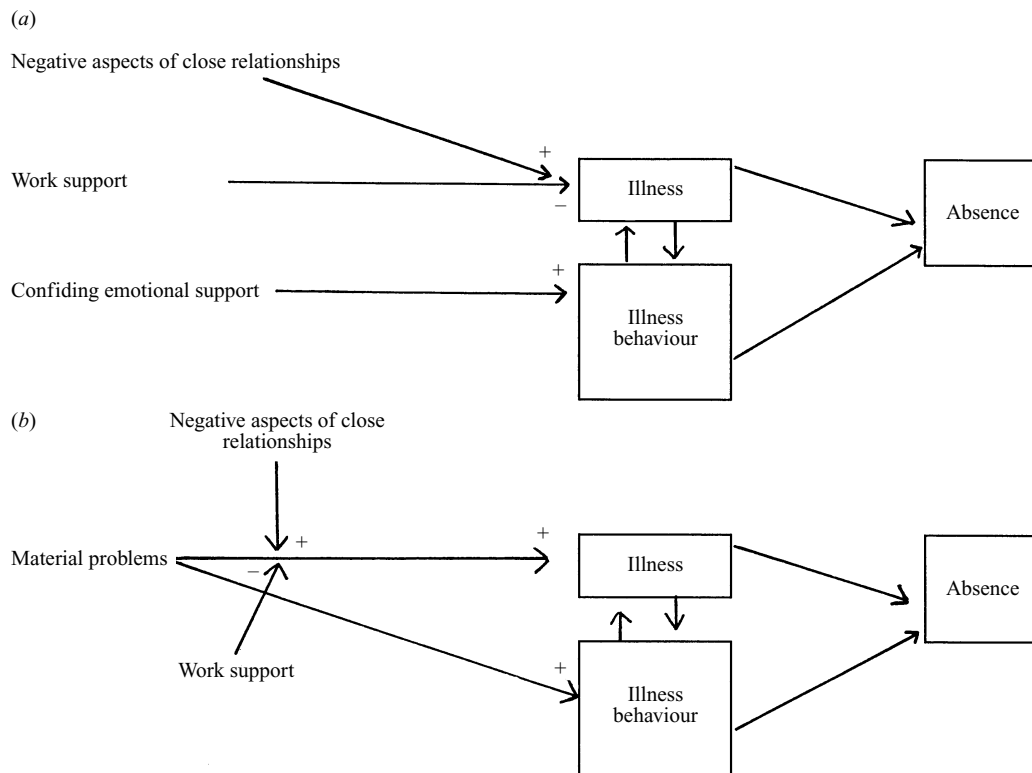


FIG. 1. Mechanisms for the influence of: (a) direct effects of support on illness behaviour and absence; (b) buffering effect of support on illness, illness behaviour and absence related to material problems.

been found in other studies (Kristensen, 1991). Widowed, divorced and separated employees, with presumably lower levels of support, tend to have higher rates of general sickness absence (Leigh, 1991). In addition, widowed and divorced male and female civil servants have higher rates of psychiatric sickness absence (Stansfeld *et al.* 1995a). Positive peer group interaction at work (Porter & Steers, 1973) and satisfaction with co-workers (Waters & Roach, 1971) has been related inversely to rates of sickness absence. It is not clear from these studies what aspects of close relationships are relevant to sickness absence for psychiatric disorder.

There is no unanimity on the mechanisms of the effects of social support on health. Two main mechanisms have been postulated. First, that social support buffers the negative impact of life events on health (Alloway & Bebbington, 1987; Paykel, 1994) and, secondly, that social support has an independent direct effect on health

(Aneshensel & Stone, 1982; Bebbington *et al.* 1984; Parry & Shapiro, 1986). This latter model has been criticized for failing to take into account associations between earlier life events and subsequent decline in support and hence an indirect association between life events and disorder mediated through lack of support (Henderson & Brown, 1988). There has also been controversy as to whether availability of potential support or perceived support is protective of health (Henderson *et al.* 1981) or whether 'objective' support received, especially at a time of crisis is protective of health (O'Connor & Brown, 1984). In the Canberra study 'perceived adequacy of support' but not 'availability of support' predicted neurotic psychiatric morbidity (Henderson *et al.* 1981). However, this effect was largely explained by neuroticism and the authors suspected that this could be a reflection of personality characteristics, such as need for support, as much as an effect of lack of support itself. Such a criticism

may be levelled at all measures of perceived support. It is likely that perceived support is both a reflection of 'actual' support received and is also influenced by personality. Social support has been measured in quantitative and qualitative terms (House & Kahn, 1985). Quantitative support refers to the number and frequency of contacts with members of the person's social network. Such measures, although useful, give little information about the quality of relationships which can be measured as types of support (e.g. emotional, informational, and instrumental support) provided within relationships.

There is a dearth of published work examining what aspects of social support, either at home or at work, might affect psychiatric sickness absence. Furthermore, there are no reports of whether social support buffers the effect of chronic stressors on sickness absence. We anticipated from our investigation of social support and 'all illness' reasons for absence in this cohort (Rael *et al.* 1995) that social support may influence sickness absence throughout two mechanisms. First, that social support may have a direct effect on the aetiology of psychiatric disorder either as a protective factor, or, for negative aspects of close relationships, as a risk factor (Coyne & Downey, 1991) (Fig. 1). Secondly, our initial investigation of social support and 'all illness' reasons for absence suggested that, contrary to our initial expectation, emotional support may encourage illness behaviour and sickness absence at a time of illness. We also predicted that positive aspects of close relationships would predict lower levels of psychiatric sickness absence for those experiencing the stressor of material problems. The 'all illness' reasons for absence paper (Rael *et al.* 1995) was predominantly a study of absence for physical illness as psychiatric sickness absence made up a fairly small proportion of overall absence (for short spells, 3.4% for men, 5.2% for women; for long spells, 9% for men, 12% for women).

