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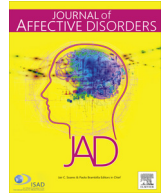
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Research paper

Teachers' wellbeing and depressive symptoms, and associated risk factors: A large cross sectional study in English secondary schools



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ABSTRACT

Background: Teachers have been shown to have high levels of stress and common mental disorder, but few studies have examined which factors within the school environment are associated with poor teacher mental health.

Methods: Teachers ($n=555$) in 8 schools completed self-report questionnaires. Levels of teacher wellbeing (Warwick Edinburgh Mental Wellbeing Scale-WEMWBS) and depressive symptoms (Patient Health Questionnaire-PHQ-9) were measured and associations between these measures and school-related factors were examined using multilevel multivariable regression models.

Results: The mean (SD) teacher wellbeing score (47.2 (8.8)) was lower than reported in working population samples, and 19.4% had evidence of moderate to severe depressive symptoms (PHQ-9 scores ≥ 10). Feeling unable to talk to a colleague when feeling stressed or down, dissatisfaction with work and high presenteeism were all strongly associated with both poor wellbeing (beta coefficients ranged from -4.65 [$-6.04, -3.28$] to -3.39 [$-5.48, -1.31$]) and depressive symptoms (ORs ranged from 2.44 [1.41, 4.19] to 3.31 [1.70, 6.45]). Stress at work and recent change in school governance were also associated with poor wellbeing (beta coefficients = -4.22 [$-5.95, -2.48$] and -2.17 [$-3.58, -0.77$] respectively), while sickness absence and low student attendance were associated with depressive symptoms (ORs = 2.14 [1.24, 3.67] and 1.93 [1.06, 6.45] respectively).

Limitations: i) This was a cross-sectional study; causal associations cannot be identified ii) several of the measures were self-report iii) the small number of schools reduced study power for the school-level variables

Conclusions: Wellbeing is low and depressive symptoms high amongst teachers. Interventions aimed at improving their mental health might focus on reducing work related stress, and increasing the support available to them.

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1. Introduction

A number of studies internationally have found teachers are at relatively high risk of common mental disorders and work related stress compared to other workers (Eaton et al., 1990; Johnson et al., 2005; Stansfeld et al., 2011; Wieclaw et al., 2005). In Great Britain, Health and Safety Executive figures collated since 2003 consistently show teaching professionals have a higher prevalence of self-reported stress, anxiety and distress caused or made worse

by work: the most recent prevalence – averaged over 2009–2012 – was 2.3% compared to 1.2% for all occupations (Health and Safety Executive, 2014).

Attending to the mental health of teachers is therefore important, to avoid longer term detrimental mental health outcomes among this population (Melchior et al., 2007). Further, there is an established literature showing an association between poor mental health and deleterious work-related outcomes such as absenteeism (Evers et al., 2014; Hussey et al., 2012; Jain et al., 2013), ill-health retirement (Kuoppala et al., 2011) and presenteeism, in which individuals are present at work but are under performing due to illness or other problems (Beck et al., 2011; Harvey et al., 2011; Jain et al., 2013). In the case of teachers, these outcomes are likely to have important repercussions for the students that they

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teach. Presenteeism may manifest itself as poor classroom management, which will have a negative impact on student learning (Jennings and Greenberg, 2009), and teacher absence has been implicated in lower student achievement (Miller et al., 2008). Further, teachers are expected to play an important role in modelling positive social and emotional behaviours through the development of supportive relationships (Gordon and Turner, 2001; Jennings and Greenberg, 2009), yet individuals experiencing stress, anxiety or distress may find it difficult to develop such relationships, particularly with students whose behaviour is challenging, but who may also be the most in need of support. Indeed Sisask et al. (2014) found that poor wellbeing reduces teachers' belief that they can help students with emotional or behavioural problems. Poor teacher–student relationships have been found to be associated with childhood psychiatric disorder and exclusion from school three years later (Lang et al., 2013). Conversely, supportive teacher–student relationships predict lower student depression in the future, and mitigate associations between poverty and low classroom engagement (Hughes and Kwok, 2007; Kidger et al., 2012). Teachers' mental health therefore has implications for students' educational outcomes, and also for their social and emotional development and mental health.

Studies examining the main causes of poor mental health in the workplace identify cultural and relational factors, as well as contractual factors relating to working conditions. In their review of work-related psychological ill-health, Michie and Williams (2003) cited long hours worked, work overload and pressure, lack of control over work, lack of participation in decision making, poor social support and unclear management and work role as key factors associated with psychological ill health and sickness absence. Evidence from longitudinal studies suggests that job demands and social relationships have the biggest impact on mental disorders such as depression (Netterstrøm et al., 2008). One factor that particularly characterises teaching – and which is shared by occupations in the health and social care sector that also tend to have higher rates of mental ill-health (Health and Safety Executive, 2014; Hussey et al., 2012; Wieclaw et al., 2005) – is the high level of “emotional labour” that is required. Emotional labour has been defined as “the process by which workers are expected to manage their feelings in accordance with organisationally defined rules and guidelines” (Wharton, 2009). In the case of teachers, much of their work involves face to face interaction with students and their parents, and requires the careful management and expression of emotions during these interactions (Hargreaves, 1998), which can be a source of stress and emotional exhaustion, particularly when responding to challenging behaviour (Tsouloupas et al., 2010). Further, it has been noted that teachers feel ill-prepared to develop the supportive relationships required of them, because of a lack of training in mental health management, which further exacerbates their own stress levels (Lang et al., 2013; Kidger et al., 2009; Rothi et al., 2008).

