The Effect of Mental Ill Health on Absence From Work in Different Occupational Classifications

Analysis of Routine Data in the British Household Panel Survey

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Objective: To investigate relationship of mental ill health to absence from work in different occupational classifications. **Method:** Examined sickness absence, mental health (GHQ-12), physical health, job characteristics, and personal characteristics in 18 waves of the British Household Panel Survey. **Results:** Overall sickness absence rate was 1.68%. Increased absence was associated with age greater than 45 years, female gender, lower occupational classification, and public-sector employers. Decreased absence was associated with part-time working. Scoring 4 or more on the General Health Questionnaire 12-item version (GHQ-12 caseness) was strongly associated with sickness absence. Public-sector employers had highest rates of sickness absence. GHQ-12 caseness had largest impact on absence in the public and nonprofit sectors, whereas physical health problems impacted more in the private sector. **Conclusions:** GHQ-12 caseness is strongly associated with increased absence in all classifications of occupations. Differences between sectors require further investigation.

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This research was funded by the Chief Scientist Office of the Scottish Government (reference no. CZH/4/400). The researchers are independent from the funders.

The authors declare no financial relationships with any organizations that might have an interest in the submitted work in the previous 3 years, no other relationships or activities that could appear to have influenced the submitted work.

The study sponsors (NHS Greater Glasgow and Clyde) were not otherwise involved in the study.

This research received ethical approval from West of Scotland Rec 1 Ethics Committee (REC reference 07/S0703/58).

The data analyzed in this article are freely available in the British Household Panel Survey.

WW conducted the analyses and wrote the report on which this article is based. He was involved in discussions about the design of the study and interpretation of the findings. He revised the article and gave final approval of the version to be published. MS supervised the analysis of data in the BHPS. He was a grantholder on the study. He was involved in discussions about the conception and design of the study and interpretation of the findings. He revised the article and gave final approval of the version to be published. SM was a grantholder on the study. She was involved in discussions about the conception and design of the study and interpretation of the findings. She revised the article and gave final approval of the version to be published. MM was a grantholder on the study. She was involved in discussions about the conception and design of the study and interpretation of the findings. She revised the article and gave final approval of the version to be published. MS was a grantholder on the study. He was involved in discussions about the conception and design of the study and interpretation of the findings. He revised the article and gave final approval of the version to be published. PW was a grantholder on the study. He was involved in discussions about the conception and design of the study and interpretation of the findings. He revised the article and gave final approval of the version to be published. JM was the principal investigator of the study. She led discussions about the conception and design of the study and interpretation of the findings. She wrote the article and gave final approval of the version to be published. She will act as guarantor of the study.

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DOI: 10.1097/JOM.0b013e3182677d12

Absence from work because of ill health represents a major cost for employers and national economies. In the United Kingdom, for example, the cost of sickness absenteeism and worklessness associated with working-age ill health is estimated at more than £100 billion annually.[1] At a time of financial austerity across many Western economies, governments have sought to implement policies that are intended to help people to stay in work or return to work quickly after periods of ill health. The UK government, for example, is introducing changes to sickness-related financial benefits and qualifying medical examinations to ensure that no one who is fit to work is claiming sickness benefit.[2]

In the United Kingdom, Employment and Support Allowance (formerly Incapacity Benefit) is paid to those who are unable to work due to health reasons.[2] The proportion of people claiming long-term incapacity benefit because of mental health problems has been increasing in the United Kingdom, and it is estimated that 40% of days lost from work each year are due to mental health problems.[3] Concern has been expressed that changes in the sickness benefit system may impact less favorably on people with mental ill health than on those with physical ill health, because their health problems are more difficult to assess.[4]

The Whitehall II study found an inverse association between employment grade and morbidity, that is, people in lower-status jobs reported more chronic health problems and worse self-perceived health status than those in higher-grade jobs.[5] Later analyses demonstrated that sickness absence related to psychiatric illness was more frequent in lower employment grades than higher employment grades.[6]

We wanted to investigate in more detail how probable mental ill health is related to absence from work and to find out if particular occupational classifications and employment sectors are associated with higher levels of absence when other factors are controlled. If we can determine that some sectors are better able to keep people working while they are sick, this may help to inform the design of interventions aiming to keep people in work.