In this paper we present the impact of chronic stressors, and social support, at home and at work, on sickness absence for psychiatric disorder from the Whitehall II study, a longitudinal survey of health and disease among 10 308 London-based male and female civil servants. Types of support, social networks and work

social support were measured at baseline and were linked to sickness absence for psychiatric disorder followed up for 5 years.

## METHOD

All non-industrial civil servants aged 35–55 years working in the London offices of 20 departments were invited to participate in the study. The overall response rate was 73% (74% for men and 71% for women). The true response rates are likely to be higher, however, because around 4% of those on the list of employees had in fact moved before the study and were thus not eligible for inclusion. In total, 10 308 civil servants participated, of whom 66.9% (6895) were men and 33.1% (3413) were women. Baseline questionnaires and a physical examination were performed and have been reported elsewhere (Marmot *et al.* 1991).

### Grade of employment

The civil service identifies 12 non-industrial grades on the basis of salary. There was a steep increment in salaries from an annual salary in 1987 of between £3061–£5841 in the clerical and office support grades to between £18 020–£62 100 in the unified grades 1–6. Besides the steep increment in salaries there were also marked differences in other socio-economic indicators (education, housing tenure, car ownership and father's occupation) by grade of employment (Marmot *et al.* 1991).

### Sickness absence records

Ninety-three per cent (9564) of participants gave consent to monitor their sickness absence and of these 96% (9179) were linked with their record. Computerized sickness absence records to the end of December 1990 were obtained annually from the civil service pay centres. For two-thirds of departments, the reason for absence was included. Administratively, some departments did not collect data on reasons for sickness absence. As this paper deals exclusively with psychiatric sickness absence we could not use sickness absence from these departments. We have no reason to believe that the departments excluded would have a different pattern of either social support or sickness absence than those departments collecting reasons for absence. This

is further discussed elsewhere (Rael *et al.* 1995). For absences of seven days or less ('short spells'), civil servants were able to complete their own certificate and explain the absence. For absences longer than seven days ('long spells'), a medical certificate was required. Overlapping, consecutive or duplicate spells of sickness absence were merged after taking account of weekends and public holidays. This affected less than 1% of all spells of sickness absence. Spells of psychiatric sickness absence greater than 21 days were validated by contacting general practitioners and asking for further details of diagnoses; of 61 absences coded as 'mental reasons' by the civil service, 82% (50) were validated by a psychiatric diagnosis from general practitioners (Stansfeld *et al.* 1995a).

### Social support measures

The qualitative measures included three types of support (confiding/emotional, practical, and negative aspects of support) from the person nominated as closest on the Close Persons Questionnaire (Stansfeld & Marmot, 1992). This questionnaire measures perceived support received over the past 12 months. By anchoring perceptions of support to support received during a specified time period we aimed to help the respondent focus in a concrete way on actual support received. Participants could nominate up to four people when answering the Close Persons Questionnaire but we are only presenting data on the first Close Person.

Several quantitative measures of social support were devised from questions about the frequency and number of contacts with relatives, friends and social groups. These included an isolation scale and a 'network beyond the household scale', which captures numbers of contacts beyond the household. Work social support was measured by six self-report questions on feedback support from colleagues and supervisors and clarity and consistency of information from supervisors (Marmot *et al.* 1991).

### Chronic stressors

Four questions on difficulties with finances, housing and neighbourhood difficulties from Pearlin's scale of chronic stressors formed a scale named 'material problems' (Pearlin & Schooler, 1978). A higher score on this scale

means more material problems. In our sample these questions loaded on to a single component in a principal components analysis of eight questions from Pearlin's original scale.

### Statistical analysis

Risk factors, or the magnitude of their effect, for sickness absence may differ for short and long spells, and were thus analyzed separately. For each individual the number of prospective spells of sickness absence of each type was computed and the follow-up period was measured in person-years from the date of screening. Rates of sickness absence were estimated and are expressed per 100 person years. Full details of the statistical methods used for adjusting the rate ratios have been reported previously (North *et al.* 1993).

Analysis has been performed on the 41% (4202) of participants where reason for absence was available and who were administered the social supports questionnaire. Fifty-five per cent of 10308 participants were not administered versions 3 or 4 of the questionnaire containing the full social support questions or were not in departments for which sickness absence data was gathered. Only 4.3% of the total sample were excluded because they missed one or more responses on the questions included in the analyses.

In brief, adjusted rate ratios and their 95% confidence intervals were calculated for men and women separately using Poisson regression (McCullagh & Nelder, 1983; Aitken *et al.* 1989). It was assumed that for each participant the occurrence of short and long spells followed a Poisson distribution. For short spells of sickness absence there was considerable residual variation in excess of the Poisson distribution (overdispersion). This overdispersion has no effect on the rate ratio estimates. The estimates of 95% confidence intervals were, however, adjusted for this overdispersion, approximately doubling the width of the 95% confidence intervals. For long spells of absence, no overdispersion was detected. The regression models were fitted using the statistical package GLIM (Numerical Algorithms Group, 1987).

Poisson regression was used to model the relationship of sickness absence to social support, adjusting for the possible confounding effects of age and grade. First, each of the social

Table 1. Numbers and crude rates of short and long spells of sickness absence

	N	Short spells ( $\leq 7$ days)		Long spells ( $\geq 8$ days)	
		No. of spells	Rate of spells/100 person years	No. of spells	Rate of spells/100 person years
Male	3086	402	4.0	100	1.0
Female	1116	356	10.18	126	3.60

support measures was modelled, separately as an independent variable, then with the inclusion of the covariables described below. The three qualitative measures of social support, and the single quantitative measure 'network beyond the household' were included in the final model to produce a 'full model'.

#### Incidence-duration curves

Rates of overall sickness absence were also expressed graphically as incidence-duration curves (Rael, 1992). In these curves, the incidence rate at a particular calendar day reflects all spells lasting this number of days or more. For these analyses, duration of absence is censored at 30 days.