2. Rationale for the paper

This paper examines self-reported wellbeing and depression prevalence and associated risk factors among a large sample of secondary school teachers. Although a small number of surveys have previously examined aspects of teacher mental health compared to that of other occupations, none of these have examined potential explanatory factors within the school psychosocial environment. Further, previous studies included measures of mental disorder, but have not included measures of mental wellbeing. This is an important aspect of mental health to explore further, given that it has been found to be a stronger predictor of productivity than physical health (Gandy et al., 2014), and teacher

resilience – an aspect of wellbeing – has been linked to higher student attainment (Sammons et al., 2007).

Specifically, this paper:

1. Documents the levels of wellbeing and the prevalence of depression among a large sample of secondary school teachers in the South West of England
2. Examines individual and school-level factors associated with poor wellbeing and high depression among teachers

3. Methods

3.1. Sample

The study comprises eight schools that were recruited to take part in a feasibility and pilot study of an intervention to improve mental health support and training for secondary school staff (<http://www.bristol.ac.uk/social-community-medicine/projects/wise/>). Secondary school head teachers in Bristol and two neighbouring Local Authorities ($n=32$) were invited to participate in the study. The final sample either responded to this initial invite, or to a follow up phone call. The schools represented a range of size, socioeconomic catchment area – measured using the proportion of students eligible for free school meals (FSM) – and academic outcomes. Prior to the intervention, questionnaires were completed by teachers and it is these findings that are presented here.

3.2. Data collection

3.2.1. Individual teacher measures

Self-report questionnaires were given to all teaching staff in the eight schools during staff meetings or training sessions by members of the research team. Teachers who were not present were sent a copy of the questionnaire together with a cover letter about the survey; questionnaires were returned directly to the research team in sealed envelopes.

Wellbeing was measured using the Warwick Edinburgh Mental Wellbeing Scale (WEMWBS) (Tennant et al., 2007): possible scores range from 14 to 70, where a higher score signifies greater wellbeing.

Depressive symptoms was measured using the nine item Patient Health Questionnaire (PHQ-9). A score of 10 or more was used as the cut off for indicating the presence of a depressive disorder that would warrant a treatment plan (Kroenke and Spitzer, 2002). Scores were also categorised into no depression (1–4), mild depression (5–9), moderate depression (10–14), moderately severe depression (15–19) and severe depression (20 or above).

Stress and satisfaction at work were measured using questions from the Copenhagen Psychosocial Questionnaire (Kristensen et al., 2005) and the Bristol Stress and Health at Work Study (Smith et al., 2000).

Presenteeism was measured using the presenteeism measure from the Work Productivity and Activity Impairment Questionnaire (WPAI) (Reilly et al., 1993): the relevant question asks participants to rate to what extent health problems have affected their productivity at work from 0 (no effect) to 10 (completely prevented me from working) to gain a percentage score.

The study team devised further questions regarding **support given and received at work**, and **total days absent from school** over the previous month. **Demographic questions** regarding gender, years of experience and ethnicity were also added.

3.2.2. School measures

School level data regarding percentage of students eligible for

free school meals (FSM), student attainment in examinations aged 16 (General Certificate of Secondary Education: GCSEs), student attendance, most recent rating by the Office for Standards in Education (Ofsted – statutory body that inspects and regulates all State funded schools), whether they are an Academy (directly funded by central government rather than by the local authority), and whether this change was recent, were taken from routine data collected from all English schools by the Department for Education (www.education.gov.uk/schools/performance/), and from publicly available reports from Ofsted (www.reports.ofsted.gov.uk).

3.3. Ethics

All teachers were provided with an information leaflet one week prior to the data collection session, telling them about the study, the questionnaire, what the data would be used for, and informing them of their right not to take part. The study was approved by the University of Bristol's Faculty of Medicine and Dentistry's Ethics Committee.

3.4. Statistical analysis

All data were analysed using Stata version 13.

Mean wellbeing scores and proportion experiencing depressive symptoms were calculated, and robust confidence intervals (CIs) reported due to the clustered nature of the data (individuals nested in schools). The correlation between the two outcomes was measured using Spearman's rho.

Multilevel linear or logistic regression models for the outcomes of wellbeing (continuous) and moderate to severe depressive symptoms (binary) respectively were conducted to examine associations with the following individual-level variables: gender, number of years in role, how stressful you find your job (not at all or mildly / moderately, very or extremely), how satisfied you are with your job (very satisfied or satisfied / a little dissatisfied, dissatisfied or highly dissatisfied), absence in the last month for health problems (yes/no), frequency of support provided to colleagues in the past year (less than once a month / once month or more), frequency of support provided to students in the past year (less than once a month / once month or more), wanting to talk to a colleague because of feeling stressed or down in the past year but feeling unable (never / ever), working 60 h or more on an average week (yes/no) and a presenteeism score of 60% or more (yes/no). The same models were used to examine associations between the outcomes and the following school-level variables: proportion of students eligible for FSM (above/below national average of 28.2%), proportion of students that achieved A*-C in at least 5 GCSEs including Maths and English (above/below national average of 60%), student attendance (above/below national average of 94.2%), most recent rating by Ofsted (Office for Standards in Education – statutory body that inspects and regulates schools in England), Academy status (yes/no) and actual or planned conversion to Academy status within a year (yes/no). An overall school effect for the two main outcomes was examined, once other variables found to have an association with the outcome were adjusted for.

