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## Organisational interventions for improving wellbeing and reducing work-related stress in teachers (Review)

Naghieh A, Montgomery P, Bonell CP, Thompson M, Aber JL

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[Intervention Review]

# Organisational interventions for improving wellbeing and reducing work-related stress in teachers

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## ABSTRACT

### Background

The teaching profession is an occupation with a high prevalence of work-related stress. This may lead to sustained physical and mental health problems in teachers. It can also negatively affect the health, wellbeing and educational attainment of children, and impose a financial burden on the public budget in terms of teacher turnover and sickness absence. Most evaluated interventions for the wellbeing of teachers are directed at the individual level, and so do not tackle the causes of stress in the workplace. Organisational-level interventions are a potential avenue in this regard.

### Objectives

To evaluate the effectiveness of organisational interventions for improving wellbeing and reducing work-related stress in teachers.

### Search methods

We searched the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, EMBASE, PsycINFO, ASSIA, AEI, BEI, BiblioMap, DARE, DER, ERIC, IBSS, SSCI, Sociological Abstracts, a number of specialist occupational health databases, and a number of trial registers and grey literature sources from the inception of each database until January 2015.

### Selection criteria

Randomised controlled trials (RCTs), cluster-RCTs, and controlled before-and-after studies of organisational-level interventions for the wellbeing of teachers.

### Data collection and analysis

We used standard methodological procedures expected by Cochrane.

## Main results

Four studies met the inclusion criteria. They were three cluster-randomised controlled trials and one with a stepped-wedge design.

### Changing task characteristics

One study with 961 teachers in eight schools compared a task-based organisational change intervention along with stress management training to no intervention. It found a small reduction at 12 months in 10 out of 14 of the subscales in the Occupational Stress Inventory, with a mean difference (MD) varying from -3.84 to 0.13, and a small increase in the Work Ability Index (MD 2.27; 95% confidence interval (CI) 1.64 to 2.90; 708 participants, low-quality evidence).

### Changing organisational characteristics

Two studies compared teacher training combined with school-wide coaching support to no intervention. One study with 59 teachers in 43 schools found no significant effects on job-related anxiety (MD -0.25 95% CI -0.61 to 0.11, very low-quality evidence) or depression (MD -0.26 95% CI -0.57 to 0.05, very low-quality evidence) after 24 months. The other study with 77 teachers in 18 schools found no significant effects on the Maslach Burnout Inventory subscales (e.g. emotional exhaustion subscale: MD -0.05 95% CI -0.52 to 0.42, low-quality evidence) or the Teacher Perceived Emotional Ability subscales (e.g. regulating emotions subscale: MD 0.11 95% CI -0.11 to 0.33, low-quality evidence) after six months.

### Multi-component intervention

One study with 1102 teachers in 34 schools compared a multi-component intervention containing performance bonus, job promotion opportunities and mentoring support to a matched-comparison group consisting of 300 schools. It found moderately higher teacher retention rates (MD 11.50 95% CI 3.25 to 19.75 at 36 months follow-up, very low-quality evidence). However, the authors reported results only from one cohort out of four (eight schools), demonstrating a high risk of reporting bias.

## Authors' conclusions

We found low-quality evidence that organisational interventions lead to improvements in teacher wellbeing and retention rates. We need further evaluation of the effects of organisational interventions for teacher wellbeing. These studies should follow a complex-interventions framework, use a cluster-randomised design and have large sample sizes.

## PLAIN LANGUAGE SUMMARY

### Work changes to prevent and decrease stress in teachers

#### Background

Teachers often experience stress at work, which can lead to physical and mental health problems, increased sickness absence, teacher resignations, and decline in children's performance and health. Individual stress management and counselling programmes directed at teachers only target stress symptoms, while interventions directed at the school organisation target the causes of stress. We searched for studies until January 2015 to assess the evidence on work changes to improve wellbeing and reduce work-related stress in teachers.

#### Study Characteristics

We found four studies that included a total of 2199 teachers. They evaluated three types of work changes. One intervention consisted of changes in teachers' tasks such as redesigning work, establishing flexible work schedules and redesigning the work environment. Another intervention consisted of a school-wide coaching support network alongside individual training for teachers, in order to deliver a child development programme. The third intervention consisted of several components: performance bonus pay, job promotion opportunities and mentoring.

#### Results

##### *Changes in tasks of teachers*

In one study with 961 teachers in eight schools, changes in tasks of teachers combined with stress management training resulted in a small reduction in work stress levels after one year follow-up compared to no intervention. There was also a small increase in work ability, meaning how well a worker is able to perform his or her work. However, the authors did not report how they changed teachers' tasks, limiting the results' usefulness elsewhere.

### *Changing organisational features*

There were two studies of school-wide coaching support combined with teacher training. In one study with 43 schools and 59 participating teachers, there was no considerable effect on anxiety or depression after two years follow-up compared to no intervention. In the other study with 18 schools and 77 participating teachers, there was no considerable effect on burnout or emotional ability after six months follow-up compared to no intervention. Burnout is a state of prolonged severe stress. Emotional ability means understanding other people's emotions, and understanding and controlling ones own emotions. Both studies had a small number of participants.

### *Multicomponent programme*

In one study with 34 schools and 1102 teachers, the intervention included performance bonus pay, job promotion opportunities and mentoring. After three years follow-up and compared to 300 similar schools, there was a moderate reduction in resignation of teachers in the intervention schools. However, authors reported results only for eight schools.

### **Quality of the evidence**

The quality of the evidence was low for all interventions because the authors did not report all the results and lost many participants for follow-up. All included studies also had interventions directed at individual teachers combined with changes at schools. Therefore, new and better quality studies directed at schools will probably change the conclusions of this review.

### **Conclusion**

Changing the way teachers' work is organised at schools may improve the teachers' wellbeing and may reduce teacher resignations. We need better-designed research in the development and testing of work changes in schools. In future studies, whether work at schools is changed or not should be determined according to chance. These studies should also have several hundred participants.

## SUMMARY OF FINDINGS FOR THE MAIN COMPARISON *[Explanation]*

Changing task characteristics versus no intervention for improving wellbeing and reducing work-related stress in teachers						
<b>Population:</b> Teachers <b>Settings:</b> Schools <b>Intervention:</b> Task-based organisational change intervention along with stress management training versus no intervention						
Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	No intervention	Task-based organisational change intervention along with stress management training				
<b>Occupational Stress Inventory - Role Overload</b>	The mean occupational stress inventory - role overload in the control groups was <b>27.27</b>	The mean occupational stress inventory - role overload in the intervention groups was <b>0.94 lower</b> (1.61 to 0.27 lower)		708 (1 study)	⊕⊕○○ <b>low</b> <sup>1,2</sup>	
<b>Occupational Stress Inventory - Role Ambiguity</b>	The mean occupational stress inventory - role ambiguity in the control groups was <b>16.78</b>	The mean occupational stress inventory - role ambiguity in the intervention groups was <b>0.23 lower</b> (0.84 lower to 0.38 higher)		708 (1 study)	⊕⊕○○ <b>low</b> <sup>1,2</sup>	
<b>Occupational Stress Inventory - Responsibility</b>	The mean occupational stress inventory - responsibility in the control groups was <b>20.71</b>	The mean occupational stress inventory - responsibility in the intervention groups was <b>1.19 lower</b>		708 (1 study)	⊕⊕○○ <b>low</b> <sup>1,2</sup>	

		(1.91 to 0.47 lower)		
<b>Occupational Stress Inventory - Vocational Strain</b>	The mean occupational stress inventory - vocational strain in the control groups was <b>17.00</b>	The mean occupational stress inventory - vocational strain in the intervention groups was <b>0.78 lower</b> (1.42 to 0.14 lower)	708 (1 study)	⊕⊕○○ <b>low</b> <sup>1,2</sup>
<b>Occupational Stress Inventory - Interpersonal Strain</b>	The mean occupational stress inventory - interpersonal strain in the control groups was <b>23.37</b>	The mean occupational stress inventory - interpersonal strain in the intervention groups was <b>0.78 lower</b> (1.33 to 0.23 lower)	708 (1 study)	⊕⊕○○ <b>low</b> <sup>1,2</sup>
<b>Occupational Stress Inventory - Social Support</b>	The mean occupational stress inventory - social support in the control groups was <b>37.32</b>	The mean occupational stress inventory - social support in the intervention groups was <b>0.50 lower</b> (1.49 lower to 0.49 higher)	708 (1 study)	⊕⊕○○ <b>low</b> <sup>1,2</sup>
<b>Work Ability Index</b> Scale from: 7 to 49.	The mean work ability index in the control groups was <b>36.98</b>	The mean work ability index in the intervention groups was <b>2.27 higher</b> (1.64 to 2.90 higher)	708 (1 study)	⊕⊕○○ <b>low</b> <sup>1,2</sup>

\*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

**CI:** Confidence interval;

GRADE Working Group grades of evidence

**High quality:** Further research is very unlikely to change our confidence in the estimate of effect.

**Moderate quality:** Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

**Low quality:** Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

**Very low quality:** We are very uncertain about the estimate.

<sup>1</sup>The study has attrition bias and reporting bias. It did not account for clustering in the analysis, which was corrected by review authors.

The study does not mention attrition in the data and there is no mention of intention-to-treat analysis

<sup>2</sup>Intervention package includes individual-level intervention

## BACKGROUND

This review evaluated studies that report on the effectiveness of organisational interventions aimed at improving wellbeing and reducing work-related stress, or both, in school teachers.

Wellbeing at work and work-related stress are important policy challenges in current times. Teacher occupational wellbeing is defined as a positive emotional state resulting from harmony between the sum of specific environmental factors on the one hand, and personal needs and expectations of teachers on the other (Aelterman 2007). Wellbeing at work is often measured by an individual's job satisfaction, feelings of self efficacy, work stress or burnout (Bricheno 2009), as well as organisational indicators such as sickness absence and staff turnover. Work stress can refer to stressors, as well as the stress response. Stressors are the conditions at work that generate stress, while the stress response refers to how people feel, think and behave in response to the stressors. The Fourth European Working Conditions survey (EuroFound 2007) found that 20% of workers from the EU15 and 30% from the 10 new member states believed that their health was at risk due to work-related stress. Health and Safety Executive statistics show that for 2006/07, stress, depression, or anxiety accounted for 46% of days lost due to work-related illness and constitute the single largest cause of all absences attributable to work-related illness (Cooper 2008). It is estimated that each year one in six workers in England and Wales is affected by anxiety, depression and unmanageable stress (Mind 2011).

The psychosocial work environment is an established and prominent social determinant of health and health inequalities (Benach 2007; Black 2008). Siegrist 2004 defines psychosocial environment as the "socio-structural range of opportunities that is available to an individual person to meet his or her needs of wellbeing, productivity and positive self-experience" (p. 1465). Concentrating on the two main organisational stress models, they argue that exposure to an adverse psychosocial environment, defined in terms of job tasks by high demands and low control (demand-control-support model, (Karasek 1990)) and by effort-reward imbalance (Siegrist 1996) or both, elicits sustained stress reactions with negative long-term consequences for health. In an analysis based on the Whitehall II Study, North 1996 found that the psychosocial work environment predicts rates of sickness absence, and argued that increased levels of control and support at work could have beneficial effects in terms of improving the health and wellbeing of employees, increasing productivity, and reducing the costs of sickness absence. A substantial body of evidence links adverse psychosocial work environments with an increase in the incidence of cardiovascular disease (Belkic 2004; Chandola 2008; Hemingway 1999; Karasek 1990; Kivimäki 2002; Kuper 2003; Schnall 1994). Psychosocial work stressors such as job strain, low decision latitude, low social support, high psychological demands, effort-reward imbalance, and high job insecurity have all been implicated as causes of work stress-related anxiety and depressive illnesses (Stansfeld

2006). In an umbrella review of existing systematic reviews on managing stress at work, Bhui 2012 asserts that psychosocial work stressors can only be tackled by organisational and systemic strategies and policies.

Psychosocial risks at the workplace are a major policy concern and have resulted in the formation of a large European Union consortium to develop the European framework for psychosocial risk management (PRIMA-EF). Work-related psychosocial risks refer to aspects of the design and management of work and its social and organisational contexts that have the potential for causing psychological or physical harm (Leka 2003). The PRIMA-EF and the related regulatory framework provide guidance for psychosocial risk management in the workplace, to be utilised by stakeholders within policy and practice (WHO 2008).

### Description of the condition

Kyriacou 2011 defines 'teacher stress' as the experience by teachers of unpleasant negative emotions, resulting from aspects of their work as a teacher that are triggered by a perception of threat in dealing with the demands made upon them. This trigger of threat involves three elements: having to deal with the demand, the fear of being unable to deal with the demand satisfactorily, and the fear that not dealing with the demand satisfactorily may have negative consequences. Another concept used in the literature with close links and overlaps is 'teacher burnout', which refers to a state of emotional, attitudinal and physical exhaustion that follows from a prolonged exposure to chronic stress (Vandenberghe 1999). Schwab 1986 provide a vivid description of the dimensions of teacher burnout:

"The first sign of burnout is a feeling of being *emotionally exhausted* from one's work...emotionally exhausted teachers might say they feel drained or used-up, that they are at the end of their rope and are physically fatigued...they cope by *depersonalizing* their co-workers and students by putting distance between themselves and others. They develop a "detached concern", become cynical, and feel calloused toward others in the organization. A third aspect of burnout is a feeling of low *personal accomplishment*. Many individuals began their careers with great expectations of making a contribution to their employer and to society. After a year or two on the job, they begin to realize they are not living up to these expectations... these employees may not recognize the role of the organization in producing their frustration. Instead, they may feel personally responsible and begin to think of themselves as failures" (pp. 14 - 15).

A report for the Health & Safety Executive (Smith 2000) compared stress levels in different occupations in the year 2000. Figures for teachers were more than double the average at 42%. Similarly, the three-year estimate (2008 to 2011) of the Self-reported Work-related Illness questionnaire module in the national Labour Force Survey in the UK demonstrates more than double the mean

rates of self-reported stress, depression and anxiety for the teaching profession (HSE 2012).

The majority of the evidence for identifying the main work stressors facing teachers point to specific factors: heavy workload, relationships with colleagues and management, poor working environment, pupil behaviour, long working hours, providing cover for teacher shortages and absences, pressure of school targets and inspections, coping with change and administrative duties (Benmansour 1998; Lambert 2006; NUT 2011; Travers 1996). There is an extensive body of observational research worldwide documenting symptoms and consequences of teacher stress, including studies in the UK (Dunham 1992; Rothi 2010), Australia (Goddard 2006), Greece (Lazuras 2006), Norway (Skaalvik 2009), Switzerland (Huberman 1993), Qatar (Al-Mohannadi 2007) and China (Chan 1995; Yang 2011). Kyriacou 2011 categorises symptoms of teacher stress in the three broad areas of mental (e.g. depression, loss of self confidence), physical (e.g. back aches, indigestion) and behavioural (e.g. loss of temper, sleeplessness) characteristics. Teacher stress and burnout thus leads to adverse consequences for the physical and psychological health of the teacher, as well as to a negative impact on learning, behaviour, educational performance and thus the future prospects of pupils. It can also have adverse effects on school climate and organisational goals and targets and direct financial burdens to the public budget due to a high prevalence of sickness absence and teacher turnover.

## Description of the intervention

Organisational interventions alter the psychosocial work environment by changing some aspect of the organisation, such as structures, policies, processes, culture, climate, programmes, roles or tasks. They aim to improve the health and wellbeing of individuals, as well as influencing organisational outcomes such as sickness absence and staff turnover.

Murphy 1988 categorises interventions to reduce organisational stress as primary (e.g. structural or organisational interventions), secondary (e.g. stress management), and tertiary (e.g. employee assistance programmes; workplace counselling). Lamontagne 2007 refers to primary interventions as preventive and proactive, secondary interventions as ameliorative, and tertiary interventions as reactive. Primary interventions, which are the focus of this review, aim to adapt the environment to fit individual staff members, while secondary and tertiary interventions are directed at individual-level changes in behaviours, attitudes, and practices. At the individual level, stress management and counselling interventions emphasise training in coping strategies in an effort to alter either the physiological, emotional, or behavioural responses to potential stressors, or all of them. At the organisational level, emphasis is placed on changing those aspects of the teacher's work environment that are potential sources of stress (Cecil 1990).

Organisational interventions are, by nature, organisational change interventions. The two main approaches to organisational change

are planned change and emergent change (Bamford 2003; Burnes 1996). The planned change approach views organisational change as a process that moves from one fixed state to another through a series of pre-planned steps. Planned change is concerned with the planning and implementation of change interventions in organisations, with a prescribed sequence and plan of action, affecting the whole organisation or a department within an organisation. Within the planned change approaches, organisational development has emerged as the dominant approach to organisational change across the Western world, and is increasing globally (Boje 2011). Organisational development aims to build the capacity of individuals and groups, empowering them to engage with organisational problems. It is based on the methodology of action research and the imperative to diagnose the needs of the organisation clearly before making an intervention (Grieves 2010). The emergent change approach views change as more of a continuous process, whereby organisations seek to align and re-align themselves to an unpredictable, many-faceted and rapidly changing environment (Burnes 1996). Within this approach, organisational change is viewed as less dependent on detailed plans and projections than on reaching an actual understanding of the complexity of the issues involved and identifying the range of possible options (Dawson 1994). Emergent change thus focuses more on continuous development and organisational learning, in contrast to providing clear and time-bounded intervention strategies. Due to the nature of organisational interventions as designed and planned change projects with specific objectives such as enhancing employee wellbeing, models within the planned change approach appear to be most applicable to such interventions. However, some of the tenets of the emergent change approach might prove value-adding in the diagnostic stages of intervention design, as well as in the endeavour of sustaining effective interventions.

The scope of organisational interventions to improve wellbeing and reduce work-related stress in teachers can be described within the three categories of organisational-level interventions proposed by Newman 1979, as changing:

1. Organisational characteristics/conditions (e.g. school-level policy and governance; communication; school climate, culture, or ethos);
2. Role characteristics/conditions (e.g. senior management practice and culture; teacher autonomy and empowerment; role conflicts);
3. Task characteristics/conditions (e.g. workload; work environment).

Organisational interventions may be mediated by factors such as organisational structure, organisational culture, physical environment, legal and regulatory confines, job insecurity, role of power, control, and resistance to change from stakeholders, role of the change agent, and institutional legitimacy of the intervention. Individual characteristics such as personality factors, general state of physical and psychological health, and pressures outside work may also mediate the outcome of organisational interventions. Due to

the complex nature of such interventions, the aforementioned factors can act as moderators as well as mediators. Moderators explain variation in impact of interventions, while mediators are factors in the causal pathway of interventions. For example, the differential impact of an intervention can depend on the structure of one organisation relative to another. However, organisational interventions need to work through elements of the organisational structure, and depending on the intervention, redesign the structure if needed. Other examples include organisational interventions such as installing social support mechanisms or systems of collaborative decision-making. Their impact can be dependent on the culture of the organisation, but they also work through adapting to certain elements and transforming other elements of the culture and norms of the organisation.

### How the intervention might work

Organisational interventions to improve wellbeing and reduce work-related stress may work by a) changing the organisation to have better communication, social support or a culture of recognition; b) modifying the role of the teacher or their line managers to give teachers more control over their work, increase their decision latitude over their work environment and reduce role conflicts; or c) redesigning objective workload levels or the work environment within which the teacher is situated.

Organisational interventions will be situated within an organisational change model, which would explain the *process* of change within the intervention. The *focus* of the intervention will be on organisational wellbeing concepts, such as organisational stress models. The two main organisational stress models are the 'demand-control-support model' (Karasek 1990) and the 'effort-reward imbalance model' (Siegrist 1996). The demand-control-support model is based on the notion that high psychological demands placed on the working person, coupled with a low degree of control available to the person to perform the required tasks, and low levels of social support at work will lead to sustained stress reactions. The effort-reward imbalance model is based on the notion of reciprocity, and suggests that stress responses arise from the imbalance between the effort that the working person puts into work, and the rewards (whether esteem-based or monetary) that they obtain from work.

The mechanism of each approach to organisational interventions can be explained by utilising the two overarching models of organisational stress. Changing organisational characteristics such as improving communication of policy and management decisions will reduce role ambiguity and role conflict, and so aims to eliminate unwarranted demands by line managers and increase the decision latitude of the teacher. This will in turn lead to a better balance between the psychological demands of the work and the control that the teacher has over their work. Another example of changing organisational characteristics can be modifying the culture and installing structures for reward and recognition of hard work and

achievements, which would reduce the high levels of effort-reward imbalance experienced by teachers. The second approach focuses on changing role characteristics and conditions, and by doing so aims to empower the teacher in relation to their direct responsibilities as well as to the school in which they work, resulting in increasing the teacher's decision latitude and enhancing their control over their work. Such interventions may also work along the effort-reward imbalance pathway, as greater involvement in organisational decision-making may enhance self esteem, as well as increasing the recognition of the teacher. In the third approach, interventions would aim to redesign the workload or the work environment of the teacher. This would lead to a more manageable workload, or a work environment that is more conducive to the psychosocial needs of the teacher. In turn, such interventions can increase the teacher's control, and reduce excessive psychological demands and the resulting job strain associated with the teaching profession.

### Why it is important to do this review

To date, two reviews in the areas of occupational stress and wellbeing interventions exist that are relevant to teachers. In the Teachers Health and Wellbeing Study Scotland (Dunlop 2004), which incorporated the results of an unpublished systematic review, only 23 interventions were identified in the international literature. The vast majority of the interventions (17) were focused on the teacher as an individual. In addition, only four interventions addressed structural issues. The review lacked a comprehensive search strategy for identifying organisational interventions, and the authors accept the paucity of studies and the fact that none of the interventions in the review had been subject to rigorous evaluations. In a Teacher Support Network report titled *Teacher Wellbeing: A Review of the Evidence*, Bricheno 2009 found that interventions have focused mainly on secondary and tertiary management techniques. The authors assert that some evidence suggests that individual interventions are the most effective for mental health problems, but organisational interventions are the most effective for job-related stress reduction. Further, the stakeholders interviewed in the study paid most attention to primary strategies. The authors concluded that most intervention strategies for teachers have been tertiary, and so less likely to counter the problems of stressful work environments. The review reported on longitudinal, cross-sectional and case studies, and the authors did not claim to have followed a thorough and systematic search and review process for finding and synthesising effective interventions for teacher wellbeing.

A synthesis of the evidence for managing stress at work from systematic reviews published up to July 2011 (Bhui 2012) found a greater effect size of individual interventions on individual outcomes. Organisational interventions showed mixed evidence of benefit, although the authors conflate worksite health promotion programmes with the definition that we have outlined for organi-

sational interventions as changing the structure or context or both of the work environment. Moreover, none of the studies were conducted in a school setting. Due to the distinct nature of the teaching profession and the context of educational settings, and also the potential for organisational interventions to adequately tackle psychosocial work stressors, school-level intervention development and evaluation would require a high-quality context-specific evidence base. The present systematic review aims to fill this important gap in the research literature.

## OBJECTIVES

To evaluate the effectiveness of organisational interventions for improving wellbeing and reducing work-related stress in teachers.

## METHODS

### Criteria for considering studies for this review

#### Types of studies

We considered all eligible randomised controlled trials (RCTs), cluster-randomised controlled trials (c-RCTs) and controlled before-and-after studies (CBAs). We considered studies that featured randomisation at the classroom, department, or school level. We included studies that combine or compare individual-level and organisational-level interventions, but excluded studies with interventions only at the individual level.

#### Types of participants

We considered the inclusion of studies conducted with teachers working at primary and secondary schools, serving children aged between 4 and 18 years.

#### Types of interventions

Organisational interventions for employee wellbeing target the stressors in the work environment, rather than the stress response of the individual employee. They aim to alter the psychosocial work environment by changing some aspect of the organisation, such as structures, policies, processes, climate, programmes, roles, tasks, etc. Included interventions can be described within the following categories:

- Changing organisational characteristics or conditions: e.g. school-level policy and governance; communication; school climate, culture, or ethos

- Changing role characteristics or conditions: e.g. senior management practice and culture; teacher autonomy and empowerment; role conflicts
- Changing task characteristics or conditions: e.g. workload or the work environment

We considered the inclusion of studies where the intervention is compared to non-intervention controls or usual practice, as well as studies that compare interventions with one or more alternative interventions.