#### Covariables and measures of ill-health

A series of covariables with potential to influence the association between social support, material problems and sickness absence were included. Age, employment grade and marital status were included as basic demographic variables. Grade is unequivocally linked to both social support and sickness absence while marital status is strongly linked to social support. Self-reported alcohol consumption in the past year was included as it is associated with sickness absence and possibly social support.

Pre-existing psychological and physical ill-health and social support at baseline may influence each other and the risk of future sickness absence. Psychological ill health at baseline may also partly act as a measure of current psychological ill-health. Baseline physical ill-health was taken into account by using overall health status and recurrent health problems in the past year. Baseline psychological ill-health, measured by the General Health Questionnaire score (GHQ) (Goldberg, 1972) was entered as a discrete variable.

All analyses were done separately for men and women, as social support functions differently,

and rates of sickness absence differ markedly between men and women. Further details of the measurement of the covariables may be found elsewhere (Marmot *et al.* 1991, 1993; Stansfeld *et al.* 1993).

## RESULTS

The number and rates of short and long spells of psychiatric sickness absence for men and women are shown in Table 1. The rates of short spells were much higher than for long spells. The rates for women were much higher than those for men, much of which may be explained by a preponderance of women in lower employment grades and men in higher employment grades (Stansfeld *et al.* 1995a). The distribution of social support and material difficulties by age, sex and employment grade is shown in Table 2.

#### Effect of covariables

Baseline psychiatric and physical health covariables were strongly predictive of sickness absence for psychiatric disorder (Table 3). Effects were generally stronger for men than for women, and for long rather than for short spells. In this subsample the other covariables, alcohol intake, in terms of frequency of drinking, and marital status were not statistically significantly associated with sickness absence and are excluded from Table 3. They have been included in the full model to adjust for possible confounding.

#### Social support at home

The distribution of the adverse tertile of types of support, work support and material problems by employment grade is set out in Table 4. Types of social support from the closest person showed few consistent effects on sickness absence except for negative aspects of close relationships in men. High levels of negative aspects of close relationships were associated with statistically

Table 2. Percentage in adverse tertile for each qualitative aspect of social support, work support and material problems by sex and employment grade\*

Aspect of social support	Men			Women		
	Admin. (N = 1274) %	Prof./Exec. (N = 1647) %	Clerical/Support (N = 165) %	Admin. (N = 144) %	Prof./Exec. (N = 497) %	Clerical/Support (N = 475) %
Confiding/emotional support (low)	27	33	40	29	28	31
Practical (low)	26	28	42	43	42	39
Negative (high)	26	34	39	33	29	30
Work social support (low)	29	34	40	33	37	41
Material problems (high)	24	39	49	22	31	42

\* Grade grouped into Administrative, Professional/Executive, Clerical/Support.

Table 3. Rate ratios (95% confidence intervals) of spells of psychiatric sickness absence by baseline health measures

Covariable	Sex	General Health Questionnaire			
		Not a case	Case		
Length of spell	m	1	1.32 (1.07, 1.64)*		
		f	1	1.56 (1.27, 1.93)***	
Short	m	1	2.34 (1.57, 3.48)***		
		f	1	1.53 (1.07, 2.19)*	
Long	m	1			
		f	1		
Number of recurrent health problems	m	0	1	2-4	≥ 5
		f	1	1.32 (0.99, 1.76)	2.04 (1.58, 2.63)***
Short	m	1	0.99 (0.72, 1.35)	1.46 (1.10, 1.95)**	2.65 (1.77, 3.97)***
		f	1	1.90 (1.04, 3.46)*	2.47 (1.41, 4.34)**
Long	m	1	0.69 (0.41, 1.17)	1.30 (0.84, 2.02)	0.58 (0.20, 1.66)
		f	1		
Health in past year	m	Very good	Good	Average	Poor/Very poor
		f	1	1.13 (0.87, 1.47)	2.70 (2.07, 3.52)***
Short	m	1	1.06 (0.76, 1.49)	1.96 (1.43, 2.69)***	4.32 (3.04, 6.12)***
		f	1	2.48 (1.37, 4.47)**	3.63 (1.12, 6.89)**
Long	m	1	1.69 (0.96, 2.97)	2.33 (1.34, 4.06)**	2.93 (1.48, 5.80)**
		f	1		

All models are adjusted for age and grade.

\*  $P < 0.05$ ; \*\*  $P < 0.01$ ; \*\*\*  $P < 0.001$ .

significantly increased rates of long spells for men (Table 4). This increase persisted for longer durations of spell (Fig. 2). Such clear patterns were not found for women. There were no interactions between negative aspects of close relationships and employment grade for long spells of absence. We examined whether the differences between men and women could be explained by the different distribution of men and women by employment grade. In the executive/professional grades where there are

large numbers of both men and women the findings were similar to the whole sample.

For women, intermediate and high levels of confiding/emotional support were associated with higher rates of long spells (Table 4). For men, medium and high levels of practical support, were followed by lower rates of long spells (Table 4). Fig. 3 shows how this effect of practical support for men became more pronounced with increasing length of sickness absence spells up to about 3 weeks.