METHODS

We used the British Household Panel Survey (BHPS).[7] This is an annual survey consisting of a nationally representative sample of around 10,000 households that were recruited in 1991 and have been interviewed each year. If any of the members of the sample form new households, they are followed and the members of the new household are also interviewed. Since it began, extension samples of households in Scotland, Wales, and Northern Ireland have been added. It involves 18 waves to 2008.

The BHPS includes detailed socioeconomic and employment questions as well as several health-related questions.

Measuring Sickness Absence

Survey respondents are asked, "Did you do any paid work last week—that is, in the 7 days ending last Sunday either as an employee or self employed?" If they reply "no," they are asked, "Even though you weren't working, did you have a job that you were away from last week?" If "yes," they are then asked, "What was the main reason you were away from work last week?" This reflects spells of absence from work that last at least a week but no more than 6 months.

Measuring Mental Health

The BHPS uses the General Health Questionnaire 12-item version (GHQ-12) as a measure of psychosocial distress.[8] Goldberg and colleagues[8] reported an overall sensitivity of 83.4% and specificity of 76.3% of their instrument for diagnosing psychosocial distress using an average threshold of 3 or more across all of the centers in the 15 countries involved in their original study. We selected a more conservative cutoff score of 4 or more to indicate those respondents most likely to have psychosocial distress (GHQ caseness).

Job Characteristics

Occupations are defined in the BHPS from the International Standard Classification of Occupation.[9] To determine employing organization, we used, "Which of the types of organizations on this card do you work for (in your main job)?" We categorized individuals as employed in the public sector, the private sector, the nonprofit sector (voluntary sector and other), and the self-employed. Other employment-related information included whether the position was part-time (fewer than 30 hours) and how many employees were employed in the organization.

Personal Characteristics

We included the following other potentially relevant factors in sickness absence: gender, age, marital status, and presence and number of children in the household.

Analysis

We used a random-effects logistic regression model for sickness absence to allow for repeated observations on the same individuals.

As the estimated effect of GHQ-12 caseness may pick up the effect of other health conditions with which it is correlated, we included a dummy variable for a range of physical health problems (defined in the survey as "arms/legs, sight, hearing, skin, chest, heart/blood, liver, diabetes, epilepsy, and migraine").

We examined whether the effect of caseness on sickness absence varied by occupational classification and employment sector. Because occupational classification and employment sector are correlated—for example, some occupational classifications may be more concentrated in the public sector—we controlled for occupational classification when looking at the effect of sector and controlled for sector when examining the effect of occupational classification. We did not have sufficient data to allow us to analyze the effect of caseness on sickness absence in relation to combinations of sector and occupational classification.

To investigate the effects of caseness within social occupational class and employment sector groups, we also modeled the log odds ratio of sickness for those with and without caseness.

The unadjusted log odds ratios gave the crude differences in sickness absence by caseness for each occupational class or employment sector. These are presented alongside the adjusted log odds ratios obtained when we included our other additional covariates in the model and estimated random-effects logistic regression models.

To examine whether the effects of caseness varied by occupational classification and employing sector, we also estimated the differences between occupational classification and employment sector.

The analysis was performed for caseness and physical health conditions to highlight whether there appeared to be differences in sickness absence between health problems.

RESULTS

The full sample included 238,922 person-years/observations and 143,936 were in employment. Of these, there were 7588 (5.27%) observations where respondents reported being off work in the previous week. Of these, 2362 (31.13%) were for being "sick or injured," 3243 (42.74%) were on holiday or other leave, 1014 (13.36%) were on maternity leave, and the remainder were on strike, laid off, or off for other and personal reasons. We excluded those observations when people were off work for reasons other than sickness or injury or were working but were over retirement age, resulting in a sample of 136,816 observations, with 2340 observations of sickness absence (1.71%).