We make a distinction between organisational prevention and individual stress management interventions. Further, we regard worksite health promotion interventions and educational interventions as typically targeting individuals, rather than aiming to change organisational characteristics. We therefore excluded any intervention directed at the individual and not the organisation, except for those individually-directed interventions that were 1: universally delivered, and 2: had an organisation change component that supported implementation. The latter may include organisational policy changes or installing support functions (e.g. coaching). These components can change practices and affect organisational culture, which may subsequently lead to health and wellbeing outcomes for individuals within organisations.

For example, [Cullen 1999](#) was a school-wide health promotion intervention, but the study explicitly states that: “no special environmental support or school policy changes were implemented to support the program”. On the other hand, [Tyson 2009](#) and [Brown 2010](#) are individually-directed educational interventions that we treat as included studies. Both studies have a ‘coaching’ component, which extends the intervention from a limited set of training sessions to provision of school-wide support for the implementation of the intervention for its full duration. In the case of [Tyson 2009](#), there are two intervention arms: teacher training, and teacher training plus coaching. We decided that the arm with teacher training only is strictly an educational intervention, as it aims to equip individual teachers with knowledge of a particular programme to be delivered to children. However, the coaching component aims to provide “assistance in implementing specific content from the programs, and in structuring and time-tabling the programs; and getting support for individual student or class issues as well as support for teacher and parent issues”. This remit for the coaching component of the intervention suggests an environmental support function, which can be interpreted with the demand-control-support model of organisational stress. Due to its school-wide implementation, the coaching can affect organisational culture and climate, and the organisation may subsequently be perceived as having better support functions in place. This component can also have a governance function, ensuring and enhancing school-wide implementation, while the training-only arm does not address teacher engagement with the programme, implementation, and programme fidelity.

Another example of an individually-directed intervention with an organisation change component is illustrated in the distinction

between the studies by [Goodman 2010](#) and [Glazerman 2012](#). [Goodman 2010](#) evaluated the provision of performance bonuses, without any school-level organisation change supplements to this cash transfer intervention. The objective was to raise teacher effort and school results, and the study was not concerned with teacher wellbeing or organisational climate. For example, the measure of absenteeism combined sickness absence with personal business absence, aiming to determine whether cash transfers would motivate teachers to take less leave of absence. On the other hand, the trial by [Glazerman 2012](#) involved an intervention that provided teachers with performance bonuses, along with job promotion opportunities and tools to track and improve their performance (classroom observations and weekly mentoring). This organisational complement to the individual cash transfers provides support functions to achieve performance aims, and improve the recognition of teachers via promotion opportunities. Both factors may affect the culture and climate of the organisation, and subsequently improve the health and wellbeing outcome of individual teachers.

## Types of outcome measures

### Primary outcomes

1. Subjective measures: validated measures of work stress and wellbeing e.g. Maslach Burnout Inventory ([Maslach 1996](#)), Teacher Stress Inventory ([Fimian 1988](#)), Occupational Stress Inventory ([Osipow 1998](#)), Work Ability Index ([Tuomi 1998](#)), Minnesota Satisfaction Questionnaire ([Weiss 1967](#)), Organisational Climate Description Questionnaire ([Hoy 1991](#)), Organisational Health Inventory ([Hoy 1991](#)).

2. Objective measures: teacher turnover (retention rates) and sickness absence.

### Secondary outcomes

1. Biological measures such as cardiovascular outcomes ([Steptoe 1999](#)) and cortisol levels (e.g. [Steptoe 2000](#)).

2. Where possible, we planned to consider the relationship between teacher wellbeing and student attainment, but no studies provided these data.

## Search methods for identification of studies

We developed a search strategy based on the inclusion criteria to be used in electronic database searching. We took the following essential concepts of the inclusion criteria to develop the search string: teachers; stress/wellbeing; school organisation. We considered the combination of these three concepts to be specific enough to include all available studies, regardless of study design. To locate studies for inclusion, we used a sensitive and precision-maximising search strategy as recommended by Cochrane (Chapter 6 of the *Cochrane Handbook for Systematic Reviews of Interventions*) ([Higgins 2011](#)).

For PubMed databases we used the most sensitive search strategy proposed by the Occupational Safety and Health Review Group ([Verbeek 2005](#)). We did not restrict the searches by date, language or publication type. The date of the last search was 23 January 2015.

See [Appendix 1](#) for the search strategy to be used in PsycINFO. We adapted this search strategy for other databases accordingly ([Appendix 2](#)).

## Electronic searches

We searched the following databases from inception to 23 January 2015:

- ASSIA (Applied Social Science Index and Abstracts);
- AEI (Australian Education Index);
- BiblioMap (Database of health promotion research);
- BEI (British Education Index);
- CENTRAL (Cochrane Central Register of Controlled Trials);
- CISDOC (The Health and Safety Information Centre of the International Labour Office);
- DARE (Database of Abstracts of Reviews of Effects);
- DER (Database of Educational Research);
- EMBASE;
- ERIC (Education Resources Information Centre);
- HSELINE (UK Health and Safety Executive Information Services);
- IBSS (International Bibliography of the Social Sciences);
- International Bibliographic;
- International Clinical Trials Registry Platform;
- MEDLINE (PubMed);
- NIOSHTIC and NIOSHTIC2 (US National Institute for Occupational Safety and Health);
- OpenGrey (System for Information on Grey Literature in Europe);
- Proquest Dissertations and Theses;
- PsycINFO;
- RILOSH (Ryerson International Labour Occupational Safety and Health);
- SSCI (Social Science Citation Index);
- Sociological Abstracts;
- TRoPHI (Trials Register of Promoting Health Interventions).

## Searching other resources

1. We searched reference lists from all studies that met the inclusion criteria.

2. We searched for references to relevant studies in international government reports and in teacher union and non-governmental organisation (NGO) publications available on the Internet.

3. We contacted subject experts to identify unpublished or ongoing research.

4. We searched all available trial registers (e.g. [www.clinicaltrials.gov](http://www.clinicaltrials.gov)) for relevant ongoing and unpublished trials.

## Data collection and analysis

### Selection of studies

We imported all search results into a reference management software package. Three review authors (AN, PM, and CB) operated in two teams to independently screen the title and abstract of each reference in light of the inclusion criteria for our review. If the two screening teams independently agreed that an article does not fulfil the inclusion criteria, we excluded the study from the review. We obtained full reports for studies that the title and abstract suggested should be included, or which contained insufficient information in the title and abstract to make a clear decision regarding inclusion for review. Where the two review teams disagreed, they met to discuss this and if possible reach a consensus. In the case that we could not reach consensus regarding inclusion of a specific article, we planned to refer judgement for selection to a third review author (LA). We maintained a record of the selection process for all screened material.

### Data extraction and management

Two review authors (AN and PM) independently extracted data from studies meeting the inclusion criteria, using a piloted data extraction form developed for this review. Where the two authors disagreed, they met to discuss this and if possible reach a consensus. If they could not reach consensus regarding the particulars of data extraction for a specific study, they planned to refer judgement to a third review author (CB).

We extracted information pertaining to: basic study details (individual and organizational participant characteristics, study location, timing and duration, research questions or hypotheses); study design and methods (design, allocation, blinding, sample size, accounting for data clustering, data collection, attrition, analysis); intervention characteristics (including timing and duration, programme development, theoretical framework, content and activities, providers, details of any intervention offered to the control group, and uptake of intervention and control by participants); process evaluation of the intervention (including acceptability, reach, fidelity/adherence, intensity and context of intervention); outcome measures at post-treatment and follow-ups where reported, as well as effect size and costs of intervention. The data extraction form also incorporated assessment of the included studies' risk of bias (see below for details). The two review authors entered data from the data extraction forms into Review Manager

5 (RevMan 2014). We contacted study authors to provide data that may be missing from the study reports or to resolve any uncertainty about reported information.

### Assessment of risk of bias in included studies

We assessed risk of bias within each included study by using the tool outlined in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011). For each study, the two review authors engaged with data extraction independently judged the likelihood of bias in six domains: sequence generation, allocation concealment, blinding (of participants, personnel, or outcome assessors), incomplete outcome data, selective outcome reporting, and other sources of bias (e.g. recruitment bias in cluster-randomised studies). We subsequently allocated each study a score of 'high risk', 'low risk' or 'unclear risk' within each domain. In cases of disagreement, the review authors met to establish a consensus. Where the two review authors could not agree on categorisation for risk of bias for a specific study, we planned to refer judgement to a third review author (CB).

### Measures of treatment effect

We plotted the results of each trial as means and standard deviations (SD) for continuous outcomes. When the results could not be plotted, we described them in the 'Characteristics of included studies' table and the 'Effects of interventions' section.

### Unit of analysis issues

Interventions addressing departments or whole schools require randomisation at the group (rather than individual) level. For some outcomes, analysis was conducted at the school level and thus did not require special statistical analysis. Where studies reported data at the individual level, we assessed whether the study accounted for the effect of clustering using appropriate statistical techniques such as multi-level modelling. Where this was not done, we attempted to correct for this clustering following methods set out in section 16.3.4 of the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011).

### Dealing with missing data

If statistics such as SDs or correlation coefficients were missing and we could not obtain them from the authors, we planned to calculate them from other available statistics such as P values, according to the methods described in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011). In the event of missing or unclear data within the included studies (e.g. group means, standard deviations, details of dropouts), we planned to contact the authors for further information. If authors were not traceable or information was unavailable from them within two months of contacting them, we planned to record that the study

information is missing on the data extraction form, and we captured this in our 'Risk of bias' assessment of the study.

### Assessment of heterogeneity

Considering the diversity of the range of organisational interventions to improve employee wellbeing, we expected to find content and methodological diversity arising from different types of interventions, outcome measurements, and study designs. Prior to data synthesis, we planned to group together studies that we judged to be sufficiently homogeneous regarding intervention content, research design, time to outcome measurement, and outcome measures. We considered all teaching tasks as similar. We considered interventions as similar if they fell into one of the pre-defined categories of interventions (as elaborated in the section: '[Criteria for considering studies for this review](#)'). We considered stress and burnout measures as similar. We regarded follow-up times of less than three months, three months to one year, and more than one year as different.

For each study grouping with a sufficient number of studies to undertake meta-analysis, we planned to produce forest plots, calculate  $\text{Chi}^2$  tests and the  $I^2$  statistic ([Higgins 2003](#)) to measure heterogeneity. We planned to evaluate the results of these statistical tests in accordance with [Higgins 2011](#). If we considered that we detected statistical heterogeneity in any of our study groupings, we planned to investigate it further using subgroup and sensitivity analyses. If we found an indication of substantial heterogeneity (e.g.  $I^2$  value greater than 50%), we planned not to produce a pooled estimate, but to present a narrative summary of our findings.

### Assessment of reporting biases

We assessed reporting bias according to [Sterne 2011](#). We reduced the effect of reporting bias by including studies and not publications in order to avoid the introduction of duplicated data (i.e. two articles could represent duplicate publications of the same study). Following the [Cho 2000](#) statement on redundant publications, we attempted to detect duplicate studies and, if more articles reported on the same study, we planned to extract data only once. We prevented location bias by searching across multiple databases. We prevented language bias by not excluding any article based on language. If we found sufficient studies, we planned to draw funnel plots to assess the presence of possible publication bias (trial effect versus standard error). Whilst funnel plot asymmetry may indicate publication bias, this can be misleading with a small number of studies ([Lau 2006](#)). We planned to discuss possible explanations for any asymmetry in the review in light of the number of included studies. We assessed outcome reporting bias during the data extraction process by determining if all outcomes that had been stated to have been collected were reported in analyses.

### Data synthesis

We planned to undertake meta-analysis and produce a pooled estimate using Review Manager 5 software ([RevMan 2014](#)), as well as a narrative account for each study group, in the event that we identified groups of clinically homogeneous studies (those with similar intervention content, research design, time to outcome measurement, and same outcome measures). We planned to use weighted mean differences with 95% confidence intervals for combining continuous outcomes, and standardised mean differences where we found different scales measuring the same outcome. When we found studies to be statistically heterogeneous, we planned to use a random-effects model. When using the random-effects model, we planned to conduct a sensitivity check by using the fixed-effect model to reveal differences in results.

We planned to separately analyse data from short-term and long-term effects for potential included studies that had conducted a series of follow-up outcome measurements.

If substantial heterogeneity was present for any group of studies, we planned not to produce a pooled estimate, but to present a narrative summary of findings. The narrative report would classify and present studies according to: intervention content, research design, time to outcome measurement, outcome measure, and intervention effect.

We used the GRADE approach as described in the *Cochrane Handbook for Systematic Reviews of Interventions* ([Higgins 2011](#)) and as implemented in the GRADEPro 3 software ([GRADE 2008](#)) to present the quality of evidence and 'Summary of findings' tables. The downgrading of the quality of a body of evidence for a specific outcome was based on five factors.

1. Limitations of study
2. Indirectness of evidence
3. Inconsistency of results
4. Imprecision of results
5. Publication bias

The GRADE approach specifies four levels of quality: high, moderate, low and very low.

### Subgroup analysis and investigation of heterogeneity

Had we found sufficient included studies, we planned to investigate the moderating effects of the following factors on the studied interventions, using subgroup analysis with formal tests for interaction:

1. Primary schools versus secondary schools;
2. Teacher status (seniority);
3. Individual characteristics (gender, socioeconomic status, ethnicity or state of health of teachers), or;
4. Organisational characteristics.

### Sensitivity analysis

We planned to undertake a sensitivity analysis to explore whether the findings of the review are robust in light of the decisions made during the review process.

In order to check for the influence of small-study effects, we planned to carry out a sensitivity analysis to compare the point estimates from fixed-effect meta-analysis to those from random-effects meta-analysis. We also planned to assess the impact of risk of bias in the included studies by restricting analyses to studies deemed to be at low risk of selection bias, performance bias, and attrition bias.

## RESULTS

### Description of studies

See [Characteristics of included studies](#) table

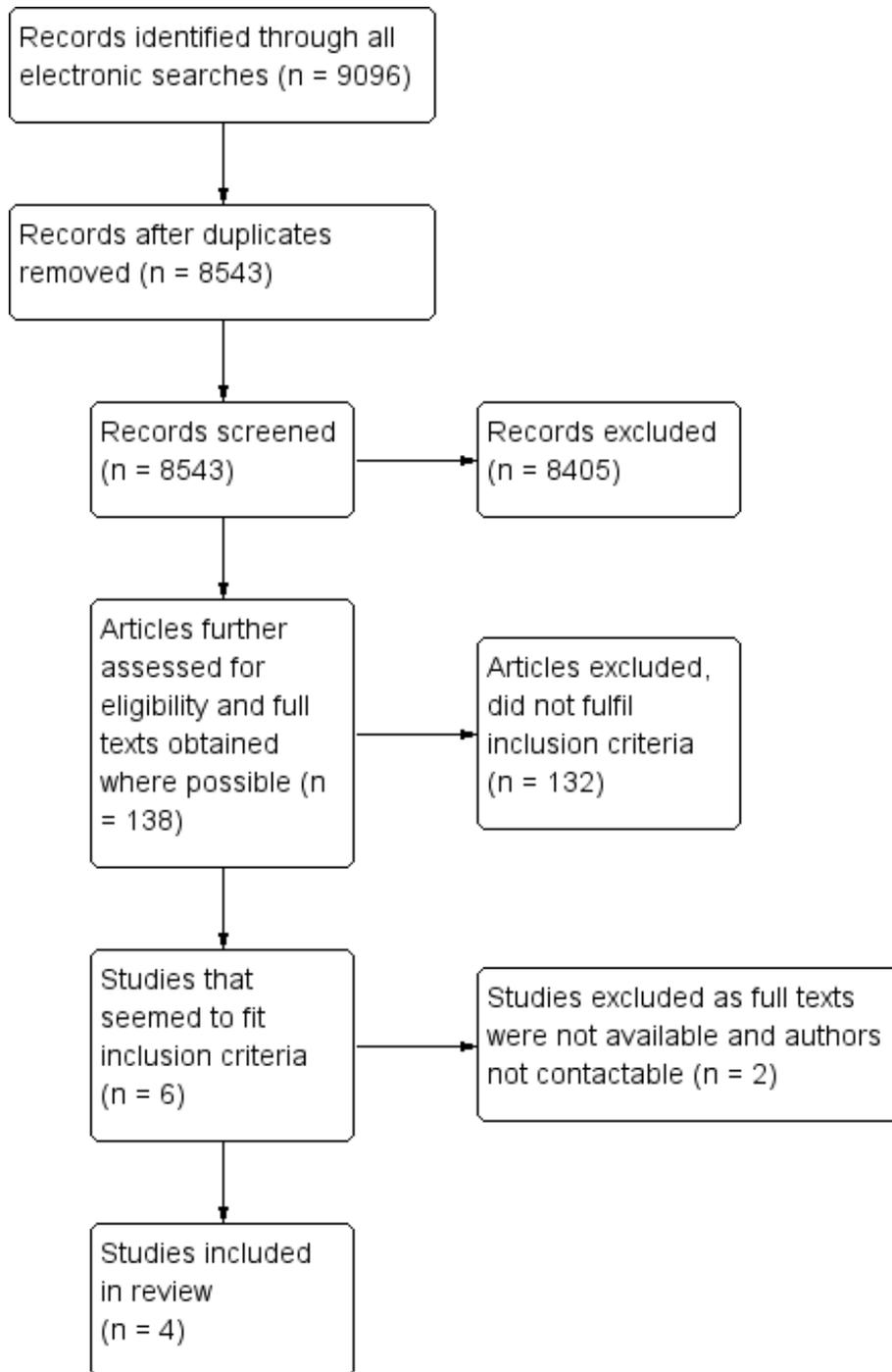
Four studies ([Brown 2010](#); [Glazerman 2012](#); [Tyson 2009](#); [Wu 2006](#)) fulfilled our inclusion criteria and thus we included them in

this review. Two were conducted in the USA, one in Australia, and one in China. Three studies were conducted in primary schools and one in middle schools. Interventions included task-based organisational change, child-centred interventions with organisational change components, and performance-related cash transfer with job promotion and mentoring support components. Three of the studies were cluster-randomised trials, and one study had a stepped-wedge design. The follow-up periods of the included studies ranged from six to 36 months.

### Results of the search

The search strategy identified titles and abstracts for 8543 publications after de-duplication. Upon first assessment by the two review author teams, we identified 138 studies for further assessment, and subsequently found four studies that met the inclusion criteria following further examination and obtaining full texts where necessary. Of the four included studies, two were published in journals, one study was a conference presentation, and one study was a non-peer-reviewed report by a policy research organisation. The study selection process is outlined in [Figure 1](#).

Figure 1. PRISMA Study flow diagram.



## Included studies

### *Study designs*

Three studies (Brown 2010; Tyson 2009; Wu 2006) were cluster-randomised controlled trials. One study (Glazerman 2012) was a stepped-wedge design with two types of control groups, including random assignment of schools to year of implementation, and propensity-score matching of intervention schools to non-intervention schools in the district. Wu 2006 and Brown 2010 had 'no intervention' control groups. Tyson 2009 had a 'usual care' control group, who received a local health education curriculum.

### *Place where studies conducted*

Two studies were carried out in the USA (Brown 2010; Glazerman 2012), in New York and Chicago respectively. One study was carried out in Perth, Australia (Tyson 2009), and one study in Sichuan Province, China (Wu 2006).

### *Type of schools*

Three studies (Brown 2010; Glazerman 2012; Tyson 2009) were conducted in primary schools. One study (Wu 2006) was conducted in middle schools.

### *Participants*

Wu 2006 included 961 teachers in eight schools. The intervention group consisted of 459 teachers in four schools, and the control group consisted of 502 teachers in four schools. After adjusting for clustering using the intra-cluster correlation coefficient (0.003) provided by Brown 2010, the numbers of participants we used in the analysis were 338 and 370 respectively.

Tyson 2009 included 405 teachers in 63 schools. Authors reported only data for teachers who completed the outcome measures at all three time points ( $n = 96$ ). Further, considering that this study was a three-arm trial, we deemed only one of the intervention groups to contain an organisational intervention relevant to this review. Thus the total number of participants analysed for this review was 59 teachers in 43 schools. The intervention group consisted of 26 teachers in 22 schools, and the control group consisted of 33 teachers in 21 schools. In the analysis the authors properly adjusted for the clustering effect.

Brown 2010 included 77 teachers in 18 schools. The intervention group consisted of 43 teachers in nine schools, and the control group consisted of 34 teachers in nine schools. In the analysis the authors properly adjusted for the clustering effect.

Glazerman 2012 included 34 schools randomly assigned to four intervention years. Eight schools in cohort 2 served as the control group for eight schools in cohort 1 (intervention group). The control group was used for the outcome of teacher attitudes. Three hundred matched comparison schools were used as controls for the outcome of teacher retention. For teacher attitudes, the authors report a sample size of 270 to 278 teachers, without any indication of the number of teachers in the intervention and control

groups. For teacher retention, the authors report a sample size of 1102 teachers for one-year rates, 881 teachers for two-year rates, and 781 teachers for three-year rates. There is no indication of the specific number of teachers in the intervention and matched comparison schools. In the analysis the authors properly adjusted for the clustering effect.

### *Follow-up periods*

The follow-up periods of the included studies ranged from six to 36 months. Wu 2006 had a 12-month follow-up. Tyson 2009 had two follow-ups, at 12 months and at 24 months. Brown 2010 was a three-year study, although the publications only provide analysis for the first year of the study (six-month follow-up). Glazerman 2012 was a four-year study, with assignment of a new cohort of schools in each year of the study. For this reason, Cohort 2 served as the control to Cohort 1 and Cohort 4 served as the control to Cohort 3 for only one year, before implementation of the intervention began in those schools. The outcome measure for which the control groups was used (teacher attitudes) therefore had a 12-month follow-up. The outcomes measure that utilised the matched-comparison groups (teacher retention) had three follow-ups at 12, 24, and 36 months.

### *Interventions and outcomes*

From the four included studies, one study (Wu 2006) contained a task-based organisational change intervention, with teacher stress and wellbeing measured as the primary outcome. One study (Glazerman 2012) had a multi-component intervention containing performance bonus, job promotion opportunities and mentoring support, measuring teacher attitudes and teacher retention outcomes. Two studies (Brown 2010; Tyson 2009) had teacher training for child-centred interventions along with school-wide coaching support, with teacher-affective wellbeing measures as secondary outcomes.

### *Changing task characteristics*

Wu 2006 contained an intervention involving both individual (stress management training) and organisational approaches (e.g. redesigning the task, establishing flexible work schedules and redesigning the work environment). There is no further information on the content of the organisational component of the intervention. However, the authors have alluded to feeding the baseline data back to the participants in order to develop the intervention. Outcome measures include the Occupational Health Inventory and the Work Ability Index.

### *Changing organisational characteristics*

Tyson 2009 contained an intervention titled the Aussie Optimism programme, which is a universal, mental-health promotion programme, delivered by teachers and aimed at preventing anxiety and depression in children and adolescents. The aim of the study was to assess whether programme training and implementation has a secondary positive impact on teachers' job-related affective wellbe-

ing. The study involved two intervention arms: teacher training, and teacher training along with school-wide coaching support. Outcome measures include the Job-related Anxiety-Contentment Scale and the Job-related Depression-Enthusiasm Scale.

[Brown 2010](#) contained an intervention titled the 4Rs Programme, which is a universal, school-based intervention in literacy development, social-emotional learning, and conflict resolution delivered by teachers. The basis for the study was that positive changes in teacher-affective and pedagogical processes and practices underlie positive change in children. Teachers in the intervention group receive training and school-wide coaching support for the delivery of the 4Rs curriculum to school children. Outcome measures include the Maslach Burnout Inventory and the Teacher Perceived Emotional Ability scale.