Table 4. Rate ratios (95% confidence intervals) of spells of psychiatric sickness absence by tertiles of qualitative types of social support and material problems

Types of social support	Sex	Adjustment	Spells of sickness absence					
			Short			Long		
			Low	Medium	High	Low	Medium	High
Confiding/emotional	m	Age + grade	1	0.98 (0.77, 1.23)	0.97 (0.75, 1.24)	1	0.95 (0.60, 1.49)	0.82 (0.49, 1.35)
		Full model	1	1.05 (0.82, 1.34)	1.21 (0.90, 1.62)	1	1.04 (0.64, 1.69)	1.19 (0.65, 2.15)
Practical	f	Age + grade	1	0.82 (0.64, 1.05)	0.85 (0.65, 1.09)	1	1.76 (1.11, 2.79)*	1.45 (0.89, 2.36)
		Full model	1	0.77 (0.59, 1.01)	0.82 (0.61, 1.12)	1	1.76 (1.09, 2.85)*	1.60 (0.92, 2.78)
Negative	m	Age + grade	1	1.04 (0.81, 1.32)	0.93 (0.73, 1.18)	1	0.62 (0.38, 1.02)	0.81 (0.51, 1.27)
		Full model	1	0.99 (0.76, 1.28)	0.79 (0.59, 1.07)	1	0.57 (0.33, 0.98)*	0.69 (0.39, 1.22)
Work social support	f	Age + grade	1	1.15 (0.90, 1.47)	1.27 (0.98, 1.65)	1	0.95 (0.62, 1.43)	1.13 (0.74, 1.74)
		Full model	1	1.28 (0.98, 1.66)	1.35 (0.99, 1.84)	1	0.77 (0.50, 1.20)	0.84 (0.52, 1.38)
Material problems	m	Age + grade	1	1.00 (0.77, 1.28)	1.30 (1.03, 1.64)*	1	2.27 (1.32, 3.93)**	2.52 (1.48, 4.30)***
		Full model	1	0.94 (0.73, 1.21)	1.12 (0.88, 1.43)	1	2.11 (1.20, 3.69)**	2.41 (1.37, 4.23)**
Material problems	f	Age + grade	1	1.42 (1.11, 1.81)**	1.03 (0.79, 1.35)	1	1.31 (0.87, 1.98)	0.96 (0.62, 1.51)
		Full model	1	1.37 (1.06, 1.76)*	0.89 (0.67, 1.18)	1	1.28 (0.84, 1.95)	0.99 (0.62, 1.57)
Material problems	m	Age + grade	1	0.73 (0.58, 0.93)*	0.73 (0.58, 0.93)*	1	0.62 (0.37, 1.04)	1.01 (0.65, 1.59)
		Full model	1	0.79 (0.62, 1.00)	0.86 (0.67, 1.10)	1	0.71 (0.42, 1.20)	1.49 (0.93, 2.40)
Material problems	f	Age + grade	1	0.65 (0.50, 0.84)**	0.62 (0.49, 0.80)***	1	1.06 (0.69, 1.64)	1.09 (0.72, 1.65)
		Full model	1	0.78 (0.60, 1.03)	0.77 (0.59, 1.01)	1	1.12 (0.72, 1.75)	1.17 (0.76, 1.80)
Material problems	m	Age + grade	1	0.89 (0.68, 1.18)	1.44 (1.15, 1.81)**	1	1.45 (0.84, 2.49)	1.99 (1.22, 3.22)**
		Full model	1	0.83 (0.63, 1.09)	1.20 (0.95, 1.52)	1	1.29 (0.74, 2.56)	1.55 (0.94, 2.56)
Material problems	f	Age + grade	1	1.44 (1.09, 1.89)**	1.45 (1.12, 1.88)**	1	0.69 (0.43, 1.11)	0.97 (0.65, 1.43)
		Full model	1	1.48 (1.11, 1.96)**	1.33 (1.01, 1.75)*	1	0.68 (0.41, 1.10)	0.98 (0.64, 1.50)

Full model includes age, grade, marital status, General Health Questionnaire, recurrent health problems in the past year, health in the past year, and frequency of alcohol consumption in the past year plus the three Close Person 1 measures (confiding/emotional, practical, negative), and the network beyond the household. Types of social support are subdivided in tertiles.

\*  $P < 0.05$ ; \*\*  $P < 0.01$ ; \*\*\*  $P < 0.001$ .

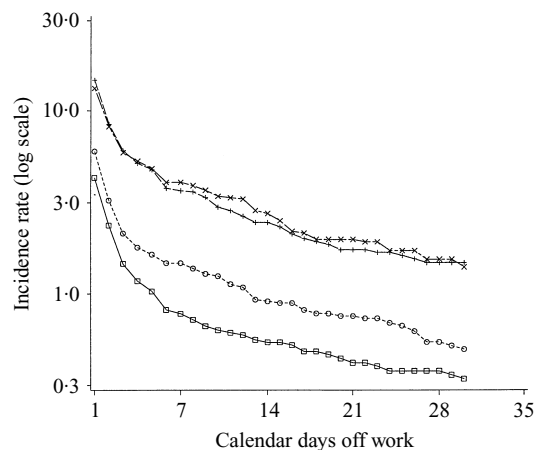


FIG. 2. Incidence-duration curves for spells of sickness absence in men and women with high (○—○, men; +—+, women) and low (□—□, men; ×—×, women) levels of negative aspects of close relationships. Incidence rate (grade adjusted) for spells lasting  $x$  days or more, censored at 30 days. The grade adjustment was done using different weights for men and women as the grade distribution is very different for men and women.

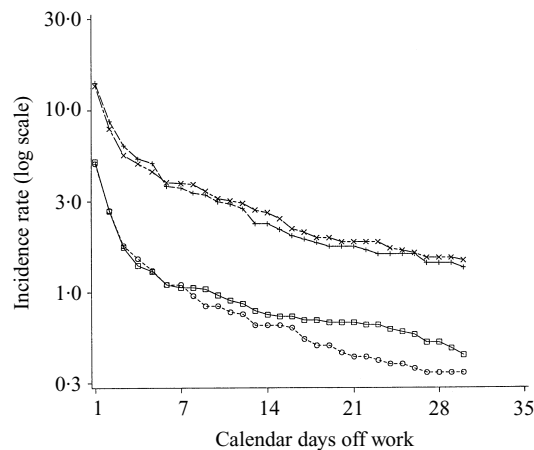


FIG. 3. Incidence-duration curves for spells of sickness absence in men and women with high (○—○, men; +—+, women) and low (□—□, men; ×—×, women) levels of practical support. Incidence rate (grade adjusted) for spells lasting  $x$  days or more, censored at 30 days. The grade adjustment was done using different weights for men and women as the grade distribution is very different for men and women.