A total of 111,677 observations gave complete data of job status (including standard occupational classification, sector of employment, employer size, and part-time status), personal characteristics (marital status, age, children, gender), and health problems (GHQ score and physical health problems). In the sample we analyzed, the sickness absence rate was 1.68% (1871/111,677).

Sickness Absence and Personal Characteristics

To calculate log odds ratios adjusted for personal characteristics, we estimated random-effects logistic regression models for sickness absence. The first model did not include interactions between employment sector and occupational class by types of health condition.

We found no significant differences over time (Table 1). There was a clear positive gradient in sickness absence rates with age, statistically significant beyond the age of 45 years. There were no significant differences in sickness absence by marital status. Women were 28% more likely to be off work sick than men, but we found no significant difference in sickness absence rates by the presence or number of children younger than 16 years.

Those in part-time employment were approximately 17% less likely to have been off work sick in the last week. Sickness absence rates increased with size of employer. Those employed by organizations with 500 or more staffmembers were over 55% more likely to have been off work sick in the past week than those employed in a small organization of 24 or fewer employees.

Rates of sickness absence were substantially higher for those who reported GHQ-12 caseness (odds ratio = 4.41; 95% confidence interval [CI], 4.24–5.24). Sickness absence rates were also higher for those with a physical health condition (odds ratio = 2.11, 95% CI, 1.89–2.36).

Sickness Absence and GHQ-12 Caseness by Social Occupational Classification

When we modeled the log odds ratio of sickness for those with and without health problems, the crude rates showed a gradient in sickness absence with lower occupational classes having higher rates of sickness absence (Table 2). For example, the percentage of people off work sick in the previous week among respondents whose jobs were classified as professional was 0.54%, whereas 1.85% of plant and machine operatives were off work sick in the previous week.

This gradient persisted whether GHQ-12 caseness was present or not. For example, 3.29% of people who had GHQ-12 caseness and professional jobs were off work sick in the previous week compared with 8.10% who had GHQ-12 caseness and were plant and machine operatives. The unadjusted log odds ratio gave the impact of caseness on sickness absence by occupational class. For example, the log odds ratio of 3.97 for Managers and Senior Officers indicated that those

TABLE 1. Relationship of Personal, Health, and Employment Factors to Being Off Work Sick in the Previous Week in the 18 Waves of the British Household Panel Survey

	OR	95% CI
Age (base: ≤20 yr), yr		
21–25	0.844	0.637–1.118
26–30	1.018	0.767–1.351
31–35	1.011	0.758–1.349
36–40	1.265	0.951–1.684
41–45	1.300	0.973–1.737
46–50	1.557	1.161–2.087
51–55	1.815	1.340–2.458
56–60	1.963	1.424–2.707
61–65	2.332	1.605–3.387
Marital status (base: married)		
Couple	0.970	0.817–1.151
Widowed	1.131	0.753–1.700
Divorced	1.034	0.829–1.291
Single	0.848	0.708–1.016
Female (base: male)	1.284	1.124–1.468
Number of children (base: none)		
1	0.963	0.833–1.112
2	0.932	0.783–1.111
3+	0.867	0.656–1.147
Part-time employed	0.834	0.724–0.960
Number of employees (base: 1–24)		
25–99	1.338	1.160–1.544
100–499	1.363	1.171–1.586
500+	1.558	1.323–1.834
Caseness (GHQ> = 4)	4.712	4.239–5.239
Physical health condition*	2.114	1.892–2.363
Social occupation classification (base: managers and senior officers)		
Professional	0.927	0.718–1.195
Associate professionals	1.355	1.072–1.714
Clerical and secretarial	1.679	1.347–2.093
Craft and related	2.269	1.820–2.828
Personal and protective	2.456	1.409–4.283
Sales	2.311	1.804–2.962
Plant and machine operatives	3.310	2.608–4.202
Other	2.454	1.918–3.141
Employment sector (base: for-profit sector)		
Public	1.431	1.255–1.630
Nonprofit, other	0.856	0.630–1.162
Self-employed	0.554	0.428–0.716
ρ	0.294	0.259–0.332
Number of observations	111,677	