The cut-off point for overwork was set at 60 h because a large majority (94.5%) of full time teachers reported working more than 40 h per week, suggesting this was the norm. A sensitivity analysis was conducted with the lower cut off point of 40 h.

The clustered nature of the data was taken into account using multilevel models. Associations between each variable and each outcome were examined in univariable models. To maximise power, and because of high correlation between some of the explanatory variables, only those variables that were associated with the outcome in the univariable models ($p < 0.05$) plus gender were

examined in multilevel multivariable models.

Post-hoc tests for interactions of the associations between exposures and outcomes by gender and number of years in role were conducted for each variable found to be associated with the outcome in question.

The extent of clustering by school for the teacher WEMWBS and PHQ-9 measure was assessed by examining intracluster correlation coefficients (ICCs).

4. Results

4.1. Response rates

Data were collected from 555 (78.4%) teachers. Non-response was largely due to teachers being absent from the meetings at which data were collected. A small number of respondents did not have complete data for the outcomes, and therefore have been excluded from the analysis. The total number with data for the WEMWBS was 539 (97.1% of responders), and for the PHQ-9 was 511 (92.1%). Those who did not have WEMWBS data were similar to those who did in terms of gender and years of experience. However they were more likely to report having had experience of a mental health problem (OR=2.81 [95%CI: 0.98, 8.01], $p=0.05$). Those who did not have PHQ-9 data were more likely than those who did to be female [OR=2.08 [95%CI: 1.03, 4.20], $p=0.04$], but the two groups did not differ in terms of years of experience or experience of a mental health problem.

4.2. Outcomes

The mean wellbeing score for teachers was 47.2 (95% CI: 45.5, 48.9), the mean PHQ-9 score was 5.8 (95% CI: 4.9, 6.8), and 19.4% teachers scored 10 or above on the PHQ-9 (moderate to severe depression). Teacher wellbeing and depression scores were moderately negatively correlated ($\rho = -0.67$, $p < 0.01$).

Table 1 shows the results from the univariable models. Poorer wellbeing was associated with: finding one's job stressful; not being satisfied with one's job; absence in the previous month; a presenteeism score of 60% or more; wanting to talk to a colleague because of feeling stressed or down but not feeling able to; and working at a school with a recent or expected conversion to Academy status. These factors were also associated with moderate to severe depressive symptoms, along with these additional variables: being female; supporting a colleague once a month or more; working at a school with below average pupil attendance; and working at a school that did not have an Ofsted rating of "Outstanding".

In the multivariable model for the wellbeing outcome (Table 2), poorer wellbeing was associated with dissatisfaction with one's job, finding one's job stressful, presenteeism, wanting to talk to a colleague but not feeling able to and working at a school with a recent or imminent change to academy status. Taking sickness absence in the past month was no longer associated with this outcome once these other variables were adjusted for.

The association of work dissatisfaction with wellbeing was stronger in males than females: the coefficient for the difference in wellbeing score between those who were satisfied at work and those who were not satisfied at work (r) was -6.81 [95% CI: -8.92 , -4.69] for men and -3.26 [95% CI: -5.92 , -0.60] for women (p (interaction)=0.020). No other interactions were found by gender or experience (all p values > 0.09).

In the multivariable model for teacher depressive symptoms (Table 3), having a higher score remained associated with being female, feeling dissatisfied with work, presenteeism, sickness absence in the past month, wanting to talk to a colleague but feeling

Table 1
Multilevel univariable linear regression of mean teacher WEMWBS scores and logistic regression of mean teacher PHQ-9 scores.