### Social networks

Neither the isolation nor network beyond the household scale were significantly associated with short or long spells of sickness absence, for either men or women, and these results are not presented.

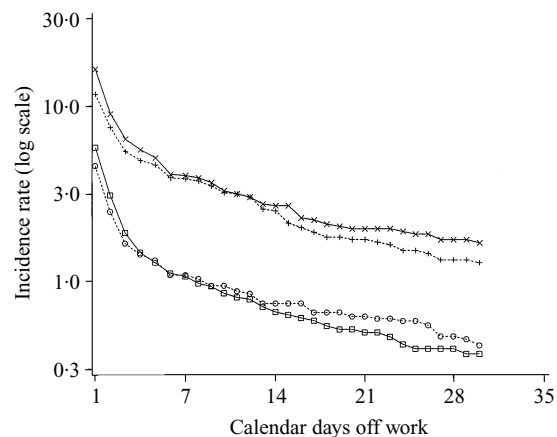


FIG. 4. Incidence-duration curves for spells of sickness absence in men and women with high (○—○, men; +—+, women) and low (□—□, men; ×—×, women) levels of work support. Incidence rate (grade adjusted) for spells lasting  $x$  days or more, censored at 30 days. The grade adjustment was done using different weights for men and women as the grade distribution is very different for men and women.

### Work social support

Perhaps the most important findings suggest a protective effect of work social support on short spells of sickness absence. For men and women, medium or high levels of social support at work were protective against short spells of sickness absence, reducing rates for more than 25% for men and more than 35% for women (Table 3). In women, the effect was strongest for those in the lowest employment grade. The effect was diminished to less than statistically significant on adjustment for covariables and non-work measures of social support. In this instance the active ingredient of work support is not clear as it is a composite measure including emotional and instrumental support from colleagues and supervisors and informational support from supervisors.

The effects of work support on long spells were different for men and women. The incidence-duration curves suggest that high work support in men may be associated with a higher incidence of longer spells (Fig. 4). In women the opposite is true: higher work support is associated with a lower incidence of longer spells, particularly for spells longer than 14 days. The robustness of these findings can be criticized because they are based on self-report assessment of work support. Nevertheless, the analyses are prospective and the results for short



Table 5. Interaction between work social support and negative aspects of support on short spells of psychiatric sickness absence (rate ratios)

		Work social support			
		Men		Women	
		Low	High	Low	High
Negative aspects of support	High	1	0.97	1	0.89
	Low	1.39	0.90*	1.31	0.91

Model includes age, grade, marital status, General Health Questionnaire score, recurrent health problems in the past year, health in the past year, frequency of alcohol consumption in the past year, the three Close Person 1 measures. Significance of interaction term \*  $P < 0.05$ .

spells are still present after adjustment for baseline psychological distress that might bias baseline reporting of support.

**Material problems**

For men, the highest level of material problems was associated with increased rates of short and long spells of psychiatric sickness absence (Table 4). This effect was reduced after adjusting for covariables. For women, the effect of medium or high levels of material problems was seen in increased rates of short spells of sickness absence.

**Interaction of work social support and negative aspects of close relationships on short spells**

Among men with low work support, increased negative aspects of close relationships are fol-

lowed by the highest rates of spells of sickness absence, while men with high work support have lower levels of sickness absence regardless of the level of negative aspects of close relationships (Table 5). There was a similar pattern for women, although this interaction failed to reach statistical significance. We have only reported the interaction between negative aspects of close relationships and work support for short spells of sickness absence as we did not find consistent associations between other social support measures and sickness absence.

**Interaction of material problems and work social support on sickness absence**

The moderating influence of type of work support and negative aspects of close relationships on the effect of material problems was tested for both short and long spells of sickness absence (Table 6). For long spells, in women, high levels of material problems in combination with high levels of negative aspects of close relationships were associated with the highest rate ratios for sickness absence. Similarly, the effect of high levels of material problems differed depending on the level of work support: women with higher levels of work support in these circumstances had higher rate ratios for short spells of absence than did women with low levels of work support.

**DISCUSSION**

Negative aspects of social support, material problems and work social support are important

Table 6. Rate ratios of spells of psychiatric sickness absence by material problems and negative aspects of support and work social support

Types of social support		Sex	Spells of sickness absence					
			Short		Significance of interaction term	Long		Significance of interaction term
			Material problems			Material problems		
			Low	High		Low	High	
Negative	m	Low	1	1.38	NS	1	1.54	< 0.01
		High	1	1.04		1	1.40	
	f	Low	1	1.04		1	0.60	
		High	1	1.16		1	1.84	
Work social support	m	Low	1	1.03	< 0.05	1	0.31	NS
		High	1	1.41		1	0.42	
	f	Low	1	0.90		1	0.83	
		High	1	1.44		1	1.17	

All models are adjusted for age and employment grade. Types of support are subdivided at the median into high/low categories.

predictors of sickness absence for psychiatric disorder, their effects varying by gender and by length of spell. Baseline psychiatric disorder and physical ill-health were generally followed by higher rate ratios of sickness absence for psychiatric disorder; these effects were generally stronger for long spells than for short spells, and for men than for women.

#### **The meaning of psychiatric sickness absence**

In this study we have very reliable data on the occurrence of sickness absence. Moreover, the civil service coding of absence for psychiatric disorder has been validated against reports of general practitioners for long spells of absence (Stansfeld *et al.* 1995*a*). If anything, specifically psychiatric sickness absence is likely to be under- rather than over-reported in this cohort.