Random-effects logistic regression model for sickness absence. The results are presented as odds ratios (estimates higher than one represent a higher probability of being off work last week due to sickness than the base category). Year dummies are included but not reported. 95% CI, 95% confidence interval; OR, odds ratio.

*Physical health conditions indicate presence of at least one of the following conditions: arms/legs, sight, hearing, skin, chest, heart/blood, liver, diabetes, epilepsy, and migraine.

in this group with caseness were 397% more likely to have been off work sick than those without caseness. The pattern of log odds ratios was robust to adjustment for other factors.

We found no significant differences in the effects of caseness on occupational class.

Sickness Absence and Physical Health by Standard Occupational Classification

For respondents with no physical health condition, there was a similar occupational gradient as observed earlier (Table 3). The unadjusted log odds ratios were lower than those for GHQ-12 caseness, and when adjusted, each was further reduced.

We found no significant differences in the effects of physical health problems on sickness absence across occupational classification (Table 3).

Sickness Absence and GHQ-12 Caseness by Type of Employment Organization

Public-sector organizations have the highest rates of sickness absence, and the self-employed have the lowest rates (Table 4). The effect of caseness was greater for those employed in the public and nonprofit sectors, for example, the odds ratios of 1.28 and 2.19, respectively, indicate that employees with caseness were 28% and 219% more likely to have been off work sick in the previous week in the public and nonprofit sectors than the private sector. This finding persisted when we divided the respondents by GHQ-12 caseness. Caseness had the largest impact on nonprofit employment. When additional covariates were included, the effect of caseness increased for all employment types.

We found that caseness had a significantly higher effect on sickness absence for those employed in public or nonprofit sectors than the private sector (Table 4).

Sickness Absence and Physical Health by Type of Employment Organization

Although public-sector employees had the highest rate of sickness absence, the effect of physical health conditions was lowest among public-sector employees (230% more likely to be off work sick than those without physical health conditions, compared with 281% and 264% for private-sector employees and the self-employed, respectively) (Table 5). Each log odds ratio declined when we included other covariates.

We found no significant difference in the effects of physical health problems on sickness absence across employment sector (Table 5).

DISCUSSION

Strengths and Weaknesses

The large size, longitudinal nature, and relatively consistent method of recording data in the BHPS are considerable strengths of this source of data. A previous international comparison of sickness absence behavior in nine European countries including the United Kingdom was limited because it lacked information about time variation for each country.[10] The use of the BHPS allowed us to look at sickness absence in the United Kingdom over 18 years.

We observed sickness absence only when the individual had done no work for an entire week. We were not able to analyze data for people who had multiple short spells of less than a week of sickness-related absence.

The BHPS does not identify the cause of sickness absence, it identifies only the respondents who had reported physical illness or had a positive score on the GHQ-12 in the survey. It is likely that some of the absence among people who had a positive score on the GHQ-12 was for intercurrent physical illness and, conversely, that some of the people who reported physical health problems were

TABLE 2. Sickness Absence Rates by Caseness and Standard Occupational Classification in the British Household Panel Survey