Variables	WEMWBS ^a		PHQ-9 ^{9b}		
	Mean score (95% CIs)	difference (95% CIs)	Number (%) with depressive disorder ORs (95% CIs)		
INDIVIDUAL FACTORS					
Gender	Male n=220	48.0 (46.2, 49.8)	–1.20 (–2.70, 0.29) p=0.115	22 (10.5)	3.03 (1.79, 5.10) p < 0.001
	Female n=335	46.7 (45.0, 48.5)			
Years experience	5 years or less n=169	47.4 (44.9, 49.8)	–0.12 (–1.71, 1.48) p=0.885	32 (20.4)	0.91 (0.56, 1.48) p=0.711
	> 5 years n=382	47.2 (45.2, 49.1)			
Satisfaction at work	(Very) satisfied n=329	50.1 (48.9, 51.2)	–6.95 (–8.37, –5.52) p < 0.001	37 (10.6)	3.22 (2.01, 5.16) p < 0.001
	A little – highly dissatisfied n=220	43.0 (41.3, 44.6)			
How stressful you find your job	Not at all or mildly n=329	53.0 (51.5, 54.6)	–6.75 (–8.64, –4.86) p < 0.001	9 (12.1)	2.11 (1.01, 4.43) p=0.048
	Moderately – extremely n=220	46.0 (44.4, 47.7)			
Sickness absence over the last month	No time absent n=403	47.8 (46.2, 49.4)	–2.24 (–3.90, –0.57) p=0.009	52 (14.2)	2.91 (1.81, 4.67) p < 0.001
	Any time absent n=146	45.4 (42.6, 48.2)			
Support to colleagues over past year	< once a month n=259	47.8 (46.3, 49.3)	–0.86 (–2.37, 0.66) p=0.269	36 (15.1)	1.67 (1.05, 2.67) p=0.032
	At least once a month n=285	46.6 (44.1, 49.1)			
Support to students over past year	< once a month n=199	46.5 (44.1, 49.0)	1.19 (–0.35, 2.73) p=0.131	29 (15.8)	1.42 (0.87, 2.32) p=0.157
	At least once a month n=350	47.5 (45.8, 49.2)			
Wanted to talk to a colleague but didn't feel able ^c	Never n=238	50.2 (48.7, 51.8)	–5.38 (–6.78, –3.98) p < 0.001	23 (10.5)	3.13 (1.87, 5.24) p < 0.001
	Ever n=302	44.7 (42.2, 47.1)			
Hours worked ^d	Under 60 n=333	47.8 (46.1, 49.5)	0.17 (–1.87, 2.20) p=0.872	49 (15.8)	1.23 (0.64, 2.36) p=0.535
	60 or over n=86	47.9 (46.4, 49.4)			
Presenteeism over past week	Less than 60% n=485	48.0 (46.6, 49.5)	–6.44 (–8.7, –4.2) p < 0.001	66 (14.9)	5.36 (2.99, 9.60) p < 0.001
	60% or more n=65	41.3 (39.0, 43.5)			
SCHOOL FACTORS					
% students eligible for FSM	Above average n=134	47.0 (40.8, 53.1)	0.18 (–3.32, 3.67) p=0.922	31 (25.6)	0.60 (0.28, 1.29) p=0.194
	Below average n=421	47.3 (44.7, 49.8)			
% students achieving 5 A*-C GCSEs incl. Maths and English	Above average n=346	47.6 (44.2, 51.0)	–0.71 (–4.0, 2.6) p=0.671	56 (17.5)	1.45 (0.68, 3.09) p=0.341
	Below average n=209	46.6 (43.7, 49.5)			
Student attendance	Above average n=352	48.0 (45.9, 50.1)	–1.94 (–4.90, 1.03) p=0.201	45 (13.8)	2.57 (1.65, 4.02) p < 0.001
	Below average n=203	45.9 (41.5, 50.2)			
Ofsted rating	Outstanding n=170	48.6 (37.3, 59.8)	–2.20 (–5.49, 1.16) p=0.202	16 (10.1)	2.80 (1.42, 5.52) p=0.003
	Good/needs improvement n=385	46.6 (44.2, 49.1)			
Academy status	No n=198	47.6 (42.3, 52.9)	–0.66 (–4.05, 2.72) p=0.702	31 (16.6)	1.34 (0.61, 2.96) p=0.466
	Yes n=357	47.0 (44.2, 49.8)			
Recent/expected conversion to academy	No n=368	48.4 (46.5, 49.8)	–3.67 (–5.37, –1.98) p < 0.001	54 (15.4)	1.84 (1.07, 3.61) p=0.077
	Yes n=187	44.8 (40.6, 48.9)			

Notes.

^a Numbers range from 524 for wanted to ask for help from a colleague to 539 for gender and all school level variables.

^b Numbers range from 497 for wanted to ask for help from a colleague but felt unable to 555 for gender and the school level variables.

^c Participants selecting the option “I haven't felt stressed or down” were omitted from the analysis, as the intended comparison was with those who wanted to talk to a colleague and felt they could.

^d Only 412 participants had data on hours worked, as this question was added after data had been collected from the two feasibility schools.

unable to, and working at a school with below average pupil attendance. Stress at work, frequently providing support to a colleague, working at a school with a below outstanding Ofsted rating and working at a school with a recent or imminent conversion to an Academy were no longer strongly associated with this outcome, once these other variables were adjusted for.

When these analyses were repeated with the different cut-point for overwork all conclusions were materially unchanged.

There was evidence of an interaction by gender for the association with depression for: dissatisfaction with work (male OR=9.77 [95% CIs: 2.56, 37.38], female OR=1.69 [95% CIs: 0.39, 1.98], p (interaction) < 0.001), sickness absence (male OR=0.98 [95% CIs: 0.33, 2.87], female OR=2.87 [95% CIs: 0.82, 10.10], p (interaction)=0.024) and low student attendance (male OR=1.24 [95% CIs: 0.45, 3.43], female OR=2.30 [95% CIs: 0.72, 4.26], p (interaction)=0.028). There was no evidence of interactions by years of experience (all p values > 0.130).

4.3. Clustering by school

The intraclass correlation coefficients (ICCs) for the WEMWBS score was 0.04 (95% CIs: 0.00, 0.10) and for the PHQ-9 score was 0.03 (95% CIs: 0.00, 0.09).

5. Discussion

In keeping with other studies (Eaton et al., 1990; Johnson et al., 2005; Stansfeld et al., 2011; Wieclaw et al., 2005), our findings show that teachers are at risk of poor mental health. The mean WEMWBS score among our sample was four points lower than the general working population mean reported for UK samples of 51.4 (Tennant et al., 2007). Rates of depressive symptoms among the general working population, as measured with the PHQ-9, are not available for Britain. However, other population-based studies

Table 2
Multilevel univariable and multivariable linear regression models for mean teacher WEMWBS score, only using sample who have data for all variables (N=507).