What is 'sickness absence'? Sickness absence is clearly related to illness, especially for long spells which have to be certified by a doctor (Marmot *et al.* 1995). Nevertheless, not everyone who is ill takes absence from work, and illness behaviour may be an important contributor, among those who are sick, to the decision to take sick leave, especially for shorter spells. It seems inherently unlikely, although possible, that civil servants would take leave for other reasons and attribute it to psychiatric disorder, given the stigma associated with psychiatric disorder. However, this might occur in those who had already had time off for psychiatric illness. (In this study even short non-certified spells are coded by reason for absence.) Thus, risk factors for sickness absence may be having an effect on the aetiology of psychiatric disorder, the severity and duration of disorder, the decision to take sick leave in the presence of disorder and the duration of leave. Moreover, different types of social support may influence these components of absence independently.

#### **Types of social support and sickness absence**

The most marked finding relating social support at home to sickness absence was for negative aspects of close relationships. Higher levels of negative aspects of close relationships were followed by increased rates of long spells of sickness absence in men; while for women intermediate levels of negative aspects of close relationships were followed by increased rates

for short spells of sickness absence. Negative aspects of close relationships are not synonymous with a lack of positive aspects of support and have been increasingly recognized as risk factors for mental ill-health (Coyne & Downey, 1991; Lakey *et al.* 1994). Negative aspects of close relationships also predicted higher rates of sickness absence for physical illness (Rael *et al.* 1995) and relate cross-sectionally to increased General Health Questionnaire scores and depression scores in this cohort (Stansfeld *et al.* 1997). There might be two possible explanations: either negative aspects of close relationships are part of the cause of non-psychotic psychiatric disorder, or negative aspects of close relationships encourage taking sick leave in the presence of non-psychotic psychiatric disorder. It is more likely to be the former for two reasons. The association with the GHQ score, of increased GHQ scores with increased negative aspects of close relationships, suggests that negative aspects of close relationships have an aetiological role in the anxiety and depressive disorders which make up most of the long spells of sickness absence (Stansfeld *et al.* 1995*a*). Secondly, after adjusting for baseline GHQ score, that is to say adjusting for illness rather than illness behaviour, the associations between negative aspects of close relationships and sickness absence are consistently diminished. The longitudinal association between negative aspects of close relationships and psychiatric sickness absence and the fact that it persists after adjusting for baseline GHQ score make reverse causation less likely.

In women, medium and high levels of confiding/emotional support from the closest person were associated with higher rate ratios of long spells of sickness absence. This is in keeping with the findings for sickness absence for physical illness (Rael *et al.* 1995) although interpretation must be cautious as the number of long spells in women was small. This association is surprising in the light of findings that emotional support is protective against the development of depression in those exposed to life events (Brown & Harris, 1978; Kessler & McLeod, 1985; Brown *et al.* 1986). However, the apparent contradiction could be explained if this were an effect on illness behaviour, rather than illness. No diminution in the rate ratio after adjusting for GHQ score, may mean that

emotional support at home facilitates taking sick leave at a time of illness rather than being causally linked to the illness. In this case confiding/emotional support from the closest person may encourage empowerment, security and perceptions of control in the civil servant which legitimizes taking leave from work when he/she is depressed or anxious.

Practical support for men, usually provided by women, has a beneficial effect on incidence of absence. This was not shown in women. This would be in keeping with women doing more practical domestic work in marriage than men.

#### **Social support at work and psychiatric sickness absence**

Social support at work is related to lower levels of psychiatric disorder in cross-sectional analyses in this cohort (Stansfeld *et al.* 1995*b*). We interpreted this as work support having a positive, direct effect on mental health. Furthermore, in this paper, we have shown that social support at work is protective against short spells of sickness absence for both men and women. Beyond spells of 7 days, the pattern changes: the protective effect remaining for women but appearing to reverse for men. Work support as defined here included support from colleagues, support from supervisors and consistency and clarity of information from supervisors. Thus, it can be criticized as not being very specific containing elements of emotional, informational, and instrumental support. It can also be criticized as it is an entirely self-report measure and open to response bias related to mood. Nevertheless, because support is prospectively related to absence, response bias related to mood is less likely to be a problem. Because of these limitations to the measure of work support interpretation of the implications of these results must be tentative.

Work support was also protective for those with high levels of negative aspects of close relationships. This suggests that support at work may help people cope with interpersonal stressors from home and thus not take time off in short spells of absence. It is notable that the protective effect of work support on short spells of absence is much stronger than non-work support which shows very few effects other than for negative aspects of close relationships.

Currently, increasing work and financial pressures, as well as the changing roles and expectations of men and women, challenge close relationships. These pressures, in addition to society's changing attitude to marriage may contribute to the increasing rates of divorce in recent years (Central Statistical Office, 1995). Thus, although from the employer's perspective, personal relationships may seem properly outside their sphere of influence there is some evidence that support at work may lessen the risk of short spells of sickness absence in those with difficult close relationships. This would be in favour of a compensation model rather than a role overload model for the effect of work on health (Barnett & Baruch, 1987); further analysis will be required to confirm this. This implies that, if these findings are replicated elsewhere, and taking into account the weakness of the work social support measure, modification of work-related support rather than non-work support would be advisable to lower rates of short spells of sickness absence. This is just as well, as work social support is much likely to be amenable to intervention by an organization.

#### **Material problems and sickness absence**

The effect of material problems was to increase rate ratios of spells of sickness absence. This may mean that material problems, for instance financial difficulties, are contributing to the aetiology of depression and anxiety, or that they increase the likelihood of taking time off for sickness or both. Chronic difficulties, such as financial problems, are associated with higher rates of depression (Brown & Harris, 1978). It might also be the case that the decision to take time off sick is influenced by the amount of burden the civil servant feels in their life. Then the combination of coping with financial difficulties, depressed mood, and work might be too much. At this point relinquishing the work role might be a strategy for coping with overload. The effect of material problems is clearly demonstrated for men for both short and long spells of absence but is not shown for women for long spells of absence. This may be because of smaller numbers of women than men, and fewer long than short spells.