#### Multi-component intervention

[Glazerman 2012](#) contained an intervention titled the Chicago Teacher Advancement Program (TAP), which is a school-wide intervention whereby teachers can earn extra pay and take on increased responsibilities through promotion, and become eligible for annual performance bonuses based on a combination of their contribution to student achievement and observed performance in the classroom. The intervention also involved classroom observations and weekly mentoring in order to track and improve the performance of teachers. The amount available in the bonus pool was an average of USD 2000 per teacher per year. Payments were expected to average USD 500 per teacher based on classroom observations and up to USD 1500 per teacher based on school-wide student achievement growth. Job promotion opportunities involved the positions of Chicago TAP Lead and Mentor Teachers, who received an additional USD 15,000 and USD 7000 respectively, as compensation for assuming more responsibility. Outcome measures included teacher retention rates and an unvalidated teacher attitudes questionnaire to assess school climate.

#### Excluded studies

See [Characteristics of excluded studies](#) table

We rejected studies failing to meet the inclusion criteria in the initial stage of study selection, for reasons such as study design, randomisation at the individual level, no control group, no measure of stress or wellbeing, and individually-directed intervention without an organisational component. Other studies had to be assessed with more scrutiny, and we excluded them for the following reasons.

- Worksite health promotion programmes that are effectively individually-directed interventions, such as [Allegrante 1990](#), [Blair 1986](#) and [Cullen 1999](#).
- Educational interventions that focus on strengthening individuals, such as classroom management training e.g. [Bishop 1983](#), [Sharp 1982](#), and [Sharp 1985](#); discipline management training e.g. [Snyder 1986](#).

- Support groups in isolation, as opposed to a new organisational function e.g. [Cecil 1990](#).
- Cash transfer interventions without an organisational change component and not addressing outcomes of interest e.g. [Goodman 2010](#).
- No measure of school-level effects e.g. [Larsson 1990](#).
- Full text unavailable- [Coad 1976](#) and [Charters 1978](#) seemed to have potential for inclusion, but they were conference proceedings and we had no success in making contact with the authors.

#### Risk of bias in included studies

##### Allocation

The authors of all the included studies had stated having conducted randomised studies. Only one study elaborated on their sequence generation ([Brown 2010](#)), utilising a MATLAB uniform random numbers generator. [Glazerman 2012](#) alluded to their sequence generation by reporting that a lottery was conducted in May 2007 for Cohorts 1 and 2, and in March 2009 for Cohorts 3 and 4. [Glazerman 2012](#) was also the only study that alluded to allocation concealment, reporting that after having conducted the lottery assigning schools into cohorts, the research team sent the school assignments to the local education authority, who subsequently informed the school principals of their assignment. Two studies ([Brown 2010](#); [Glazerman 2012](#)) used a stratified random sampling approach. [Glazerman 2012](#) imposed constraints on the randomisation based on observable school characteristics to improve homogeneity of the two groups. [Brown 2010](#) pairwise matched schools based on a range of demographic and school characteristics prior to randomising. In this regard, [Brown 2010](#) stated that: “because the final set of 18 schools was not randomly selected from the initially recommended pool of 41 schools, nor drawn randomly from the entire population of elementary schools in this city, the external validity or generalizability of the results from the present study is compromised”.

##### Blinding

The study designs and the nature of the interventions evaluated in these studies make blinding of participants and personnel impossible. None of the studies mention any attempt to blind outcome assessment, which was conducted by researchers in all included studies.

##### Incomplete outcome data

We contacted all authors to obtain missing data. The authors of [Wu 2006](#) were not traceable, and the required information was unavailable from [Tyson 2009](#) and [Glazerman 2012](#) within two months of contacting them. We judged attrition bias to be at

high risk for two studies (Tyson 2009; Wu 2006). Wu 2006 did not provide any information on attrition in the data, and the sample size for the pre- and post-intervention data appear to be the same. When we conducted mean difference calculations of the data in RevMan 2014, we found a significant effect in one of the subscales (Role Insufficiency) for which the study reports a non-significant result. This could be due to our assuming sample sizes for pre- and post-intervention data to be the same, while the authors may have calculated the mean difference with the actual post-intervention sample size (after attrition). We can thus assume from the evidence that they did not conduct an intention-to-treat analysis. Tyson 2009 only reported results for teachers who completed the outcome measures at both post-intervention time points, which equates to 96 teachers from the total of 405 teachers in the study sample.

### Selective reporting

We judged reporting bias to be at high risk for two studies (Glazerman 2012; Tyson 2009). Tyson 2009 did not report an intention-to-treat analysis that they conducted for the total sample of 405 teachers as it showed no significant results. Glazerman 2012 only reported 12-month, 24-month, and 36-month retention rates for Cohort 1. They did not report retention rates for the other cohorts independently, and only reported them in combination with other cohorts, limiting their usefulness.

### Other potential sources of bias

The knowledge of whether each school is an intervention or control could affect the types of participants who respond to surveys, and this can be overcome by conducting baseline measures prior to randomisation of clusters. None of the studies reported any attempts to address this recruitment bias. All studies except Wu 2006 accounted for clustering in their analysis. Glazerman 2012 used an unvalidated survey to measure teacher attitudes on school climate. Further, there is no clear indication of the number of teachers in each cohort and in total. In Tyson 2009, mean differences did not show any significant effects, but the authors utilised hierarchical regression analysis to claim significant effects on job-related anxiety at 24-month assessment and job-related depression at both 12- and 24-month assessments compared to the control group. Brown 2010 did not provide data on the total teacher population (sampling frame) or on non-responders.

### Effects of interventions

See: [Summary of findings for the main comparison Changing task characteristics versus no intervention for improving wellbeing and reducing work-related stress in teachers](#); [Summary of findings 2 Changing organisational characteristics versus no intervention for improving wellbeing and reducing work-related stress in](#)

[teachers](#); [Summary of findings 3 Multi-component intervention versus no intervention for improving wellbeing and reducing work-related stress in teachers](#)

The studies in this review vary greatly with respect to their objectives, types of interventions, and outcome measures. We did not perform any meta-analysis, as the interventions were too heterogeneous to be combined meaningfully. Utilising the three categories of organisational-level interventions as changing organisational, role, or task characteristics, we categorised the included studies as follows. Wu 2006 contained a task-based organisational change intervention, which we categorised as changing task characteristics. Glazerman 2012 had a multi-component intervention containing performance bonus, job promotion opportunities and mentoring support, which we categorised as changing organisational and role characteristics. Brown 2010 and Tyson 2009 both evaluated teacher training for child-centred interventions with a school-wide coaching support component, which we categorised as changing organisational characteristics. The latter two studies had clear differences in study design and quality, intervention content, study objectives, and outcome measures. Tyson 2009 aimed to assess whether programme training and implementation had a secondary positive impact on teachers' job-related affective wellbeing, while the basis for the study by Brown 2010 was that positive changes in teacher affective and pedagogical processes and practices underlie positive change in children. The former measured job-related anxiety and depression, while the latter measured burnout and emotional ability.

### Changing task characteristics versus no intervention

Wu 2006 was a cluster-randomised controlled trial of 961 teachers in eight middle schools. The authors did not account for clustering. We employed the intra-cluster correlation coefficient for the burnout scale (0.003) provided by Brown 2010 in a personal communication. After adjusting for clustering, the total number of participants used in the analysis was 708 teachers in eight schools. Intervention involved both individual (stress management training) and organisational approaches (e.g. redesigning the task, establishing flexible work schedules and redesigning the work environment). Compared to the control group at 12 months, there was a modest reduction in most of the subscales in the Occupational Stress Inventory (See [Data and analyses](#) table), and a modest increase in the Work Ability Index (MD 2.27; 95% CI 1.64 to 2.90). The six subscales of the Occupational Stress Inventory (from 14) we report in the corresponding [Summary of findings for the main comparison](#) we selected as derived from the theories of change explained under [How the intervention might work](#). These include Role Overload (MD -0.94; 95% CI -1.61 to -0.27), Role Ambiguity (MD -0.23; 95% CI -0.84 to 0.38) Responsibility (MD -1.19; 95% CI -1.91 to -0.47), Vocational Strain (MD -0.78; 95% CI -1.42 to -0.14), Interpersonal Strain (MD -0.78; 95% CI -1.33 to -0.23), and Social Support (MD -0.50; 95% CI -1.49 to 0.49).

### Changing organisational characteristics versus no intervention

Tyson 2009 was a cluster-randomised controlled trial involving 59 teachers in 43 primary schools in the analysis. The intervention was teacher training in the Aussie Optimism programme along with school-wide coaching support. The Aussie Optimism programme is a universal, mental-health promotion programme, delivered by teachers and aimed at preventing anxiety and depression in children and adolescents. The aim of the study was to assess whether the programme had a secondary positive impact on teachers' job-related affective wellbeing. Compared to the control group, there was no significant effect on the Job-related Anxiety-Contentment scale or the Job-related Depression-Enthusiasm scale after 12 and 24 months. These include Job-related Anxiety at 12 months (MD -0.25; 95% CI -0.72 to 0.22), Job-related Anxiety at 24 months (MD -0.25; 95% CI -0.61 to 0.11), Job-related Depression at 12 months (MD -0.38; 95% CI -0.76 to 0), and Job-related Depression at 24 months (MD -0.26; 95% CI -0.57 to 0.05).

Brown 2010 was a cluster-randomised controlled trial involving 77 teachers in 18 primary schools. The intervention was the 4Rs Program, a universal, school-based intervention in literacy development, social-emotional learning, and conflict resolution. Teachers in the intervention group received training and school-wide coaching support for the delivery of the 4Rs curriculum to school children. Compared to the control group at six months, there was no significant effect on the Maslach Burnout Inventory or the Teacher Perceived Emotional Ability subscales. These include Maslach Burnout Inventory- emotional exhaustion (MD -0.05; 95% CI -0.52 to 0.42), Maslach Burnout Inventory- depersonalisation (MD -0.17; 95% CI -0.72 to 0.39), Maslach Burnout Inventory- personal accomplishment (MD 0.06; 95% CI -0.23 to 0.35), Emotional Ability- perceiving emotions (MD 0.13; 95% CI -0.13 to 0.38), Emotional Ability- understanding emotions (MD -0.07; 95% CI -0.27 to 0.13), and Emotional Ability- regulating emotions (MD 0.11; 95% CI -0.11 to 0.33).

**Multi-component intervention versus no intervention (matched comparison)**

Glazerman 2012 was a stepped-wedge design involving 34 pri-

mary schools with two types of control groups, including random assignment of schools to year of implementation, and propensity-score matching of intervention schools to non-intervention schools in the district. The intervention was the Chicago Teacher Advancement Program (TAP), which is a school-wide intervention whereby teachers can earn extra pay and take on increased responsibilities through promotion, and become eligible for annual performance bonuses based on a combination of their contribution to student achievement and observed performance in the classroom. Compared to a matched-comparison group, the study found higher teacher retention rates at 12-month (MD 7.90; 95% CI 2.00 to 13.80), 24-month (MD 18.30; 95% CI 8.75 to 27.85), and 36-month (MD 11.50; 95% CI 3.25 to 19.75) follow-ups. The mean differences are percentages, and so demonstrate moderate effect sizes, albeit with wide confidence intervals. What is more, these findings are based on only a small subset of all data as the authors report data only for the first cohort (eight schools). Results of an unvalidated teacher attitudes survey also demonstrate that Chicago TAP had no effect on school climate in the intervention schools, compared to control schools and to matched comparison schools at 12 months.

**Grading of the evidence**

We employed the five factors in the GRADE Approach for assessing the quality of evidence for each outcome as follows. We utilised our assessments of the studies' risk of bias for the 'Limitations of study' factor. 'Indirectness of evidence' was present in all comparisons as all intervention packages in the included studies had an individual-level intervention thus confounding the effect of the organisational-level component. Findings for each outcome were based on only one study. Due to the paucity of studies in this review, we could not adequately examine 'Inconsistency of results' and 'Publication bias'. 'Imprecision of results' was present in the 'Changing organisational characteristics' and the 'Multi-component intervention' comparisons due to underpowered studies and thus wide confidence intervals.

## ADDITIONAL SUMMARY OF FINDINGS *[Explanation]*

Changing organisational characteristics versus no intervention for improving wellbeing and reducing work-related stress in teachers						
<b>Population:</b> Teachers <b>Settings:</b> Schools <b>Intervention:</b> Teacher training along with school-wide coaching support versus no intervention						
Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	No intervention	Teacher training of a mental health promotion programme for children along with school-wide coaching support				
<b>Job-related Anxiety- 24 months</b> Scale from: 1 to 6.	The mean job-related anxiety- 24 months in the control groups was <b>2.31</b>	The mean job related anxiety- 24 months in the intervention groups was <b>0.25 lower</b> (0.61 lower to 0.11 higher)		59 (1 study)	⊕○○○ <b>very low</b> <sup>1234</sup>	
<b>Job-related Depression- 24 months</b> Scale from: 1 to 6.	The mean job related depression- 24 months in the control groups was <b>1.70</b>	The mean job related depression- 24 months in the intervention groups was <b>0.26 lower</b> (0.57 lower to 0.05 higher)		59 (1 study)	⊕○○○ <b>very low</b> <sup>1234</sup>	

<b>Maslach Burnout Inventory- Emotional Exhaustion</b> Scale from: 0 to 6.	The mean emotional exhaustion in the control groups was <b>3.31</b>	The mean emotional exhaustion in the intervention groups was <b>0.05 lower</b> (0.52 lower to 0.42 higher)	77 (1 study)	 <b>low</b> <sup>2,4,5</sup>
<b>Maslach Burnout Inventory- Depersonalisation</b> Scale from: 0 to 6.	The mean depersonalisation in the control groups was <b>1.58</b>	The mean depersonalisation in the intervention groups was <b>0.17 lower</b> (0.72 lower to 0.39 higher)	76 (1 study)	 <b>low</b> <sup>2,4,5</sup>
<b>Maslach Burnout Inventory- Personal Accomplishment</b> Scale from: 0 to 6.	The mean personal accomplishment in the control groups was <b>4.72</b>	The mean personal accomplishment in the intervention groups was <b>0.06 higher</b> (0.23 lower to 0.35 higher)	76 (1 study)	 <b>low</b> <sup>2,4,5</sup>
<b>Emotional Ability- Perceiving Emotions</b> Scale from: 1 to 5.	The mean perceiving emotions in the control groups was <b>3.95</b>	The mean perceiving emotions in the intervention groups was <b>0.13 higher</b> (0.13 lower to 0.38 higher)	75 (1 study)	 <b>low</b> <sup>2,4,5</sup>
<b>Emotional Ability- Regulating Emotions</b> Scale from: 1 to 5.	The mean regulating emotions in the control groups was <b>3.79</b>	The mean regulating emotions in the intervention groups was <b>0.11 higher</b> (0.11 lower to 0.33 higher)	76 (1 study)	 <b>low</b> <sup>2,4,5</sup>

\*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

**CI:** Confidence interval;

GRADE Working Group grades of evidence

**High quality:** Further research is very unlikely to change our confidence in the estimate of effect.

**Moderate quality:** Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

**Low quality:** Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

**Very low quality:** We are very uncertain about the estimate.

<sup>1</sup>The study has bias in terms of incorrect analysis and reporting bias. Only data for teachers (n = 96) who completed the affective wellbeing scales at all 3 time points have been reported, without ITT analysis.

<sup>2</sup>Intervention package includes individual-level intervention

<sup>3</sup>The study evaluation effectively involved 59 teachers in 43 schools, and so is heavily underpowered

<sup>4</sup>Wide confidence intervals

<sup>5</sup>No mention of the total teacher population (sampling frame) and non-responders, and no indication of whether the study was sufficiently powered, considering that sample size was 77 teachers in 18 schools

Multi-component intervention versus no intervention for improving well-being and reducing work-related stress in teachers						
<b>Population:</b> Teachers <b>Settings:</b> Schools <b>Intervention:</b> Performance-based bonus, job promotion opportunities and mentoring support versus no intervention						
Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	No intervention	Performance-based bonus, job promotion opportunities and mentoring support				
<b>Retention rates, 12 months, Cohort 1</b> Scale from: 0 to 100.		The mean retention rates, 12 months, cohort 1 in the intervention groups was <b>7.9 percent higher</b> (2.00 to 13.80 higher)		1102 (1 study)	⊕○○○ <b>very low</b> <sup>1,2,3</sup>	control means were not available
<b>Retention rates, 24 months, Cohort 1</b> Scale from: 0 to 100.		The mean retention rates, 24 months, cohort 1 in the intervention groups was <b>18.30 percent higher</b> (8.75 to 27.85 higher)		881 (1 study)	⊕○○○ <b>very low</b> <sup>1,2,3</sup>	control means were not available
<b>Retention rates, 36 months, Cohort 1</b> Scale from: 0 to 100.		The mean retention rates, 36-months, cohort 1 in the intervention groups was <b>11.50 percent higher</b> (3.25 to 19.75 higher)		781 (1 study)	⊕○○○ <b>very low</b> <sup>1,2,3</sup>	control means were not available

\*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

**CI:** Confidence interval;

GRADE Working Group grades of evidence

**High quality:** Further research is very unlikely to change our confidence in the estimate of effect.

**Moderate quality:** Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

**Low quality:** Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

**Very low quality:** We are very uncertain about the estimate.

<sup>1</sup>Reporting bias is present. Retention is reported for Cohort 1 as 1-year, 2-year, and 3-year rates. However, they are not reported independently for each of the other 3 cohorts, and only reported in combination, limiting their usefulness

<sup>2</sup>Intervention package includes individual-level intervention

<sup>3</sup>Wide confidence intervals

## DISCUSSION

### Summary of main results

Based on one study, changing task characteristics resulted in modest reductions in stress levels and improvements in work ability when compared to no intervention. Based on two studies, changing organisational characteristics resulted in no significant effects on burnout, emotional ability, job-related anxiety and job-related depression when compared to no intervention. Based on one study, multi-component intervention resulted in a moderate increase in retention rates at 12 months, 24 months, and 36 months when compared to a matched-comparison group. Overall the results are generally positive but small to moderate in effect size and yield low-quality evidence mainly due to the included studies being underpowered.

### Overall completeness and applicability of evidence

We have included four studies in this review, which aimed to assess the evidence for organisational interventions to improve wellbeing and reduce work-related stress in teachers. As expected, there are generally far more studies on individually-directed interventions compared to those that aim to change some aspect of the work environment to improve staff wellbeing. Two of the four included studies (Brown 2010; Tyson 2009) were in fact teacher training for child-centred interventions. We included them because they had a secondary organisational change component.

There are some common patterns in the four included studies. For example, three studies had a mentoring or coaching component. Moreover, all studies had an individually-directed intervention component. This affected the directness of the body of evidence by confounding outcome effects resulting from the organisational component of the intervention package. In other words, we did not find any studies that exclusively tested an organisational intervention. The included studies were from the USA, China, and Australia, with no studies identified in Europe, Africa, and Latin America, further limiting the applicability of the evidence. The organisational intervention content was not elaborated in any of the studies. Therefore it would be difficult to replicate the interventions in practice. Furthermore, none of the studies included an economic evaluation of the intervention or the trial. Organisational interventions to improve staff wellbeing can involve significant costs, and the cost effectiveness of interventions would be crucial in decisions to scale up the evaluations by researchers or to adopt the interventions by policy-makers.

### Quality of the evidence

Most of the trials in this review were affected by methodological problems. Wu 2006 did not account for clustering in the analysis, which we corrected by employing the intra-cluster correlation coefficient for the burnout scale (0.003) provided by Brown 2010 following our request for further information. The study does not refer to attrition in the data and there is no mention of intention-to-treat (ITT) analysis. Further, the intervention in this study is not replicable, mainly because its content is unclear. If the analysis for this study had been done correctly and if the organisational component of the intervention were more explicit, it would still be difficult to draw conclusions from the results for the effectiveness of organisational interventions, as the intervention also involved an individually-directed component (stress management training).

Tyson 2009 only reported data for teachers (n = 96) who completed the outcome measures at both post-intervention time points, without an ITT analysis. An ITT analysis for 405 teachers who participated in the study showed no significant results and the authors did not report it. The study reports that non-completers of the surveys had significantly higher levels of pre-test job-related anxiety and depression than the completers at the pre-test, and at 12-month and 24-month assessments. The authors suggest that this may explain why ITT analyses were non-significant. An evaluation that effectively involves only 59 teachers in 43 schools would lead to spurious results, predominantly because the study is heavily underpowered. Another methodological error in this study is the utilisation of the same control group for both intervention arms. Brown 2010 was a well-conducted trial of a higher methodological quality compared to the other included studies. However, the follow-up period was only six months, and the study was not sufficiently powered, with a sample size of 77 teachers in 18 schools. Moreover, there was no mention of the total teacher population (sampling frame) or of non-responders.

Glazerman 2012 was a well-conducted trial with clear justifications for study design choices. For the teacher retention outcome, the authors adopted a matched-comparison approach as opposed to utilising the control group. They gathered administrative data on over 300 Chicago schools that were not participating in the Chicago Teacher Advancement Program (TAP), and then used propensity-score matching to identify the schools that were closely matched to each group of Chicago TAP schools. The rationale for this decision was that for outcomes that can be affected by knowledge of future implementation, such as teacher retention, the randomised control group is not a pure standard of comparison. The control group is also affected by Chicago TAP, although less directly than the treatment group, as the school's staff know that they will be implementing Chicago TAP in the future, and that knowledge could change their behaviour. On the other hand, the matched-comparison group can be much larger than the randomised control group, and its members continue to be non-TAP schools during the course of the study, allowing more years for a comparison between Chicago TAP and non-TAP schools. The

study reports and elaborates a rigorous procedure for the propensity-score matching. Shortcomings of the study include reporting bias, as the authors report results only for the first cohort for all three follow-up time points. The authors did not report retention rates for the other three cohorts independently, and only reported them in combination with other cohorts, thus limiting their usefulness. Further, the study does not provide a clear indication of the number of teachers in each cohort and in total. In order to assess school climate, the study utilised an unvalidated survey, with no reporting of its psychometric properties.

The included studies in this review were of mixed quality in terms of reporting process and implementation data, and elaborating on the design, delivery, and participant uptake of the intervention. Wu 2006 did not report any process and implementation data. Tyson 2009 referred to intervention developers, and provided some description of the delivery and participant uptake of the intervention but apparently did not conduct a formal process evaluation. Brown 2010 elaborated on the intervention design, reported having collected implementation data, and provided some description of the participant uptake of the intervention. Glazerman 2012 elaborated on a process evaluation in their study, including quantitative surveys, qualitative interviews, and administrative data. The authors provided information on delivery and uptake of the intervention, including teacher pay-outs, intervention fidelity, and teacher attitudes. They also provide information on contextual factors affecting these variables. Components of the process evaluation were conducted by external bodies, including teacher surveys and focus groups by the local education authority, and intervention fidelity ratings by a national regulatory body.

### Potential biases in the review process

We made every effort to conduct this review to the highest standards recommended in the *Cochrane Handbook of Systematic Reviews of Interventions* (Higgins 2011). It seems that this is an emergent and inter-disciplinary field, and although we searched an extensive number of sources, we may not have had an exhaustive strategy for non-database searching. We identified two older studies for potential inclusion, but we were not able to obtain full-text articles and this may have influenced our conclusions. Further, due to the paucity of included studies, we were unable to assess for publication bias.

Another potential source of bias may be our strict inclusion criteria with respect to study design. Researchers may find it challenging to incorporate organisational change interventions into an experimental design, and we might have excluded potentially useful studies with lower-quality study designs.

### Agreements and disagreements with other studies or reviews

This is the first systematic review looking at the impact of organisational interventions on teacher wellbeing. Two related studies that contained non-systematic reviews of interventions for teacher wellbeing (Bricheno 2009; Dunlop 2004) suggest a major focus in research and practice on individually-directed interventions, and a paucity of evidence for organisational interventions. Our review confirms this, and provides a basis for further intervention development and testing in this area. Further, none of the included studies appeared in the previous reviews, since all but one (Wu 2006) were published after these reviews appeared.

## AUTHORS' CONCLUSIONS

### Implications for practice

Because of the paucity of organisational intervention studies for teacher wellbeing, low-quality evidence in this review, and the heterogeneous nature of the interventions in the four included studies, implications for practice are currently very limited. Such organisational interventions could usefully be conducted in organisations in the context of a research study. They can safely be put into practice as a trial for the purposes of intervention development and efficacy evaluations. All studies reported benefits, although interventions for changing organisational characteristics did not yield statistically significant results. Furthermore, there is no evidence or rational arguments for harm arising from these interventions.