Variables	Difference in mean scores		
	Univariable results	Multivariable results ^a	
<i>INDIVIDUAL FACTORS</i>			
Gender	Male female	0.00 ^b – 1.08 (– 2.57, 0.41) <i>p</i> =0.157	0.00 – 0.57 (– 1.87, 0.73) <i>p</i> =0.391
Satisfaction at work	(Very) satisfied a little-highly dissatisfied	0.00 – 6.53 (– 7.96, – 5.10) <i>p</i> < 0.001	0.00 – 4.65 (– 6.04, – 3.28) <i>p</i> < 0.001
How stressful you find your job	Not at all/mildly moderately-extremely	0.00 – 6.45 (– 8.34, – 4.57) <i>p</i> < 0.001	0.00 – 4.22 (– 5.95, – 2.48) <i>p</i> < 0.001
Sickness absence over the last month	No time absent any time absent	0.00 – 2.03 (– 3.71, – 0.36) <i>p</i> =0.017	0.00 – 0.52 (– 2.01, 0.96) <i>p</i> =0.488
Wanted to talk to a colleague but didn't feel able ^c	Never in past year ever in past year	0.00 – 5.16 (– 6.57, – 3.74) <i>p</i> < 0.001	0.00 – 3.80 (– 5.11, – 2.48) <i>p</i> < 0.001
Presenteeism over past week	< 60% 60% or more	0.00 – 6.13 (– 8.39, – 3.87) <i>p</i> < 0.001	0.00 – 3.39 (– 5.48, – 1.31) <i>p</i> =0.001
<i>SCHOOL FACTORS</i>			
Recent/expected conversion to academy	No yes	0.00 – 4.42 (– 6.04, – 2.80) <i>p</i> < 0.001	0.00 – 2.17 (– 3.58, – 0.77) <i>p</i> =0.002

Notes.

^a Adjusted for all other variables in the table.

^b Indicates the reference category in each case.

^c Participants selecting the option “I haven't felt stressed or down” were omitted from the analysis, as the intended comparison was with those who wanted to talk to a colleague and felt they could.

report the proportion with a score of 10 or more to be 8.6% in the USA (Kroenke et al., 2009) and 9.2% in Germany (Martin et al., 2006), meaning that more than twice as many of our sample of teachers had moderate to severe depressive symptoms, compared to these populations.

A number of factors related to poor mental health have been identified in the literature, both in the workplace in general and specifically related to teaching (Michie and Williams, 2003; Spiit et al., 2011; Tsouloupas et al., 2010). Our findings show that how

teachers feel about their working conditions, that is how stressed or dissatisfied they are, may be linked to poor mental health. Additionally, even after adjustment for work related stress and dissatisfaction, wanting to talk to a colleague about feeling stressed or down but feeling unable was associated with both poor wellbeing and high depressive symptoms. It is not clear why participants felt unable to speak to a colleague, but previous qualitative studies have revealed a culture among teachers of coping alone and unwillingness to approach senior managers for

Table 3
Multilevel univariable and multivariable models for presence of depressive symptoms in teachers, only using sample who have data for all variables (N=477)^a.

Variables	Odds Ratios		
	Univariable results	Multivariable results ^b	
<i>INDIVIDUAL FACTORS</i>			
Gender	Male Female	1.00 ^c 3.17 (1.85, 5.41) <i>p</i> < 0.001	1.00 3.35 (1.86, 6.04) <i>p</i> < 0.001
Satisfaction at work	Very satisfied or satisfied A little – highly dissatisfied	1.00 3.18 (1.96, 5.16) <i>p</i> < 0.001	1.00 2.44 (1.42, 4.19) <i>p</i> =0.001
How stressful you find your job	Not at all or mildly Moderately-extremely	1.00 2.00 (0.95, 4.22) <i>p</i> =0.070	1.00 1.11 (0.49, 2.53) <i>p</i> =0.799
Sickness absence over the last month	No time absent Any time absent	1.00 2.67 (1.65, 4.31) <i>p</i> < 0.001	1.00 2.14 (1.24, 3.67) <i>p</i> =0.006
Support to colleagues over past year	Less than once a month Once a month or more	1.00 1.78 (1.10, 2.90) <i>p</i> =0.020	1.00 1.15 (0.67, 1.98) <i>p</i> =0.606
Wanted to talk to a colleague but didn't feel able ^d	Never Ever	1.00 3.19 (1.89, 5.40) <i>p</i> < 0.001	1.00 2.48 (1.40, 4.39) <i>p</i> =0.002
Presenteeism	Below 60% 60% or more	1.00 5.29 (2.90, 9.65) <i>p</i> < 0.001	1.00 3.31 (1.70, 6.45) <i>p</i> < 0.001
<i>SCHOOL FACTORS</i>			
Student attendance	Above average Below average	1.00 2.67 (1.69, 4.23) <i>p</i> < 0.001	1.00 1.93 (1.06, 3.49) <i>p</i> =0.030
Ofsted rating	Outstanding Good or needs improvement	1.00 2.93 (1.45, 5.91) <i>p</i> =0.003	1.00 1.88 (0.85, 4.15) <i>p</i> =0.116
Recent/expected conversion to academy	No Yes	1.00 1.99 (1.00, 3.94) <i>p</i> =0.049	1.00 0.89 (0.49, 1.62) <i>p</i> =0.707

Notes.

^a More respondents had missing data for the PHQ-9 than for the WEMWBS.

^b Adjusted for all other variables in the table.

^c Indicates the reference category in each case.