### **Interaction of material problems and types of support on sickness absence**

Women with high levels of material problems and high levels of negative aspects of close relationships have a higher risk of taking long spells of absence. This is in keeping with the possibility that both these in combination are risk factors either for the aetiology or maintenance of anxiety and depressive disorders. In contrast, lower levels of negative aspects of close relationships at home in a setting of high material poverty seem to encourage women to stay at work. In this case stress-free relationships at home may encourage women to stay at work to overcome financial problems.

Although work support was protective against short spells of absence, and for women with negative aspects of close relationships, it was not effective for women experiencing material problems. This might be explained by managers, recognising and being sympathetic to the vulnerability of women with financial/material problems, allowing them to take short spells of absence for anxiety or depression. Alternatively, women with high levels of material problems who take short spells off for anxiety and depression tend to be those who over a period, report that they are receiving high levels of work support. Perhaps because permission to take absence is perceived as supportive. These explanations require further longitudinal quantitative analysis, and if possible qualitative analysis, for verification.

### **Baseline physical ill-health and psychiatric sickness absence**

It is not surprising that the baseline measures of physical health are so strongly predictive of subsequent sickness absence, as psychiatric disorder, especially depression is commonly a sequel to physical illness (Mayou *et al.* 1978). However, a further explanation is, that these baseline measures of physical ill-health are strongly related to psychiatric disorder, and may be partially measuring somatized emotional symptoms (Stansfeld *et al.* 1993). This tendency to somatization is greater in men than women and may explain why the baseline 'physical health' measures are more powerful predictors of psychiatric sickness absence in men than women. Nevertheless, increasing numbers of

recurrent health problems seem to reflect physical disorder, which is then related more strongly to physical reasons for sickness absence (Rael *et al.* 1995).

### **Social support and sickness absence for physical and psychiatric illness**

The association of social support with spells of psychiatric sickness absence in this cohort is fairly consistent with the results relating to spells of general sickness absence (Rael *et al.* 1995). The influence of both negative aspects of close relationships and material problems on sickness absence were similar for both 'all illness' and psychiatric sickness absence and were markedly stronger for psychiatric sickness absence. On the contrary, higher rate ratios for long spells of absence with increasing confiding/emotional support were found for 'all illness' absences in men but not for psychiatric sickness absence. In women there was a similarly strong effect for 'all illness' absences and a suggestion of an effect for psychiatric sickness absence. It may be that confiding/emotional support has a stronger effect on encouraging absence for physical illness where further absence might be perceived to aid recovery. In psychiatric illness, however, high levels of confiding/emotional support, especially from men to women, may directly influence recovery and lower risk of sickness absence. The results for work social support are also consistent with the findings for general sickness absence where high work support was related to lower levels of short spells of absence (North *et al.* 1996).

### **Limitations**

It is clear that sickness absence is a composite measure of illness and illness behaviour so that conclusions trying to relate social support specifically to illness aetiology or illness behaviour must necessarily be speculative. Nevertheless, sickness absence itself is an important outcome with major economic implications.

The limitations of the measures of support have been mentioned above. This paper reports on social support measured at baseline predicting sickness absence over a follow-up period of up to 6 years. It is not clear that the provision of support over time will remain constant and that the effects of baseline support will predict forward over so long a time. However, both of

these constraints would tend to lessen the likelihood of showing any effects of baseline social support. Because of small numbers of spells it has not been possible to analyse whether support has more powerful effects on immediate as opposed to more distant spells of absence.

### Conclusions

As in our study of sickness absence for physical illness there seem to be two types of explanation for the effects of social support on sickness absence. First, that social support may be an aetiological factor for psychiatric disorder: that negative aspects of support from the closest person increases sickness absence, particularly for men. Alternatively, that it may act as a protective factor where high work support lessens short spells of absence. Secondly, that support may influence absence-related behaviour encouraging a person to take absence at a time of illness.

The finding with the most important practical implication, given the limitations in measurement of support, is that perception of support at work decreases the number of short spells of absence and that, moreover, it lowers risk of absence in those who are receiving negative aspects of close relationships that is, worries, problems and stress from their closest relationship.

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### REFERENCES

- Aitken, M., Anderson, D., Francis, B. & Hinde, J. (1989). *Statistical Modelling in GLIM*, (pp. 217–225). Oxford University Press: New York.
- Alloway, R. & Bebbington, P. (1987). The buffer theory of social support – a review of the literature. *Psychological Medicine* **17**, 91–108.
- Aneshensel, C. S. & Stone, J. D. (1982). Stress and depression: a test of the buffering model of social support. *Archives of General Psychiatry* **39**, 1392–1396.
- Barnett, R. C. & Baruch, G. K. (1987). Social roles, gender and psychological distress. In *Gender and Stress* (ed. R. C. Barnett, L. Biener and G. K. Baruch), pp. 122–143. The Free Press: New York.
- Bebbington, P. E., Sturt, E., Tennant, C. & Hurry, J. (1984). Misfortune and resilience: a replication of the work of Brown and Harris. *Psychological Medicine* **14**, 347–363.
- Brown, G. W. & Harris, T. O. (1978). *Social Origins of Depression: A Study of Psychiatric Disorder in Women*. Tavistock Publications: London.
- Brown, G. W., Andrews, B., Harris, T., Adler, Z. & Bridge, L. (1986). Social support, self-esteem and depression. *Psychological Medicine* **16**, 813–831.
- Central Statistical Office. (1995). *Social Trends 25 1995 edn*. HMSO: London.
- Coyne, J. C. & Downey, G. (1991). Social factors and psychopathology: stress, social support and coping processes. *Annual Review of Psychology* **42**, 401–445.
- Ferguson, D. (1972). Some characteristics of repeated sickness absence. *British Journal of Industrial Medicine* **29**, 420–431.
- Goldberg, D. (1972). *The Detection of Psychiatric Illness by Questionnaire*. Oxford University Press: London.
- Henderson, A. S. & Brown, G. W. (1988). Social support: the hypothesis and the evidence. In *Handbook of Social Psychiatry* (ed. A. S. Henderson and J. D. Burrows), pp. 73–85. Elsevier Science: Amsterdam.
- Henderson, A. S., Byrne, D. G. & Duncan-Jones, P. (1981). *Neurosis and the Social Environment*. Academic Press: Sydney.
- House, J. S. & Kahn, R. L. (1985). Measures and concepts of social support. In *Social Support and Health* (ed. S. Cohen and S. L. Syme), pp. 83–108. Academic Press: New York.
- Kessler, R. & McLeod, J. (1985). Social support and mental health in community samples. In *Social Support and Health* (ed. S. Cohen and S. L. Syme), pp. 219–240. Academic Press: New York.
- Kristensen, T. S. (1991). Sickness absence and work strain among Danish slaughterhouse workers: an analysis of absence from work regarded as coping behaviour. *Social Science and Medicine* **32**, 15–27.
- Lakey, B., Tardiff, T. A. & Drew, J. B. (1994). Negative social interactions: assessment and relations to social support, cognition, and psychological distress. *Journal of Social and Clinical Psychology* **13**, 63–85.
- Leigh, J. P. (1991). Employee and job attributes as predictors of absenteeism in a national sample of workers: the importance of health and dangerous working conditions. *Social Science and Medicine* **33**, 127–137.
- McCullagh, P. & Nelder, J. A. (1983). *Generalised Linear Models*. Chapman & Hall, London.
- Marmot, M. G., Davey Smith, G., Stansfeld, S., Patel, C., North, F., Head, J., White, I., Brunner, E. J. & Feeney, A. (1991). Health inequalities among British Civil Servants: the Whitehall II Study. *Lancet* **337**, 1387–1393.