Standard Occupational Classification	No Caseness Sickness Absence		Caseness Sickness Absence		Log Odds Ratio* of Absence Rates (95% Confidence Interval)		Difference in Caseness Impacts of Adjusted Log Odds Ratio (Compared With Managers and Senior Officers)
	%	*n*	%	*n*	Unadjusted	Adjusted	
Managers and senior officers	0.60	13,889	2.33	3,004	3.97 (2.88–5.47)	3.92 (2.79–5.50)	–
Professional	0.54	11,285	3.29	2,617	6.25 (4.49–8.70)	6.07 (4.26–8.63)	1.546 (0.949–2.520)
Associate professionals	0.86	11,632	4.42	2,669	5.33 (4.07–6.99)	5.12 (3.82–6.86)	1.306 (0.835–2.041)
Clerical and secretarial	1.11	14,246	4.94	3,585	4.63 (3.72–5.76)	4.79 (3.77–6.08)	1.221 (0.807–1.847)
Craft and related	1.31	15,257	5.45	3,707	4.33 (3.56–5.29)	4.70 (3.76–5.86)	1.197 (0.799–1.793)
Personal and protective	1.10	1,087	4.23	189	3.96 (1.60–9.82)	3.62 (1.28–10.21)	0.923 (0.310–2.745)
Sales	1.14	10,423	4.30	1,395	3.89 (2.84–5.34)	3.85 (2.71–5.47)	0.982 (0.603–1.599)
Plant and machine operatives	1.85	7,182	8.10	1,173	4.67 (3.56–6.12)	5.23 (3.85–7.12)	1.334 (0.845–2.106)
Other	1.55	6,972	5.93	1,365	4.01 (2.98–5.38)	4.31 (3.10–5.99)	1.100 (0.687–1.761)
Total	1.06	91,973	4.55	19,704	4.46 (4.06–4.89)	4.71 (4.24–5.24)	

Adjusted figures obtained from the random-effects logistic regression model shown in Table 1 with an alternate specification of the social occupation classification and GHQ-12 caseness interaction dummies and includes year, age, marital status, gender, children, part-time, number of employees, and employment type.

*Log odds ratios are the natural logarithm of the ratio of the probability of sickness for those with caseness to the probability of sickness for those without caseness.

TABLE 3. Sickness Absence Rates by Physical Health Condition and Standard Occupational Classification in the British Household Panel Survey

Standard Occupational Classification	No Physical Health Condition Sickness Absence		Physical Health Condition Sickness Absence		Log Odds Ratio* of Absence Rates (95% Confidence Interval)		Difference in Physical Health Condition Impacts of Adjusted Log Odds Ratio (Compared With Managers and Senior Officers)
	%	*n*	%	*n*	Unadjusted	Adjusted	
Managers and senior officers	0.51	9,302	1.40	7,591	2.79 (1.98–3.94)	2.39 (1.66–3.45)	–
Professional	0.66	7,531	1.52	6,371	2.31 (1.64–3.26)	1.81 (1.25–2.62)	0.756 (0.451–1.269)
Associate professionals	0.76	7,647	2.40	6,654	3.22 (2.38–4.36)	2.63 (1.90–3.65)	1.099 (0.675–1.789)
Clerical and secretarial	1.05	9,345	2.79	8,486	2.71 (2.14–3.44)	2.28 (1.76–2.96)	0.952 (0.610–1.486)
Craft and related	1.25	10,058	3.10	8,906	2.52 (2.04–3.12	1.96 (1.55–2.48)	0.818 (0.531–1.259)
Personal and protective	1.43	697	1.73	579	1.21 (0.50–2.92)	0.92 (0.35–2.40)	0.383 (0.137–1.071)
Sales	0.88	6,855	2.40	4,963	2.78 (2.04–3.80)	2.19 (1.56–3.07)	0.913 (0.556–1.499)
Plant and machine operatives	1.56	4,425	4.05	3,930	2.66 (2.00–3.54)	2.26 (1.65–3.11)	0.944 (0.583–1.529)
Other	1.44	4,372	3.18	3,965	2.24 (1.65–3.05)	1.72 (1.23–2.41)	0.719 (0.439–1.179)
Total	0.96	60,232	2.51	51,445	2.64 (2.39–2.91)	2.11 (1.89–2.36)	

Adjusted figures obtained from the random-effects logistic regression model shown in Table 1 with an alternate specification of the social occupation classification and physical health condition interaction dummies and includes year, age, marital status, gender, children, part-time, number of employees, and employer type.