^d Participants selecting the option “I haven't felt stressed or down” were omitted from the analysis, as the intended comparison was with those who wanted to talk to a colleague and felt they could.

support due to concerns about appearing weak or incompetent (Davies, 2007; Kidger et al., 2009). The wider research literature has shown that social support – both enacted and perceived – is associated with better psychological wellbeing in general (e.g. Siedlecki et al., 2014; Diener and Seligman, 2002), and in the workplace specifically (Laine et al., 2014; Michie and Williams, 2003). Previous studies of teachers have found that social conditions, including supportive collegial relationships and a school culture of trust, respect and openness, are important factors in determining work satisfaction (Klassen and Anderson, 2009; Moore Johnson et al., 2012), which our findings show is related to low depressive symptoms and high wellbeing.

Poor wellbeing and high depressive symptoms were both associated with presenteeism among our sample of teachers, and individuals with high depressive symptoms were also more than twice as likely to have taken sickness absence in the previous month, which resonates with other workplace studies showing such associations (Gandy et al., 2014; Jain et al., 2013). This is the first study to show these associations among teachers, and contributes to a gap that has been identified in the literature regarding the impact of poor teacher mental health on student learning (Bajorek et al., 2014).

The school-level ICCs for both teacher and student outcomes were similar to those seen for other student health outcomes such as smoking, diet and physical activity (Campbell et al., 2008; Murray et al., 2001). Although these ICCs are relatively small they lend support to the suggestion above that the school environment may have an impact on the mental health of teachers and students. Given the associations seen between teacher satisfaction/stress at work and wellbeing/depression, it may be that what is important in predicting mental health outcomes is how an individual responds to school wide factors, in other words it is the interaction between individual and environment that matters.

Two school level factors were associated with one or other of the teacher outcomes once other variables were adjusted for. Having a recent or planned conversion to Academy status was associated with poor wellbeing. The current UK government is putting pressure on schools not rated as ‘outstanding’ to become Academies, which means they are directly answerable to central government rather than local councils. However a recent report by the Parliamentary Education Select Committee found that there is currently insufficient evidence to establish whether Academies result in better student outcomes (<http://www.webcitation.org/6ZUuyVCC3>), and our evidence suggests that the period of change and uncertainty that surrounds Academy conversion may be detrimental to teacher wellbeing. Whether this is due to a general effect on mental health of change in the workplace environment (Bamberger et al., 2012), or due to more specific concerns among teachers about the implications of becoming an Academy, needs further exploration. Poor student attendance was associated with teacher depressive symptoms. This could be due to high student absence indicating high levels of behavioural or emotional difficulties that has an impact on staff mental health, or due to an underlying factor within the school environment leading to both staff depression and student absence. A third explanation is that poor staff mental health leads to poor motivation among students who then do not attend school. Further, longitudinal research is needed to establish the pathways by which teacher stress and dissatisfaction at work, presenteeism and absence, and poor wellbeing and depressive symptoms are interlinked, and how these connect to student attendance and attainment.

There were some clear differences between men and women in that the association between dissatisfaction at work and both wellbeing and depressive symptoms was stronger in men, and the association between sickness absence and depressive symptoms, and low student attendance and depressive symptoms was stronger

in women. These results should be interpreted with caution and replicated, as we had no a priori hypothesis about gender differences. The reasons why the associations between these factors and mental health outcomes may differ for male and female teachers requires further examination. One possibility is that factors related to poor mental health differ depending on the level of seniority: in our sample a higher proportion of male teachers were in middle or senior leadership positions compared to female teachers.

5.1. Strengths and limitations

This is the first study to examine how a range of individual and school factors are associated with teacher wellbeing and depressive symptoms. We used outcome measures that have been shown in previous studies to have good reliability and validity, and response rates were good. We were not able to gather information on the non-responding teachers; it is possible they would have had poorer mental health than responders, particularly as one reason for non-response would have been absence from school. This selection bias is unlikely to have changed the associations we found, but may have reduced our power to detect them (Wolke et al., 2009). However, some limitations must be acknowledged. As this is a cross sectional study, the temporal order of variables cannot be determined, and thus the direction of causality is unclear. Future research should examine the associations shown here longitudinally. Relatedly, as many of the variables are based on self-report, it may be that individuals with depression or poor wellbeing are more likely to rate other aspects of school negatively, which could explain some of the associations seen. Another limitation is that we only used a small selection of measures of contractual and relational stressors; it may be that other measures, for example the extent to which the teacher encounters challenging behaviour from students, or different cut-points about the level of support provided, would have shown stronger associations with the outcomes. A final limitation is that the small number of schools means that, once clustering has been taken into account, there may not be enough power to detect potentially important associations or interactions with gender and experience.

6. Conclusions

It is widely acknowledged that teaching is a challenging job, and high levels of mental health problems are seen in this population. Our findings suggest that feeling stressed or dissatisfied at work is associated with poorer wellbeing and higher depressive symptoms. Future research should focus on the reasons for these associations, and the development of potential interventions that help alleviate the stress associated with teaching and that foster an environment that cultivates greater job satisfaction, and support within the workplace. Such interventions may not only address the relatively high levels of poor wellbeing and depressive symptoms among teachers, but may also benefit the students that they teach through improved teacher performance and more supportive teacher–student relationships.