### Implications for research

Organisational interventions for teacher wellbeing should follow the MRC Complex Interventions Framework and use a cluster-randomised controlled trial design. A qualitative review should provide further grounds for intervention development and piloting in this area. Intervention studies need to have a concrete conceptual understanding of organisational interventions and their theory of change. They need to provide full details of the intervention content and on process evaluation. Collection of contextual data in no-intervention control schools will help the understanding of why and how the intervention has worked. Socio-economic or performance indicators need to be used to justify similarities between the initial pool of schools prior to randomisation so that they can be meaningfully compared. Further, sample size calculations need to be conducted to ensure sufficiently powered trials, taking into account the effect of clustering. Drawing on data from the included studies and following Roberts 2005, a minimum of 18 schools (nine per trial arm) would be required for a pool of schools with an average of 50 teacher participants per school. This calculation was conducted with a power of 0.8, an alpha of 0.05, and using the `clsamps` package in Stata 11. The outcome should preferably be a combination of objective (e.g. teacher retention) and subjective (e.g. teacher burnout; organisational climate)

measures. It is also important for the outcome to be measured at a sufficient medium- or long-term follow-up, such as three years after the intervention was conducted. Structural interventions will take time to be fully embedded, and for their impact to be realised.

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\* Indicates the major publication for the study

## CHARACTERISTICS OF STUDIES

### Characteristics of included studies [ordered by study ID]

#### Brown 2010

Methods	Cluster-randomized trial
Participants	77 teachers in 18 primary schools. 9 intervention (n=43) and 9 control (n=34) schools in New York City, USA
Interventions	1- 4Rs Programme- universal, school-based intervention in literacy development, social-emotional learning, and conflict resolution 2- No-intervention control
Outcomes	Teacher Perceived Emotional Ability Scale, Maslach Burnout Inventory Surveys conducted at baseline and 6 months post intervention
Notes	Teachers in the intervention group receive training and ongoing coaching in the delivery of the 4Rs curriculum to school children Date of the intervention: 2004-2005 Funding: Institute of Education Sciences, U.S. Department of Education, in collaboration with the Centers for Disease Control and Prevention, U.S. Department of Health and Human Services (Grant R305L030003); William T. Grant Foundation Conflict of interest: No

#### *Risk of bias*

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Schools pair-wise matched and then randomly assigned using a uniform random numbers generator
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding of participants and personnel (performance bias) All outcomes	Unclear risk	Not reported, not applicable
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) All outcomes	Low risk	It is stated that there was no attrition from fall to spring in the assessment of the first year of the study, and data were collected from 4 additional teachers
Selective reporting (reporting bias)	Low risk	All stated outcome data reported
Recruitment bias	Unclear risk	Not reported

**Brown 2010** (Continued)

Baseline imbalance	Low risk	The authors report that the 2 groups did not differ significantly on a range of demographic and school characteristics employed in the matching procedures. However, teaching experience was significantly higher for the control group compared to intervention group, which may only be concerning if it was vice versa
Incorrect analysis	Low risk	2-level hierarchical linear model used, and clustering taken into account
Other bias	Unclear risk	No mention of the total teacher population (sampling frame) and non-responders, and no indication of whether the study was sufficiently powered

**Glazerman 2012**

Methods	Stepped-wedge design with 2 types of control groups (depending on the outcome measure): 1- Random assignment of schools to year of implementation 2- Propensity-score matching of intervention schools to non-intervention schools in the district
Participants	34 elementary schools in Chicago, USA Random assignment as follows: Cohort 1: 8 schools to start Chicago Teacher Advancement Program (TAP) in 2007 Cohort 2: 8 schools to start Chicago TAP in 2008 (serving as control for Cohort 1) Cohort 3: 9 schools to start Chicago TAP in 2009 Cohort 4: 9 schools to start Chicago TAP in 2010 (serving as control for Cohort 3) The control group was used for the outcome of teacher attitudes. Three hundred matched comparison schools were used as controls for the outcome of teacher retention. For teacher attitudes, a sample size of 270 to 278 teachers is reported, without any indication of the number of teachers in the intervention and control groups. For teacher retention, a sample size of 1102 teachers is reported for one-year rates, 881 teachers for two-year rates, and 781 teachers for three-year rates. There is no indication of the specific number of teachers in the intervention and matched comparison schools
Interventions	1- Chicago TAP- school-wide intervention whereby teachers can earn extra pay and take on increased responsibilities through promotion, and become eligible for annual performance bonuses based on a combination of their contribution to student achievement and observed performance in the classroom 2- No-intervention (wait list) control
Outcomes	Teacher retention- measured as percentage of teachers returning to work at the same school in subsequent academic years at 12, 24, and 36 months post intervention Teacher attitudes (school climate) unvalidated survey, conducted at baseline and subsequently 12, 24, and 36 months post intervention

Notes	<p>The theory of change for TAP is that giving teachers performance incentives, along with tools to track their performance and improve instruction, will help schools attract and retain talented teachers and help all teachers raise student achievement</p> <p>Date of the intervention: 2007-2011</p> <p>Funding: U.S. Department of Education Teacher Incentive Fund (TIF) granted to Chicago Public Schools (CPS)</p> <p>Conflict of interest: No</p>	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	<p>Lottery conducted in May 2007 for Cohorts 1 &amp; 2, and March 2009 for Cohorts 3 &amp; 4</p> <p>Stratified random sampling was utilised.</p> <p>Quote:</p> <p>"We used the many observable characteristics of schools to improve the chances that schools assigned to the treatment versus control group would have similar characteristics....In assigning cohorts 1 and 2 we imposed constraints on the randomisation so that the largest and smallest school (in terms of student enrolment) were in the same Chicago TAP cohort (treatment or control), the three schools with a predominantly non-African American student body were not in the same cohort, and neither cohort had more than one pair of schools from the same geographic area of the city. In assigning cohorts 3 and 4 we imposed constraints so that the difference in average enrolment between cohorts was less than 100 students, the difference in average total score on the Illinois Standards Achievement Test (ISAT) was less than six scale points, the three schools where fewer than 95 percent of students were African-American were not all in the same cohort, and both cohorts had representation of each geographic area that contained more than one school"</p>
Allocation concealment (selection bias)	Low risk	<p>After the lottery assigning schools into cohorts, the research team sent the school assignments to the local education authority, who subsequently informed the school principals of their assignment</p>

**Glazerman 2012** (Continued)

Blinding of participants and personnel (performance bias) All outcomes	Unclear risk	Not reported, not applicable
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) All outcomes	Low risk	Attrition was accounted for and ITT analysis conducted
Selective reporting (reporting bias)	High risk	Retention is reported for Cohort 1 as 1-year, 2-year, and 3-year rates. However, they are not reported independently for each of the other cohorts, and only reported in combination
Recruitment bias	Unclear risk	Not reported
Baseline imbalance	Low risk	Baseline characteristics have been reported for TAP schools (Cohorts 1 & 3), control schools (Cohorts 2 & 4), and matched-comparison schools. No significant baseline differences in school characteristics, and in teacher age, gender, race, and experience ( $P > 0.05$ ). The only significant difference ( $P < 0.05$ ) was in the percentage of teachers who have a master's degree or higher between Cohort 3 TAP schools and the matched-comparison group. However, there were no significant differences between other indicators of educational level such as 'National board certification' and 'Alternative education'
Incorrect analysis	Low risk	Clustering of teachers within schools was accounted for, and impact estimates were calculated as regression-adjusted means
Other bias	Unclear risk	There is no clear indication of the number of teachers in each cohort and in total

**Tyson 2009**

Methods	Cluster-randomized trial
Participants	405 teachers in 63 primary schools in Western Australia Only data for teachers (n = 96) who completed the affective wellbeing scales at all 3 time points have been reported, without ITT analysis. Considering that this study was a three-arm trial, we deemed only one of the intervention groups to contain an organisational intervention relevant to this review. Thus the total number of participants analysed for this review was 59 teachers in 43 schools. The intervention group consisted of 26 teachers in 22 schools, and the control group consisted of 33 teachers in 21 schools. The individual-level intervention excluded from this review consisted of 37 teachers in 20 schools
Interventions	The Aussie Optimism programme is a universal, mental-health promotion programme, delivered by teachers and aimed at preventing anxiety and depression in children and adolescents. The aim of the study is to assess whether the programme has a secondary positive impact on teachers' job-related affective wellbeing The study contains 1 control and 2 intervention groups: 1- Teacher training in Aussie Optimism 2- Teacher training in Aussie Optimism along with coaching for the duration of the study 3- Usual care- implementing the regular Western Australian Health Education Curriculum
Outcomes	Job-related Anxiety-Contentment Scale, Job-related Depression-Enthusiasm Scale Surveys conducted at baseline, and subsequently 12 months and 24 months post intervention
Notes	The main purpose of this study was mental-health promotion in children; job-related affective wellbeing in teachers was investigated as a secondary outcome Date of the intervention: Not reported Funding: Not reported Conflict of interest: Unknown

***Risk of bias***

<b>Bias</b>	<b>Authors' judgement</b>	<b>Support for judgement</b>
Random sequence generation (selection bias)	Unclear risk	Schools were randomly allocated to the 3 study groups, but no mention of method of sequence generation
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding of participants and personnel (performance bias) All outcomes	Unclear risk	Not reported, not applicable
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not reported

**Tyson 2009** (Continued)

Incomplete outcome data (attrition bias) All outcomes	High risk	Only data for teachers (n = 96) who completed the affective wellbeing scales at all 3 time points have been reported, without ITT analysis
Selective reporting (reporting bias)	High risk	ITT analysis for 405 teachers who participated in the study showed no significant results and was not reported
Recruitment bias	Unclear risk	Not reported
Baseline imbalance	Unclear risk	Not reported
Incorrect analysis	High risk	Clustering of teachers within schools was accounted for. However, the reported analysis was for teachers who completed the surveys, and ITT analysis was not reported
Other bias	High risk	Although mean differences did not show any significant effects, the authors utilised hierarchical regression analysis to claim significant effects on job-related anxiety at 24-month assessment and job-related depression at both 12- and 24-month assessments compared to the control group

**Wu 2006**

Methods	Cluster-randomized trial
Participants	961 teachers in 8 middle schools. 4 intervention (n = 459) and 4 control (n = 502) schools in Sichuan Province, China. After adjusting for clustering, the number of participants used in the analysis were 338 and 370 respectively
Interventions	1- Intervention strategies involving both individual (stress management) and organisational approaches (e.g. redesigning the task, establishing flexible work schedules and redesigning the work environment) 2- No-intervention control
Outcomes	Occupational Stress Inventory-Revised Edition, Work Ability Index Surveys conducted at baseline and 12 months post intervention
Notes	Results of baseline measures were fed back to teachers in the intervention schools in order to develop the organisational component of the intervention. There is no further information on the final content of the organisational component Date of the intervention: Not reported Funding: National Natural Science Foundation of China (Grant 39970623) Conflict of interest: Unknown

***Risk of bias***

Bias	Authors' judgement	Support for judgement
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Random sequence generation (selection bias)	Unclear risk	Schools were randomly selected into study group and control group, but no mention of method of sequence generation
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding of participants and personnel (performance bias) All outcomes	Unclear risk	No evidence, not applicable
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) All outcomes	High risk	No mention of attrition in data and no mention if ITT analysis. Mean difference calculation in Review Manager 5 revealed a significant effect in the Role Insufficiency subscale, while the study does not report it to be significant. This may be due to the authors calculating the mean difference with the actual numbers after attrition, while we had to assume numbers pre- and post-intervention to be the same
Selective reporting (reporting bias)	Low risk	All stated outcome data reported
Recruitment bias	Unclear risk	Not reported
Baseline imbalance	Low risk	No relevant baseline differences in age, gender, educational level and marital status ( $P > 0.05$ )
Incorrect analysis	High risk	There is no mention of accounting for clustering in the analysis, and so we assume that clustering has not been taken into account. We corrected for clustering by employing the intracluster correlation coefficient for the burnout scale (0.003) provided by <a href="#">Brown 2010</a>
Other bias	Unclear risk	Not reported

### Characteristics of excluded studies [ordered by study ID]

Study	Reason for exclusion
Allegrante 1990	Individually-directed worksite health promotion intervention
Bishop 1983	Individually-directed classroom management training
Blair 1986	Individually-directed worksite health promotion intervention

(Continued)

Cecil 1990	Support groups in isolation, as opposed to a new organisational function
Charters 1978	Full text unavailable- conference proceeding
Coad 1976	Full text unavailable- conference proceeding
Cullen 1999	Individually-directed worksite health promotion intervention
Goodman 2010	Cash transfer intervention without an organisation change component; not addressing outcomes of interest
Larsson 1990	No measure of school-level effects
Sharp 1982	Individually-directed classroom management training
Sharp 1985	Individually-directed classroom management training
Snyder 1986	Individually-directed discipline management training

### **Characteristics of ongoing studies** *[ordered by study ID]*

#### **Naghieh 2014**

Trial name or title	Aligning staff wellbeing with organisational development: A pilot trial of the Change Laboratory in UK secondary schools
Methods	Pilot trial including 2 intervention and 2 control schools
Participants	Teachers in 4 secondary schools in UK
Interventions	Change Laboratory- intervention methodology of Activity Theory
Outcomes	Maslach Burnout Inventory, Teacher Stress Inventory, Organisational Health Inventory, Collective Efficacy Scale, Sickness absence, Teacher turnover
Starting date	2013
Contact information	Ali Naghieh: ali.naghieh@spi.ox.ac.uk
Notes	This ongoing study is being conducted by the lead review author, and was not found in our search

## DATA AND ANALYSES

### Comparison 1. Changing task characteristics versus no intervention

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Occupational Stress Inventory	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
1.1 Role Overload	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
1.2 Role Insufficiency	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
1.3 Role Ambiguity	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
1.4 Role Boundary	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
1.5 Responsibility	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
1.6 Physical Environment	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
1.7 Vocational Strain	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
1.8 Psychological Strain	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
1.9 Interpersonal Strain	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
1.10 Physical Strain	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
1.11 Recreation	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
1.12 Self care	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
1.13 Social Support	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
1.14 Rational/Cognitive Coping	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
2 Work Ability Index	1		Mean Difference (IV, Random, 95% CI)	Totals not selected

### Comparison 2. Changing organisational characteristics versus no intervention

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Job Related Anxiety- 12 months	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
2 Job Related Anxiety- 24 months	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
3 Job Related Depression- 12 months	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
4 Job Related Depression- 24 months	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
5 Maslach Burnout Inventory- Educators Survey	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
5.1 Emotional Exhaustion	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5.2 Depersonalization	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5.3 Personal Accomplishment	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
6 Emotional Ability	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
6.1 Perceiving Emotions	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
6.2 Understanding Emotions	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
6.3 Regulating Emotions	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

### Comparison 3. Multi-component intervention versus no intervention(matched comparison)

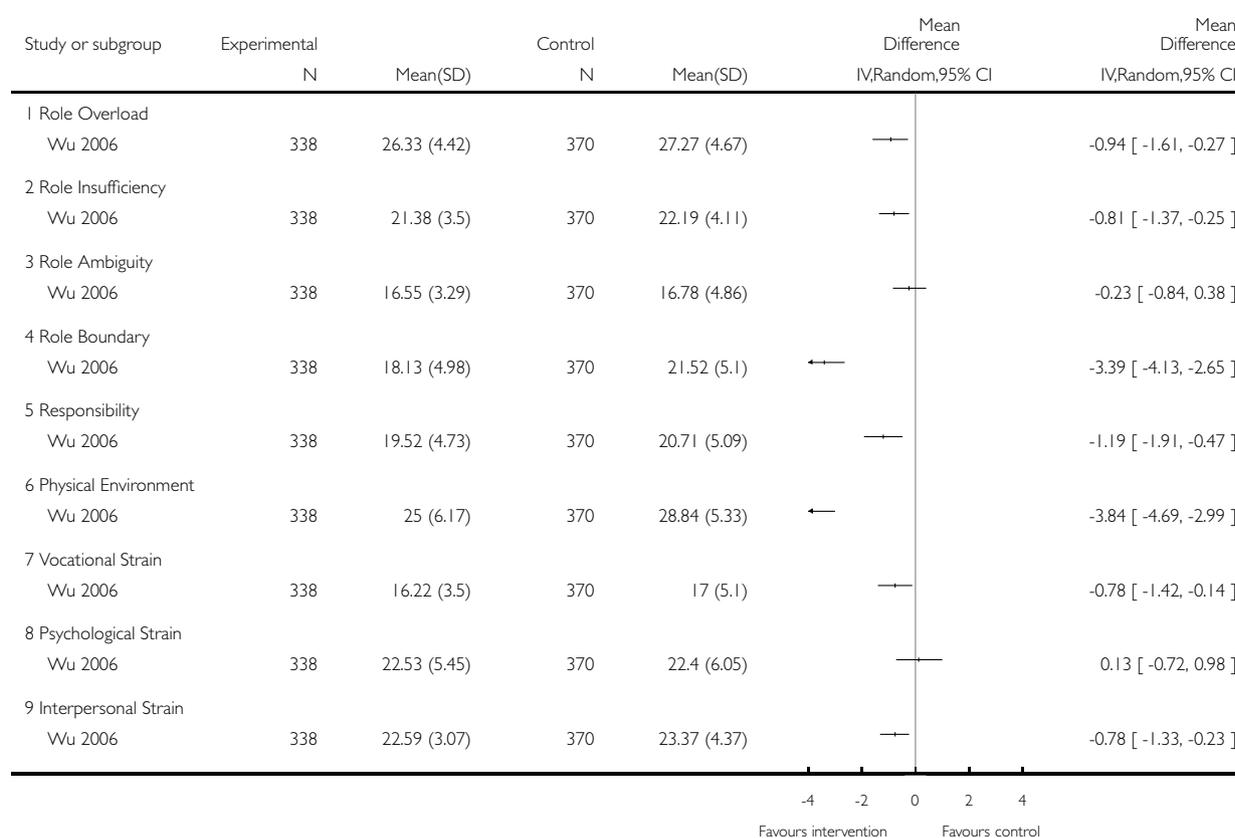
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Retention rates, Cohort 1	1		Mean Difference (Random, 95% CI)	Totals not selected
1.1 12 months follow-up	1		Mean Difference (Random, 95% CI)	0.0 [0.0, 0.0]
1.2 24 months follow-up	1		Mean Difference (Random, 95% CI)	0.0 [0.0, 0.0]
1.3 36 months follow-up	1		Mean Difference (Random, 95% CI)	0.0 [0.0, 0.0]

#### Analysis 1.1. Comparison 1 Changing task characteristics versus no intervention, Outcome 1 Occupational Stress Inventory.

Review: Organisational interventions for improving wellbeing and reducing work-related stress in teachers

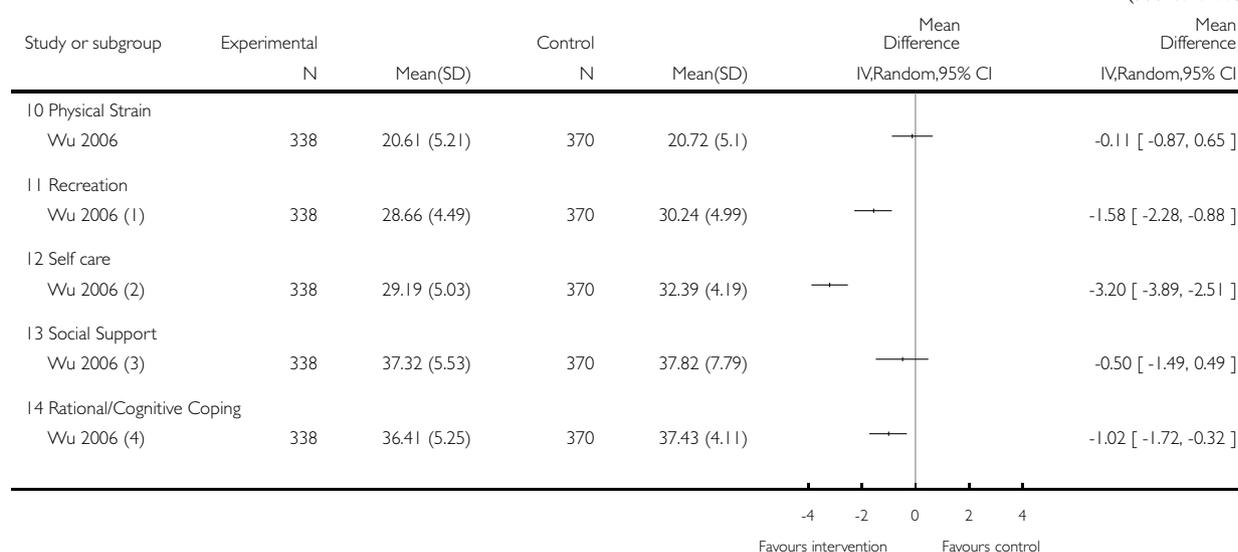
Comparison: 1 Changing task characteristics versus no intervention

Outcome: 1 Occupational Stress Inventory



(Continued . . .)