*Log odds ratios are the natural logarithm of the ratio of the probability of sickness for those with a physical health condition to the probability of sickness for those without a physical health condition.

TABLE 4. Sickness Absence Rates by Caseness and Employment Sector in the British Household Panel Survey

Employment Sector	No Caseness Sickness Absence		Caseness Sickness Absence		Log Odds Ratio* of Absence Rate (95% Confidence Interval)		Difference in Caseness Impacts of Adjusted Log Odds Ratio (Compared With Private Sector)
	%	*n*	%	*n*	Unadjusted	Adjusted	
Private	1.08	57,144	4.14	11,735	3.95 (3.50–4.45)	4.23 (3.69–4.85)	–
Public	1.35	21,235	6.46	5,174	5.03 (4.29–5.92)	5.40 (4.51–6.48)	1.277 (1.021–1.596)
Not-for-profit, other	0.57	3,301	4.46	829	8.06 (4.62–14.11)	9.25 (5.10–16.76)	2.185 (1.189–4.014)
Self-employed	0.48	10,293	2.03	1,966	4.34 (2.85–6.61)	4.56 (2.91–7.15)	1.078 (0.676–1.719)
Total	1.06	91,973	4.55	19,704	4.46 (4.06–4.89)	4.71 (4.24–5.24)	

Adjusted figures obtained from the random-effects logistic regression model shown in Table 1 with an alternate specification of the employment sector and GHQ-12 caseness interaction dummies and includes year, age, marital status, gender, children, part-time, number of employees, and standard occupational classification.

*Log odds ratios are the natural logarithm of the ratio of the probability of sickness for those with caseness to the probability of sickness for those without caseness.

TABLE 5. Sickness Absence Rates by Physical Health Condition and Employment Sector in the British Household Panel Survey

	No Physical Health Condition		Physical Health Condition		Log Odds Ratio* of Absence Rate (95% Confidence Interval)		Difference in Physical Health Condition Impacts of Adjusted Log Odds Ratio (Compared With Private Sector)
	Sickness Absence		Sickness Absence				
Employment Sector	%	*n*	%	*n*	Unadjusted	Adjusted	
Private	0.90	38,077	2.48	30,802	2.81 (2.48–3.20)	2.28 (1.98–2.63)	–
Public	1.46	13,573	3.30	12,836	2.30 (1.94–2.73)	1.82 (1.50–2.21)	0.798 (0.630–1.011)
Not-for-profit, other	0.73	2,044	1.97	2,086	2.71 (1.50–4.91)	2.06 (1.08–3.90)	0.900 (0.467–1.733)
Self-employed	0.41	6,538	1.08	5,721	2.64 (1.67–4.16)	2.15 (1.33–3.46)	0.940 (0.573–1.544)
Total	0.96	60,232	2.51	51,445	2.64 (2.39–2.91)	2.11 (1.89–2.36)	

Adjusted figures obtained from the random-effects logistic regression model in Table 1 with an alternate specification of the employment sector and physical health condition interaction dummies and includes year, age, marital status, gender, children, part-time, number of employees, and standard occupational classification.

*Log odds ratios are the natural logarithm of the ratio of the probability of sickness for those with a physical health condition to the probability of sickness for those without a physical health condition.

absent for temporary psychological problems. We believe, however, that given the size of the data set, our findings are robust.