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References

- Bajorek, Z., Gulliford, J., Taskila, T., 2014. Healthy Teachers, Higher Marks? Establishing a link between teacher health and wellbeing and student outcomes. The Work Foundation. URL: (http://www.theworkfoundation.com/DownloadPublication/Report/369_TSN%20REPORT%20FINAL%20AUGUST%201%202014.pdf). Accessed: (07.07.15). (Archived by WebCite® at (<http://www.webcitation.org/6ZqKpCkqy>)).
- Bamberger, S.G., Vinding, A.L., Larsen, A., Nielsen, P., Fonager, K., Nielsen, R.N., Ryom, P., Omland, Ø., 2012. Impact of organisational change on mental health: a systematic review. *Occup. Environ. Med.* 69, 592–598.
- Beck, A., Crain, A.L., Solberg, L.I., Unutzer, J., Glasgow, R.E., Maciosek, M.V., Whitebird, R., 2011. Severity of depression and magnitude of productivity loss. *Ann. Fam. Med.* 9 (4), 305–311.
- Campbell, R., Starkey, F., Holliday, J., Audrey, S., Bloor, M., Parry-Langdon, N., Hughes, R., Moore, L., 2008. An informal school-based peer-led intervention for smoking prevention in adolescence (ASSIST): a cluster randomised controlled trial. *Lancet* 371, 1595–1602.
- Davies, C., 2007. The Wellbeing of Teachers in Wales. Teacher Support Cymru. (<http://www.healthymindsatwork.org.uk/media/pdf/wellbeing-report-final-131107.pdf>) Accessed (25.07.11). (Archived by WebCite® at (<http://www.webcitation.org/60UNnnY0z>)).
- Diener, E., Seligman, M.E.P., 2002. Very happy people. *Psychol. Sci.* 13, 81–84.
- Eaton, W.W., Anthony, J.C., Mandel, W., Garrison, R., 1990. Occupations and the prevalence of major depressive disorder. *J. Occup. Med.* 32 (11), 1079–1087.
- Evers, K.E., Castle, P.H., Prochaska, J.O., Prochaska, J.M., 2014. Examining relationships between multiple health risk behaviors, well-being, and productivity. *Psychol. Rep.* 114 (3), 843–853.
- Gandy, W.M., Coberley, C., Pope, J.E., Wells, A., Rula, E.Y., 2014. Comparing the contributions of well-being and disease status to employee productivity. *J. Occup. Environ. Med.* 56 (3), 252–257.
- Gordon, J., Turner, K., 2001. School staff as exemplars – where is the potential? *Health Educ.* 101 (6), 283–291.
- Hargreaves, A., 1998. The emotional politics of teaching and teacher development: with implications for educational leadership. *Int. J. Leadersh. Educ.* 1 (4), 315–336.
- Harvey, S.B., Glozier, N., Henderson, M., Allaway, S., Litchfield, P., Holland-Elliott, K., Hotopf, M., 2011. Depression and work performance: an ecological study using web-based screening. *Occup. Med.* 61, 209–211.
- Health and Safety Executive, 2014. Stress and psychological disorders in Great Britain 2013. URL: (<http://www.hse.gov.uk/statistics/causdis/stress/stress.pdf>). Accessed: (29.08.14). (Archived by WebCite® at (<http://www.webcitation.org/6SBVI2RYu>)).
- Hughes, J., Kwok, O., 2007. Influence of student–teacher and parent–teacher relationships on lower achieving readers' engagement and achievement in the primary grades. *J. Educ. Psychol.* 99 (1), 39–51.
- Hussey, L., Turner, S., Thorley, K., McNamee, R., Agius, R., 2012. Work-related sickness absence as reported by UK general practitioners. *Occup. Med.* 62, 105–1011.
- Jain, G., Roy, A., Hari Krishnan, V., Yu, S., Dabbous, O., Lawrence, C., 2013. Patient-reported depression severity measured by the PHQ-9 and impact on work productivity. *J. Occup. Environ. Med.* 55 (3), 252–258.
- Jennings, P., Greenberg, M., 2009. The pro-social classroom: teacher social and emotional competence in relation to student and classroom outcomes. *Rev. Educ. Res.* 79 (1), 491–525.
- Johnson, S., Cooper, C., Cartwright, S., Donald, I., Taylor, P., Millet, C., 2005. The experience of work-related stress across occupations. *J. Manag. Psychol.* 20 (2), 178–187.
- Kidger, J., Araya, R., Donovan, J., Gunnell, D., 2012. The Effect of the School Environment on the Emotional Health of Adolescents: a systematic review. *Pediatrics* 129, 925–949.
- Kidger, J., Gunnell, D., Biddle, L., Campbell, R., Donovan, J., 2009. Part and parcel of teaching? Secondary school staff's views on supporting student emotional health and wellbeing. *Br. Educ. Res. J.* 36 (6), 919–935.
- Klassen, R.M., Anderson, C.J.K., 2009. How times change: secondary teachers' job satisfaction and dissatisfaction in 1962 and 2007. *Br. Educ. Res. J.* 35 (5), 745–759.
- Kristensen, T.S., Hannertz, H., Høgh, A., Borg, V., 2005. The Copenhagen Psychosocial Work Questionnaire – a tool for the assessment and improvement of the psychosocial work environment. *Scand. J. Work., Environ. Health* 31 (6), 438–449.
- Kroenke, K., Strine, T.W., Spitzer, R.L., Williams, J.B.W., Berry, J.T., Mokdad, A.H., 2009. The PHQ-8 as a measure of current depression in the general population. *J. Affect. Disord.* 114, 163–173.
- Kroenke, K., Spitzer, R.L., 2002. The PHQ-9: a new depression diagnostic and severity measure. *Psychiatr. Ann.* 32, 1–7.