(... Continued)



(1) Recreation, Self-care, Social Support, % Rational/Cognitive Coping sub-scales reverse coded for correct graphical representation

(2) Recreation, Self-care, Social Support, % Rational/Cognitive Coping sub-scales reverse coded for correct graphical representation

(3) Recreation, Self-care, Social Support, % Rational/Cognitive Coping sub-scales reverse coded for correct graphical representation

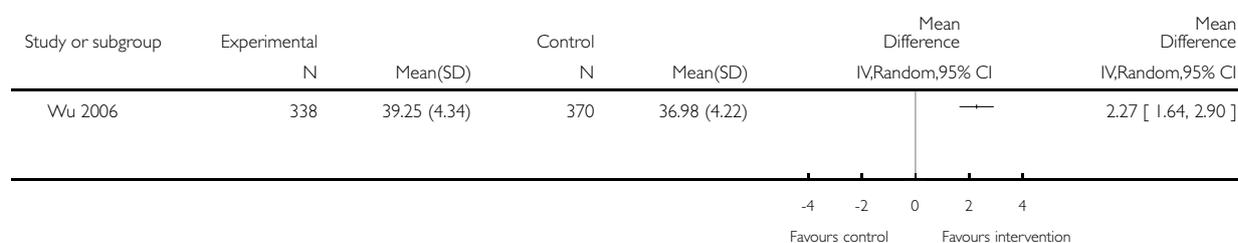
(4) Recreation, Self-care, Social Support, % Rational/Cognitive Coping sub-scales reverse coded for correct graphical representation

### Analysis 1.2. Comparison 1 Changing task characteristics versus no intervention, Outcome 2 Work Ability Index.

Review: Organisational interventions for improving wellbeing and reducing work-related stress in teachers

Comparison: 1 Changing task characteristics versus no intervention

Outcome: 2 Work Ability Index

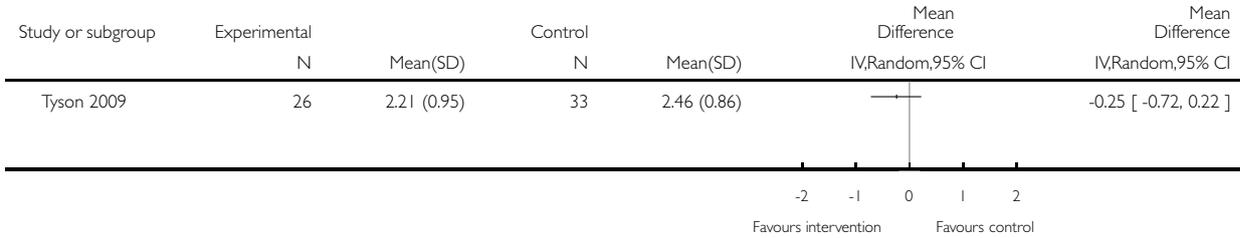


**Analysis 2.1. Comparison 2 Changing organisational characteristics versus no intervention, Outcome 1 Job Related Anxiety- 12 months.**

Review: Organisational interventions for improving wellbeing and reducing work-related stress in teachers

Comparison: 2 Changing organisational characteristics versus no intervention

Outcome: 1 Job Related Anxiety- 12 months

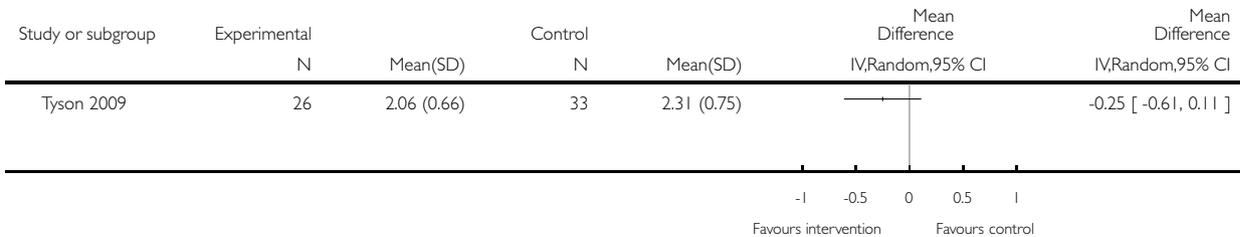


**Analysis 2.2. Comparison 2 Changing organisational characteristics versus no intervention, Outcome 2 Job Related Anxiety- 24 months.**

Review: Organisational interventions for improving wellbeing and reducing work-related stress in teachers

Comparison: 2 Changing organisational characteristics versus no intervention

Outcome: 2 Job Related Anxiety- 24 months

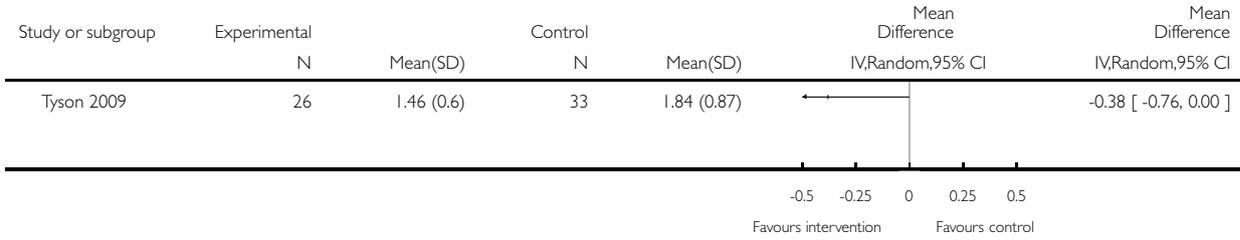


**Analysis 2.3. Comparison 2 Changing organisational characteristics versus no intervention, Outcome 3 Job Related Depression- 12 months.**

Review: Organisational interventions for improving wellbeing and reducing work-related stress in teachers

Comparison: 2 Changing organisational characteristics versus no intervention

Outcome: 3 Job Related Depression- 12 months

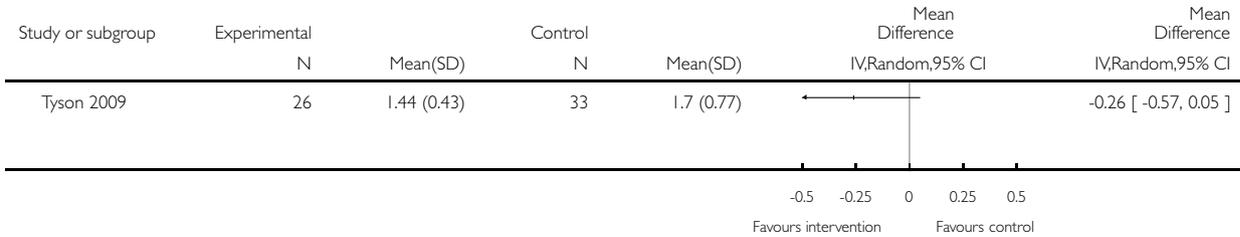


**Analysis 2.4. Comparison 2 Changing organisational characteristics versus no intervention, Outcome 4 Job Related Depression- 24 months.**

Review: Organisational interventions for improving wellbeing and reducing work-related stress in teachers

Comparison: 2 Changing organisational characteristics versus no intervention

Outcome: 4 Job Related Depression- 24 months

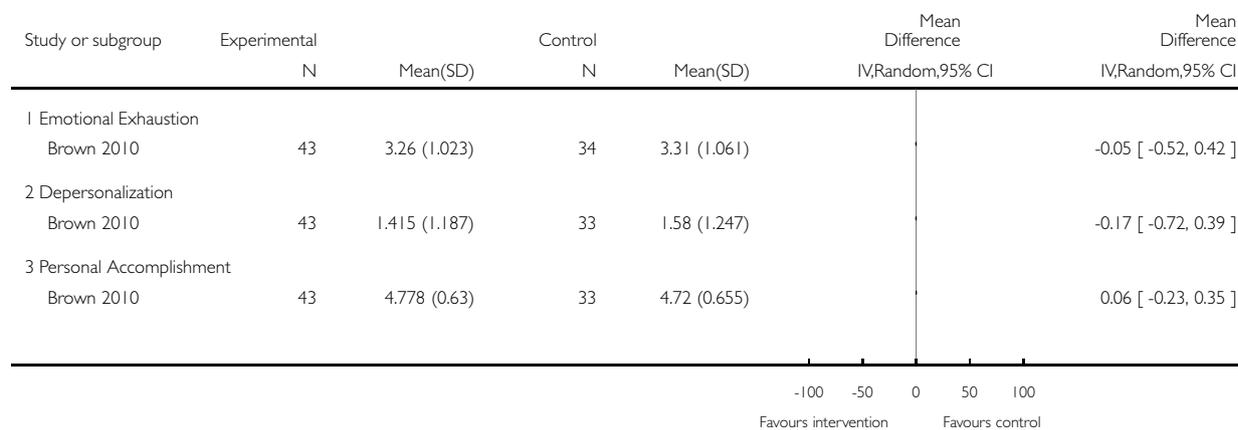


## Analysis 2.5. Comparison 2 Changing organisational characteristics versus no intervention, Outcome 5 Maslach Burnout Inventory- Educators Survey.

Review: Organisational interventions for improving wellbeing and reducing work-related stress in teachers

Comparison: 2 Changing organisational characteristics versus no intervention

Outcome: 5 Maslach Burnout Inventory- Educators Survey

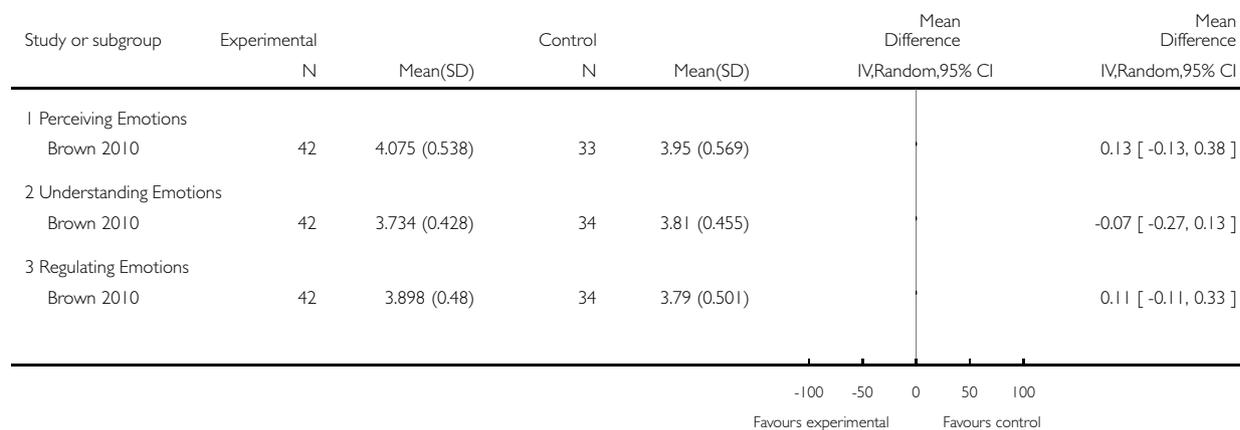


## Analysis 2.6. Comparison 2 Changing organisational characteristics versus no intervention, Outcome 6 Emotional Ability.

Review: Organisational interventions for improving wellbeing and reducing work-related stress in teachers

Comparison: 2 Changing organisational characteristics versus no intervention

Outcome: 6 Emotional Ability

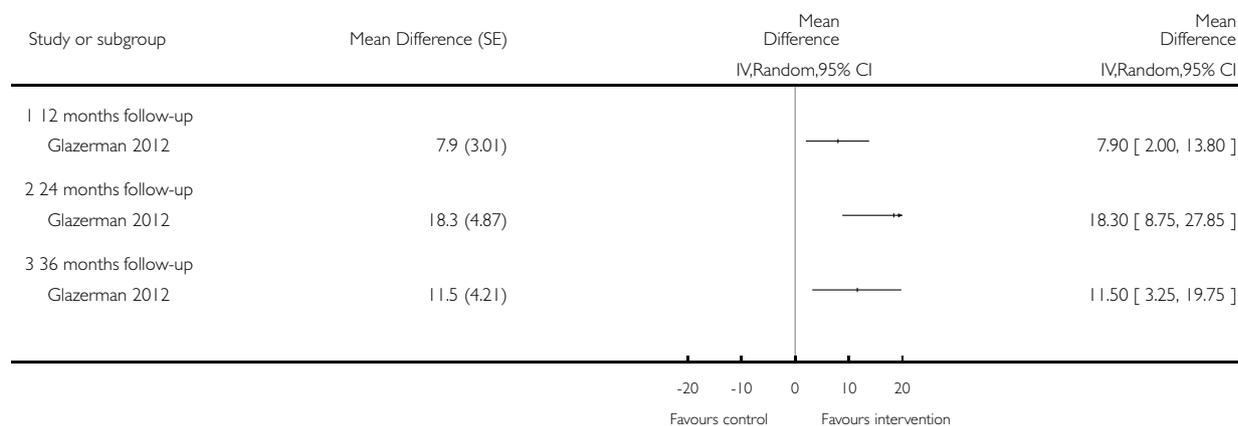


### Analysis 3.1. Comparison 3 Multi-component intervention versus no intervention(matched comparison), Outcome 1 Retention rates, Cohort 1.

Review: Organisational interventions for improving wellbeing and reducing work-related stress in teachers

Comparison: 3 Multi-component intervention versus no intervention(matched comparison)

Outcome: 1 Retention rates, Cohort 1



## APPENDICES

### Appendix I. PsycINFO search strategy

#1 (school teacher\* OR teaching assistant OR teaching profession\* OR teaching staff OR school personnel OR school staff OR head teacher\* OR school employee\*).mp.

#2 teachers/ OR college teachers/ OR elementary school teachers/ OR junior high school teachers/ OR middle school teachers/

#3 "teacher\*".ti.

#4 1 OR 2 OR 3

#5 occupational stress/

#6 (burnout OR burn out OR psychological workload OR psychological work load OR job satisfaction OR occupational stress\*).mp.

#7 5 OR 6

#8 4 AND 7

#9 stress/ OR psychological stress/ OR anxiety/ OR distress/ OR health/ OR mental health/ OR well being/

#10 4 AND 9

#11 (well being OR wellbeing OR stress\* OR burnout OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention).mp.

#12 (work\* OR occupation\* OR job OR jobs OR employee\* OR organisation\* OR organization\* OR school OR college OR academy OR classroom).mp.

#13 11 AND 12

#14 4 AND 13

#15 8 OR 14

#16 (intervention OR promotion OR prevention OR programme OR program\* OR evaluat\* OR effect\* OR service OR change OR modif\* OR switch\* OR alter\* OR substitut\* OR shift OR promot\* OR transform\* OR control\*).mp.

#17 15 AND 16

#18 (school level policy OR school level governance OR management practice OR management culture OR school ethos OR (school ADJ5 climate) OR (school ADJ5 culture) OR (school ADJ5 environment) OR (school ADJ5 manag\*) OR (school ADJ5 leader\*) OR (school ADJ5 organisation\*) OR (school ADJ5 organization\*) OR (school ADJ5 governance) OR (teaching ADJ3 practices) OR (teaching ADJ3 standard\*) OR (teaching ADJ3 style\*) OR (teaching ADJ3 method\*) OR (teaching ADJ3 differen\*) OR (teaching ADJ3 varia\*) OR education\* context\* OR classroom manag\* OR organization\* structure OR organisation\* structure OR organisation\* culture OR organization\* culture OR communication OR work environment OR (education\* ADJ3 practices) OR (education\* ADJ3 culture) OR (education\* ADJ3 manag\*) OR (education\* ADJ3 leader\*) OR (education\* ADJ3 communicat\*)).mp.

#19 17 AND 18

## Appendix 2. Search strategies for other databases

### ASSIA

all("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" or "head teacher" OR "school employee") OR ti(teacher\*)

### AEI

("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" or "head teacher" OR "school employee") OR ti. teacher\*

BiblioMap

1 Freetext: "teacher\*"

2 Freetext: "stress\*"

3 Combine 1 and 2

4 Keyword term: Focus of the report: mental health

5 Combine 1 and 4

6 Combine 3 or 5

### BEI

S1

("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" or "head teacher" OR "school employee") OR ti(teacher\*)

S2

SU.EXACT.EXPLODE("Licensed

Teachers") OR SU.EXACT.EXPLODE("Physical Education Teachers") OR SU.EXACT.EXPLODE("Middle School Teachers") OR SU.EXACT.EXPLODE("Special Education Teachers") OR SU.EXACT.EXPLODE("Secondary School Teachers") OR SU.EXACT.EXPLODE("Black Teachers") OR SU.EXACT.EXPLODE("Minority Group Teachers") OR SU.EXACT.EXPLODE("Substitute Teachers") OR SU.EXACT.EXPLODE("Business Education Teachers") OR SU.EXACT.EXPLODE("Careers Teachers") OR SU.EXACT.EXPLODE("Art Teachers") OR SU.EXACT.EXPLODE("Geography Teachers") OR SU.EXACT.EXPLODE("Music Teachers") OR SU.EXACT.EXPLODE("Science Teachers") OR SU.EXACT.EXPLODE("Biology Teachers") OR SU.EXACT.EXPLODE("Home Economics Teachers") OR SU.EXACT.EXPLODE("Mathematics Teachers") OR SU.EXACT.EXPLODE("Primary School Teachers") OR SU.EXACT.EXPLODE("Physics Teachers") OR SU.EXACT.EXPLODE("Craft Education Teachers") OR SU.EXACT.EXPLODE("Part Time Teachers") OR SU.EXACT.EXPLODE("Bilingual Teachers") OR SU.EXACT.EXPLODE("Vocational Education Teachers") OR SU.EXACT.EXPLODE("Technology Teachers") OR SU.EXACT.EXPLODE("English Studies Teachers") OR SU.EXACT.EXPLODE("History Teachers") OR SU.EXACT.EXPLODE("Remedial Teachers") OR SU.EXACT.EXPLODE("Language Teachers") OR SU.EXACT.EXPLODE("Chemistry Teachers") OR SU.EXACT.EXPLODE("Drama Teachers") OR SU.EXACT.EXPLODE("Deputy Head Teachers") OR SU.EXACT.EXPLODE("Religious Education Teachers") OR SU.EXACT.EXPLODE("Peripatetic Teachers") OR SU.EXACT.EXPLODE("Advanced Skills Teachers") OR SU.EXACT.EXPLODE("Head Teachers") OR SU.EXACT.EXPLODE("Technical Education Teachers") OR SU.EXACT.EXPLODE("Women Teachers") OR SU.EXACT.EXPLODE("Adult Education Teachers") OR

SU.EXACT.EXPLODE("Support Teachers") OR SU.EXACT.EXPLODE("Teachers") OR SU.EXACT.EXPLODE("Reading Teachers") OR SU.EXACT.EXPLODE("Further Education Teachers")

S3

("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*) OR (SU.EXACT.EXPLODE("Licensed Teachers") OR SU.EXACT.EXPLODE("Physical Education Teachers") OR SU.EXACT.EXPLODE("Middle School Teachers") OR SU.EXACT.EXPLODE("Special Education Teachers") OR SU.EXACT.EXPLODE("Secondary School Teachers") OR SU.EXACT.EXPLODE("Black Teachers") OR SU.EXACT.EXPLODE("Minority Group Teachers") OR SU.EXACT.EXPLODE("Substitute Teachers") OR SU.EXACT.EXPLODE("Business Education Teachers") OR SU.EXACT.EXPLODE("Careers Teachers") OR SU.EXACT.EXPLODE("Art Teachers") OR SU.EXACT.EXPLODE("Geography Teachers") OR SU.EXACT.EXPLODE("Music Teachers") OR SU.EXACT.EXPLODE("Science Teachers") OR SU.EXACT.EXPLODE("Biology Teachers") OR SU.EXACT.EXPLODE("Home Economics Teachers") OR SU.EXACT.EXPLODE("Mathematics Teachers") OR SU.EXACT.EXPLODE("Primary School Teachers") OR SU.EXACT.EXPLODE("Physics Teachers") OR SU.EXACT.EXPLODE("Craft Education Teachers") OR SU.EXACT.EXPLODE("Part Time Teachers") OR SU.EXACT.EXPLODE("Bilingual Teachers") OR SU.EXACT.EXPLODE("Vocational Education Teachers") OR SU.EXACT.EXPLODE("Technology Teachers") OR SU.EXACT.EXPLODE("English Studies Teachers") OR SU.EXACT.EXPLODE("Part Time Teachers") OR SU.EXACT.EXPLODE("Bilingual Teachers") OR SU.EXACT.EXPLODE("Vocational Education Teachers") OR SU.EXACT.EXPLODE("Technology Teachers") OR SU.EXACT.EXPLODE("English Studies Teachers") OR SU.EXACT.EXPLODE("History Teachers") OR SU.EXACT.EXPLODE("Remedial Teachers") OR SU.EXACT.EXPLODE("Language Teachers") OR SU.EXACT.EXPLODE("Chemistry Teachers") OR SU.EXACT.EXPLODE("Drama Teachers") OR SU.EXACT.EXPLODE("Deputy Head Teachers") OR SU.EXACT.EXPLODE("Religious Education Teachers") OR SU.EXACT.EXPLODE("Peripatetic Teachers") OR SU.EXACT.EXPLODE("Advanced Skills Teachers") OR SU.EXACT.EXPLODE("Head Teachers") OR SU.EXACT.EXPLODE("Technical Education Teachers") OR SU.EXACT.EXPLODE("Women Teachers") OR SU.EXACT.EXPLODE("Adult Education Teachers") OR SU.EXACT.EXPLODE("Support Teachers") OR SU.EXACT.EXPLODE("Teacher s") OR SU.EXACT.EXPLODE("Reading Teachers") OR SU.EXACT.EXPLODE("Further Education Teachers"))

S4

SU.EXACT.EXPLODE("Teacher Burnout") OR SU.EXACT.EXPLODE("Burnout")

S5

burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress"

S6

(SU.EXACT.EXPLODE("Teacher Burnout") OR SU.EXACT.EXPLODE("Burnout ")) OR (burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress")

S7

SU.EXACT.EXPLODE("Special Education Teachers") OR SU.EXACT.EXPLODE("Secondary School Teachers") OR SU.EXACT.EXPLODE("Black Teachers") OR SU.EXACT.EXPLODE("Minority Group Teachers") OR SU.EXACT.EXPLODE("Substitute Teachers") OR SU.EXACT.EXPLODE("Business Education Teachers") OR SU.EXACT.EXPLODE("Careers Teachers") OR SU.EXACT.EXPLODE("Art Teachers") OR SU.EXACT.EXPLODE("Geography Teachers") OR SU.EXACT.EXPLODE("Music Teachers") OR SU.EXACT.EXPLODE("Science Teachers") OR SU.EXACT.EXPLODE("Biology Teachers") OR SU.EXACT.EXPLODE("Home Economics Teachers") OR SU.EXACT.EXPLODE("Mathematics Teachers") OR SU.EXACT.EXPLODE("Primary School Teachers") OR SU.EXACT.EXPLODE("Physics Teachers") OR SU.EXACT.EXPLODE("Craft Education Teachers") OR SU.EXACT.EXPLODE("Part Time Teachers") OR SU.EXACT.EXPLODE("Bilingual Teachers") OR SU.EXACT.EXPLODE("Vocational Education Teachers") OR SU.EXACT.EXPLODE("Technology Teachers") OR SU.EXACT.EXPLODE("English Studies Teachers") OR SU.EXACT.EXPLODE("History Teachers") OR SU.EXACT.EXPLODE("Remedial Teachers") OR SU.EXACT.EXPLODE("Language Teachers") OR SU.EXACT.EXPLODE("Chemistry Teachers") OR SU.EXACT.EXPLODE("Drama Teachers") OR SU.EXACT.EXPLODE("Deputy Head Teachers") OR SU.EXACT.EXPLODE("Religious Education Teachers") OR SU.EXACT.EXPLODE("Peripatetic Teachers") OR SU.EXACT.EXPLODE("Advanced Skills Teachers") OR

SU.EXACT.EXPLODE("Head Teachers") OR SU.EXACT.EXPLODE("Technical Education Teachers") OR SU.EXACT.EXPLODE("Women Teachers") OR SU.EXACT.EXPLODE("Adult Education Teachers") OR SU.EXACT.EXPLODE("Support Teachers") OR SU.EXACT.EXPLODE("Teachers") OR SU.EXACT.EXPLODE("Reading Teachers") OR SU.EXACT.EXPLODE("Further Education Teachers")) AND ((SU.EXACT.EXPLODE("Teacher Burnout") OR SU.EXACT.EXPLODE("Burnout ")) OR (burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress"))

S8

SU.EXACT.EXPLODE("Stress (Psychological)") OR (SU.EXACT.EXPLODE("Anxiety ") OR SU.EXACT.EXPLODE("Depress ion (Psychology)"))

S9

"well being" or wellbeing or stress\* or burnout or "burn out" or anxie\* or anxious\* or depress\* or satisfaction or strain or burden or absent\* or turnover or retention

S10

((SU.EXACT.EXPLODE("Stress (Psychological)") OR (SU.EXACT.EXPLODE("Anxiety ") OR SU.EXACT.EXPLODE("Depress ion (Psychology)")))) OR ("well being" or wellbeing or stress\* or burnout or "burn out" or anxie\* or anxious\* or depress\* or satisfaction or strain or burden or absent\* or turnover or retention)

S11

work\* or occupation\* or job or jobs or employee\* or organisation\* or organization\*

S12

((SU.EXACT.EXPLODE("Stress (Psychological)") OR (SU.EXACT.EXPLODE("Anxiety ") OR SU.EXACT.EXPLODE("Depress ion (Psychology)")))) OR ("well being" or wellbeing or stress\* or burnout or "burn out" or anxie\* or anxious\* or depress\* or satisfaction or strain or burden or absent\* or turnover or retention)) AND (work\* or occupation\* or job or jobs or employee\* or organisation\* or organization\*)

S13

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S14

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S15

intervention or promotion or prevention or programme or program\* or evaluat\* or effect\* or trial\* or service or change or modif\* or switch\* or alter\* or substitut\* or shift or promot\* or transform\* or control\*

S16

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S17

“school level policy” or “school level governance” or “management practice” or “management culture” or “school ethos” or “school effectiveness” or “school improvement” or “school NEAR/3 climate” or school NEAR/3 culture or school NEAR/3 environment or school NEAR/3 manag\* or school NEAR/3 leader\* or school NEAR/3 organisation\* or school NEAR/3 organization\* or school NEAR/3 governance or teaching NEAR/3 practic\* or teaching NEAR/3 standard\* or teaching NEAR/3 style\* or teaching NEAR/3 method\* or teaching NEAR/3 differen\* or teaching NEAR/3 varia\* or “education\* context\*” or “classroom manag\*” or “organization\* structure” or “organisation\* structure” or “organisation\* culture” or “organization\* culture” or communication or “work environment” or education\* NEAR/3 practic\* or education\* NEAR/3 culture or education\* NEAR/3 manag\* or education\* NEAR/3 leader\* or education\* NEAR/3 communicat\*