- Marmot, M. G., North, F., Feeney, A. & Head, J. (1993). Alcohol consumption and sickness absence: from the Whitehall II Study. *Addiction* **88**, 369–382.
- Marmot, M. G., Feeney, A., Shipley, M., North, F. & Syme, S. L. (1995). Sickness absence as a measure of health status and functioning. *Journal of Epidemiology and Community Health* **49**, 48–53.
- Mayou, R., Foster, A. & Williamson, B. (1978). Psychosocial adjustment in patients one year after myocardial infarction. *Journal of Psychosomatic Research* **22**, 447–453.
- Morris, J. N. (1965). Sickness absence: return to work? Capacity and incapacity for work: some recent history. *Proceedings of the Royal Society of Medicine* **8**, 821–825.
- North, F., Syme, S. L., Feeney, A., Head, J., Shipley, M. J. & Marmot, M. G. (1993). Explaining socioeconomic differences in sickness absence: the Whitehall II study. *British Medical Journal* **306**, 361–366.
- North, F., Syme, S. L., Feeney, A., Shipley, M. & Marmot, M. (1996). Psychosocial work environment and sickness absence. The Whitehall II Study. *American Journal of Public Health* **86**, 332–340.
- Numerical Algorithms Group (1987). *The GLIM System Release 3.77 Manual, Edition 2*. Numerical Algorithms Group: Oxford.
- O'Connor, P. & Brown, G. W. (1984). Supportive relationships: fact or fancy. *Journal of Social and Personal Relationships* **1**, 159–175.
- Parry, G. & Shapiro, D. A. (1986). Social support and life events in working-class women: stress buffering or independent effects? *Archives of General Psychiatry* **43**, 315–323.
- Paykel, E. S. (1994). Life events, social support and depression. *Acta Psychiatrica Scandinavica* **377**, 50–58.
- Pearlin, L. I. & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behaviour* **19**, 2–21.
- Porter, L. W. & Steers, R. M. (1973). Organisational, work, and personal factors in employee turnover and absenteeism. *Psychological Bulletin* **80**, 151–176.
- Rael, E. G. S. (1992). An epidemiological study of the incidence and duration of compensated lost time occupational injury for construction workmen. Ontario, 1989: An assessment and application of Workers' Compensation Board and Labour Force Data. M.Sc. thesis: University of Toronto, Canada.
- Rael, E. G. S., Stansfeld, S. A., Shipley, M., Head, J., Feeney, A. & Marmot, M. (1995). Sickness absence in the Whitehall II Study, London: the role of social support and material problems. *Journal of Epidemiology and Community Health* **49**, 474–481.
- Semmens, A. (1971). Rising sickness absence in Great Britain – a general practitioner's view. *Journal of the Royal College of General Practitioners* **21**, 125–146.
- Stansfeld, S. & Marmot, M. (1992). Deriving a survey measure of social support: the reliability and validity of the Close Persons Questionnaire. *Social Science and Medicine* **35**, 1027–1035.
- Stansfeld, S. A., Davey Smith, G. & Marmot, M. G. (1993). Association between physical and psychological morbidity in the Whitehall II Study. *Journal of Psychosomatic Research* **37**, 227–238.
- Stansfeld, S. A., Feeney, A., Head, J., Canner, R., North, F. & Marmot, M. (1995a). Sickness absence for psychiatric illness: the Whitehall II Study. *Social Science and Medicine* **40**, 189–197.
- Stansfeld, S. A., North, F., White, I. & Marmot, M. G. (1995b). Work characteristics and psychiatric disorder in civil servants in London. *Journal of Epidemiology and Community Health* **49**, 49–53.
- Stansfeld, S. A., Head, J. & Marmot, M. (1997). Explaining social class differences in depression and well-being. *Social Psychiatry and Psychiatric Epidemiology* (submitted).
- Taylor, P. J. (1968). Personal factors associated with sickness absence. A study of 194 men with contrasting sickness absence experience in a refinery population. *British Journal of Industrial Medicine* **25**, 106–118.
- Taylor, P. J. & Burridge, J. (1982). Trends in death, disablement, and sickness absence in the British Post Office since 1891. *British Journal of Industrial Medicine* **39**, 1–10.
- Waters, L. K. & Roach, D. (1971). Relationship between job attitudes and two forms of withdrawal from the work situation. *Journal of Applied Psychology* **55**, 92–94.