Key Findings and Comparison With Previous Literature

Older people and women were more likely to be off work sick, although women's absence was not associated with having children. The gender difference in sickness absence has been confirmed in numerous studies. For example, women in Norway have 40% to 50% more absence than men.[11] Women are known to have more morbidity than men, and it has been conjectured that they also have the additional burden of family responsibilities. However, another article by the same Norwegian researcher found only a weak association between having children and absence from work,[12] and we found no association in this study. In a study comparing sickness absence in 9 countries, women had higher rates of sickness absence than men in most of the countries and absence also increased with age.[10] The Whitehall II study reported that sickness absence related to psychiatric illness was more frequent in women (and particularly divorced women) and in widowed and single men.[6]

We found that people working part-time were less likely to be off work sick. In the study in 9 countries, overall absence increased with hours worked, but there were some interesting differences between countries.[10] Increased absence with more hours worked was not found in Canada, the Czech Republic, France, or Luxembourg. The association with increased hours was stronger in Sweden than in the United Kingdom, which was similar to results for Spain and Switzerland. Part-time employment may result in lower sickness absence because the work is less onerous or the individual has more time to recover at home rather than at work. Alternatively, part-time work may offer less-generous sickness absence pay, making periods of sickness more costly to the individual.

We found that people employed in public-sector organizations had higher rates of sickness absence than private-sector-employed individuals, and the self-employed have the lowest rates of all. We have no information about whether the level of sickness absence is more appropriate in one sector. Public-sector employers include the National Health Service. There are several possible explanations for these observed differences. For example, organizations that recruit more women or that seek not to discriminate against people with known health problems will be more likely to have higher sickness absence rates.

Those with GHQ-12 caseness indicating probable mental ill health were about 4 times as likely to have been off work sick in the past week. The effect of GHQ-12 caseness differed significantly between private-sector employees and public- and nonprofit-sector employees. Public- and nonprofit-sector employees with caseness were 28% and 219% more likely to have been off work sick than private-sector employees with caseness. There was no significant difference found between the self-employed and the other groups. Other research has demonstrated an association between mental ill health and absenteeism. For example, one study from the United States demonstrated that psychiatric disorders were associated with substantial numbers of days lost from work, with pure affective disorder associated with a larger average number of work days lost than any other pure disorder considered.[13] Comorbidity (for example, two of three of affective, anxiety, and substance use disorders) was associated with a larger average number of work days lost.

In this study, those with physical health conditions were more than twice as likely to have been off work sick in the past week. We found no significant differences in the effects of physical health conditions between occupational classification and employment sector.

We found significant differences in the effects of GHQ-12 caseness and physical health problems between types of employer. People working in the private sector reported less caseness and more physical health conditions. It is possible that it is culturally more acceptable to report mental health problems in public- and nonprofit-sector organizations such as the National Health Service and more acceptable to present with physical health problems in private-sector organizations.

There were significant differences between occupational classes in sickness absence rates. Lower-class occupations had higher rates of sickness absence. There were, however, no significant differences in the effects of caseness or physical health conditions between occupational classes. The differences between sickness absence rates across occupations were the same whether the individuals in the sample reported GHQ-12 caseness (or a physical health condition) or not. This is contrary to the findings of one study from Australia that found no statistically significant association between absenteeism rates by low and high psychological distress for white-collar workers, although it demonstrated an 18% increase in absenteeism rates for blue-collar workers with psychological distress.[14]

CONCLUSIONS AND RECOMMENDATIONS

This study found that probable mental ill health is associated with a fourfold increase in sickness absence from work, and this effect was consistent across occupational classifications and employment sectors. There were, however, differences between types of employer. Public- and nonprofit-sector employers had higher overall levels of absenteeism and higher levels of absenteeism due to

probable mental health problems compared with private-sector employers. These findings need further explanatory research to understand the differences and to support the development of strategies for reducing absenteeism.

Our previous research has demonstrated that family doctors (general practitioners) in the United Kingdom could identify people with GHQ-12 caseness 2 years before they started receiving long-term incapacity benefits, providing a window of opportunity when it might be possible to intervene to keep them in work.[15] A randomized trial of enhanced care for depression in primary care demonstrated a 22.8% reduction in absenteeism over 2 years in the United States, and the intervention effect was robust across diverse occupational groups.[16] There is a need for the development and evaluation of interventions to keep people with depression in work in other countries.

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