(((("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT.EXPLODE("License d Teachers") OR SU.EXACT.EXPLODE("Physical Education Teachers") OR SU.EXACT.EXPLODE("Middle School Teachers") OR SU.EXACT.EXPLODE("Special Education Teachers") OR SU.EXACT.EXPLODE("Secondary School Teachers") OR SU.EXACT.EXPLODE("Black Teachers") OR SU.EXACT.EXPLODE("Minority Group Teachers") OR SU.EXACT.EXPLODE("Substitute Teachers") OR SU.EXACT.EXPLODE("Business Education Teachers") OR SU.EXACT.EXPLODE("Careers Teachers") OR SU.EXACT.EXPLODE("Art Teachers") OR SU.EXACT.EXPLODE("Geography Teachers") OR SU.EXACT.EXPLODE("Music Teachers") OR SU.EXACT.EXPLODE("Science Teachers") OR SU.EXACT.EXPLODE("Biology Teachers") OR SU.EXACT.EXPLODE("Home Economics Teachers") OR SU.EXACT.EXPLODE("Mathematics Teachers") OR SU.EXACT.EXPLODE("Primary School Teachers") OR 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SU.EXACT.EXPLODE("Further Education Teachers"))) AND ((SU.EXACT.EXPLODE("Teacher Burnout") OR SU.EXACT.EXPLODE("Burnout ") OR (burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress"))) OR (((("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT.EXPLODE("License d Teachers") OR SU.EXACT.EXPLODE("Physical Education Teachers") OR SU.EXACT.EXPLODE("Middle School Teachers") OR SU.EXACT.EXPLODE("Special Education Teachers") OR SU.EXACT.EXPLODE("Secondary School Teachers") OR SU.EXACT.EXPLODE("Black Teachers") OR SU.EXACT.EXPLODE("Minority Group Teachers") OR SU.EXACT.EXPLODE("Substitute Teachers") OR SU.EXACT.EXPLODE("Business Education Teachers") OR SU.EXACT.EXPLODE("Careers Teachers") OR SU.EXACT.EXPLODE("Art Teachers") OR 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OR SU.EXACT.EXPLODE("Head Teachers") OR SU.EXACT.EXPLODE("Technical Education Teachers") OR SU.EXACT.EXPLODE("Women Teachers") OR SU.EXACT.EXPLODE("Adult Education Teachers") OR SU.EXACT.EXPLODE("Support Teachers") OR SU.EXACT.EXPLODE("Teacher s") OR SU.EXACT.EXPLODE("Reading Teachers") OR SU.EXACT.EXPLODE("Further Education Teachers"))) AND (((SU.EXACT.EXPLODE("Stress (Psychological)") OR (SU.EXACT.EXPLODE("Anxiety ") OR SU.EXACT.EXPLODE("Depress ion (Psychology)"))) OR ("well being" or wellbeing or stress\* or burnout or "burn out" or anxie\* or anxious\* or depress\* or satisfaction or strain or burden or absent\* or turnover or retention)) AND (work\* or occupation\* or job or jobs or employee\* or organisation\* or organization\* )))) AND (intervention or promotion or prevention or programme or program\* or evaluat\* or effect\* or trial\* or service or change or modif\* or switch\* or alter\* or substitut\* or shift or promot\* or transform\* or control\*) AND ("school level policy" or "school level governance" or "management practice" or "management culture" or "school ethos" or "school effectiveness" or "school improvement" or "school NEAR/3 climate" or school NEAR/3 culture or school NEAR/3 environment or school NEAR/3 manag\* or school NEAR/3 leader\* or school NEAR/3 organisation\* or school NEAR/3 organization\* or school NEAR/3 governance or teaching NEAR/3 practic\* or teaching NEAR/

3 standard\* or teaching NEAR/3 style\* or teaching NEAR/3 method\* or teaching NEAR/3 differen\* or teaching NEAR/3 varia\* or “education\* context\*” or “classroom manag\*” or “organization\* structure” or “organisation\* structure” or “organisation\* culture” or “organization\* culture” or communication or “work environment” or education\* NEAR/3 practic\* or education\* NEAR/3 culture or education\* NEAR/3 manag\* or education\* NEAR/3 leader\* or education\* NEAR/3 communicat\*)

S19

(((((("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT.EXPLODE("License d Teachers") OR SU.EXACT.EXPLODE("Physical Education Teachers") OR SU.EXACT.EXPLODE("Middle School Teachers") OR SU.EXACT.EXPLODE("Special Education Teachers") OR SU.EXACT.EXPLODE("Secondary School Teachers") OR SU.EXACT.EXPLODE("Black Teachers") OR SU.EXACT.EXPLODE("Minority Group Teachers") OR SU.EXACT.EXPLODE("Substitute Teachers") OR SU.EXACT.EXPLODE("Business Education Teachers") OR SU.EXACT.EXPLODE("Careers Teachers") OR SU.EXACT.EXPLODE("Art Teachers") OR SU.EXACT.EXPLODE("Geography Teachers") OR SU.EXACT.EXPLODE("Music Teachers") OR SU.EXACT.EXPLODE("Science Teachers") OR SU.EXACT.EXPLODE("Biology Teachers") OR SU.EXACT.EXPLODE("Home Economics Teachers") OR SU.EXACT.EXPLODE("Mathematics Teachers") OR SU.EXACT.EXPLODE("Primary School Teachers") OR SU.EXACT.EXPLODE("Physics Teachers") OR SU.EXACT.EXPLODE("Craft Education Teachers") OR SU.EXACT.EXPLODE("Part Time Teachers") OR SU.EXACT.EXPLODE("Bilingual Teachers") OR SU.EXACT.EXPLODE("Vocational Education Teachers") OR SU.EXACT.EXPLODE("Technology Teachers") OR SU.EXACT.EXPLODE("English Studies Teachers") OR SU.EXACT.EXPLODE("History Teachers") OR SU.EXACT.EXPLODE("Remedial Teachers") OR SU.EXACT.EXPLODE("Language Teachers") OR SU.EXACT.EXPLODE("Chemistry Teachers") OR SU.EXACT.EXPLODE("Drama Teachers") OR SU.EXACT.EXPLODE("Deputy Head Teachers") OR SU.EXACT.EXPLODE("Religious Education Teachers") OR SU.EXACT.EXPLODE("Peripatetic Teachers") OR SU.EXACT.EXPLODE("Advanced Skills Teachers") OR SU.EXACT.EXPLODE("Head Teachers") OR SU.EXACT.EXPLODE("Technical Education Teachers") OR SU.EXACT.EXPLODE("Women Teachers") OR SU.EXACT.EXPLODE("Adult Education Teachers") OR SU.EXACT.EXPLODE("Support Teachers") OR SU.EXACT.EXPLODE("Teacher s") OR SU.EXACT.EXPLODE("Reading Teachers") OR SU.EXACT.EXPLODE("Further Education Teachers")))) AND ((SU.EXACT.EXPLODE("Teacher Burnout") OR SU.EXACT.EXPLODE("Burnout ") OR (burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress")))) OR (((("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT.EXPLODE("Licensed Teachers") OR SU.EXACT.EXPLODE("Physical Education Teachers") OR SU.EXACT.EXPLODE("Middle School Teachers") OR SU.EXACT.EXPLODE("Special Education Teachers") OR SU.EXACT.EXPLODE("Secondary School Teachers") OR SU.EXACT.EXPLODE("Black Teachers") OR SU.EXACT.EXPLODE("Minority Group Teachers") OR SU.EXACT.EXPLODE("Substitute Teachers") OR SU.EXACT.EXPLODE("Business Education Teachers") OR SU.EXACT.EXPLODE("Careers Teachers") OR SU.EXACT.EXPLODE("Art Teachers") OR SU.EXACT.EXPLODE("Geography Teachers") OR SU.EXACT.EXPLODE("Music Teachers") OR SU.EXACT.EXPLODE("Science Teachers") OR SU.EXACT.EXPLODE("Biology Teachers") OR SU.EXACT.EXPLODE("Home Economics Teachers") OR SU.EXACT.EXPLODE("Mathematics Teachers") OR SU.EXACT.EXPLODE("Primary School Teachers") OR SU.EXACT.EXPLODE("Physics Teachers") OR SU.EXACT.EXPLODE("Craft Education Teachers") OR SU.EXACT.EXPLODE("Part Time Teachers") OR SU.EXACT.EXPLODE("Bilingual Teachers") OR SU.EXACT.EXPLODE("Vocational Education Teachers") OR SU.EXACT.EXPLODE("Technology Teachers") OR SU.EXACT.EXPLODE("English Studies Teachers") OR SU.EXACT.EXPLODE("History Teachers") OR SU.EXACT.EXPLODE("Remedial Teachers") OR SU.EXACT.EXPLODE("Language Teachers") OR SU.EXACT.EXPLODE("Chemistry Teachers") OR SU.EXACT.EXPLODE("Drama Teachers") OR SU.EXACT.EXPLODE("Deputy Head Teachers") OR SU.EXACT.EXPLODE("Religious Education Teachers") OR SU.EXACT.EXPLODE("Peripatetic Teachers") OR SU.EXACT.EXPLODE("Advanced Skills Teachers") OR SU.EXACT.EXPLODE("Head Teachers") OR SU.EXACT.EXPLODE("Technic al Education Teachers") OR SU.EXACT.EXPLODE("Women Teachers") OR SU.EXACT.EXPLODE("Adult Education Teachers") OR SU.EXACT.EXPLODE("Support Teachers") OR SU.EXACT.EXPLODE("Teacher s") OR SU.EXACT.EXPLODE("Reading Teachers") OR SU.EXACT.EXPLODE("Further Education Teachers")))) AND (((SU.EXACT.EXPLODE("Stress (Psychological)") OR (SU.EXACT.EXPLODE("Anxiety ") OR SU.EXACT.EXPLODE("Depress ion (Psychology)")))) OR ("well being" or wellbeing or stress\* or burnout or "burn out" or anxie\* or anxious\* or depress\* or satisfaction or strain or burden or absent\* or turnover or retention)) AND (work\* or occupation\* or job or jobs or employee\* or organisation\* or organization\* )))) AND (intervention or promotion or prevention or programme or program\* or evaluat\* or effect\* or trial\* or service or change or modif\* or switch\* or alter\*

or substitut\* or shift or promot\* or transform\* or control\*) NOT (“school level policy” or “school level governance” or “management practice” or “management culture” or “school ethos” or “school effectiveness” or “school improvement” or “school NEAR/3 climate” or school NEAR/3 culture or school NEAR/3 environment or school NEAR/3 manag\* or school NEAR/3 leader\* or school NEAR/3 organisation\* or school NEAR/3 organization\* or school NEAR/3 governance or teaching NEAR/3 practic\* or teaching NEAR/3 standard\* or teaching NEAR/3 style\* or teaching NEAR/3 method\* or teaching NEAR/3 differen\* or teaching NEAR/3 varia\* or “education\* context\*” or “classroom manag\*” or “organization\* structure” or “organisation\* structure” or “organisation\* culture” or “organization\* culture” or communication or “work environment” or education\* NEAR/3 practic\* or education\*

#### **CENTRAL**

#1

MeSH descriptor Stress, Psychological explode all trees

#2

well being or wellbeing or stress\* or burnout or burn out or anxie\* or anxious\* or depress\* or satisfaction or strain or burden or absent\* or turnover or retention

#3

work\* or occupation\* or job or jobs or employee\* or organisation\* or organization\* or school or college or academy or classroom

#4

MeSH descriptor Burnout, Professional explode all trees

#5

MeSH descriptor Mental Health explode tree 1

#6

(#2 AND #3)

#7

(‘school level policy’ or ‘school level governance’ or ‘management practice’ or ‘management culture’ or ‘school ethos’ or ‘school effectiveness’ or ‘school improvement’ or (school NEAR/3 climate) or (school NEAR/3 culture) or (school NEAR/3 environment) or (school NEAR/3 manag\*) or (school NEAR/3 leader\*) or (school NEAR/3 organisation\*) or (school NEAR/3 organization\*) or (school NEAR/3 governance) or (teaching NEAR/3 practices) or (teaching NEAR/3 standard\*) or (teaching NEAR/3 style\*) or (teaching NEAR/3 method\*) or (teaching NEAR/3 differen\*) or (teaching NEAR/3 varia\*) or education\* NEXT/1 context\* or classroom NEXT/1 manag\* or organization\* NEXT/1 structure or organisation\* NEXT/1 structure or organisation\* NEXT/1 culture or organization\* NEXT/1 culture or communication or ‘work environment’ or (education\* NEAR/3 practices) or (education\* NEAR/3 culture) or (education\* NEAR/3 manag\*) or (education\* NEAR/3 leader\*) or (education\* NEAR/3 communicat\*))

#8

teacher\* OR (school NEXT/1 teacher\*) OR (teaching NEXT/1 assistant\*) OR (teaching NEXT/1 profession\*) OR ‘teaching staff’ OR ‘school personnel’ OR ‘school staff’ OR (head NEXT/1 teacher\*) OR (school NEXT/1 employee\*)

#9

(#8 AND ( #1 OR #4 OR #5 OR #6 ))

#10

(#9 AND #7)

#### **ClinicalTrials**

1 Freetext: TI: teacher\* AND burnout

2 Freetext: TI: teacher\* and burn out

3 Freetext: TI: teacher\* and stress

4 Freetext: TI: teacher\* AND anxiety

5 Freetext: TI: teacher\* AND depression

#### **DARE**

1 Freetext: teacher\*:TI. OR ”school teacher\*” OR ”teaching assistant” OR ”teaching profession\*” OR ”Teaching staff” OR ”school personnel” OR ”School staff” or ”head teacher” OR ”school employee”

2 Freetext: burnout OR burn out OR stress OR anxiety OR depress\*

3 Combine 1 and 2

#### **DER**

1 Freetext: ”teacher”

2 Keyword term: What is/are the population focus/foci of the study?: Teaching staff

3 Combine 1 or 2

4 Freetext: ”stress”

5 Combine 3 and 4

**EMBASE**

#1

teacher\*:ti OR (school NEXT/1 teacher\*):ab,ti OR (teaching NEXT/1 assistant\*):ab,ti OR (teaching NEXT/1 profession\*):ab,ti OR 'teaching staff':ab,ti OR 'school personnel':ab,ti OR 'school staff':ab,ti OR (head NEXT/1 teacher\*):ab,ti OR (school NEXT/1 employee\*):ab,ti

#2

'teacher'/de

#3

#1 OR #2

#4

'job stress'/exp

#5

'burnout'/exp

#6

burnout:ab,ti OR 'burn out':ab,ti OR 'psychological workload':ab,ti OR 'psychological work load':ab,ti OR 'job satisfaction':ab,ti OR (occupational NEXT/1 stress\*):ab,ti OR ('work related' NEXT/1 stress\*):ab,ti OR (vocational NEXT/1 stress\*):ab,ti

#7

#4 OR #5 OR #6

#8

#3 AND #7

#9

'stress'/de OR 'school stress'/de OR 'acute stress'/de OR 'behavioral stress'/de OR 'chronic stress'/de OR 'emotional stress'/de

#10

'mental stress'/de OR 'role stress'/de OR 'anxiety disorder'/exp OR 'mental health'/de OR 'psychological well being'/de

#11

'well being':ab,ti OR wellbeing:ab,ti OR stress\*:ab,ti OR anxie\*:ab,ti OR anxious\*:ab,ti OR depress\*:ab,ti OR satisfaction:ab,ti OR strain:ab,ti OR burden:ab,ti OR absent\*:ab,ti OR turnover:ab,ti OR retention:ab,ti

#12

#9 OR #10 OR #11

#13

work\*:de,ab,ti OR occupation\*:de,ab,ti OR job:de,ab,ti OR jobs:de,ab,ti OR employee\*:de,ab,ti OR organisation\*:de,ab,ti OR organization\*:de,ab,ti OR school:de,ab,ti OR college:de,ab,ti OR academy:de,ab,ti OR classroom:de,ab,ti

#14

#12 AND #13

#15

#3 AND #14

#16

#8 OR #15

#17

intervention:de,ab,ti OR promotion:de,ab,ti OR prevention:de,ab,ti OR programme:de,ab,ti OR program\*:de,ab,ti OR evaluat\*:de,ab,ti OR effect\*:de,ab,ti OR trial\*:de,ab,ti OR service:de,ab,ti OR change:de,ab,ti OR modif\*:de,ab,ti OR switch\*:de,ab,ti OR alter\*:de,ab,ti OR substitut\*:de,ab,ti OR shift:de,ab,ti OR promot\*:de,ab,ti OR transform\*:de,ab,ti OR control\*:de,ab,ti

#18

#16 AND #17

#19

#18 AND [embase]/lim

#20

'school level policy':de,ab,ti OR 'school level governance':de,ab,ti OR 'management practice':de,ab,ti OR 'management culture':de,ab,ti OR 'school ethos':de,ab,ti OR 'school effectiveness':de,ab,ti OR 'school improvement':de,ab,ti OR (school NEAR/3 climate):de,ab,ti OR (school NEAR/3 culture):de,ab,ti OR (school NEAR/3 environment):de,ab,ti OR (school NEAR/3 manag\*):de,ab,ti OR (school NEAR/3 leader\*):de,ab,ti OR (school NEAR/3 organisation\*):de,ab,ti OR (school NEAR/3 organization\*):de,ab,ti OR (school NEAR/3 governance):de,ab,ti OR (teaching NEAR/3 practices):de,ab,ti OR (teaching NEAR/3 standard\*):de,ab,ti OR (teaching NEAR/3

style\*):de,ab,ti OR (teaching NEAR/3 method\*):de,ab,ti OR (teaching NEAR/3 differen\*):de,ab,ti OR (teaching NEAR/3 varia\*):de,ab,ti OR (education\* NEXT/1 context\*):de,ab,ti OR (classroom NEXT/1 manag\*):de,ab,ti OR (organization\* NEXT/1 structure):de,ab,ti OR (organisation\* NEXT/1 structure):de,ab,ti OR (organisation\* NEXT/1 culture):de,ab,ti OR (organization\* NEXT/1 culture):de,ab,ti OR communication:de,ab,ti OR 'work environment':de,ab,ti OR (education\* NEAR/3 practices):de,ab,ti OR (education\* NEAR/3 culture):de,ab,ti OR (education\* NEAR/3 manag\*):de,ab,ti OR (education\* NEAR/3 leader\*):de,ab,ti OR (education\* NEAR/3 communicat\*):de,ab,ti

#21

#19 AND #20

**ERIC**

S1

("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)

S2

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S3

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S4

SU.EXACT("Burnout") OR SU.EXACT("Teacher Burnout")

S5

burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress"

S6

(SU.EXACT("Burnout") OR SU.EXACT("Teacher Burnout")) OR (burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress")

S7

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(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress"  
OR "work related stress" OR "vocational stress")

S8

(SU.EXACT("Wellness") OR SU.EXACT("Well Being")) OR (SU.EXACT("Anxiety") OR SU.EXACT("Mental Disorders") OR  
SU.EXACT("Depression (Psychology)"))

S9

"well being" or wellbeing or stress\* or burnout or "burn out" or anxie\* or anxious\* or depress\* or satisfaction or strain or burden or  
absent\* or turnover or retention

S10

((SU.EXACT("Wellness") OR SU.EXACT("Well Being")) OR (SU.EXACT("Anxiety") OR SU.EXACT("Mental Disorders") OR  
SU.EXACT("Depression (Psychology)"))) OR ("well being" or wellbeing or stress\* or burnout or "burn out" or anxie\* or anxious\* or  
depress\* or satisfaction or strain or burden or absent\* or turnover or retention)

S11

work\* or occupation\* or job or jobs or employee\* or organisation\* or organization\*

S12

((SU.EXACT("Wellness") OR SU.EXACT("Well Being")) OR (SU.EXACT("Anxiety") OR SU.EXACT("Mental Disorders") OR  
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or depress\* or satisfaction or strain or burden or absent\* or turnover or retention) AND (work\* or occupation\* or job or jobs or  
employee\* or organisation\* or organization\* )

S13

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SU.EXACT("Teachers") OR SU.EXACT("Language Teachers") OR SU.EXACT("Itinerant Teachers") OR SU.EXACT("Substitute  
Teachers") OR SU.EXACT("Mathematics Teachers"))) AND (((SU.EXACT("Wellness") OR SU.EXACT("Well Being")) OR  
(SU.EXACT("Anxiety") OR SU.EXACT("Mental Disorders") OR SU.EXACT("Depression (Psychology)"))) OR ("well  
being" or wellbeing or stress\* or burnout or "burn out" or anxie\* or anxious\* or depress\* or satisfaction or strain or burden or absent\*  
or turnover or retention) AND (work\* or occupation\* or job or jobs or employee\* or organisation\* or organization\* ))

S14

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Teachers") OR SU.EXACT("Science Teachers") OR SU.EXACT("Vocational Education Teachers") OR SU.EXACT("Resource  
Teachers") OR SU.EXACT("Writing Teachers") OR SU.EXACT("Public School Teachers") OR SU.EXACT("Special Educa-  
tion Teachers") OR SU.EXACT("Middle School Teachers") OR SU.EXACT("Music Teachers") OR SU.EXACT("Minority  
Group Teachers") OR SU.EXACT("Secondary School Teachers") OR SU.EXACT("English Teachers") OR SU.EXACT("Remedial  
Teachers") OR SU.EXACT("Home Economics Teachers") OR SU.EXACT("Methods Teachers") OR SU.EXACT("Elementary  
School Teachers") OR SU.EXACT("Teachers") OR SU.EXACT("Language Teachers") OR SU.EXACT("Itinerant Teach-  
ers") OR SU.EXACT("Substitute Teachers") OR SU.EXACT("Mathematics Teachers"))) AND ((SU.EXACT("Burnout") OR  
SU.EXACT("Teacher Burnout")) OR (burnout OR "burn out" OR "psychological workload" OR "psychological work load"  
OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress")) OR (((("school teacher\*" OR  
"teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head  
teacher" OR "school employee" OR ti(teacher\*)) OR (SU.EXACT("Master Teachers") OR SU.EXACT("Experienced Teachers")  
OR SU.EXACT("Physical Education Teachers") OR SU.EXACT("Industrial Arts Teachers") OR SU.EXACT("Reading Teach-  
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ers") OR SU.EXACT("Writing Teachers") OR SU.EXACT("Public School Teachers") OR SU.EXACT("Special Education Teach-  
ers") OR SU.EXACT("Middle School Teachers") OR SU.EXACT("Music Teachers") OR SU.EXACT("Minority Group Teachers")  
OR SU.EXACT("Secondary School Teachers") OR SU.EXACT("English Teachers") OR SU.EXACT("Remedial Teachers") OR

SU.EXACT("Home Economics Teachers") OR SU.EXACT("Methods Teachers") OR SU.EXACT("Elementary School Teachers") OR SU.EXACT("Teachers") OR SU.EXACT("Language Teachers") OR SU.EXACT("Itinerant Teachers") OR SU.EXACT("Substitute Teachers") OR SU.EXACT("Mathematics Teachers")) AND (((SU.EXACT("Wellness") OR SU.EXACT("Well Being")) OR (SU.EXACT("Anxiety") OR SU.EXACT("Mental Disorders") OR SU.EXACT("Depression (Psychology)")) OR ("well being" or wellbeing or stress\* or burnout or "burn out" or anxie\* or anxious\* or depress\* or satisfaction or strain or burden or absent\* or turnover or retention)) AND (work\* or occupation\* or job or jobs or employee\* or organisation\* or organization\* )))

S15

intervention or promotion or prevention or programme or program\* or evaluat\* or effect\* or trial\* or service or change or modif\* or switch\* or alter\* or substitut\* or shift or promot\* or transform\* or control\*