- Kuoppala, J., Lamminpää, A., Vaananen-Tomppa, I., Hinkka, K., 2011. Employee well-being and sick leave, occupational accident, and disability pension. *J. Occup. Environ. Med.* 53 (6), 633–640.
- Laine, H., Saastamoinen, P., Lahti, J., Rahkonen, O., Lahelma, E., 2014. The associations between psychosocial working conditions and changes in common mental disorders: a follow up study. *BMC Public Health.* 14, 588.
- Lang, I.A., Marlow, R., Goodman, R., Meltzer, H., Ford, T., 2013. Influence of problematic child–teacher relationships on future psychiatric disorder: population survey with 3-year follow up. *Br. J. Psychiatry.* 202, 336–341.
- Martin, A., Rief, W., Klaiberg, A., Braehler, E., 2006. Validity of the brief patient health questionnaire mood scale (PHQ-9) in the general population. *Gen. Hosp. Psychiatry.* 28, 71–77.
- Melchior, M., Caspi, A., Milne, B.J., Danese, A., Poulton, R., Moffitt, T., 2007. Work stress precipitates depression and anxiety in young, working women and men. *Psychol. Med.* 37, 1119–1129.
- Michie, S., Williams, S., 2003. Reducing work related psychological ill health and sickness absence: a systematic literature review. *Occup. Environ. Med.* 60, 3–9.
- Miller, R.T., Murnane, R.J., Willett, J.B., 2008. Do teacher absences impact student achievement? Longitudinal Evidence from one urban school district. *Educ. Eval. Policy Anal.* 30, 181–200.
- Moore Johnson, S., Kraft, M.A., Papay, J.P., 2012. How context matters in high-need schools: the effects of teachers' working conditions on their professional satisfaction and their students' achievement. *Teach. Coll. Rec.* 114, 10.
- Murray, D.M., Phillips, G.A., Birnbaum, A.S., Lytle, L.A., 2001. Intra-class correlation for measures from a middle school nutrition intervention study: estimates, correlates, and applications. *Health Educ. Behav.* 28 (6), 666–679.
- Netterstrøm, B., Conrad, N., Bech, P., Fink, P., Olsen, O., Rugulies, R., Stansfeld, S., 2008. The relation between work-related psychosocial factors and the development of depression. *Epidemiol. Rev.* 30, 118–132.
- Reilly, M.C., Zbrozek, A.S., Dukes, E.M., 1993. The validity and reproducibility of a work productivity and activity impairment instrument. *Pharmacoeconomics* 4, 353–365.
- Rothi, D.M., Leavey, G., Best, R., 2008. On the front-line: teachers as active observers of pupils' mental health. *Teach. Teach. Educ.* 24, 1217–1231.
- Sammons, P., Day, C., Kington, A., Gu, Q., Stobart, G., Smees, R., 2007. Exploring variations in teachers' work, lives and their effects on pupils: key findings and implications from a longitudinal mixed-method study. *Br. Educ. Res. J.* 33 (5), 681–701.
- Siedlecki, K.L., Salthouse, T.A., Oishi, S., Jeswani, S., 2014. The relationship between social support and subjective well-being across age. *Soc. Indic. Res.* 117, 561–576.
- Sisask, M., Värnik, P., Värnik, A., Apter, A., Balazs, J., Balint, M., Bobes, J., Brunner, R., Corcoran, P., Cosman, D., Feldman, D., Haring, C., Kahn, J.-P., Poštuvan, V., Tubiana, A., Sarchiapone, M., Wasserman, C., Carli, V., Hoven, C.W., Wasserman, D., 2014. Teacher satisfaction with school and psychological well-being affects their readiness to help children with mental health problems. *Health Educ. J.* 73 (4), 382–393.
- Smith, A., Johal, S., Wadsworth, E., Davey Smith, G., Peters, T., 2000. The Scale of Occupational Stress: the Bristol Stress and Health at Work Study. Health and Safety Executive. URL: (http://www.hse.gov.uk/research/crr_pdf/2000/crr00265.pdf). Accessed: (25.06.15). (Archived by WebCite® at (<http://www.webcitation.org/6ZYskdQM1>)).
- Spilt, J., Koomen, H.M.Y., Thijs, J.T., 2011. Teacher wellbeing: the importance of teacher–student relationships. *Educ. Psychol. Rev.* 23, 457–477.
- Stansfeld, S.A., Rasul, F.R., Head, J., Singleton, N., 2011. Occupation and mental health in a national UK survey. *Soc. Psychiatry Psychiatr. Epidemiol.* 46, 101–110.
- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., Stewart-Brown, S., 2007. The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): development and UK validation. *Health Qual. Life Outcomes* 5, 63.
- Tsoulopas, C.N., Carson, R.L., Matthews, R., Grawitch, M.J., Barber, L.K., 2010. Exploring the association between teachers' perceived student misbehaviour and emotional exhaustion: the importance of teacher efficacy beliefs and emotion regulation. *Educ. Psychol.: Int. J. Exp. Educ. Psychol.* 30, 2173–2189.
- Wharton, A.S., 2009. The sociology of emotional labor. *Annu. Rev. Sociol.* 35, 147–165.
- Wieclaw, J., Agerbo, E., Mortensen, P.B., Bonde, J.P., 2005. Occupational risk of affective and stress-related disorders in the Danish workforce. *Scand. J. Work., Environ. Health.* 31 (5), 343–351.
- Wolke, D., Waylen, A., Samara, M., Steer, C., Goodman, R., Ford, T., Lamberts, K., 2009. Does selective drop out lead to biased prediction of behaviour disorders. *Br. J. Psychiatry.* 195, 249–256.