S16

(((((("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT("Master Teachers") OR SU.EXACT("Experienced Teachers") OR SU.EXACT("Physical Education Teachers") OR SU.EXACT("Industrial Arts Teachers") OR SU.EXACT("Reading Teachers") OR SU.EXACT("Science Teachers") OR SU.EXACT("Vocational Education Teachers") OR SU.EXACT("Resource Teachers") OR SU.EXACT("Writing Teachers") OR SU.EXACT("Public School Teachers") OR SU.EXACT("Special Education Teachers") OR SU.EXACT("Middle School Teachers") OR SU.EXACT("Music Teachers") OR SU.EXACT("Minority Group Teachers") OR SU.EXACT("Secondary School Teachers") OR SU.EXACT("English Teachers") OR SU.EXACT("Remedial Teachers") OR SU.EXACT("Home Economics Teachers") OR SU.EXACT("Methods Teachers") OR SU.EXACT("Elementary School Teachers") OR SU.EXACT("Teachers") OR SU.EXACT("Language Teachers") OR SU.EXACT("Itinerant Teachers") OR SU.EXACT("Substitute Teachers") OR SU.EXACT("Mathematics Teachers")) AND ((SU.EXACT("Burnout") OR SU.EXACT("Teacher Burnout")) OR (burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress")) OR (((("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT("Master Teachers") OR SU.EXACT("Experienced Teachers") OR SU.EXACT("Physical Education Teachers") OR SU.EXACT("Industrial Arts Teachers") OR SU.EXACT("Reading Teachers") OR SU.EXACT("Science Teachers") OR SU.EXACT("Vocational Education Teachers") OR SU.EXACT("Resource Teachers") OR SU.EXACT("Writing Teachers") OR SU.EXACT("Public School Teachers") OR SU.EXACT("Special Education Teachers") OR SU.EXACT("Middle School Teachers") OR SU.EXACT("Music Teachers") OR SU.EXACT("Minority Group Teachers") OR SU.EXACT("Secondary School Teachers") OR SU.EXACT("English Teachers") OR SU.EXACT("Remedial Teachers") OR SU.EXACT("Home Economics Teachers") OR SU.EXACT("Methods Teachers") OR SU.EXACT("Elementary School Teachers") OR SU.EXACT("Teachers") OR SU.EXACT("Language Teachers") OR SU.EXACT("Itinerant Teachers") OR SU.EXACT("Substitute Teachers") OR SU.EXACT("Mathematics Teachers")) AND (((SU.EXACT("Wellness") OR SU.EXACT("Well Being")) OR (SU.EXACT("Anxiety") OR SU.EXACT("Mental Disorders") OR SU.EXACT("Depression (Psychology)")) OR ("well being" or wellbeing or stress\* or burnout or "burn out" or anxie\* or anxious\* or depress\* or satisfaction or strain or burden or absent\* or turnover or retention)) AND (work\* or occupation\* or job or jobs or employee\* or organisation\* or organization\* )))) AND (intervention or promotion or prevention or programme or program\* or evaluat\* or effect\* or trial\* or service or change or modif\* or switch\* or alter\* or substitut\* or shift or promot\* or transform\* or control\*))

S17

"school level policy" or "school level governance" or "management practice" or "management culture" or "school ethos" or "school effectiveness" or "school improvement" or "school NEAR/3 climate" or school NEAR/3 culture or school NEAR/3 environment or school NEAR/3 manag\* or school NEAR/3 leader\* or school NEAR/3 organisation\* or school NEAR/3 organization\* or school NEAR/3 governance or teaching NEAR/3 practic\* or teaching NEAR/3 standard\* or teaching NEAR/3 style\* or teaching NEAR/3 method\* or teaching NEAR/3 differen\* or teaching NEAR/3 varia\* or "education\* context\*" or "classroom manag\*" or "organization\* structure" or "organisation\* structure" or "organisation\* culture" or "organization\* culture" or communication or "work environment" or education\* NEAR/3 practic\* or education\* NEAR/3 culture or education\* NEAR/3 manag\* or education\* NEAR/3 leader\* or education\* NEAR/3 communicat\*

S18

(((((("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT("Master Teachers") OR SU.EXACT("Experienced Teachers") OR SU.EXACT("Physical Education Teachers") OR SU.EXACT("Industrial Arts Teachers") OR SU.EXACT("Reading Teachers") OR SU.EXACT("Science Teachers") OR SU.EXACT("Vocational Education Teach-

ers“) OR SU.EXACT(“Resource Teachers“) OR SU.EXACT(“Writing Teachers“) OR SU.EXACT(“Public School Teachers“) OR SU.EXACT(“Special Education Teachers“) OR SU.EXACT(“Middle School Teachers“) OR SU.EXACT(“Music Teachers“) OR SU.EXACT(“Minority Group Teachers“) OR SU.EXACT(“Secondary School Teachers“) OR SU.EXACT(“English Teachers“) OR SU.EXACT(“Remedial Teachers“) OR SU.EXACT(“Home Economics Teachers“) OR SU.EXACT(“Methods Teachers“) OR SU.EXACT(“Elementary School Teachers“) OR SU.EXACT(“Teachers“) OR SU.EXACT(“Language Teachers“) OR SU.EXACT(“Itinerant Teachers“) OR SU.EXACT(“Substitute Teachers“) OR SU.EXACT(“Mathematics Teachers“)) AND ((SU.EXACT(“Burnout“) OR SU.EXACT(“Teacher Burnout“)) OR (burnout OR ”burn out“ OR ”psychological workload“ OR ”psychological work load“ OR ”Job satisfaction“ OR ”occupational stress“ OR ”work related stress“ OR ”vocational stress“)) OR (((”school teacher“ OR ”teaching assistant“ OR ”teaching profession“ OR ”Teaching staff“ OR ”school personnel“ OR ”School staff“ OR ”head teacher“ OR ”school employee“) OR ti(teacher\*)) OR (SU.EXACT(“Master Teachers“) OR SU.EXACT(“Experienced Teachers“) OR SU.EXACT(“Physical Education Teachers“) OR SU.EXACT(“Industrial Arts Teachers“) OR SU.EXACT(“Reading Teachers“) OR SU.EXACT(“Science Teachers“) OR SU.EXACT(“Vocational Education Teachers“) OR SU.EXACT(“Resource Teachers“) OR SU.EXACT(“Writing Teachers“) OR SU.EXACT(“Public School Teachers“) OR SU.EXACT(“Special Education Teachers“) OR SU.EXACT(“Middle School Teachers“) OR SU.EXACT(“Music Teachers“) OR SU.EXACT(“Minority Group Teachers“) OR SU.EXACT(“Secondary School Teachers“) OR SU.EXACT(“English Teachers“) OR SU.EXACT(“Remedial Teachers“) OR SU.EXACT(“Home Economics Teachers“) OR SU.EXACT(“Methods Teachers“) OR SU.EXACT(“Elementary School Teachers“) OR SU.EXACT(“Teachers“) OR SU.EXACT(“Language Teachers“) OR SU.EXACT(“Itinerant Teachers“) OR SU.EXACT(“Substitute Teachers“) OR SU.EXACT(“Mathematics Teachers“)) AND (((SU.EXACT(“Wellness“) OR SU.EXACT(“Well Being“)) OR (SU.EXACT(“Anxiety“) OR SU.EXACT(“Mental Disorders“) OR SU.EXACT(“Depression (Psychology)“))) OR (”well being“ or wellbeing or stress\* or burnout or ”burn out“ or anxie\* or anxious\* or depress\* or satisfaction or strain or burden or absent\* or turnover or retention)) AND (work\* or occupation\* or job or jobs or employee\* or organisation\* or organization\* ))) AND (intervention or promotion or prevention or programme or program\* or evaluat\* or effect\* or trial\* or service or change or modif\* or switch\* or alter\* or substitut\* or shift or promot\* or transform\* or control\*) AND (”school level policy“ or ”school level governance“ or ”management practice“ or ”management culture“ or ”school ethos“ or ”school effectiveness“ or ”school improvement“ or ”school NEAR/3 climate“ or school NEAR/3 culture or school NEAR/3 environment or school NEAR/3 manag\* or school NEAR/3 leader\* or school NEAR/3 organisation\* or school NEAR/3 organization\* or school NEAR/3 governance or teaching NEAR/3 practic\* or teaching NEAR/3 standard\* or teaching NEAR/3 style\* or teaching NEAR/3 method\* or teaching NEAR/3 differen\* or teaching NEAR/3 varia\* or ”education\* context\*“ or ”classroom manag\*“ or ”organization\* structure“ or ”organisation\* structure“ or ”organisation\* culture“ or ”organization\* culture“ or communication or ”work environment“ or education\* NEAR/3 practic\* or education\* NEAR/3 culture or education\* NEAR/3 manag\* or education\* NEAR/3 leader\* or education\* NEAR/3 communicat\*)

S19

(((((”school teacher“ OR ”teaching assistant“ OR ”teaching profession“ OR ”Teaching staff“ OR ”school personnel“ OR ”School staff“ OR ”head teacher“ OR ”school employee“) OR ti(teacher\*)) OR (SU.EXACT(“Master Teachers“) OR SU.EXACT(“Experienced Teachers“) OR SU.EXACT(“Physical Education Teachers“) OR SU.EXACT(“Industrial Arts Teachers“) OR SU.EXACT(“Reading Teachers“) OR SU.EXACT(“Science Teachers“) OR SU.EXACT(“Vocational Education Teachers“) OR SU.EXACT(“Resource Teachers“) OR SU.EXACT(“Writing Teachers“) OR SU.EXACT(“Public School Teachers“) OR SU.EXACT(“Special Education Teachers“) OR SU.EXACT(“Middle School Teachers“) OR SU.EXACT(“Music Teachers“) OR SU.EXACT(“Minority Group Teachers“) OR SU.EXACT(“Secondary School Teachers“) OR SU.EXACT(“English Teachers“) OR SU.EXACT(“Remedial Teachers“) OR SU.EXACT(“Home Economics Teachers“) OR SU.EXACT(“Methods Teachers“) OR SU.EXACT(“Elementary School Teachers“) OR SU.EXACT(“Teachers“) OR SU.EXACT(“Language Teachers“) OR SU.EXACT(“Itinerant Teachers“) OR SU.EXACT(“Substitute Teachers“) OR SU.EXACT(“Mathematics Teachers“)) AND ((SU.EXACT(“Burnout“) OR SU.EXACT(“Teacher Burnout“)) OR (burnout OR ”burn out“ OR ”psychological workload“ OR ”psychological work load“ OR ”Job satisfaction“ OR ”occupational stress“ OR ”work related stress“ OR ”vocational stress“)) OR (((”school teacher“ OR ”teaching assistant“ OR ”teaching profession“ OR ”Teaching staff“ OR ”school personnel“ OR ”School staff“ OR ”head teacher“ OR ”school employee“) OR ti(teacher\*)) OR (SU.EXACT(“Master Teachers“) OR SU.EXACT(“Experienced Teachers“) OR SU.EXACT(“Physical Education Teachers“) OR SU.EXACT(“Industrial Arts Teachers“) OR SU.EXACT(“Reading Teachers“) OR SU.EXACT(“Science Teachers“) OR SU.EXACT(“Vocational Education Teachers“) OR SU.EXACT(“Resource Teachers“) OR SU.EXACT(“Writing Teachers“) OR SU.EXACT(“Public School Teachers“) OR SU.EXACT(“Special Education Teachers“) OR SU.EXACT(“Middle School Teachers“) OR SU.EXACT(“Music Teachers“) OR SU.EXACT(“Minority Group Teachers“) OR SU.EXACT(“Secondary School Teachers“) OR SU.EXACT(“English Teachers“) OR SU.EXACT(“Remedial Teachers“) OR SU.EXACT(“Home Economics Teachers“) OR SU.EXACT(“Methods Teachers“) OR SU.EXACT(“Elementary School Teachers“) OR

SU.EXACT("Teachers") OR SU.EXACT("Language Teachers") OR SU.EXACT("Itinerant Teachers") OR SU.EXACT("Substitute Teachers") OR SU.EXACT("Mathematics Teachers")) AND (((SU.EXACT("Wellness") OR SU.EXACT("Well Being")) OR (SU.EXACT("Anxiety") OR SU.EXACT("Mental Disorders") OR SU.EXACT("Depression (Psychology)")))) OR ("well being" or wellbeing or stress\* or burnout or "burn out" or anxie\* or anxious\* or depress\* or satisfaction or strain or burden or absent\* or turnover or retention)) AND (work\* or occupation\* or job or jobs or employee\* or organisation\* or organization\* )))) AND (intervention or promotion or prevention or programme or program\* or evaluat\* or effect\* or trial\* or service or change or modif\* or switch\* or alter\* or substitut\* or shift or promot\* or transform\* or control\*) NOT ((((((school teacher\* OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee" OR ti(teacher\*)) OR (SU.EXACT("Master Teachers") OR SU.EXACT("Experienced Teachers") OR SU.EXACT("Physical Education Teachers") OR SU.EXACT("Industrial Arts Teachers") OR SU.EXACT("Reading Teachers") OR SU.EXACT("Science Teachers") OR SU.EXACT("Vocational Education Teachers") OR SU.EXACT("Resource Teachers") OR SU.EXACT("Writing Teachers") OR SU.EXACT("Public School Teachers") OR SU.EXACT("Special Education Teachers") OR SU.EXACT("Middle School Teachers") OR SU.EXACT("Music Teachers") OR SU.EXACT("Minority Group Teachers") OR SU.EXACT("Secondary School Teachers") OR SU.EXACT("English Teachers") OR SU.EXACT("Remedial Teachers") OR SU.EXACT("Home Economics Teachers") OR SU.EXACT("Methods Teachers") OR SU.EXACT("Elementary School Teachers") OR SU.EXACT("Teachers") OR SU.EXACT("Language Teachers") OR SU.EXACT("Itinerant Teachers") OR SU.EXACT("Substitute Teachers") OR SU.EXACT("Mathematics Teachers")))) AND ((SU.EXACT("Burnout") OR SU.EXACT("Teacher Burnout")) OR (burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress")))) OR (((("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee" OR ti(teacher\*)) OR (SU.EXACT("Master Teachers") OR SU.EXACT("Experienced Teachers") OR SU.EXACT("Physical Education Teachers") OR SU.EXACT("Industrial Arts Teachers") OR SU.EXACT("Reading Teachers") OR SU.EXACT("Science Teachers") OR SU.EXACT("Vocational Education Teachers") OR SU.EXACT("Resource Teachers") OR SU.EXACT("Writing Teachers") OR SU.EXACT("Public School Teachers") OR SU.EXACT("Special Education Teachers") OR SU.EXACT("Middle School Teachers") OR SU.EXACT("Music Teachers") OR SU.EXACT("Minority Group Teachers") OR SU.EXACT("Secondary School Teachers") OR SU.EXACT("English Teachers") OR SU.EXACT("Remedial Teachers") OR SU.EXACT("Home Economics Teachers") OR SU.EXACT("Methods Teachers") OR SU.EXACT("Elementary School Teachers") OR SU.EXACT("Teachers") OR SU.EXACT("Language Teachers") OR SU.EXACT("Itinerant Teachers") OR SU.EXACT("Substitute Teachers") OR SU.EXACT("Mathematics Teachers")))) AND (((SU.EXACT("Wellness") OR SU.EXACT("Well Being")) OR (SU.EXACT("Anxiety") OR SU.EXACT("Mental Disorders") OR SU.EXACT("Depression (Psychology)")))) OR ("well being" or wellbeing or stress\* or burnout or "burn out" or anxie\* or anxious\* or depress\* or satisfaction or strain or burden or absent\* or turnover or retention)) AND (work\* or occupation\* or job or jobs or employee\* or organisation\* or organization\* )))) AND (intervention or promotion or prevention or programme or program\* or evaluat\* or effect\* or trial\* or service or change or modif\* or switch\* or alter\* or substitut\* or shift or promot\* or transform\* or control\*) AND ("school level policy" or "school level governance" or "management practice" or "management culture" or "school ethos" or "school effectiveness" or "school improvement" or "school NEAR/3 climate" or school NEAR/3 culture or school NEAR/3 environment or school NEAR/3 manag\* or school NEAR/3 leader\* or school NEAR/3 organisation\* or school NEAR/3 organization\* or school NEAR/3 governance or teaching NEAR/3 practic\* or teaching NEAR/3 standard\* or teaching NEAR/3 style\* or teaching NEAR/3 method\* or teaching NEAR/3 differen\* or teaching NEAR/3 varia\* or "education\* context\*" or "classroom manag\*" or "organization\* structure" or "organisation\* structure" or "organisation\* culture" or "organization\* culture" or communication or "work environment" or education\* NEAR/3 practic\* or education\* NEAR/3 culture or education\* NEAR/3 manag\* or education\* NEAR/3 leader\* or education\* NEAR/3 communicat\*))

**IBSS**

S1

all("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" or "head teacher" OR "school employee") OR ti(teacher\*)

S2

SU.EXACT.EXPLODE("Headteachers") OR SU.EXACT.EXPLODE("Teachers" OR "Teaching personnel")

S3

(all("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT.EXPLODE("Headteachers") OR SU.EXACT.EXPLODE("Teacher s" OR "Teaching personnel"))

S4

SU.EXACT.EXPLODE("Mental stress")

S5

all(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress")

S6

SU.EXACT.EXPLODE("Mental stress") OR all(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress")

S7

((all("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT.EXPLODE("Headteachers") OR SU.EXACT.EXPLODE("Teacher s" OR "Teaching personnel"))) AND (SU.EXACT.EXPLODE("Mental stress") OR all(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress"))

S8

(SU.EXACT.EXPLODE("Mental stress") OR SU.EXACT.EXPLODE("Anxiety")) OR SU.EXACT.EXPLODE("Well-being") OR SU.EXACT.EXPLODE("Depression")

S9

all("well being" or wellbeing or stress\* or burnout or "burn out" or anxie\* or anxious\* or depress\* or satisfaction or strain or burden or absent\* or turnover or retention)

S10

((SU.EXACT.EXPLODE("Mental stress") OR SU.EXACT.EXPLODE("Anxiety" )) OR SU.EXACT.EXPLODE("Well- being") OR SU.EXACT.EXPLODE("Depress ion")) OR all("well being" OR wellbeing OR stress\* OR burnout OR "burn out" OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention)

S11

all(work\* or occupation\* or job or jobs or employee\* or organisation\* or organization\* or school or college or academy or classroom)

S12

((SU.EXACT.EXPLODE("Mental stress") OR SU.EXACT.EXPLODE("Anxiety" )) OR SU.EXACT.EXPLODE("Well- being") OR SU.EXACT.EXPLODE("Depress ion")) OR all("well being" OR wellbeing OR stress\* OR burnout OR "burn out" OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention)) AND all(work\* OR occupation\* OR job OR jobs OR employee\* OR organisation\* OR organization\* OR school OR college OR academy OR classroom)

S13

((all("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT.EXPLODE("Headteachers") OR SU.EXACT.EXPLODE("Teacher s" OR "Teaching personnel"))) AND (((SU.EXACT.EXPLODE("Mental stress") OR SU.EXACT.EXPLODE("Anxiety" )) OR SU.EXACT.EXPLODE("Well- being") OR SU.EXACT.EXPLODE("Depress ion")) OR all("well being" OR wellbeing OR stress\* OR burnout OR "burn out" OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention)) AND all(work\* OR occupation\* OR job OR jobs OR employee\* OR organisation\* OR organization\* OR school OR college OR academy OR classroom))

S14

((all("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT.EXPLODE("Headteachers") OR SU.EXACT.EXPLODE("Teacher s" OR "Teaching personnel"))) AND (SU.EXACT.EXPLODE("Mental stress") OR all(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress"))) OR (((all("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT.EXPLODE("Headteachers") OR SU.EXACT.EXPLODE("Teacher s" OR "Teaching personnel"))

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S15

all(intervention OR promotion OR prevention OR programme OR program\* OR evaluat\* OR effect\* OR trial\* OR service OR change OR modif\* OR switch\* OR alter\* OR substitut\* OR shift OR promot\* OR transform\* OR control\*)  
S16

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S17

all("school level policy" OR "school level governance" OR "management practice" OR "management culture" OR "school ethos" OR "school effectiveness" OR "school improvement" OR "school NEAR/3 climate" OR school NEAR/3 culture OR school NEAR/3 environment OR school NEAR/3 manag\* OR school NEAR/3 leader\* OR school NEAR/3 organisation\* OR school NEAR/3 organization\* OR school NEAR/3 governance OR teaching NEAR/3 practic\* OR teaching NEAR/3 standard\* OR teaching NEAR/3 style\* OR teaching NEAR/3 method\* OR teaching NEAR/3 differen\* OR teaching NEAR/3 varia\* OR "education\* context\*" OR "classroom manag\*" OR "organization\* structure" OR "organisation\* structure" OR "organisation\* culture" OR "organization\* culture" OR communication OR "work environment" OR education\* NEAR/3 practic\* OR education\* NEAR/3 culture OR education\* NEAR/3 manag\* OR education\* NEAR/3 leader\* OR education\* NEAR/3 communicat\*)

S18

(((all("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT.EXPLODE("Headteachers") OR SU.EXACT.EXPLODE("Teacher s" OR "Teaching personnel"))) AND (SU.EXACT.EXPLODE("Mental stress") OR all(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress"))) OR (((all("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT.EXPLODE("Headteachers") OR SU.EXACT.EXPLODE("Teacher s" OR "Teaching personnel"))) AND (((SU.EXACT.EXPLODE("Mental stress") OR SU.EXACT.EXPLODE("Anxiety" )) OR SU.EXACT.EXPLODE("Well-being") OR SU.EXACT.EXPLODE("Depression")) OR all("well being" OR wellbeing OR stress\* OR burnout OR "burn out" OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention)) AND all(work\* OR occupation\* OR job OR jobs OR employee\* OR organisation\* OR organization\* OR school OR college OR academy OR classroom)))) AND all(intervention OR promotion OR prevention OR programme OR program\* OR evaluat\* OR effect\* OR trial\* OR service OR change OR modif\* OR switch\* OR alter\* OR substitut\* OR shift OR promot\* OR transform\* OR control\*) AND all("school level policy" OR "school level governance" OR "management practice" OR "management culture" OR "school ethos" OR "school effectiveness" OR "school improvement" OR "school NEAR/3 climate" OR school NEAR/3 culture OR school NEAR/3 environment OR school NEAR/3 manag\* OR school NEAR/3 leader\* OR school NEAR/3 organisation\* OR school NEAR/3 organization\* OR school NEAR/3 governance OR teaching NEAR/3 practic\* OR teaching NEAR/3 standard\* OR teaching NEAR/3 style\* OR teaching NEAR/3 method\* OR teaching NEAR/3 differen\* OR teaching NEAR/3 varia\* OR "education\* context\*" OR "classroom manag\*" OR "organization\* structure" OR "organisation\* structure" OR "organisation\* culture" OR "organization\* culture" OR communication OR "work environment" OR education\* NEAR/3 practic\* OR education\* NEAR/3 culture OR education\* NEAR/3 manag\* OR education\* NEAR/3 leader\* OR education\* NEAR/3 communicat\*)

S19

(((all("school teacher" OR "teaching assistant" OR "teaching profession" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT.EXPLODE("Headteachers") OR SU.EXACT.EXPLODE("Teacher s" OR "Teaching personnel"))) AND (SU.EXACT.EXPLODE("Mental stress") OR all(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress"))) OR (((all("school teacher" OR "teaching assistant" OR "teaching profession" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT.EXPLODE("Headteachers") OR SU.EXACT.EXPLODE("Teacher s" OR "Teaching personnel"))) AND (((SU.EXACT.EXPLODE("Mental stress") OR SU.EXACT.EXPLODE("Anxiety" )) OR SU.EXACT.EXPLODE("Well-being") OR SU.EXACT.EXPLODE("Depress ion")) OR all("well being" OR wellbeing OR stress\* OR burnout OR "burn out" OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention)) AND all(work\* OR occupation\* OR job OR jobs OR employee\* OR organisation\* OR organization\* OR school OR college OR academy OR classroom)))) AND all(intervention OR promotion OR prevention OR programme OR program\* OR evaluat\* OR effect\* OR trial\* OR service OR change OR modif\* OR switch\* OR alter\* OR substitut\* OR shift OR promot\* OR transform\* OR control\*)) NOT (((all("school teacher" OR "teaching assistant" OR "teaching profession" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT.EXPLODE("Headteachers") OR SU.EXACT.EXPLODE("Teacher s" OR "Teaching personnel"))) AND (SU.EXACT.EXPLODE("Mental stress") OR all(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress"))) OR (((all("school teacher" OR "teaching assistant" OR "teaching profession" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR (SU.EXACT.EXPLODE("Headteachers") OR SU.EXACT.EXPLODE("Teacher s" OR "Teaching personnel"))) AND (((SU.EXACT.EXPLODE("Mental stress") OR SU.EXACT.EXPLODE("Anxiety" )) OR SU.EXACT.EXPLODE("Well-being") OR SU.EXACT.EXPLODE("Depress ion")) OR all("well being" OR wellbeing OR stress\* OR burnout OR "burn out" OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\*

#### OpenGrey

- 1 Freetext: teacher\* AND burnout
- 2 Freetext: teacher\* AND burn out
- 3 Freetext: teacher\* AND anxiety
- 4 Freetext: teacher\* AND stress
- 5 Freetext: teacher\* AND depression

#### OSH-Update

(Within which we searched the following databases:

CISDOC

HSELINE

NIOSH and NIOSHTIC2

RILOSH

International Bibliographic

#1

GW{teacher\* OR teaching\*}

#2

GW{school personnel OR school staff OR school employee\*}

#3

#1 OR #2

#4

GW{occupational stress\* OR burn out OR burnout OR psychological workload OR job satisfaction OR work related stress\* OR vocational stress\*}

#5

GW{well being OR wellbeing OR stress\* OR anxie\* OR anxious\* OR depress\*OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention}

#6

GW{work\* OR occupation\* OR job OR jobs OR employee\* OR organization\* OR organisation\* Or school OR academy OR classroom}

#7

#5 AND #6

#8

#4 OR #7

#9

#3 AND #8

#10

GW{intervention\* OR promotion OR prevention OR programme OR program\* OR evaluat\* OR effect\* OR trial\* OR service\* OR change OR changi\* OR modif\* OR switch\* OR alter\* OR substitut\* OR shift OR promot\* OR transform\* OR control\*}

#11

#9 AND #10

#12

GW{school level policy OR school level governance OR management practice OR management culture OR school ethos OR school effectiveness OR school improvement OR school climate OR school culture OR school environment OR school manag\* OR school leader\* OR school organisation\* OR school organization\* OR school governance OR teaching practices OR teaching standard\* OR teaching style\* OR teaching method OR teaching methods OR teaching methodo\* OR teaching differenc\* OR teaching different\* OR teaching variabl\* OR educational context\* OR classroom manag\* OR organizational structure OR organisational structure or organisational culture OR organizational culture OR communication OR work environment OR educational practices OR educational culture OR educational manag\* OR educational leader\* OR educational communicat\*}

#13

#11 AND #12

#14

#11 NOT #13

#15

DC{OUCISD OR OUHSEL OR OUNIOC OR OUNIOS OR OURILO OR OUBIB}

#16

#13 AND #15

#17

#14 AND #15

### Proquest Dis & Thesis

((((ab("school teacher" OR "teaching assistant" OR "teaching profession" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) AND (ab("well being" OR wellbeing OR stress\* OR burnout OR "burn out" OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention) AND ab(work\* OR occupation\* OR job OR jobs OR employee\* OR organisation\* OR organization\* OR school OR college OR academy OR classroom))) OR ((ab("school teacher" OR "teaching assistant" OR "teaching profession" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) AND ab(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress"))) AND ab(intervention OR promotion OR prevention OR programme OR program\* OR evaluat\* OR effect\* OR trial\* OR service OR change OR modif\* OR switch\* OR alter\* OR substitut\* OR shift OR promot\* OR transform\* OR control\*)) AND ab("school level policy" OR "school level governance" OR "management practice" OR "management culture" OR "school ethos" OR "school effectiveness" OR "school improvement" OR "school NEAR/2 climate" OR school NEAR/2 culture OR school NEAR/2 environment OR school NEAR/2 manag\* OR school NEAR/2 leader\* OR school NEAR/2 organisation\* OR school NEAR/2 organization\* OR school NEAR/2 governance OR teaching NEAR/2 practic\* OR teaching NEAR/2 standard\* OR teaching NEAR/2 style\* OR teaching NEAR/2 method\* OR teaching NEAR/2 differen\* OR teaching NEAR/2 varia\* OR "education\* context\*" OR "classroom manag\*" OR "organization\* structure" OR "organisation\* structure" OR "organisation\* culture" OR "organization\* culture" OR communication OR "work environment" OR education\* NEAR/2 practic\* OR education\* NEAR/2 culture OR education\* NEAR/2 manag\* OR education\* NEAR/2 leader\* OR education\* NEAR/2 communicat\*) (((ab("school teacher" OR "teaching assistant" OR "teaching profession" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) AND (ab("well being" OR wellbeing OR stress\* OR burnout OR "burn out" OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention) AND ab(work\* OR occupation\* OR job OR jobs OR employee\* OR organisation\* OR organization\* OR school OR college OR academy OR classroom))) OR ((ab("school teacher" OR "teaching assistant" OR "teaching profession" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) AND ab(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress"))) AND ab(intervention OR promotion OR prevention OR programme OR program\* OR evaluat\* OR effect\* OR trial\* OR service OR change OR modif\* OR

switch\* OR alter\* OR substitut\* OR shift OR promot\* OR transform\* OR control\*) NOT (((ab("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) AND (ab("well being" OR wellbeing OR stress\* OR burnout OR "burn out" OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention) AND ab(work\* OR occupation\* OR job OR jobs OR employee\* OR organisation\* OR organization\* OR school OR college OR academy OR classroom))) OR ((ab("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) AND ab(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress")) AND ab(intervention OR promotion OR prevention OR programme OR program\*

#### **PUBMED**

#18

Search #16 NOT #17

#17

Search #3 AND #10 AND #12

#16

Search #3 AND #10

#13

Search #10 AND #12

#12

Search school level policy[tw] OR school level governance[tw] OR management practice[tw] OR management culture[tw] OR school ethos[tw] OR school effectiveness[tw] OR school improvement[tw] OR school climate[tw] OR school culture[tw] OR school environment[tw] OR school manag\*[tw] OR school leader\*[tw] OR school organisation\*[tw] OR school organization\*[tw] OR school governance[tw] OR teaching practices[tw] OR teaching standard\*[tw] OR teaching style\*[tw] OR teaching method[tw] OR teaching methods[tw] OR teaching methodo\*[tw] OR teaching differenc\*[tw] OR teaching different\*[tw] OR teaching variabl\*[tw] OR educational context\*[tw] OR classroom manag\*[tw] OR organizational structure[tw] OR organisational structure[tw] or organisational culture[tw] OR organizational culture[tw] OR communication[tw] OR work environment[tw] OR educational practices[tw] OR educational culture[tw] OR educational manag\*[tw] OR educational leader\*[tw] OR educational communicat\*[tw]

#10

Search #8 AND #9

#9

Search effect\*[tw] OR control[tw] OR controls\*[tw] OR controla\*[tw] OR controle\*[tw] OR controli\*[tw] OR controll\*[tw] OR evaluation\*[tw] OR program\*[tw] OR intervention[tw] OR promotion[tw] OR prevention[tw] OR programme[tw] OR trial\*[tw] OR service[tw] OR change[tw] OR modif\*[tw] OR switch\*[tw] OR alter\*[tw] OR substitut\*[tw] OR shift[tw] OR promot\*[tw] OR transform\*[tw]

#8

Search #4 OR #7

#7

Search #5 AND #6

#6

Search work[tw] OR works\*[tw] OR work\*[tw] OR worka\*[tw] OR worke\*[tw] OR workg\*[tw] OR worki\*[tw] OR workl\*[tw] OR workp\*[tw] OR occupation\*[tw] OR job[tw] OR jobs [tw] OR employee\*[tw] OR organisation\*[tw] OR organization\*[tw]

#5

Search "Stress, Psychological"[Mesh] OR "Anxiety"[Mesh:NoExp] OR "Depression"[Mesh] OR "personal satisfaction"[Mesh] OR well being[tiab] OR wellbeing[tiab] OR satisfaction[tiab] OR anxie\*[tw] OR anxious\*[tw] OR depress\*[tw] OR stress\*[tw] OR strain[tw] OR burden[tw] OR psychological load[tw] OR turnover[tiab] OR retention[tiab]

#4

Search "Burnout, Professional"[Mesh] OR burnout[tiab] OR burn out[tiab] OR psychological workload[tw] OR job satisfaction[tw] OR occupational stress\*[tw] OR work related stress[tw] OR vocational stress[tw]

#3

Search #1 OR #2

#2

Search (school[tiab] OR college[tiab] OR academy[tiab] OR classroom[tiab]) AND (teacher\*[tw] OR assistant[tiab] OR profes-sion\*[tiab] OR staff[tiab] OR personnel[tiab] OR manpower[tiab] OR workforce[tiab] OR educator\*[tiab])

#1

Search teacher\*[ti] or school teacher\*[tw] OR teaching assistant[tw] OR teaching profession\*[tw] OR teaching staff[tw] OR school personnel[tw] OR school staff[tw] OR head teacher\*[tw] OR school employee\*[tw]

**Socio Abstracts**

S1 all("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" or "head teacher" OR "school employee") OR ti(teacher\*)

S2 SU.EXACT.EXPLODE("College Faculty" OR "Teachers")

S3 (all("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR SU.EXACT.EXPLODE("College Faculty" OR "Teachers")

S4 SU.EXACT.EXPLODE("Occupational Stress")

S5 all(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress")

S6 SU.EXACT.EXPLODE("Occupational Stress") OR all(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress")

S7 (SU.EXACT.EXPLODE("Occupational Stress") OR all(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress")) AND ((all("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR SU.EXACT.EXPLODE("College Faculty" OR "Teachers"))

S8

(SU.EXACT.EXPLODE("Occupational Stress" OR "Psychological Stress" OR "Stress" OR "Trauma") OR SU.EXACT.EXPLODE("Psychological Stress")) OR (SU.EXACT.EXPLODE("Depression (Psychology)") OR SU.EXACT.EXPLODE("Anxiety" ))

S9

all("well being" or wellbeing or stress\* or burnout or "burn out" or anxie\* or anxious\* or depress\* or satisfaction or strain or burden or absent\* or turnover or retention)

S10

((SU.EXACT.EXPLODE("Occupational Stress" OR "Psychological Stress" OR "Stress" OR "Trauma") OR SU.EXACT.EXPLODE("Psychological Stress")) OR (SU.EXACT.EXPLODE("Depression (Psychology)") OR SU.EXACT.EXPLODE("Anxiety" ))) OR all("well being" OR wellbeing OR stress\* OR burnout OR "burn out" OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention)

S11

all(work\* or occupation\* or job or jobs or employee\* or organisation\* or organization\* or school or college or academy or classroom)

S12

((SU.EXACT.EXPLODE("Occupational Stress" OR "Psychological Stress" OR "Stress" OR "Trauma") OR SU.EXACT.EXPLODE("Psychological Stress")) OR (SU.EXACT.EXPLODE("Depression (Psychology)") OR SU.EXACT.EXPLODE("Anxiety" ))) OR all("well being" OR wellbeing OR stress\* OR burnout OR "burn out" OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention)) AND all(work\* OR occupation\* OR job OR jobs OR employee\* OR organisation\* OR organization\* OR school OR college OR academy OR classroom)

S13

((all("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR SU.EXACT.EXPLODE("College Faculty" OR "Teachers")) AND (((SU.EXACT.EXPLODE("Occupational Stress" OR "Psychological Stress" OR "Stress" OR "Trauma") OR SU.EXACT.EXPLODE("Psychological Stress")) OR (SU.EXACT.EXPLODE("Depression (Psychology)") OR SU.EXACT.EXPLODE("Anxiety" ))) OR all("well being" OR wellbeing OR stress\* OR burnout OR "burn out" OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention)) AND all(work\* OR occupation\* OR job OR jobs OR employee\* OR organisation\* OR organization\* OR school OR college OR academy OR classroom))

S14

((SU.EXACT.EXPLODE("Occupational Stress") OR all(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress")) AND ((all("school

teacher\*“ OR ”teaching assistant“ OR ”teaching profession\*“ OR ”Teaching staff“ OR ”school personnel“ OR ”School staff“ OR ”head teacher“ OR ”school employee“ ) OR ti(teacher\*) ) OR SU.EXACT.EXPLODE(“College Faculty“ OR ”Teachers“)) OR (((all(“school teacher\*“ OR ”teaching assistant“ OR ”teaching profession\*“ OR ”Teaching staff“ OR ”school personnel“ OR ”School staff“ OR ”head teacher“ OR ”school employee“ ) OR ti(teacher\*)) OR SU.EXACT.EXPLODE(“College Faculty“ OR ”Teachers“) AND (((SU.EXACT.EXPLODE(“Occupational Stress“ OR ”Psychological Stress“ OR ”Stress“ OR ”Trauma“) OR SU.EXACT.EXPLODE(“Psychological Stress“) OR (SU.EXACT.EXPLODE(“Depression (Psychology“) OR SU.EXACT.EXPLODE(“Anxiety“ ))) OR all(“well being“ OR wellbeing OR stress\* OR burnout OR ”burn out“ OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention)) AND all(work\* OR occupation\* OR job OR jobs OR employee\* OR organisation\* OR organization\* OR school OR college OR academy OR classroom)))

S15

all(intervention or promotion or prevention or programme or program\* or evaluat\* or effect\* or trial\* or service or change or modify\* or switch\* or alter\* or substitut\* or shift or promot\* or transform\* or control\*)

S16

((SU.EXACT.EXPLODE(“Occupational Stress“) OR all(burnout OR ”burn out“ OR ”psychological workload“ OR ”psychological work load“ OR ”Job satisfaction“ OR ”occupational stress“ OR ”work related stress“ OR ”vocational stress“)) AND ((all(“school teacher\*“ OR ”teaching assistant“ OR ”teaching profession\*“ OR ”Teaching staff“ OR ”school personnel“ OR ”School staff“ OR ”head teacher“ OR ”school employee“) OR ti(teacher\*)) OR SU.EXACT.EXPLODE(“College Faculty“ OR ”Teachers“)) OR (((all(“school teacher\*“ OR ”teaching assistant“ OR ”teaching profession\*“ OR ”Teaching staff“ OR ”school personnel“ OR ”School staff“ OR ”head teacher“ OR ”school employee“) OR ti(teacher\*)) OR SU.EXACT.EXPLODE(“College Faculty“ OR ”Teachers“) AND (((SU.EXACT.EXPLODE(“Occupational Stress“ OR ”Psychological Stress“ OR ”Stress“ OR ”Trauma“) OR SU.EXACT.EXPLODE(“Psychological Stress“) OR (SU.EXACT.EXPLODE(“Depression (Psychology“) OR SU.EXACT.EXPLODE(“Anxiety“ ))) OR all(“well being“ OR wellbeing OR stress\* OR burnout OR ”burn out“ OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention)) AND all(work\* OR occupation\* OR job OR jobs OR employee\* OR organisation\* OR organization\* OR school OR college OR academy OR classroom)))) AND all(intervention OR promotion OR prevention OR programme OR program\* OR evaluat\* OR effect\* OR trial\* OR service OR change OR modify\* OR switch\* OR alter\* OR substitut\* OR shift OR promot\* OR transform\* OR control\*)

S17

all(“school level policy” or “school level governance” or “management practice” or “management culture” or “school ethos” or “school effectiveness” or “school improvement” or “school NEAR/ 3 climate” or school NEAR/3 culture or school NEAR/3 environment or school NEAR/3 manag\* or school NEAR/3 leader\* or school NEAR/3 organisation\* or school NEAR/3 organization\* or school NEAR/ 3governance or teaching NEAR/3 practic\* or teaching NEAR/3 standard\* or teaching NEAR/3 style\* or teaching NEAR/3 method\* or teaching NEAR/3 differen\* or teaching NEAR/3 varia\* or “education\* context\*” or “classroom manag\*” or “organization\* structure” or “organisation\* structure” or “organisation\* culture” or “organization\* culture” or communication or “work environment” or education\* NEAR/3 practic\* or education\* NEAR/3 culture or education\* NEAR/3 manag\* or education\* NEAR/3 leader\* or education\* NEAR/3 communicat\*)

S18

((SU.EXACT.EXPLODE(“Occupational Stress“) OR all(burnout OR ”burn out“ OR ”psychological workload“ OR ”psychological work load“ OR ”Job satisfaction“ OR ”occupational stress“ OR ”work related stress“ OR ”vocational stress“)) AND ((all(“school teacher\*“ OR ”teaching assistant“ OR ”teaching profession\*“ OR ”Teaching staff“ OR ”school personnel“ OR ”School staff“ OR ”head teacher“ OR ”school employee“) OR ti(teacher\*)) OR SU.EXACT.EXPLODE(“College Faculty“ OR ”Teachers“)) OR (((all(“school teacher\*“ OR ”teaching assistant“ OR ”teaching profession\*“ OR ”Teaching staff“ OR ”school personnel“ OR ”School staff“ OR ”head teacher“ OR ”school employee“) OR ti(teacher\*)) OR SU.EXACT.EXPLODE(“College Faculty“ OR ”Teachers“) AND (((SU.EXACT.EXPLODE(“Occupational Stress“ OR ”Psychological Stress“ OR ”Stress“ OR ”Trauma“) OR SU.EXACT.EXPLODE(“Psychological Stress“) OR (SU.EXACT.EXPLODE(“Depression (Psychology“) OR SU.EXACT.EXPLODE(“Anxiety“ ))) OR all(“well being“ OR wellbeing OR stress\* OR burnout OR ”burn out“ OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention)) AND all(work\* OR occupation\* OR job OR jobs OR employee\* OR organisation\* OR organization\* OR school OR college OR academy OR classroom)))) AND all(intervention OR promotion OR prevention OR programme OR program\* OR evaluat\* OR effect\* OR trial\* OR service OR change OR modify\* OR switch\* OR alter\* OR substitut\* OR shift OR promot\* OR transform\* OR control\*)) AND all(“school level policy“ OR ”school level governance“ OR ”management practice“ OR ”management culture“ OR ”school ethos“ OR ”school effectiveness“

OR "school improvement" OR "school NEAR/3 climate" OR school NEAR/3 culture OR school NEAR/3 environment OR school NEAR/3 manag\* OR school NEAR/3 leader\*

S19

((((SU.EXACT.EXPLODE("Occupational Stress") OR all(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress")) AND ((all("school teacher" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR SU.EXACT.EXPLODE("College Faculty" OR "Teachers")) OR (((all("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" OR "head teacher" OR "school employee") OR ti(teacher\*)) OR SU.EXACT.EXPLODE("College Faculty" OR "Teachers")) AND (((SU.EXACT.EXPLODE("Occupational Stress" OR "Psychological Stress" OR "Stress" OR "Trauma") OR SU.EXACT.EXPLODE("Psychological Stress")) OR (SU.EXACT.EXPLODE("Depression (Psychology)") OR SU.EXACT.EXPLODE("Anxiety" )) OR all("well being" OR wellbeing OR stress\* OR burnout OR "burn out" OR anxie\* OR anxious\* OR depress\* OR satisfaction OR strain OR burden OR absent\* OR turnover OR retention)) AND all(work\* OR occupation\* OR job OR jobs OR employee\* OR organisation\* OR organization\* OR school OR college OR academy OR classroom)))) AND all(intervention OR promotion OR prevention OR programme OR program\* OR evaluat\* OR effect\* OR trial\* OR service OR change OR modif\* OR switch\* OR alter\* OR substitut\* OR shift OR promot\* OR transform\* OR control\*)) NOT (((SU.EXACT.EXPLODE("Occupational Stress") OR all(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress")) AND ((all("school teacher" OR "teaching assistant" OR "teaching

## SSCI

# 14

#13 AND #12

Databases=SSCI Timespan=All Years

Lemmatization=On

# 13

TS=("school level policy" or "school level governance" or "management practice" or "management culture" or "school ethos" or "school effectiveness" or "school improvement" or "school climate" or "school culture" or "school environment" or "school manag\*" or "school leader\*" or "school organisation\*" or "school organization\*" or "school governance" or "teaching practic\*" or "teaching standard\*" or "teaching style\*" or "teaching method\*" or "teaching differen\*" or "teaching varia\*" or "education\* context\*" or "classroom manag\*" or "organization\* structure" or "organisation\* structure" or "organisation\* culture" or "organization\* culture" or communication or "work environment" or "education\* practic\*" or "education\* culture" or "education\* manag\*" or "education\* leader\*" or "education\* communicat\*")

Databases=SSCI Timespan=All Years

Lemmatization=On

# 12

#11 AND #10

Databases=SSCI Timespan=All Years

Lemmatization=On

# 11

TS=(intervention or promotion or prevention or programme or program\* or evaluat\* or effect\* or trial\* or service or change or modif\* or switch\* or alter\* or substitut\* or shift or promot\* or transform\* or control\*)

Databases=SSCI Timespan=All Years

Lemmatization=On

# 10

#9 OR #5

Databases=SSCI Timespan=All Years

Lemmatization=On

# 9

#8 AND #3

Databases=SSCI Timespan=All Years

Lemmatization=On

# 8

#7 AND #6

Databases=SSCI Timespan=All Years

Lemmatization=On

# 7

TS=(work\* or occupation\* or job or jobs or employee\* or organisation\* or organization\* )

Databases=SSCI Timespan=All Years

Lemmatization=On

# 6

TS=("well being" or wellbeing or stress\* or burnout or "burn out" or anxie\* or anxious\* or depress\* or satisfaction or strain or burden or absent\* or turnover or retention)

Databases=SSCI Timespan=All Years

Lemmatization=On

# 5

#4 AND #3

Databases=SSCI Timespan=All Years

Lemmatization=On

# 4

TS=(burnout OR "burn out" OR "psychological workload" OR "psychological work load" OR "Job satisfaction" OR "occupational stress" OR "work related stress" OR "vocational stress")

Databases=SSCI Timespan=All Years

Lemmatization=On

# 3

#2 OR #1

Databases=SSCI Timespan=All Years

Lemmatization=On

# 2

TS=("school teacher\*" OR "teaching assistant" OR "teaching profession\*" OR "Teaching staff" OR "school personnel" OR "School staff" or "head teacher" OR "school employee")

Databases=SSCI Timespan=All Years

Lemmatization=On

# 1

TI=teacher\*

Databases=SSCI Timespan=All Years

Lemmatization=On

**TROPHI**

1 Freetext: "teacher\*"

2 Freetext: "stress\*"

3 Combine 1 and 2

4 Keyword term: Focus of the report: mental health

5 Combine 1 and 4

6 Combine 3 or 5

## CONTRIBUTIONS OF AUTHORS

Ali Naghieh: Protocol and review development, eligibility screening, quality assessment, data extraction, writing and update of the text

Paul Montgomery: Protocol and review development, eligibility screening, quality assessment, data extraction, commenting on draft of protocol and review

Christopher Bonell: Protocol and review development, eligibility screening, commenting on draft of protocol and review

Marc Thompson: Review development, commenting on draft of protocol and review

J. Lawrence Aber: Review development, commenting on draft of protocol and review

## DECLARATIONS OF INTEREST

Ali Naghieh: He is directly involved in the ongoing study [Naghieh 2014](#).

Paul Montgomery: He is directly involved in the ongoing study [Naghieh 2014](#).

Christopher Bonell: None known.

Marc Thompson: He is directly involved in the ongoing study [Naghieh 2014](#).

J. Lawrence Aber: None known.

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### Internal sources

- John Fell Oxford University Press Research Fund, UK.  
Provided a grant to support this systematic review

### External sources

- Cochrane Occupational Safety and Health Review Group, Finland.  
Provided a bursary stipend to Ali Naghieh to the sum of EUR3500, minus 35% tax (i.e. EUR2275), to be paid in three instalments provided that work proceeds according to agreed deadlines.

## DIFFERENCES BETWEEN PROTOCOL AND REVIEW

The intervention in [Glazerman 2012](#) did not fit into the three categories of changing organisational, role, or task characteristics we had outlined in the protocol. We labelled this as a multi-component intervention as it spans changing organisational and role characteristics.

## INDEX TERMS

### Medical Subject Headings (MeSH)

\*Faculty; \*Schools; Anxiety [prevention & control]; Career Mobility; Depression [prevention & control]; Mentors; Motivation; Occupational Diseases [\*prevention & control; psychology]; Randomized Controlled Trials as Topic; Stress, Psychological [\*prevention & control]

### MeSH check words

Humans